

How Green Finance and CSR Practices Impact Environmental Performance: An In-Depth Analysis of Pakistani Banks.

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ABSTRACT

This study explores how green financing as well as CSR Practices individually contribute through the environmental performance of financial institutions in Pakistan. For the primary research objectives of this study, a non-probabilistic convenience sample of 388 Private Commercial Bank employees in Pakistan was collected. The data from this investigation were examined using structural equation modelling (SEM). According to statistics, corporate social responsibility (CSR) initiatives positively affect an organization's environmental performance. Green financing can have a significant influence on a financial institution's environmental performance, affecting it on social, economic, and environmental fronts. This option exists, given the expanding prominence of ecological funding. This opportunity arises from the increasing demand for environmentally responsible financing. This study had several implications, one of which was that CSR programs and corporate sponsorship of various green initiatives are essential for enhancing the environmental performance of businesses and fostering long-term national progress. This conclusion and a few others were derived directly from the investigation's collected data. This study demonstrates that improving environmental performance in developing nations like Pakistan is possible by increasing internal resources like CSR programs and green money. The study's findings could make this feasible in the future. Pakistan was one of the countries that was the focus of the investigation during the survey. This section provides a more in-depth examination of the policy implications that are most significant as a direct consequence of this segment's location.

Keywords: CSR, green finance, environmental performance, banks, SEM, Pakistan

1.INTRODUCTION

In recent years, most nations, particularly those on the rise, have prioritized economic expansion over environmental protection. Among the consequences are a change in the climate, the reduction of biodiversity, and the devastation of ecosystems. In addition to these issues, forestry and soil erosion contribute to pollution (Zheng et al., 2021a). Nawaz et al. predicted that Pakistan would become one of the world's most potent economies in the 21st century by the year 2020. This prediction is based on Pakistan's massive investments and economic growth potential (2020). (Akter et al., 2018; Zheng et al., 2021a). Pakistan is one of the world's most impoverished nations. According to Zheng et al. (2021a), it is particularly vulnerable to the effects of climate change. They have developed a number of programs to mitigate these risks and promote sustainable development, including the use of green currency (Hossain, 2019; Zheng et al., 2021a). According to Akter et al. (2018) and Zhixia et al. (2018), financial institutions play a crucial role in the promotion of environmentally favorable initiatives. In addition to supporting the growth of environmentally sustainable industries, they frequently finance projects that seek to develop green technologies, energy-efficient innovations, and alternative energy sources. Green finance is a relatively recent addition to the financial product portfolio (Liu et al., 2020), and it permits both financial incentives and ecological sustainability (Wang and Zhi, 2016). Depending on how it is defined, corporate social responsibility (CSR) can either contribute to a company's expansion or ensure its long-term survival (Kolk, 2016). By Lober (1996), the environmental performance of a business can be measured using indicators such as minimum emissions, effective pollution management, and substantial waste reduction. The term "eco-friendly finance" (also abbreviated "GF") refers to a relatively new concept that can be regarded as an innovative method of financing that takes both the financial and environmental benefits of an initiative into account. The abbreviation "GF" stands for "eco-friendly finance." Their research paper was published in 2020 (Liu et al., 2020; Wang and Zhi, 2016). According to Kolk (2016), practicing corporate social responsibility (CSR) can serve as a solid basis for sustaining profits over the long run. Various environmental performance indicators, such as the decrease in emissions and other pollutants, the increase in waste reduction and recycling rates, the enhancements made to pollution control, etc., can be used to measure environmental performance. Lober (1996) discussed a company's environmental

influence, while Indriastuti and Chariri (2021) delved into its financial consequences. Building on this, Wang et al. (2022) explored how various facets of green finance influence the corporate social responsibility within the banking sector. Their findings revealed that certain dimensions of green finance, encompassing economic, environmental, and social elements, significantly elevate a bank's commitment to corporate social responsibility.

Multiple studies have demonstrated that CSR practices improve not only an organization's environmental health but also its financial health (Abbas, 2020; Famiyeh, 2017; Laskar, 2018; Saeidi et al., 2021; Ying et al., 2021; Zhou, G. et al., 2020). Although extensive research on CSR, scholars persist in examining its correlation with both environmental sustainability and financial stability within organizations. Why? Because the findings of these investigations have yet to be made wholly clear (Kraus et al., 2020). Studies on green banking practices have been undertaken in various South Asian countries, including India as highlighted by Kala et al. in 2020, Sri Lanka as noted by Shaumya and Arulrajah in 2017, as well as Pakistan and Nepal, both studied by Risal and Joshi in 2018. Additionally, work, explored the linkage among CSR as well as performance specifically within Pakistan context. However, there are still knowledge deficits in these domains. Rehman et al. conducted the investigation (Alamgir and Uddin, 2017). The Green Finance and CSR (encompassing economic, environmental, as well as social aspects) influence through bank performance remains somewhat elucidated. A few studies use primary data to investigate CSR, GF, or environmental performance. The author cannot comment on whether CSR and GF factors contribute to the environmental performance of banks. This article addresses two specific research issues to resolve the research gap: Do PCBs in Pakistan have improved environmental records due to corporate social responsibility initiatives? Considering the GF elements of social, economic, and environmental influence, this is an important question. Banks' long-term viability depends on these assumptions, which form the basis of this research. Ecological banking is only possible with ecological financing and social responsibility; sustainable banking requires both. This article employs the legitimacy theory proposed by Suchman (1995) and the comprehensive framework developed by Dorry and Schulz (2018) to illustrate how organizations can legitimate their social responsibility actions. In essence, this empirical investigation draws upon data from Pakistan's banking sector, involving 388 PCB financiers who participated in a survey concerning green finance

(covering social as well as environmental aspects), corporate social responsibility (CSR), along with environmental performance. This survey employed standardized questionnaire, and sample selection method was based on practicality rather than randomness. Subsequently, structural equation modeling (SEM) has been employed through assess the collected primary data. The outcomes indicate this the implementation of CSR initiatives enhances financial institutions environmental performance, while economic, environmental, and social dimensions of green finance significantly influence an organization's environmental performance. Moreover, the empirical results presented in this research offer notable theoretical and practical insights, particularly through context of recent investigations into financial institutions effectiveness through developing countries with regard to CSR, GF, and environmental factors. These contributions to the field are founded upon the empirical findings. This study represents one of the pioneering empirical inquiries into the association among economic, environmental, as well as social dimensions of GF along with financial institutions environmental performance in Pakistan. Prior research has neglected the effects of GF on the economy, the environment, as well as society (Chen et al., 2022; X. Zhang et al., 2022; Zheng et al., 2021a) This must change. That research establishes significant connection among CSR as well as environmental performance in the finance industry. It is an original contribution to the expanding body of research on CSR along with organisational sustainability. This has been result of significance of their connection. For the study's findings to be consistent with legitimacy theory and the GF principles, it is necessary to emphasise the importance of public consent for achieving long-term sustainable development in both GF and CSR. This is required so that the findings align with the GF principles (Indriastuti and Chariri, 2021).

The management of Pakistani institutions could utilize the empirical findings to strengthen their internal resources for environmental improvement. Corporate social responsibility (CSR) initiatives and ecological funding are two options. The subsequent sections of the paper follow this format: In coming section 4, Researcher will investigate through relevant facts and theories. It begins by describing the procedure, discusses the outcomes, and concludes. The paper's fifth section contains a summary and suggestions for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Legitimacy Theory

As per legitimacy assumption, company's long-term success has positively correlated with degree through which the general public endorses its environmental practices. According to the legitimacy theory, businesses should actively pursue and maintain legitimacy by aligning their company's conceptions, practices, and goals with the communities' fundamental values. Dowling and Pfeffer (1975) emphasize that this can be achieved through proactive efforts to gain legitimacy. Consequently, businesses should partake in activities that align with prevailing societal norms, viewpoints, and conventions. As a result, the second advantage of green finance is that it helps companies to reduce the number of negative effects their operations have on the environment. Reducing carbon dioxide emissions and energy consumption are two crucial strategies for achieving this objective (Chariri et al., 2018). Chen et al. (2022) and Minatti Ferreira et al. (2014), CSR operations are influenced not only by public expectations (such as commonly held social attitudes) but also by managers' perspectives on what they deem to be reasonable societal demands and by the firm's actions (Gray et al., 1988).

By the concept of legitimacy, businesses must engage in environmentally conscious, socially responsible, and environmentally sensitive activities to establish, maintain, or regain their credibility and reputation. To explore the connection among CSR activities, GF dimensions, as well as EP in Pakistani financial institutions, it was imperative to formulate a comprehensive conceptual framework for this study. We completed this task as a part of the process of integrating everything.

The notion of corporate social responsibility, has had an intricate evolution, as noted by Saeidi et al. (2021). It emerged onto the scene in the early 1950s and has since piqued the interest of both businesses and academia, with the United States being a particularly significant hub for CSR development, as emphasized by Carrington et al. (2019). CSR is sometimes deemed a Western phenomenon (Ansong, 2017) due to Western nations' robust corporate structures and equitable regulatory frameworks. While the term "corporate social responsibility," often referred to as CSR, is frequently employed in academic and professional contexts, it lacks a

universally agreed-upon definition, as highlighted by Bussmann et al. (2021). This lack of clear conceptual as well as theoretical boundaries was controlled through a various proliferation CSR interpretation. Nevertheless, businesses are compelled to formulate their initiatives in alignment with established social and ethical norms, adhering to CSR principles. Researchers suggest that a company's social responsibility, often abbreviated as CSR, may be viewed as its duty to the community (Carroll, 1979). This obligation incorporates a variety of expectations, including those of a legal, economic, moral, and discretionary nature, at any given time. CSR includes company's commitment through the community where it operations as well as the environment in which it conducts business (Kaschny and Nolden, 2018). When we discuss "corporate social responsibility," we are talking about how companies can use their influence for the greater good while adhering to the highest ethical standards. In other words, we discuss how corporations can exercise their power responsibly (Mocan et al., 2015). Corporate social responsibility (CSR) measures for banks include reducing the bank's carbon footprint, giving back to the community, and investing in environmentally responsible businesses. Mocan et al. (2015). There are numerous methods by which a company can demonstrate its commitment to fulfilling its social responsibility obligations (CSR).

2.2 Considerations Regarding Eco-Friendly Finances

International organizations and national administrations have never had a stronger starting point than the Global Forum (GF) (Zhang et al., 2019). Green Finance (GF), an innovative novel financial model which focuses on green investment, has as its primary objectives the conservation of natural resources and the promotion of economic growth (Zhang, 2018; Zheng et al., 2021a). This paradigm incorporates academicians, researchers, and practitioners in the accord. GF is the abbreviation for "green financing" (Wang et al., 2019). It is a common misconception that GF is required for a free market and functional economy to operate (Akter et al., 2018; Hoque et al., 2019; Zheng et al., 2021a). The mission of the GF is to supervise monetary system and improve economic, environmental as well as social performance. This includes a variety of measures intended to enhance the long-term outlook for economic growth as well monetary stability (Zheng et al., 2021a). In addition to providing microfinance and sustainable financing, the GF is primarily responsible for lending money for sustainable

development and issuing green bonds. With a concentration on the long term, the European Union's high-level expertise group on sustainable finance has discussed a variety of social and intellectual issues. Numerous issues require resolution, including, but not limited to, protecting the natural environment, increasing access to affordable housing, caring for older people, and improving the nation's physical infrastructure (Zheng et al., 2021a).

According to Zhou et al. (2020), GF (the development of financial services' economic, social, and environmental repercussions) significantly impacts the growth of a socially, ecologically, and economically sustainable organization. The significance of this effect has been demonstrated by prior research (Akter et al., 2018). It is an acronym for "Triple Bottom Line," which takes economic, environmental, as well as societal concerns into account. The term "GF" stands for the "Triple Bottom Line" (Malsha et al., 2020; Zheng et al., 2021a). When determining the GF parameters, the majority of researchers employ a brand-new method. (Akter et al., 2018; Raihan, 2019; Zheng et al., 2021a) this GF's economic, environmental, along with social determinants engage through the banking industry requires additional study. Recent research by Zheng et al. (2021a) revealed that PCB financiers in Pakistan had adequate knowledge of green finance to efficiently carry out GF within Pakistan and improve the nation's long-term environmental growth. This discovery came to light just recently. Major sources of green investment for financial institutions include sustainable power, fuel efficiency, renewable fuels, waste treatment, and the growth of the green sector. Additionally, the green industry is a vital source of ecological investment.

2.3 Environmental Performance

Tung et al. (2014) suggest evaluating a company's sustainability based on the efficiency with which it uses its natural resources. This is a precise method for measuring environmental performance. According to Qi et al. (2014), the extent of an organization's impact on the natural world can be assessed using a variety of indices, ranking systems, or environmental scores in addition to the quantity of pollution it generates. Environmental management also establishes the sustainability pillars responsible for setting strategic objectives to satisfy stakeholders' requirements. This group includes shareholders, employees, consumers, and distribution companies. Other parties involved include local governments and regulatory agencies.

Moreover, environmental performance satisfies the objectives of municipal agencies (Shaumya and Arulrajah, 2017; Akter et al., 2018; Risal and Josha, 2018). 2017). Environmental performance must be distinguished from efforts to safeguard natural resources and increase economic productivity (Shaumya and Arulrajah, 2017). As a result, banks are regarded as one of the most influential actors in the GF, which directly and indirectly impacts environmental performance (Rehman et al., 2021). Zhang et al. (2022) suggest that a rating may be assigned to financial institutions based on their strategies and actions to reduce their reliance on paper, enhance bank compliance with regulatory requirements, reduce emissions, and educate employees on environmentally responsible practices.

2.4 Hypotheses Development

The connection among Corporate Social Responsibility along with Environmental Performance

Academics carried out research on numerous topics, such as corporate social responsibility, financial along with non-financial efficacy, as well related subjects. Suganthi (2020) report a need for additional research upon CSR along with environmental performance in developing nations. Recent research conducted by Suganthi (2020) examined the connection within corporate social responsibility as well as environmental performance and long-term profitability of businesses. According to the outcomes of the researchers, implementing CSR programs may had significant effect through organization environmental performance. On the basis of these outcomes, corporate social responsibility programs permit organizations to turn inward and encourage employee participation in efforts to reduce solid and liquid waste. Participating businesses may experience cost reductions, quality and flexibility improvements, delivery enhancements, and an examination of their operations' overall sustainability. In their research on CSR, In the context of the electric utility sector in the United States, the connection among CSR as well as critical performance metrics was investigated (Sidhoum and Serra, 2017). Environmental, social, economic, as well government governance performance were evaluated, among other spheres. Multiple studies have concluded that social and environmental performance is linked to economic success. According to the article's findings, environmentally responsible technology may be the key to attaining a more sustainable environmental system

and better financial well-being.

Channa et al. (2021) found that the public's perception for a company's commitment towards social responsibility had substantial impact on the company's environmental performance. According to Kraus et al. (2020), CSR does not appear to have a significant impact on environmental performance. Kraus et al. (2020) discovered that a company's CSR commitment, which includes reducing production-related waste and pollution and producing recyclable products (Rivera et al., 2017), may contribute to enhanced sustainable development. Based on the research's outcomes, businesses engage in activities that benefit society and the environment to improve the integrity of their operations as a whole and their environmental performance. As a result of all of this, we arrived at the following conclusion:

H1: The activities of CSR contribute to an improvement in financial institutions environmental performance.

Economic Aspects of Environmental Performance and Green Finance

Through sustainable finance context, economic component of GF has emerged as the most crucial aspect to promote within the banking industry, as emphasized by Zheng et al. (2021a). Companies and financial institutions in the energy, industrial, along with chemical sectors should embrace environmental responsibility to accomplish their economic goals, enhance their public image, as well as operate with greater efficacy (Gallego-Alvarez and Pucheta-Martnez, 2020). Environmentally conscious financial institutions have a competitive advantage over their competitors (Carnevale and Mazzuca, 2014). According to Carnevale and Mazzuca (2014), banks have been recognized for improving their environmental performance. Following the findings of Kala et al. (2020), this occurs. Recent research indicates that the economic components of GF substantially impact the long-term viability of institutions (Zheng et al., 2021a). By focusing on these issues, GF's financial division demonstrates its responsibility to improve the financial institution's environmental performance. The financial aspect of GF reflects its significance in enhancing the financial institution's environmental performance by emphasizing long-term growth, competitive advantage, and the government's capacity to pay for climate change-related costs. Considering the antecedent logic, the

following hypothesis is examined.

H2: The GF economic aspect impacts significantly to institutions' environmental performance.

Social Aspects of Environmental Performance and Green Finance

Due to their social responsibilities, corporations are becoming more environmentally conscious and innovative, and financial institutions are developing green financing (Wu et al., 2021). Due to their primary concentration on financial matters and credit, most financial institutions' actions have negligible impacts on the natural world (Jaeggi et al., 2018). Green bonds reduce the cost of borrowing for businesses while enhancing their capacity to conserve resources. According to the findings of our investigation, GF's contribution to environmental protection is crucial to the long-term viability of financial institutions. According to our intuition, the likelihood of this happening is very high.

Zhou and Cui's (2019) fourth hypothesis (H4) states that institutions with a concern for the environment are better equipped to serve the public along with complete their duties toward society. Zhou and Cui published this finding in 2019. Zheng et al. (2021a) investigated sustainability degree demonstrated by Pakistani financial institutions. There has been a strong correlation among the social aspects of GF as well as the company's overall success in terms of sustainability. Supporting various environmentally beneficial activities by financial institutions may also result in social benefits, such as staff incentives and community involvement in development initiatives (Raihan, 2019; Zheng et al., 2021a). Since a direct consequence, the social component of GF enables financial institutions toward improve their environmental impact performance by supporting initiatives that are advantageous to the environment. Consequently, we would like to suggest the following novel line of inquiry:

H3: The GF social aspect impact institutions environmental performance.

Environmental Aspects of Green Finance and Environmental Performance

When examining complex connection among green finance as well as environmental performance, confusion abounds. These two dissimilar aspects converge in a dynamic performance that promotes sustainability. In their juxtaposition, dynamism emerges one

moment, a complex network of financial mechanisms unfurls, and the next, the vitality of ecosystems comes into focus. Carbon neutrality, resource efficiency, and biodiversity conservation are interwoven in this tapestry.

Green finance is a channel that directs the passage of capital to initiatives for environmental preservation. This approach departs from conventional finance, which has historically ignored environmental externalities. As diversified financial instruments, such as green bonds and loans linked to sustainability, proliferate, market volatility increases. Their complexity mirrors the complexity of the ecosystems they seek to preserve.

Environmental performance is the most important indicator of the success of these endeavours. Across all industries, the capacity of organizations to reconfigure their mode of operation has repercussions. Regulatory pressures and stakeholder expectations serve as transformational catalysts. Here, turbulence arises as industries grapple with complex strategies, including decoupling growth from emissions, orchestrating circular economies, and integrating social responsibility. Although imprecise, metrics illustrate this progression: Carbon footprints are decreasing, Water consumption curves are shifting, Waste management is reimagining its future. The connection among green finance along with environmental performance exceeds the sum of their constituent parts. Despite its complexity, financial innovation is compatible with ecological resilience. A single strand of hope cannot weave this fabric; rather, it requires a symphony of stakeholders - governments, corporations, and civil society - with each note distinct and essential. As this intricate dance continues, one principle remains unmistakable: the future of our biosphere depends on our ability to navigate the enigma of green finance and its destiny intertwined with environmental performance. In light of this, we shall suggest the following research hypothesis:

H4: The banks' environmental performance is significantly improved as a result of the environmental component of GF.

The research's conceptual framework

The GF (economic, environmental, and social) as well as environmental performance of companies have been examined by surveying the most recent relevant literature and theoretical context in order to develop a conceptual research model. This was done so that the conceptual framework for research could be constructed. Fig:1 shows anticipated conceptual framework of this investigation, which will be utilized throughout the investigation.

2.4 Green Finance Dimensions

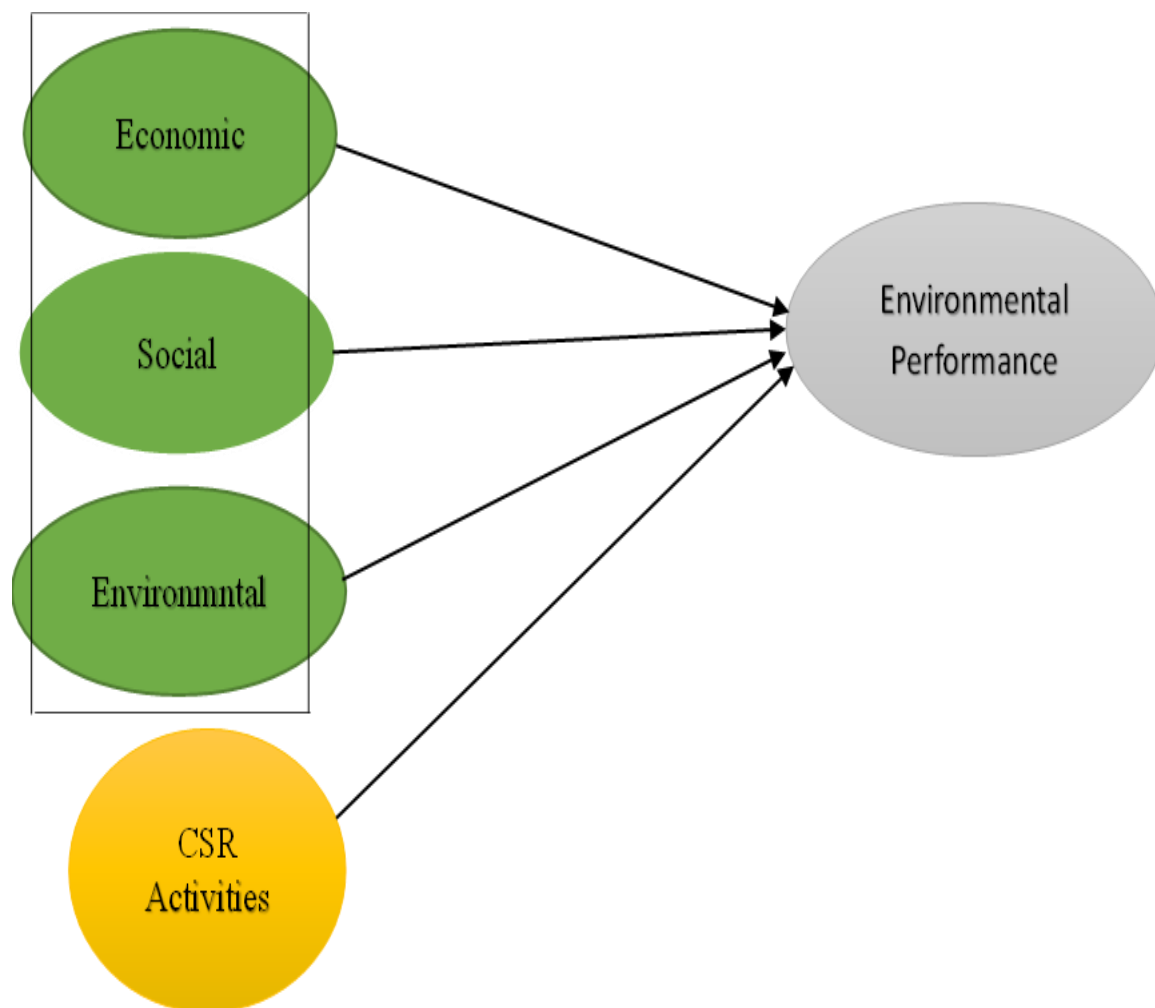


Figure 1: depicts the investigation conceptual framework.

3. RESEARCH METHODOLOGY

3.1 Sample and Data Collection

As per this study will investigate how CSR as well as GF operations, including economic, environmental, and social initiatives, influence environmental performance for Pakistani institutions. Due to their substantial role in causing direct genetic effects in Pakistan, PCBs were the primary focus of this investigation, as illustrated in Figure 2. This was carried out because PCBs have been found in significant concentrations across the nation. Hossain and co. Due to the need for more information regarding the characteristics of population under study, non-probability convenience sampling has been employed instead of probability sampling for collecting a sample to the target population. This was done because the information required for probability sampling exceeds currently available. Most of the necessary information for this study was collected through interviews with 388 commercial bank employees. Officers, senior officers, intermediate officers, deputy officers, managers, and deputy managers and officers were among these individuals. Throughout the entire process of collecting information, a standardized questionnaire was utilized. The management team of this organization consists of subordinate officers, assistant supervisors, and supervisors with varying levels of responsibility. The total number of questionnaires received was 467, but 79 had to be discarded because they could not be incorporated into the analysis. A total of 388 individuals participated in this investigation, and the response rate was 83.08 per cent. Murphy (2003) estimated a range of 25 to 30 per cent, but this figure is significantly higher. This year, sample banks in Dhaka, Pakistan, were utilized during February and March to acquire data. Pakistan is in southern Asia. Men and women responded to the survey, with males accounting for 75.3% of the total (24.7%). Age-wise, approximately 65 per cent of participants are between the ages of 26 and 35, while only 6.3% are older than 55. Survey respondents had a wide range of educational attainment; 48.5% was a master's degree, 27.6% were students in undergraduate programs, alongside 15.2% was a high school diploma or GED.

3.2 Instruments for Taking Surveys

We utilized a questionnaire developed with great attention to collect the necessary information. The three GF components (economic, environmental, as well as social), CSR efforts, along with environmental performance are highlighted in Table 1, which integrates data from a prior study project. Here you may observe Table 1. The data presented in Table 1 is arranged in a matrix-like fashion. Table 1 displays the variables in a format broadly accepted by the scientific community as the standard. The survey questions cover a wide range of topics, including environmental performance, CSR, along with numerous aspects which comprise GF, like economic, environmental, along with social challenges. The modifications made to GF's five economic, three environmental, as well as three social components were directly influenced by prior research findings (Raihan, 2019; Zheng et al., 2021a, 2021b). Maignan and Ferrell (2000) and Saeidi et al. drew on an older study for the five questions employing for assessing corporate social responsibility and the six items used to measure environmental performance. Moreover, the five questions used to evaluate corporate social responsibility were derived from an older study conducted by Maignan and Ferrell (2000). (Shaumya and Arulrajah, 2017; Risal and Joshi, 2018; Kala et al., 2020; Suganthi, 2020; Rehman et al., 2021) With the exception of the demographic questions, Likert scale has been utilized through assign points to every survey question, with demographic questions exception. This scale ranges from 1 to 5, with one representing "strongly disagree" along with five "strongly agree." One signifies "strongly disagree," while five represents "strongly agree."

The survey participants have been asked to provide information on their numerous aspects. These factors included the respondent's gender, age, and educational attainment.

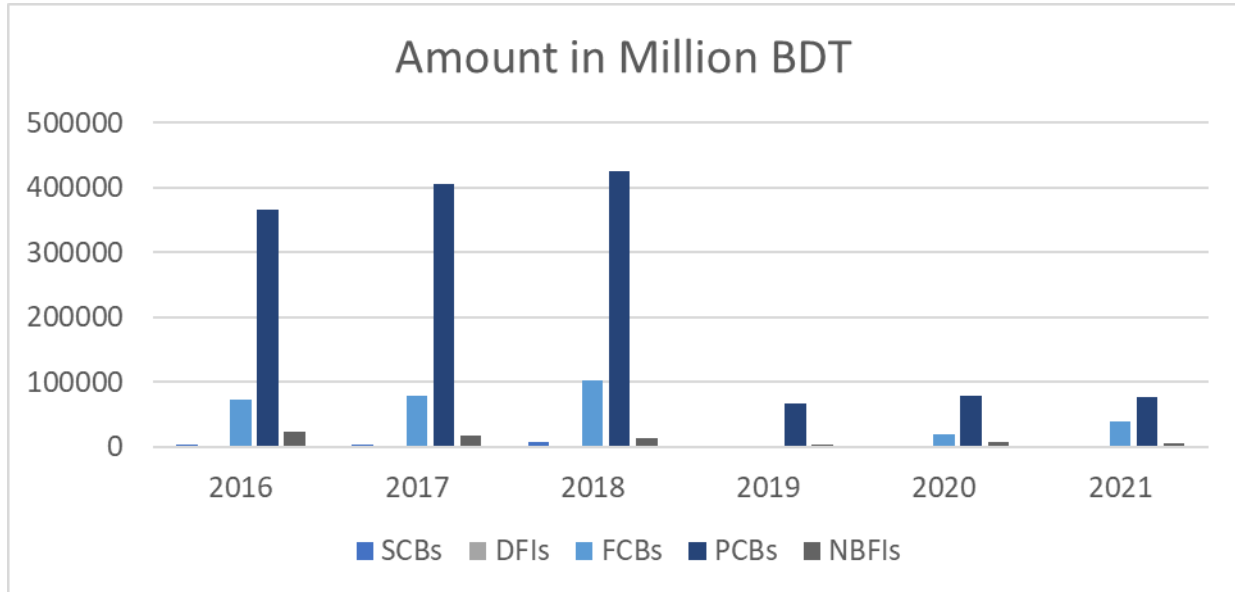


Figure 2: Green financing by Pakistani banks as well non-bank financial institutions from 2016 to 2021.

Table 2: Descriptive statistics along with analysis of correlation for the study variables.

Variables	Mean	SD	Skewness	Kurtosis	SD	ED	END	CSR	EP
SD	4.09	0.581	-1.135	2.945	1				
ED	4.06	0.594	-0.788	0.947	0.404***	1			
END	4.08	0.597	-0.508	0.290	0.319***	0.349***	1		
CSR	3.93	0.724	-1.194	2.087	0.416***	0.456***	0.162**	1	
EP	4.06	0.576	-0.949	2.200	0.411***	0.555***	0.323***	0.411***	1

Notes: SD, standard deviation; the correlation has significance at 0.001 as well as 0.05 (two-tailed. Source: Authors' own calculation.

Table 3: Survey item convergent validity.

Constructs	Items	Factor loading	AVE	Cronbach's alpha
Social dimension of GF	SD1	0.731	0.556	0.785
	SD2	0.812		
	SD3	0.688		
Economic dimension of GF	ED1	Excluded	0.540	0.766
	ED2	Excluded		
	ED3	0.539		
	ED4	0.787		
	ED5	0.761		
Environmental dimension of GF	END1	0.658	0.506	0.711
	END2	0.784		
	END3	0.686		
CSR practices	CSR1	0.770	0.541	0.830
	CSR2	0.810		
	CSR3	0.659		
	CSR4	0.735		
Environmental performance	EP1	0.826	0.556	0.837
	EP2	0.687		
	EP3	0.783		
	EP4	0.631		
	EP5	Excluded		

Notes: ED1, ED2, EP5, as well as EP6 had been omitted from the final analysis as a result of their poor factor loadings.

Source: Authors' own calculation.

3.3 Data Analysis Techniques

Using Confirmatory Factor Analysis (CFA) along with the Structural Equation Model, researchers analyzed the primary data collected for this study. Nunnally and Bernstein (1994) emphasis the need for a dependable scale that can be utilized effectively in various cultural settings. In accordance with prior research findings (Fornell and Larcker, 1981; Bentler, 1992;

Hu and Bentler, 1999), the CFA model has been employed to assure the tool's validity, reliability, discriminant and convergent validity, as well as overall fit. In conclusion, structural equation modeling has been applied through validate hypotheses presented previously.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 2 contains specific information about each study component. When evaluating an organization's environmental performance, the economic, environmental, as well as social aspects of the GF have been particularly important considerations. Kline (2011) discovered that skewness along with kurtosis had values below thresholds of three as well ten, correspondingly. The correlation analysis revealed no evidence of multicollinearity between the variables investigated in this study. According to the correlation analysis outcomes, this was determined. The correlation study's findings served as the basis for this discovery.

4.2 Confirmatory Factor Analysis

The method created by Gerbing and Anderson (1988) was utilized to analyze the measurement model for the research endeavor. This procedure used CFA results, normalized coefficients, and a variety of indicators of model fit. In addition, Cronbach's alpha along with Composite Reliability (CR) have been devoted through evaluate validity as well reliability of collected data. This is done to conclude the truth and dependability of the data. Compared to the median value of 0.70, CA values of all construct in Table 1 range from 0.711 to 0.837, which is an impressively large range. (Nunnally and Bernstein 1994). The range of CR values presented in Table 3 is greater than the cutoff points found between 0.75 and 0.83. These points are between 0 and 1. Likewise, this makes sense for the same reason. 1981 was the year that Fornell and Larcker conducted their investigation. Importantly, the concept validity as well as internal consistency of the item have been adequate along with outstanding, according to the results of CA as well as CR. This fact must be brought to the attention of everyone because it is essential. The suggested model's convergent validity was confirmed by calculating factor loadings, as shown in Table 3. These findings, reported in Table 3, show that the average factor loadings exceed 0.5

threshold value proposed by Hair et al. (2010). As a result, values exceeded the threshold, with AVE values ranging from 0.431 to 0.558 (see Table 4). In 1981, Fornell and Larcker conducted their research.

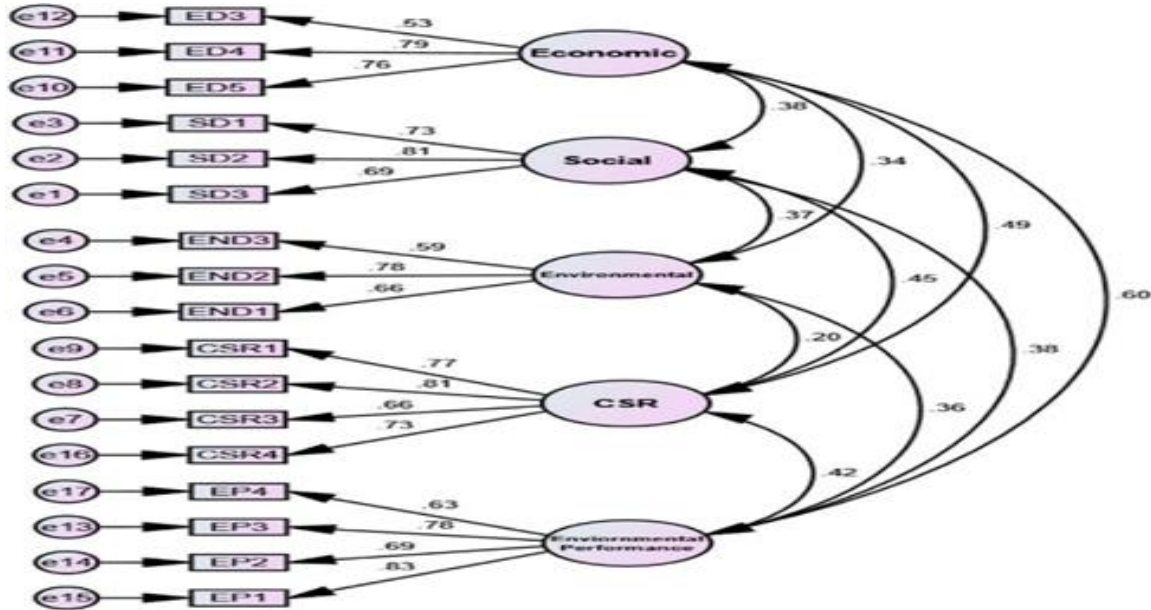


Figure 3: The study's CFA measuring model.

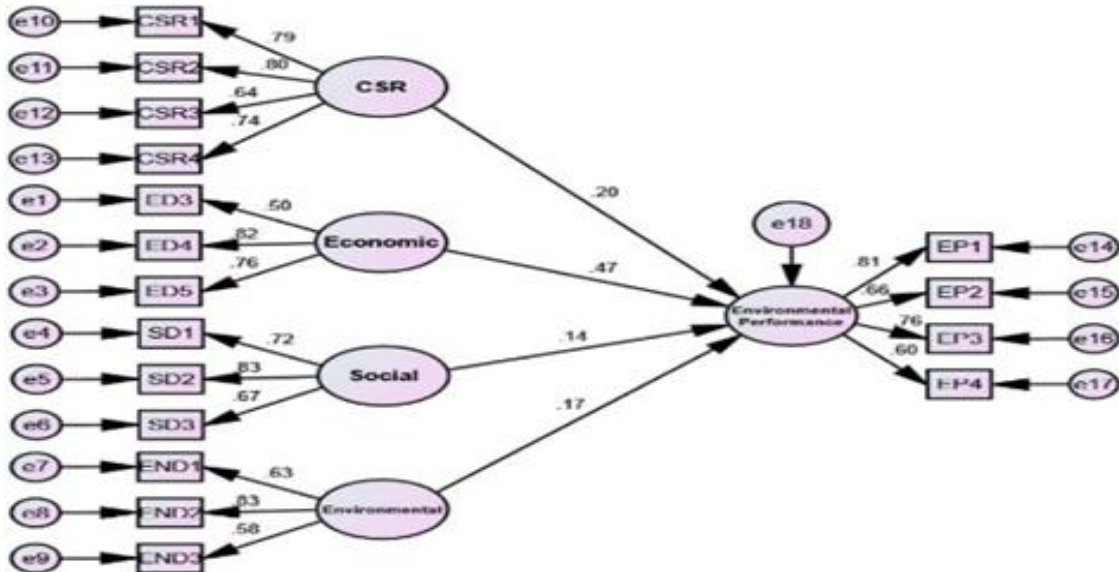


Figure 4: represents a structural model with standard estimates.

The substantial majority of people concur that convergence validity is advantageous and acceptable. This agreement is available online. Additionally, Fornell–Larcker criterion along with heterotraits–monotraits ratio have been utilized to evaluate discriminant validity for the variables. These two criteria have been evaluated utilizing same technique (HTMT). To determine if a variable has discriminant validity, square root for its AVE value should be above its highest correlation alongside all other variables in the overall model. This is the only method to determine if a construct has discriminant validity. This is the only method to determine if a concept has discriminant validity (Fornell and Larcker, 1981). Table 4 demonstrates that AVE exceeds the square of each factor's inter-factor correlation. This is demonstrated by the results presented here. Directly as a consequence of this investigation, it was demonstrated that discriminant validity exists within every thought. Analyzed was the discriminant fact of the HTMT, which is superior to the Fornell-Larcker in a number of situations (Henseler et al., 2015) along with has value less than 0.90. It was determined that there were no problems (see Appendix Table A1) with this aspect of the test's performance (Henseler et al., 2015). As a result, the data findings indicate that the model's components have a high degree of discriminant validity. The existence of high degree of discriminant validity demonstrates this. The values presented inside Table 4 indicate that Variance Inflation Factor (VIF) falls within the typical range of 1.0 to 5.0, with a range from 1.194 to 1.454. In other words, the VIF was within the scope of specific values (Zuur et al., 2010). The following is an overview of the discoveries made by the researchers: (From the 2010 publication by Zuur et al.). As a result, multicollinearity did not affect the investigation's continued development as it progressed. Kleinbaum and his colleagues provide an explanation that the VIF serves as a valuable tool for assessing the presence of multicollinearity among independent variables. This can be accomplished by determining whether or not the variables are correlated. This can be accomplished by comparing the VIF's findings to those of other studies employing a similar methodology. This can be achieved by comparing and contrasting the outcomes of the various analyses (1988). (1988). The measurement model's Appendix Table A2 shows the values for these model fit indices. These values are acceptable and lie within the range of permissible limits for the categories to which they belong (Hu and Bentler, 1999). The subsequent statistical evidence illustrates the extent to which the measurement model aligns: The GFI value stood at

0.939, while the AGFI value registered at 0.915. Additionally, the CFI value was 0.957, the IFI value reached 0.95, the TLI value was 946, and the RSEA value amounted to 0.051. Furthermore, p-value was 0.000, Chi-square value was 1.93, RMR value stood at 0.030, and both the GFI and AGFI values were 0.939 and 0.915, respectively. Finally, the CFI and IFI values were 0.957 and 0.95, respectively. As a direct result of this factor's accurate incorporation into the model, the model's overall fit is superb. Figure 3 illustrates the outcomes achieved through the application of CFA measurement model to data, along with the standard estimates derived from these results. These outcomes are displayed alongside the formal forecast.

Table 4: Provides details regarding discriminant validity, composite reliability, as well as AVE.

Variables	CR	AVE	SD	ED	END	CSR	EP	VIF
SD	0.789	0.556	0.745					1.365
ED	0.778	0.540	0.381	0.735				1.454
END	0.753	0.506	0.367	0.347	0.711			1.194
CSR	0.824	0.541	0.376	0.606	0.360	0.736		1.379
EP	0.833	0.556	0.422	0.495	0.450	0.199	0.746	-

Note: CR represents composite reliability, and AVE stands for average variance extracted. Source: Calculations performed by the authors.

Table 5: Hypothesis Testing Results.

Research hypothesis	Estimate (β)	Standard error	t-test value	p-value	Remarks
H ₁ : CSR → EP	0.197***	0.045	3.536	0.000	H ₁ is accepted
H ₂ : ED → EP	0.475***	0.057	7.306	0.000	H ₂ is accepted
H ₃ :SD → EP	0.143**	0.051	2.534	0.011	H ₃ is accepted
H ₄ : END → EP	0.171**	0.053	2.898	0.004	H ₄ is accepted

Note: Significance levels are indicated at $p < 0.001$ and $p < 0.05$. Source: Authors' calculations.

Results from Structural Equation Modeling and Testing of Research Hypotheses

As shown in Figure 4, connection between constructs and latent variables is of utmost importance to this investigation. This is because it allows the analysis to predict outcomes more precisely. Because research is being conducted on constructs and latent variables, this is the case. Therefore, corporate social responsibility (CSR) and three components of green finance (economic, environmental, along with social) collectively contribute to improving overall institutional environmental performance. This can be deduced from the surrounding circumstances. Using the structural model fit signals, we determined whether or not the model met approval requirements. If you're interested, you can refer to results of structural model and relevant indices inside Appendix Table A2, available in the appendix of this paper. The outcomes align with acceptable criteria, as outlined by Hu and Bentler in their 1999 study, which can be accessed [here](#). The Chi-squared/df statistic has a value of 1.93, the RMR statistic has a value of 0.029, the GFI statistic has a value of 0.940, the AGFI statistic has a value of 0.920, the CFI statistic has a value of 0.961, the TLI statistic has a value of 0.952, the RSEA statistic has a value of 0.0489, and the RMSEA statistic has a value of 0.049. The value for P is 0.000. These are the discoveries made by fitting the structural model. As a direct result, the entire structural paradigm can be characterized as appropriate and satisfying. Because the investigation results are displayed in Table 5, which can be viewed at this [URL](#), further investigation is unnecessary.

The statistical evidence indicating that CSR positively affects the environmental performance of institutions has led to the conclusion that Hypothesis 1 (H1) is true. This conclusion was arrived at after conducting extensive research. Before reaching this conclusion, the available evidence was carefully considered. As indicated by the title of Table 5, the data presented in this table also support the second hypothesis, as demonstrated by the table's contents. This suggests that the commercial aspect of GF significantly impacts the organization's environmental stewardship performance. GF's financial part, in addition, the social element of GF appears to have a significant relationship with the surrounding environment, which promotes the production of H3 molecules. Furthermore, the findings corroborate Hypothesis 4 by indicating a substantial significant connection among environmental features of both Green Finance along with Environmental Performance. These outcomes support notion that Green Finance along with CSR efforts play an significant role in enhancing overall financial

institutions environmental performance, hence contributing to the nation's long-term economic growth.

5. DISCUSSIONS AND CONCLUSION

Corporate Social Responsibility (CSR) is receiving a growing amount of attention from researchers around the globe in an effort to gain a deeper understanding of its correlation with a company's success in various operational domains. However, research on the effects of Green Finance (GF) on global social, economic, and environmental systems is relatively limited (Bahta et al., 2021). This study employs Structural Equation Modeling (SEM) to examine the relationship between CSR activities, GF dimensions, and the environmental performance of Pakistani institutions. This was done to understand the relationships between the three distinct components. Environmental performance and corporate social responsibility have a statistically significant association. This correlation has been demonstrated to exist in tandem. This argument asserts that actions that are not only beneficial to the economy and the environment but also to society are advantageous for all parties involved. Participation in corporate social responsibility (CSR) programs that adhere to ethical, legal, economic, and discretionary standards enables financial institutions to enhance their environmental performance both locally as well as globally. This is due to the fact that these actions can be carried out voluntarily or involuntarily. Our research indicates that corporate social responsibility (CSR) legislation enhances the environmental performance for banks within developing nations including Pakistan. These findings are consistent with those discovered by other researchers investigating this topic. Recent research has demonstrated a significant correlation between the environmental performance of large industrial corporations and their corporate social responsibility (CSR) standards (Sidhoum and Serra, 2017; Bamgbade et al., 2019). These findings lend credence to the research findings we had previously collated (Sidhoum and Serra, 2017; Bamgbade et al., 2019; Suganthi, 2020; Ahmad et al., 2021). There is evidence that corporate social responsibility programs are becoming more popular due to increased public demand and legal requirements. This strategy is supported by the concept of validity (Suttipun et al., 2021). Therefore, reasonable to conclude which the outcomes of this research contribute to the growing body of evidence indicating that banks' CSR initiatives have

a substantial effect on their environmental performance. In addition, they are consistent with previous investigations conducted on the same subject. This conclusion was easily reached due to the quantitative methodology employed in the research.

The empirical study indicates that GF's economic, environmental as well as social aspects significantly impact extent to which Pakistan's financial institutions contribute to environmental degradation. This indicates that the provision of environmentally responsible financing by financial institutions positively affects the natural environment. In addition, research demonstrates a correlation between important GF characteristics and financial institutions' level of economic, environmental, as well as social responsibility. This is the first study to examine the connection among GF as well as environmental performance within the Pakistani banking sector, along with its outcomes have been confirmed for the first time. Prior to this, there was no established connection among GF as well as environmental efficacy through the literature. Based to research conducted by Zheng et al. (2021a), the economic, environmental, and social factors for Pakistani financial institutions have a major influence on their ability to meet sustainability standards in their daily operations. It is possible that the data presented by Raihan (2019) and Zheng et al. (2019) in support of this theory are not as compelling as was previously believed. Nonetheless, they lend credibility to the notion to get a handle on licensing, you must first realize that businesses strive to build and maintain their credibility by aligning the values and principles most important to themselves and their organizations with those most important to society. This is the only method for acquiring a license. This concept is utilized when determining whether or not a license should be issued. Based to the research's outcomes, using environmentally responsible finance is one means for a business to establish and maintain a positive brand image (Chariri et al., 2018). For Pakistan to achieve its Sustainable Development Goals (SDGs), its financial institutions must make significant strides in enhancing their environmental performance. Consequently, GF and the characteristics it provides are of the uttermost importance. This study's empirical findings can be used to infer some theoretical implications regarding CSR, global finance, as well as environmental performance at developing-nation-based financial institutions. Furthermore, this experimental study represents the first endeavor to evaluate the impact of multiple dimensions of GF (economic, social, and environmental) on the environmental performance of

Pakistani financial institutions. The study examined how these attributes impact the environmental performance of enterprises. The findings of the study have resulted in the formulation of a simple model that can be applied in a variety of contexts, particularly in developing nations. Using statistical analysis techniques such as structural equation modeling in AMOS, the study's measurement instruments' validity was confirmed. Consequently, this research has increased our knowledge of the prospective links between corporate social responsibility (CSR) and environmental performance in the banking industry. Consequently, the findings of the study are consistent with prior empirical research and with legitimacy theory and green finance. Only by engaging in long-term, sustainable development that benefits society is it possible to achieve success, as demonstrated by initiatives such as green financing and corporate social responsibility. Only in this manner is success possible (Indriastuti and Chariri, 2021). It is recommended that additional research be conducted along multiple research paths to understand how financial institutions can simultaneously improve their long-term viability while incorporating environmental protections such as pollution prevention and management. This will make it easier to comprehend how financial institutions can increase their long-term viability without negatively impacting the environment. This study's empirical findings have important practical implications for researchers interested in environmental sustainability in financial institutions, as well as for bank managers, government authorities, and policymakers concerned with this aspect. Some individuals and organizations also strive to improve financial institutions' ecological sustainability. This objective was described in the previous clause. CSR, or social responsibility on the part of businesses, is largely responsible for realizing environmental sustainability programs in Pakistan. These programs could not have been executed without the contributions of the participating companies. Consequently, business leaders and government officials are under increasing pressure to increase their investments in social responsibility, alter their management's perspective on environmental concerns, and nurture sustainable organizational cultures. The government of Pakistan and the central bank of Pakistan would likely present awards to financial institutions that adhere to environmentally favorable policies and initiatives and, as a result, contribute to Pakistan's sustained economic growth. Because doing so may also help the industry improve its performance in terms of its environmental impact, industry management should be clear on the purpose of this plan. This should be done because this strategy seeks to enhance the industry's

performance. Recent studies have conclusively demonstrated that each of the three GF components positively affects the environmental performance of financial institutions. Multiple studies have consistently supported these findings. By enhancing the environmental performance of institutions, initiatives such as the development of green industries and the incorporation of renewable energy can significantly contribute to the achievement of global and local Sustainable Development Goals. This crucial realization emerged as one of the most significant results of our investigation. Financial institutions must incorporate GF into their standard lending practices to effectively manage the environmental impact of their activities. In this regard, adhering to the essential requirements outlined below would be advantageous. Moreover, the Botswana Central Bank (BB) has the potential to play a significant role in advising and training financial institutions to improve their environmental performance, thereby contributing to the nation's long-term economic growth and development.

Pakistan is the only country for which data was obtained, which is a significant limitation of this study. The only country for which researchers collected data was Pakistan. This study's findings only apply to Pakistan's economic system; thus, their applicability to the economic systems of other nations is quite limited. If this concept is to be confirmed before its adoption, additional data from the financial sectors of other emerging countries must be analyzed. Future research is likely to be conducted on ecological banking practices. This study may examine the effect on human and environmental performance, daily operations, regulation, and customer-related practices. Listed below are prospective research areas that could be pursued with the aid of this methodology: The study relies on its internal stakeholders to evaluate CSR, GF, and environmental performance, which is one of its main limitations. This is one of the most significant flaws in the research. This is one of the most important limitations of the conducted study. It is possible to conduct additional research on the effects of corporate social responsibility and green finance on the overall performance of financial institutions in other developing nations if the perspectives of external stakeholders such as consumers and suppliers are considered. In both scenarios, preserving the earth's natural ecosystem is a primary focus and a crucial component.

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APPENDIX- TABLE 1 | Items of the questionnaire to measure GF dimensions, CSR practices, and Environmental Performance.

Social dimension (Raihan, 2019; Zheng et al., 2021a)

Indicate your level of agreement with the following statements about social dimension of

GF (1 = strongly disagree, 5 = strongly agree)

- SD1 Engaging local community in development program
- SD2 Providing employee benefits, such as health and safety
- SD3 Increasing brand awareness, trust, and image of the banking institutions

Economic dimension (Raihan, 2019; G. Zheng et al., 2021a)

Indicate your level of agreement with the following statements about economic dimension of GF

(1 = strongly disagree, 5 = strongly agree)

- ED1 Generating more economic benefit (economic value added)
- ED2 Creating more competitive advantage
- ED3 Increasing revenues and saving operating costs
- ED4 Improving existing assets (addition to capital)
- ED5 Reducing overall risk

Environmental dimension (Raihan, 2019; Zheng et al., 2021a)

Indicate your level of agreement with the following statements about environmental dimension of GF (1 = strongly disagree, 5 = strongly agree)

- END1 Reducing energy consumptions from banking activities
- END2 Reducing carbon emissions from banking activities
- END3 Energy requirements of products and services

CSR practices (Maignan and Ferrell, 2000; Saeidi et al., 2021)

Indicate your level of agreement with the following statements related to CSR practices

(1 = strongly disagree, 5 = strongly agree)

- CSR1 CSR practices related to ethical
- CSR2 CSR practices related to legal
- CSR3 CSR practices related to economic
- CSR4 CSR practices related to discretionary

Environmental performance (Shaumya and Arulrajah, 2017; Risal and Joshi, 2018; Kala et al., 2020; Suganthi, 2020; Rehman et al., 2021)

Indicate your level of agreement with the following statements related to environmental performance (1 = strongly disagree, 5 = strongly agree)

- EP1 CSR and GF significantly reduce paper usage and energy consumption in our bank
- EP2 CSR and GF improve banks' compliance with environmental standards
- EP3 CSR and GF reduce energy consumption outside the bank
- EP4 CSR and GF reduce carbon emission from banking activities
- EP5 Analyzing suppliers' environmental risk
- EP6 Providing training to the staff on environmental protection and energy savings

Variables	SD	ED	END	GF	EP
Social dimension (SD) Economic dimension (ED)	0.408	-			
Environmental dimension (END)	0.384	0.402	-		
Green financing (GF)	0.469	0.556	0.210	-	
Environmental performance (EP)	0.397	0.661	0.416	0.454	-

TABLE A2 | Model fit indices for measurement and structural model of the study.

Factors model fit indices	Value for CFA	Value for SEM	Standard value
p-value	0.000	0.000	***p < 0.001
Chi-square/df	1.933	1.923	<0.05
Root mean square residual (RMR)	0.030	0.029	<0.08
Goodness-of-fit index (GFI)	0.939	0.940	>0.900
Adjusted goodness of fit index (AGFI)	0.915	0.920	>0.900
Comparative fit index (CFI)	0.957	0.961	>0.900
incremental fit index (IFI)	0.958	0.960	>0.900
Tucker–Lewis index (TLI)	0.946	0.952	>0.900
Root mean square error of approximation (RMSEA)	0.051	0.049	<0.08