



Determinants of Green Banking Adoption and Bank's Performance: An Emerging Challenge

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ABSTRACT

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Green banking is getting importance and relevance due to rapid changes in the global environment and modern work practices. It is observed that adoption of green banking, and its penetration became essential because of increasing trends and rise in concern for the environment. Environmental degradation, greenhouse effect, global warming, and carbon footprint created many challenges for service sector also, especially the banking sector. A Structured questionnaire in English, based on Institutional theory was used to get response regarding selected variables in the local setting of Pakistan. 200 complete and valid questionnaires were obtained from participants who are working as full-time employees in managerial positions having sufficient knowledge and awareness about green banking in the selected banks. Data were analyzed by using SPSS through application of selected statistical tools. Results showed that adoption of GB is gaining the importance in the banking sector. Moreover, GB adoption is driven by customer demand, management support, and perceived risk that could be helpful for better performance of financial institutions. Findings indicate that the competitive pressure and regulatory requirement does not influence the GB adoption. This study could be beneficial for the bankers, regulators and other stakeholders.

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1.0 Introduction

A rapid change in the global environment has affected almost every sector of the economy including the financial industry. World is facing the disastrous impact of severe climate changes which include droughts, floods, sea-level rise, greenhouse gas effect, carbon emission, and demographic transitions (Zheng et al., 2021). These climatic changes affect the living style of mankind around the globe which requires quick response to preserve the environment and take corrective measures to stop the climate deterioration especially in the developing countries. Financial institutions are considered the biggest sector of any economy and have no exception from the upcoming changes therefore, these institutions can play their role to protect the world from environmental changes by expediting the campaign of the clean world at a large level through adopting the policy of “go green” for their business and also to encourage their corporate clients/ firms to install those technologies that are environment-friendly (Sharmeen et al., 2019). Banking sector in Pakistan has experienced drastic changes since its inception and requires corrective actions to mitigate upcoming challenges (Ahmad, et al. 2010). United Nations Environmental Program (2014) explained the concept of a Green Economy, because mostly financial activities that contribute towards human prosperity and social wellbeing also contributes towards reducing environmental disasters and ecosystem deficiencies.

Lavrinenko et al. (2019) argued that environmental re-development and economic development are not opposed, rather they have a positive relationship. Banks can play a crucial role towards environment protection by adopting socially and morally accountable actions (Tara et al., 2015). It is argued that GB adoption provides countless benefits not only for banks but also for customers and society. Moreover, green banking helps to reduce carbon footprint but also makes the business transactions easy and accessible (Ullah, 2014; Choudhury et al., 2013). It is observed that the quality of services offered by a specific bank could affect its performance (Ahmad et al. 2010). Green banking is treated as a part of the normal banking activity by which banks gives importance to the environmental and social elements, therefore, it could be labelled as ethical banking and sustainable banking because of its social consideration. Growing importance for environmental sustainability took the financial investment under its scope that provides environmental benefits, environmental damage protection, and investments in goods and services for a safe economy (Lindenberg & Volz, 2016). There is a lot of research gap requiring an investigation of green banking adoption and its impact to improve bank’s performance. This study suggests that there SBP should make policies about the adoption of GB.

Green banking is a newly emerged concept in the financial world under the broad concept of green finance (Sarma & Roy, 2020). It is reported that there is a visible acceptance for adoption of GB in banking industry of Africa and other parts of the world (Okyere-Kwakye & Nor, 2021). A little is known about GB adoption in Pakistani banking industry. GB could be adopted in two ways: firstly, conversion of existing traditional bank and secondly establishment of new smart and technology-oriented banks like Connecticut Green Bank and New York Green Bank (Bukhari et al., 2020). The banking sector is one of the biggest sectors of any economy can play a crucial role because traditional banking operations are not related to environmental protection, but the eco-

friendly attitude of the banks would have a considerable impact on the environment (Rehman et al., 2021). It is reported that green banking is based upon two dimensions. The first one is the way banks perform their business activities in a way to reduce the carbon footprint, they go green by introducing paperless environment. Second, the banks preferred to lend money to those projects that have consideration of environment protection (Sarma and Roy, 2021).

This study was undertaken to explore the determinants of GB adoption by approaching management, and senior employees of selected banks who are at a managerial level such as branch managers, relationship managers, banking service managers. The study examines the role of GB practices in on the performance of banking industry of Pakistan. It is observed that the banking sector consumes more resources in the shape of paper and electricity in the branches and ATMs (Rehman et al., 2021). Online technologies and providing support to greenhouse projects contribute to reducing the environmental impacts with greater intensity. Therefore, green banking practices are much needed in banking to fulfill corporate social responsibility (Ikram et al., 2020). Pakistan faces many environmental challenges because of mismanagement of natural resources, improper waste management, increased population etc. (Bukhari et al., 2020). SBP issued Green Banking guidelines (SBP, 2017) requiring green banking to promote environment-friendly activities to assist customers and banks to lessen their carbon emission. International Finance Corporations (IFC) and the SBP signed an agreement on August 29, 2018, to provide support for the development of green banking practices in Pakistan. The study examines green banking adoption in the local setting of Pakistan which require serious attention of management and regulatory bodies for proper deployment of required resources.

2.0 Literature Review

2.1 Green Banking Adoption

In recent decades banks are considered as the environment-friendly industry (Ahuja, 2015). The studies shows that banks fulfill their corporate sustainability measures but gives less importance towards environmental issues (Goyal & Joshi, 2011). Benefits that can be obtained by the adoption of green banking to control the negative impact on environment for the attainment of predetermined goals (IFC, 2015). Adoption of green banking practices can save the banks from numerous risks such as reputational risk, financing risk, credit risk, legal risk, and environmental risk (SBP, 2015). It could enable the banks directly and indirectly to protect the environment and save resources for better efficiency of the banking industry (Masukujjaman et al. 2017). The adoption of green banking in developing nations gained popularity in 2012 with the help of IFC. The development of a sustainable banking network (SBN) helps the emerging economies for the adoption of GB (Rehman et al., 2021).

GB is the source for the banks to make their reputation better and gain competitive advantages that could be fruitful for the banks because it will increase their operational efficiency by improving their brand identity (IFC, 2012; Tara et al., 2015 and SBP, 2017). Pakistan became a member of IFC in 2015 and a membership survey was conducted on the environmental conditions and banking role to stimulate the role of SBP in 2015. After realizing the importance of GB and fulfilling the requirements for competing with developed nations, SBP issued the green

banking guidelines (GBG-2017) in the year 2017 that necessitates the Pakistani banking industry to take suitable steps for GB adoption in their daily operations and decisions (Bukhari et al., 2020). It is reported that reputation and cost benefits for adoption intention are very important factors that should be considered by the stakeholder (Maryam, et al. 2021).

2.2 Bank Performance

Bank performance is an important indicator for the success or failure of any bank based upon selected parameters. It is reported that bank performance can be measured through non-financial measures, i.e., qualitative measures or financial measures i.e. quantitative indicators according to need and purpose of the target institution (Ahmad, et al. 2010). In another study, it is reported that service quality rendered by a specific bank directly influences the performance of the banks (Ahmad, et al. 2010). Performance is also affected by the activities of the organizations within a specified period. To gain additional information from the management, non-financial performance measures are used by many organizations (Ahmad et al, 2011). It is observed that social loafing could affect the performance of service organizations adversely (Ahmad et al. 2018). Financial information is not only information that can be used to assess performance, but also non-financial performance measures that could help to gauge the performance, but these are not fairly disclosed in financial statements.

Rehman et al. (2021) reported that operations of GB have a significant impact on the environmental performance. Regulatory requirements by the controlling body like Government and central banks are important factors of adoption of new developments in banks that leads to making the better bank performance. Compliance with the regulatory requirements promotes the good reputation of financial institutions which make the adoption of new developments in organization which automatically improves the bank performance better by fulfilling the regulatory requirements (Meca et al., 2014). To better understand the determinants of GB practices there is a need to conduct studies in developing countries (Tu & Dung, 2017).

2.3 Management Support

Yigitbasioglu (2015) reported that a group of powerful executives and authoritative persons are those who have the responsibility for the entire business being the part of top management. Therefore, commitment of top management for environmental concerns could facilitate controlling environmental issues by promoting environmentally friendly policies (Chang and Wong, 2006). Similarly, green banking practices could be enhanced by active support of the management (Masukujjaman and Akhtar, 2013) that is evident in case of internet banking adoption as an outcome of management support (Choudhury et al. 2013; Tara and Kumar, 2015). Therefore, top management support is much needed for adoption of digital banking in almost all the operations, activities and tasks of banks. However, ineffective control of the management could create difficulties for the adoption of green banking (SBP, 2017). It is reported that management has positive support and visible impact on the green banking adoption that is documented in Ghanaian banking sector (Okyere-Kwakye and Md Nor, 2021).

2. 4 Competitor Pressure

The contemporary professional world is very competitive and that is more evident in the

case of the banking sector. The increased competition has positive or negative influence/pressure that compels the banks to update, change, modify or even introduce new products, services and allied facilities. Banks wanted to remain in the business by getting more market share and are influenced by the competitor's pressure since emergence of new technologies. They are struggling for better customer satisfaction, loyalty and retention of valuable customers for longer time (Lee et al., 2023). It is observed that green banking adoption is more desired due to recent green certification and revolution in the environment related efforts (Yalabik and Fairchild, 2011; Lin and Sheu, 2012). It is reported that green banking impact on competitors is influenced largely due to obligatory adoption of green banking guidelines in case of Bangladeshi banking sector (Masud et al. 2018).

2.5 Customer Demand

In developing countries, numerous barriers hamper the adoption of GB. It is found that customers are willing to pay more if the banks are managing their GB practices very effectively (Havas, 2007). Barriers are almost same in all surveyed countries towards the adoption of GB due to the lack of clarity and lack of measurement standards. People are unable to understand the importance of GB sometimes due to lack of awareness among the stakeholders regarding how to peruse GB and how to get its benefits (IFC survey, 2015). Customers are the vital contributor that impact the adoption of GB by business firms (Lin & Sheu, 2012). According to Choudhury et al. (2013), customers can contribute towards the adoption of GB directly and indirectly. Customer awareness about environmental concerns and pressure from customers has a positive significant impact on GB adoption (David & Shameen, 2017). It is concluded that GB adoption also is helpful for the retention of the customers, which also leads towards better environmental management (Iqbal et al. 2018).

2.6 Environmental Pressure

It observed that environmental factors have a significant impact on organizations who are realizing the importance of corporate social responsibility initiatives. It is reported that corporate social responsibility is one of the most important aspects for which corporate entities are struggling (Asad and Ahmad, 2011). Similarly, green banking could help the banks to create a positive image among customers because of corporate social responsibility by addressing climate change problems, carbon emission, desertification and other environmental issues (Tara et al. 2015). The climate index indicates that ninety percentage of environmentally effected countries are the developing countries who are struggling to improve their develop phase but trapped in environmental problems (Kreft et al. 2017). It is noticed that banks are inclined to develop standards to control environmental issues by playing positive role (Meng et. al. 2019). However, Pakistan is one of the most vulnerable countries who are facing sudden environmental changes and adverse outcomes that require green banking as an environment-friendly activity (Bukhari et al. 2020).

2.7 Perceived Risk

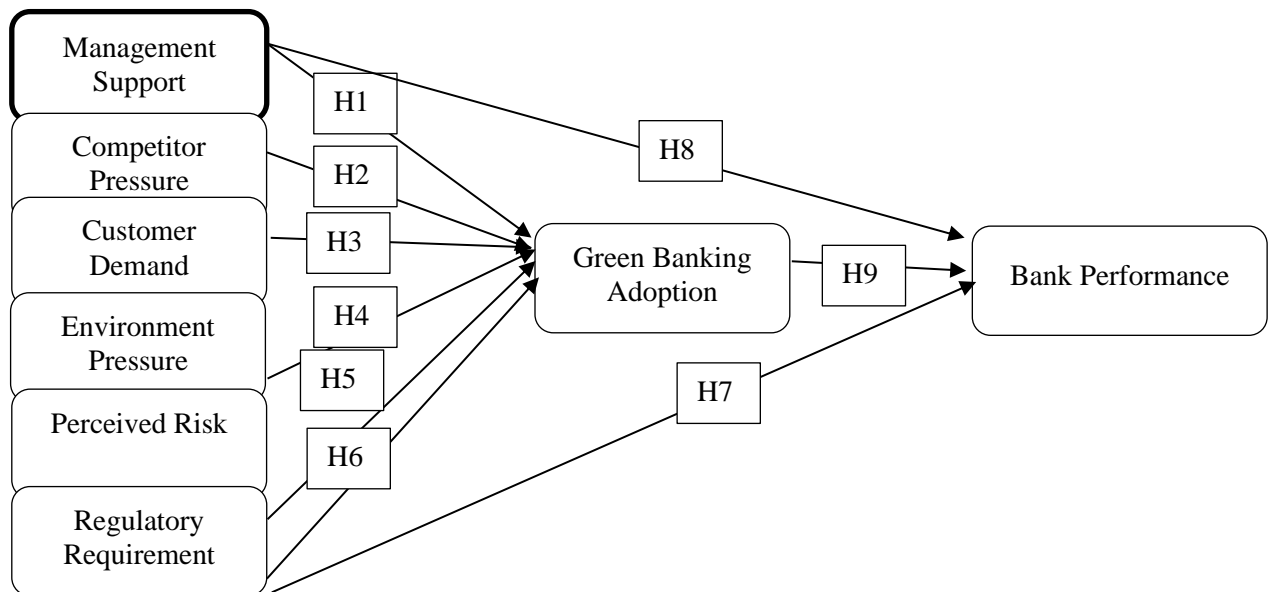
Perceived risk is one of the greatest challenges in the recent world. The banking sector is more vulnerable to facing several risks due to changes in environment, technology, working

conditions and high competition. It is observed that perceived risk about security affects online applications (Lu et al. 2005; Lee, 2009). Similarly, trust level and behavioral concerns created perceived risk regarding online banking (Martins et al., 2014). Similarly, perceived risk could influence the purchase intentions and services utilization among stakeholders (Wever, 2015; 2017). However, electronic services are widely affected by different risks including financial risk, security risk and privacy risk (Noreen et. al. 2021).

2.8 Regulatory Requirements

Regulatory bodies play an important role in the adoption of environmental practices by the firms (Darnall et al., 2009; Etizon et al., 2009). The government of any country is the leading authority to implement the GB in the banking industry. The government of can put pressure on the banks to adopt those technologies that reduce environmental impact (Darnall, 2008). Central banks are among the most important stakeholder in any banking system that can force changes on the commercial banks and other financial institutions with the purpose to conduct their activities environment friendly (Volz, 2017). In Pakistan, for GB implementation green banking guidelines (GBG) was provided by the SBP in 2017 and these guidelines are voluntarily for all the banks in Pakistan but on the other side, these GBG should be aligned to the other guidelines. The government can facilitate the implementation of the rules and regulations for the adoption of GB in addition to World Bank who is also a contributor for GB adoption (Amir, 2021). Existing knowledge related to selected variables enables us to propose a research model that is placed in figure 1 indicating Research Model.

Figure 1 Research Model



Source: Generated).

3.0 Methodology

This paper examines the role of determinants of GB adoption and its outcomes in terms of bank performance in the selected part of Pakistan based upon a survey. The population of the study consists of employees who are working at managerial level in the selected banks e.g. Operations managers, branch managers, relationship managers who have knowledge about GB adoption and practices in banking industry and who can easily understand English Language. A structured questionnaire in English was used for data collection from the target respondents. Individual was the unit of analysis to collect data from the respondents by visiting selected bank branches in person. A multi-item instrument was used to collect data for the selected variables including management support (6-items), competitor pressure (4-items), customer demand (3-items) and green banking adoption (5-items) were adapted and items related to environmental pressure (6-items) were adapted from Igbudu et al. (2018); perceived risk (9-items) adopted from Roy et al. (2017); regulatory requirements (6-items) were adapted from Mehedi and Maniruzzaman (2017) and Bank performance (12-items) was measured. Selected variables were measured on an interval scale by using a 5-point Likert scale (range from 1 = strongly disagree and 5 = strongly agree). A structured questionnaire in English was devised in the light of existing literature by incorporating trends/feedback from the local setting to conduct a self-administrated survey for data collection from major industrial cities Lahore, Faisalabad, Gujranwala, and Sialkot. A Sample size was 300 respondents was selected to whom questionnaires were distributed. However, 225 questionnaires were filled and returned but 200 questionnaires (completed) were processed for data analysis by excluding incomplete questionnaires. Data was analyzed through SPSS v. 26 by application of selected statistical tools including structural equation model (SEM).

4.0 Findings and Results

Demographic profile of the respondents indicates that majority of the respondents 132 (66%) were male and 68 (34%) were female; age of respondents reveals majority of the respondents (135/ 67.5%) fall into 25-34 age group while (41/ 20.5%) fall into 25-44 age group and remaining 13/ 6.5% fall in less than 25 and 11/5.5% fall over 45 years. The qualification indicated that (53; 26.5%) were intermediate, (107; 53.5%) were graduated, (34; 17%) were post graduated and (5; 2.5%) were fall in the others category. However, experience of the respondents reveals that 18 (9%) of respondents have one year experience, 78 (39%) fall between 1-5 years' experience, 60 (30%) fall between 6-10 years' experience, and 44 (22%) of respondents fall between 11-15 years or above experience. Most of the respondents 79 (39.5%) were operations managers, 88 (44%) were relationship managers and 33 (16.5%) were general banking officers. Table 1 indicates the descriptive statistics specifically based on mean values and standard deviation.

Table 1 Descriptive Statistics

Constructs	Mean	Standard Deviation
Management Support	3.8175	.77701
Competitor Pressure	3.8813	.74345
Customer Demand	3.7610	.82272
Environmental Pressure	3.7600	.70901
Regulatory Requirements	3.8617	.77151
Perceived Risk	3.5444	.76480
Green Banking Adoption	3.7336	.63947
Bank Performance	4.1137	.69748

The measurement properties of all constructs were first evaluated with Confirmatory Factor Analysis (CFA). Typically accepted indices were used for making the decisions for model fit. Wheaton et al. (1977) and Tabachnick et al. (2007) reported relative chi-square (χ^2/df) in the high range of 5.0 and low range 1.0., goodness of fit index GFI = 0.999 (≥ 0.95) (Miles & Shevlin, 1998), Adjusted goodness of fit index (A) GFI= 0.991 (≥ 0.95), Non-normed fit index (N)NFI = 0.999 (≥ 0.95) (Hu & Bentler, 1999), Tucker-Lewin index TLI=1.030 (≥ 0.95) (Sharma et al, 2005; McDonald & Marsh, 1990), comparative fit index CFI=1.000(≥ 0.90), root mean square error of approximation RMSEA=0.03 (< 0.08) (Byrne, 1998; Diamantopoulos & Siguaw, 2000) and, (standardize) root mean square residual (S)RMR=0.47 (< 0.08) (MacCallum et al, 1996). It is reported that when the values meet all the acceptance criteria, the model could be accepted.

Table 2 Internal Consistency and Validity

Constructs	No of Items	Cronbach's alpha $\alpha \geq 0.70$	Composite reliability CR ≥ 0.70	Average variance extracted AVE ≥ 0.50
Management Support	6	.893	0.807	0.897
Competitor Pressure	4	.823	0.849	0.573
Customer Demand	3	.886	0.850	0.641
Environmental Pressure	6	.865	0.800	0.604
Regulatory Requirements	6	.905	0.822	0.674
Perceived Risk	9	.728	0.844	0.465
Green Banking Adoption	5	.900	0.890	0.564
Bank Performance	12	.709	0.949	0.679

Table 2 indicates the value of Cronbach alpha that were used as a benchmark to check the internal reliability; Composite reliability was used to check the convergent validity, CR value should be more than 0.05 is acceptable but a value more than 0.07 is good (Chan et al., 2015). Moreover, values indicate that convergent validity was achieved because $\alpha \geq 0.07$ and standardized loadings were more than 0.60 which were fairly high (Bagozzi & Yi, 1988). To achieve the convergent validity factor loadings should be more than 0.60 (Fornell & Larcker, 1981). The average variance extracted (AVE) represents the construct validity and it is used to check the discriminant validity, acceptance level of AVE ≥ 0.05 (Bagozzi & Yi, 1988). Table 3 is self-explanatory that indicates the discriminant validity regarding selected variables of the study.

Table 3 Discriminant Validity

Construct	CP	MS	CD	EP	RR	GBA	PR	BP
CP	0.757							
MS	0.565	0.787						
CD	0.604	0.496	0.786					
EP	0.567	0.732	0.545	0.776				
RR	0.614	0.694	0.505	0.801	0.815			
GBA	0.460	0.624	0.492	0.589	0.557	0.751		
PR	0.115	0.151	0.155	0.339	0.298	0.436	0.684	
BP	0.513	0.651	0.434	0.633	0.762	0.467	0.200	0.812

Table 3 represents the discriminant validity were achieved, when no squared correlation is greater than the AVEs (Fornell & Larcker, 1981). The value suggesting that the discriminant validity of study variable was fairly high.

Table 4 Results of Regression Model

Constructs		Estimate	S.E.	C.R.	P	Supported / not Supported
GBA	<--- MS	.343	.062	4.541	***	Supported
GBA	<--- CP	.038	.060	.542	.588	Not Supported
GBA	<--- CD	.142	.052	2.138	.033	Supported
GBA	<--- EP	.096	.080	1.090	.276	Not Supported
GBA	<--- PR	.266	.047	4.749	***	Supported
GBA	<--- RR	.057	.071	.672	.502	Not Supported
BP	<--- RR	.556	.057	8.801	***	Supported
BP	<--- MS	.232	.060	3.501	***	Supported
BP	<--- GBA	.029	.064	.496	.620	Not Supported

Table 4 reveals the results of regression model. Results supported the hypothesized relationships of the model except competitor pressure, environmental pressure, and regulatory requirements that is evident from Table 4. Findings indicate that management support ($\beta=.343$, $\rho=0.000$), customer demand ($\beta=.142$, $\rho=0.033$), perceived risk ($\beta=.266$, $\rho=0.000$). results reveal a significant effect on the green banking adoption that is consistent with the previous studies (Infinedo, 2011; Okyere-Kwakye & Nor, 2021). It indicates that competitor pressure ($\beta=.038$, $\rho=0.588$), environmental pressure ($\beta=.096$, $\rho=0.276$) and regulatory requirements ($\beta=.057$, $\rho=0.052$) does not influence on the green banking adoption, the results are against the findings of (Al-Ahmad 2012; Rehman et al, 2021). The contrary findings were because of local banking systems and practices adopted by the banks. The factors like competitor pressure, environmental pressure, and regulatory requirements does not influence on the green banking adoption. Findings are contrary to the results of some of the studies already reported in the existing literature (Rehman et al, 2021; Al-Ahmad 2012).

In Pakistan, GB adoption is in its early stage as State Bank Pakistan (SBP) issued the policy guidelines for adoption of GB practices in October 2017. The results of hypotheses disclosed that regulatory requirements ($\beta=.556$, $\rho=0.000$) and management support ($\beta=.232$, $\rho=0.000$) has a

significant direct effect on bank's performance but the results of the impact of green banking adoption ($\beta=.029$ $\rho=0.620$) on bank's performance were not significant and these results are unexpected, because, previous studies reveal that there should be impact of GB adoption on bank's performance (Rehman et al. 2021). From the past decades, many efforts have gained more popularity for the promotion of environment-friendly banking (Bukhari et al., 2020). Banks need to gain customer satisfaction and loyalty (Okyere-Kwakye & Md Nor, 2021). According to Lee et al. (2013), competitor pressure is certainly attached to GB adoption.

5.0 Discussion and Conclusion

This study was conducted to examine the determinants of green banking adoption in selected banks of Pakistan. For the study, data were collected from the industrial cities of the Punjab, Pakistan using convenience sampling through a structured questionnaire in English. Data were analyzed by an application of selected tools/techniques of SPSS. Data screening was undertaken, and the goodness of data was also checked through reliability analysis, validity, factor loadings and model fit indices. Results indicate that three MS, CD, and PR determinants have significant impact, and EP, RR and CP have no significant impact on green banking adoption. There are many reasons for the insignificant impact of environmental pressure and regulatory requirements besides other factors. Moreover, central bank should make new strategies and policies for the implementation of sustainable banking in Pakistan.

To support the results of the competitor pressure it can be said that employees of the banking sector are not aware of the competition in the market, and they did not give importance to the adoption of GB to compete with their rivals. Pakistan is the most vulnerable country due to sudden climatic changes and severe weather conditions which directly and indirectly affect the banking sector investment. Bankers can make their internal policies to encourage the GB adoption in the country, keeping in view the low adoption level and awareness in the customers. Management is required to support its employees along with desired resources to encourage green banking. SBP should make policies as regulator, which enable and facilitate the banks to implement the adoption of GB banking sector. This study could enhance the understanding of the relevant stakeholders and could increase the awareness regarding green banking in the context of Pakistan.

Ashfaq Ahmad: Problem Identification and Theoretical Framework

Beenish Yaqoob: Data Analysis, Supervision and Drafting

Nasim Qaiser: Methodology and Revision

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest in this article's research, authorship, and publication.

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