| Research Article |

Green Banking Practices and Sustainable Banking in Pakistan: The Mediating Role of Intentions to Adopt Green Banking

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Abstract: *The study examined the effect green banking practices on sustainable banking in Pakistan with mediating role of intentions to adopt green banking. Five green banking practices i.e. perceived usefulness, perceived ease of use, management commitment and support, competitors' pressure, and customer pressure were selected to test the proposed relationships. Respondents of the study included randomly selected 400 banking sector employees employed at commercial banks in Khyber Pakhtunkhwa province of Pakistan. Data were collected through a combined 37 items survey questionnaire. Data were analysed using structural equation modelling to examine the path and structural models. The results of the study revealed that all the selected green banking practices have significant effect on intentions to adopt green banking as well as sustainable banking except ease of use and*

sustainable banking. Further, intentions to adopt green banking mediated the relationship between green banking practices and sustainable banking in Pakistan.

Key Words: *Green Banking Practices, Sustainable Banking, Intentions to adopt Green Banking*

I. Introduction

In recent times, the global community has witnessed an intensified call for environmentally sustainable practices across all sectors (Hoijtink. 2020). Among these, the financial industry, with its considerable influence on economic activities, has come under scrutiny for its role in either exacerbating environmental challenges or contributing to their mitigation (Aboelmaged & Gebba, 2013). The banking sector, as a cornerstone of financial operations, has recognized its potential to foster positive environmental and social outcomes through the integration of sustainable practices into its operations (Al-Smadi, 2022). This shift has led to the emergence of the concept of "green banking," which entails the alignment of financial operations with ecological sustainability and responsible social practices (Alice, 2019).

Pakistan, like many other nations, has been grappling with a range of environmental and social challenges driven by rapid urbanization, industrial growth, and population expansion (Ahmad, 2020). As a response, there has been a growing recognition within the Pakistani banking sector regarding the importance of adopting sustainable practices to curb the adverse consequences of economic development (Ajzen, 2021). This recognition has led to increased efforts to embrace green banking practices, which include initiatives such as investments in renewable energy projects, eco-friendly lending policies, digital transformation to reduce paper usage, and the incorporation of socially responsible investment strategies. However, the relationship between these green banking practices and the broader objectives of sustainable banking warrants further exploration (Afridi et al., 2023).

The concept of green banking has evolved in response to the increasing urgency of global environmental concerns (Aragón-Correa, 1998). This practice encompasses a spectrum of measures and strategies designed to mitigate negative environmental impacts and enhance social well-being through financial operations (Arimura et al., 2018). By embracing green banking, financial institutions can contribute to the conservation of natural resources, reduction of greenhouse gas emissions, and overall sustainable development. Furthermore, these practices can positively impact a bank's reputation, customer loyalty,

and long-term financial performance (Ghani et al., 2022; Aslam & Jawaid, 2022).

In the Pakistani context, the banking sector holds significant potential to be a catalyst for positive change (Ahmad et al., 2013). With Pakistan's ongoing economic development and urbanization, there exists an opportunity to integrate green banking practices into the country's financial landscape, thereby contributing to national and international sustainability goals (Bukhari et al., 2022). However, while there is a growing awareness of the importance of green banking, there is a limited understanding of the underlying factors that shape the relationship between green banking practices and the attainment of sustainable banking outcomes (Zahra et al., 2022; Bukhari et al., 2019).

While the global shift towards green banking is evident, a gap in the literature remains concerning the moderating factors that influence the relationship between green banking practices and sustainable banking outcomes (Afridi, 2023). One such potentially influential factor is the "intentions to adopt green banking practices." Intentions represent the planned actions of individuals or organizations and serve as predictors of actual behaviours. Despite their significance, the extent to which intentions to adopt green banking practices moderate the link between the implementation of these practices and the achievement of sustainable banking goals remains largely unexplored (Zahra et al., 2022).

Moreover, within the Pakistani context, there is a dearth of empirical research that focuses specifically on the interplay between intentions, green banking practices, and sustainable banking outcomes (Siddiqui et al., 2022). While some studies have examined the broader landscape of environmental sustainability in Pakistan, a comprehensive investigation into the role of intentions as a moderator in the relationship between green banking practices and sustainable banking outcomes is notably absent.

The banking sector in Pakistan stands at a crucial juncture, balancing the imperatives of economic growth with those of environmental preservation and social well-being (Shamshad et al., 2018). While green banking practices offer a promising avenue for harmonizing these often conflicting objectives, there exists a gap in our understanding of the role that intentions to adopt such practices play in shaping the relationship between their implementation and the achievement of sustainable banking outcomes (Zahra et al., 2022). Additionally, the scarcity of empirical research tailored to the Pakistani banking context hinders a comprehensive understanding of this intricate relationship.

Hence, this research endeavours to address this gap by investigating the moderating role of intentions to adopt green banking practices within the relationship between green banking practices (encompassing perceived usefulness (PU), perceived ease of use (PEU), management commitment and support (MCS), competitors' pressure (CP), and customer pressure (CsP)) and sustainable banking (SB) outcomes in the banking sector of Pakistan. The outcomes of this study are poised to offer valuable insights for policymakers, banking executives, and researchers aiming to cultivate sustainable banking practices that are not only aligned with the distinctive socio-economic landscape of Pakistan but also contribute to the overarching objectives of environmental preservation and societal welfare.

2. Theory and Hypotheses

2.1 Perceived Usefulness and Sustainable Banking

The adoption of sustainable banking practices—which entail financial institutions incorporating environmental, social, and governance (ESG) considerations into their decision-making processes—is heavily influenced by PU. People are more inclined to accept sustainable banking when they believe it reduces financial risks, delivers financial rewards, and/or aligns with their beliefs. It also has a positive environmental impact (Hajian & Kashani, 2021). Information accessibility, market trends, and regulatory requirements all affect how beneficial something is seen to be. According to Ghani et al. (2020), peer influence in social networks and confidence in the legitimacy of financial institutions are important variables. Institutions must follow transparent ESG practices, promote the dual financial and ethical benefits of sustainable banking, and employ public awareness campaigns and regulatory frameworks to increase perceived utility in order to promote the adoption of sustainable banking (Men et al., 2023). We may hypothesize on the basis of these arguments that;

H1: Perceived usefulness positively affects Sustainable Banking.

2.2 Perceived Ease of Use and Sustainable Banking

People's willingness to engage with sustainable banking—which includes socially and environmentally responsible financial practices—is significantly influenced by how simple they perceive it to be to use. PEU in the context of sustainable banking refers to how people view how easy and convenient it is to incorporate environmentally and socially responsible elements into their financial activities (Ghani et al.,

2020). Financial organizations that are dedicated to sustainable banking must place a high priority on user-friendly interfaces and open communication about how their products and services affect society and the environment. Accessible interfaces and unambiguous information lessen the perception of complexity, improving the usability of sustainable banking (Khan et al., 2023).

The PEU of sustainable banking can be greatly influenced by education and awareness campaigns, which enable people to make simple, well-informed decisions that are consistent with their values (Park & Kim, 2020). Furthermore, the incorporation of technological tools, like online platforms and mobile applications, improves user experience and expedites the adoption of sustainable practices. PEU and SB are fundamentally related, and they influence how much people integrate socially and environmentally conscious financial practices into their daily lives. Financial institutions are better positioned to promote the widespread adoption of sustainable banking and contribute to a more responsible and environmentally conscious financial sector when they successfully prioritize simplicity, education, and technological integration (Ghani et al., 2020). We may hypothesize on the basis of these arguments that;

H2: Perceived ease of use positively affects Sustainable Banking.

2.3 Management Commitment and Support and Sustainable Banking

Effective adoption of SB practices integrating ESG considerations into financial decision making requires the support and commitment of management. Leadership that is committed to sustainability aligns the strategy of the firm, makes resource allocations, creates regulations, and molds the culture of the workplace. This dedication encourages openness, creativity, and a long-term perspective, which makes it possible to create banking services and products that are sustainable. It also promotes the creation of risk management frameworks and interaction with outside stakeholders (Falle et al., 2016). In order for financial institutions to meet the expectations of investors and customers and integrate sustainability into their operations, MCS is ultimately necessary (Men et al., 2023). We may hypothesize on the basis of these arguments that;

H3: Management commitment support positively affects Sustainable Banking.

2.4 Competitors' Pressure and Sustainable Banking

Adoption of sustainable banking practices is propelled by competition pressure. Financial institutions

are driven to set themselves apart from the competitors by embracing sustainability (Ellahi et al., 2023). Growing investor expectations that take environmental, social, and governance (ESG) aspects into account as well as customer demand for socially conscious banking services are driving this (Chen et al., 2020). This competitive push is further fueled by the need to comply with changing ESG rules as well as the goals of reducing risks, increasing cost effectiveness, enhancing brand reputation, and keeping up with global sustainability trends. Financial institutions, realizing that sustainability is turning into a crucial component of keeping a competitive edge in the financial market, frequently collaborate and partner to support their sustainable banking activities (Chu et al., 2017). We may hypothesize based on these arguments that;

H4: Ccompetitors' pressure positively affects Sustainable Banking.

2.5 Customers' Pressure and Sustainable Banking

Financial organizations are being forced to adopt sustainable banking practices, or integrating ESG standards into their operations, primarily due to customer pressure. Growing customer demand for ESG-friendly financial products, like sustainable loans and ethical investments, is what is driving this trend (Christina, 2020). Responding to consumer preferences helps banks stand out from the competition, build brand loyalty, and draw in clients who respect sustainability. Banks are further encouraged to implement sustainable practices by customer expectations of accountability and openness about the usage of their funds (Ellahi et al., 2023). Furthermore, younger generations with high sustainability preferences—Millennials and Gen Z, in particular—have a big influence on the adoption of sustainable banking. As a result, financial institutions are under pressure from their clients to incorporate ESG principles into their operations and services (Mufarih et al., 2020). We may hypothesize based on these arguments that;

H5: Customers' pressure positively affects Sustainable Banking.

2.6 Intentions to Adopt Green Banking and Sustainable Banking

Banks have become more interested in implementing different initiatives that support sustainable

banking (Ghobakhloo et al., 2011). When it comes to pollution and carbon emissions, they regard themselves as an environmentally friendly industry when compared to other industries such as oil and gas, chemical, transportation, etc. However, their external actions—that is, their lending and investment policies for clients—may have a negative effect on the environment. In general, banks don't feel compelled to implement social and environmental policies above and beyond what is required by law. In developed nations, banks have implemented voluntary guidelines and policies such as the Equators Principles to effectively handle environmental and social concerns related to project financing (Khan et al., 2023; Khan et al., 2022; Jeucken, 2010). With few notable exceptions, the regulatory framework supervising the present system of banking is not being fully utilized and bank supervisors appear to be collectively blind to systemic environmental hazards. Therefore, Khan et al. (2023) recommend that banking policies and procedures include Sustainable Banking standards. We may hypothesize based on these arguments that;

H6: Intentions to adopt green banking positively affects Sustainable Banking.

2.7 Perceived Usefulness and Intentions to Adopt Green Banking

Individuals' perceptions of the benefits and intentions behind adopting green banking practices determine their uptake. The concept of PU, which is based on the idea that adopting eco-friendly financial practices improves both individual and community well-being, is influenced by a number of variables, including personal values alignment, financial institution trust, and ease of use (Ellahi et al., 2023). Financial institutions are key players in promoting the perceived value of green banking by openly communicating the advantages to the environment, designing user-friendly interfaces, and consistently showcasing their commitment to sustainability. When it comes to influencing people's intentions to adopt green banking, the relationship between individual actions and positive ecological impact is critical (Khan et al., 2023). As environmental awareness grows, financial institutions must invest in educational campaigns, seamless integration of green features, and trust-building measures to strengthen the perceived usefulness and drive the widespread adoption of green banking practices, contributing to a more sustainable financial landscape. We may hypothesize on the basis of these arguments that;

H7: Perceived usefulness positively affects intentions to adopt green banking.

2.8 Perceived Ease of Use and Intentions to adopt Green Banking

The PEU significantly influences individuals' intentions to adopt green banking practices, representing the perceived simplicity and convenience associated with environmentally friendly financial activities. Financial institutions play a crucial role in shaping this perception through user-friendly interfaces, clear communication of green features, and seamless integration into existing platforms. Institutions that prioritize accessibility and simplicity create an environment where customers feel empowered to make environmentally conscious financial decisions (Baraghani, 2018).

Education is a key factor in enhancing the perceived ease of use, as informative campaigns and support services demystify the process of adopting green banking practices. Additionally, technological advancements contribute to streamlining the adoption process. Integration of innovative technologies, such as mobile apps and online platforms, enhances the user experience and reduces perceived barriers to engaging with green banking (Ellahi et al., 2023).

As the financial sector continues to prioritize sustainability, institutions that prioritize simplicity, accessibility, and technological innovation are poised to see increased adoption of green banking practices, thus contributing to the broader goal of fostering environmental responsibility in financial services (Ghobakhloo et al., 2011). Therefore, we may hypothesize on the basis of these arguments that;

H8: Perceived ease of use positively affects intentions to adopt green banking.

2.9 Management Commitment and Support and Intentions to adopt Green Banking

MCS refers to the excitement, support, involvement, and motivation that management provides to its staff and other stakeholders in order to implement green practices in their business operations. One factor that is thought to be predictive of new technology adoption in businesses is top management support. According to Mufarih et al. (2020), once company executives have been persuaded of the benefits of implementing new technology, they will often encourage other members of the organization to follow suit by providing ample resources. Numerous previous studies, including those on e-commerce by Chatterjee et al. (2022), enterprise systems by Sharma & Choubey (2022), and internet acceptance

by Mufarih et al. (2020), demonstrate that MCS was a significant factor for intention to adopt new technology. Here, we may hypothesize on the basis of these arguments that;

H9: Management commitment and support positively affects intentions to adopt green banking.

2.10 Competitors' Pressure and Intentions to adopt Green Banking

In a market where there is competition, financial institutions are driven to adopt green banking practices by the pressure of their rivals. This effect goes beyond simple competition and affects reputational benefits, strategic placement, and adherence to changing environmental laws. Banks investigate and adopt eco-friendly tactics, such as green financing options and carbon footprint reduction measures, out of a fear of lagging behind in the race toward sustainability (Khan et al., 2023). Financial institutions are encouraged to implement green practices in order to gain a competitive edge and establish themselves in a crowded market, as they recognize that a dedication to environmental responsibility improves corporate image (Ghobakhloo et al., 2011).

This pressure is increased by industry collaborations and regulatory frameworks, which foster an atmosphere in which banks feel obliged to engage in order to stay competitive. But progressive organizations see sustainability as a chance rather than a response to outside demands (Ellahi et al., 2023). They view green banking as a competitive advantage that will draw in eco-aware clients, lower operational risks related to climate change, and promote resilience over the long run. Fundamentally, the relationship between the pressure from rivals and the intentions to implement green banking illustrates how market dynamics, regulatory compliance, reputational concerns, and the inherent value of sustainability in a shifting financial landscape interact dynamically (Mufarih et al., 2020). We may hypothesize on the basis of these arguments that;

H10: Competitor pressure positively affects intentions to adopt green banking.

2.11 Customers' Pressure and Intentions to Adopt Green Banking

Customers' pressure is a driving force behind financial institutions' intentions to adopt green banking practices. As consumers increasingly prioritize sustainability, they exert pressure on banks to align with eco-friendly principles. This pressure is communicated through various channels, including customer feedback and social media, creating a demand for transparent and environmentally responsible banking

practices (Taneja & Ali, 2021). Financial institutions, recognizing the importance of customer loyalty and the risks of ignoring environmental concerns, respond by implementing green initiatives such as sustainable financial products and eco-friendly operational practices. The relationship between customers' pressure and green banking adoption is symbiotic, with responsive institutions gaining a competitive edge in attracting socially conscious clientele (Mufarih et al., 2020). This dynamic interaction not only transforms the financial industry but also fosters innovation as institutions strive to meet the evolving demands of environmentally aware consumers. The customer-driven push for sustainability redefines the banking landscape, emphasizing the significant role consumer expectations play in shaping the industry's commitment to environmental responsibility (Ghobakhloo et al., 2011). We may hypothesize on the basis of these arguments that;

H11: Customer pressure positively affects intentions to adopt green banking.

2.12 Mediating role of Intentions to Adopt Green Banking in PU and SB Relationship

The mediating role that IAGB plays in PU and SB association points out a crucial dynamic. PU, or the advantages one believes come with utilizing green banking practices, has an impact on a person's intention to adopt environmentally responsible banking. Customers are more likely to develop positive intentions toward implementing green banking practices when they believe these practices will benefit them (Park & Kim, 2020). In turn, these goals result in real participation in sustainable banking operations. To put it simply, the perceived value of green banking acts as a trigger, motivating people to adopt sustainable banking practices that incorporate ESG considerations into fiscal choices. This knowledge emphasizes how crucial it is to communicate the advantages of green banking in order to promote the formation of intentions as well as actual adoption (Men et al., 2023). We may hypothesize on the basis of these arguments that;

H12: Intentions to adopt green banking mediates relationship of perceived usefulness and Sustainable Banking.

2.13 Mediating role of Intentions to Adopt Green Banking in PEU and SB relationship

One important dynamic between PEU and SB is the mediating role of intentions to adopt green banking. People's intentions to adopt environmentally responsible banking practices are influenced by perceived ease of use, which reflects how simple these practices are (Ghani et al., 2020). Customers are more likely to adopt sustainable financial services positively when they find green banking user-friendly (Khan et al., 2023). Their actual participation in sustainable banking activities, such as selecting ethical banking products or investing in ESG funds, is subsequently motivated by these intentions. Sustainable banking, which incorporates ESG considerations into financial decisions, is essentially adopted as a result of the perceived ease of implementing green banking practices, which in turn shapes intentions (Men et al., 2023). This knowledge emphasizes how crucial it is to make sure green banking is easy to use in order to promote intention formation as well as actual adoption. We may hypothesize on the basis of these arguments that;

H13: Intentions to adopt green banking mediates relationship of perceived ease of use and Sustainable Banking.

2.14 Mediating role of Intentions to Adopt Green Banking in MCS and SB relationship

To fully grasp how organizational leadership affects the adoption of environmentally sustainable banking practices, it is essential to grasp the role of IAGB as mediator in MCS and SB association. The implementation of sustainable banking initiatives is influenced by management's support and commitment (Men et al., 2023). Employees' actual participation in sustainable banking practices, such as utilizing ethical banking products or investing in ESG funds, is subsequently motivated by these intentions. Fundamentally, a culture of sustainability is fostered within financial institutions by strong leadership commitment and support, which eventually results in the adoption of sustainable banking practices that incorporate ESG considerations into financial decision-making. This emphasizes how important leadership is in encouraging sustainability in businesses (Hasan et al., 2020). We may hypothesize on the basis of these arguments that;

H14: Intentions to adopt green banking mediates relationship of management commitment and support and Sustainable Banking.

2.15 Mediating role of Intentions to Adopt Green Banking in in CP and SB relationship

One key mechanism in deciphering the complex relationship between CP and SB is the mediating role of IAGB. Pressure from rivals serves as a trigger, pushing financial institutions to adopt eco-friendly procedures. In this dynamic, intentions to implement green banking play a mediating role, impacting how outside forces materialize into specific actions in the field of sustainable finance (Hasan et al., 2020).

As rivals push for sustainability, people's plans to use green banking become crucial factors. This intermediary process emphasizes how people's willingness and commitment to adopt eco-friendly financial practices are what determine whether external competitive forces translate into real sustainable banking initiatives (Khan et al., 2016). Essentially, the mediation highlights how individual intentions play a critical role in determining the direction of sustainable banking, serving as a vital conduit between the competitive environment and the actual application of eco-friendly practices in the financial industry (Khan et al., 2023). Financial institutions that want to respond to external competitive pressures by navigating the changing landscape of sustainable finance must comprehend this mediation (Ghani et al., 2020). We may hypothesize on the basis of these arguments that;

H15: Intentions to adopt green banking mediates relationship of competitor pressure and Sustainable Banking.

2.16 Mediating role of Intentions to Adopt Green Banking in CsP and SB Relationship

Customer demand has a major impact on the IAGB responsive to environment, as evidenced by the relationship between CsP and sustainable banking and the mediating role of IAGB (Taneja & Ali, 2021). Financial institutions are under pressure to adapt as clients look for banking services that more closely reflect their values, like ethical banking products and green investments. Organizations and individuals are under external pressure to develop good intentions and implement green banking practices. ESG considerations are eventually incorporated into decision-making about financial matters as a consequence of these intentions, which in turn motivate real participation in sustainable banking activities. This demonstrates the significance of consumers demanding sustainable banking practices from the financial industry (Mufarih et al., 2020). We may hypothesize on the basis of these arguments that;

H16: Intentions to adopt green banking mediates the relationship between customer pressure and

Sustainable Banking.

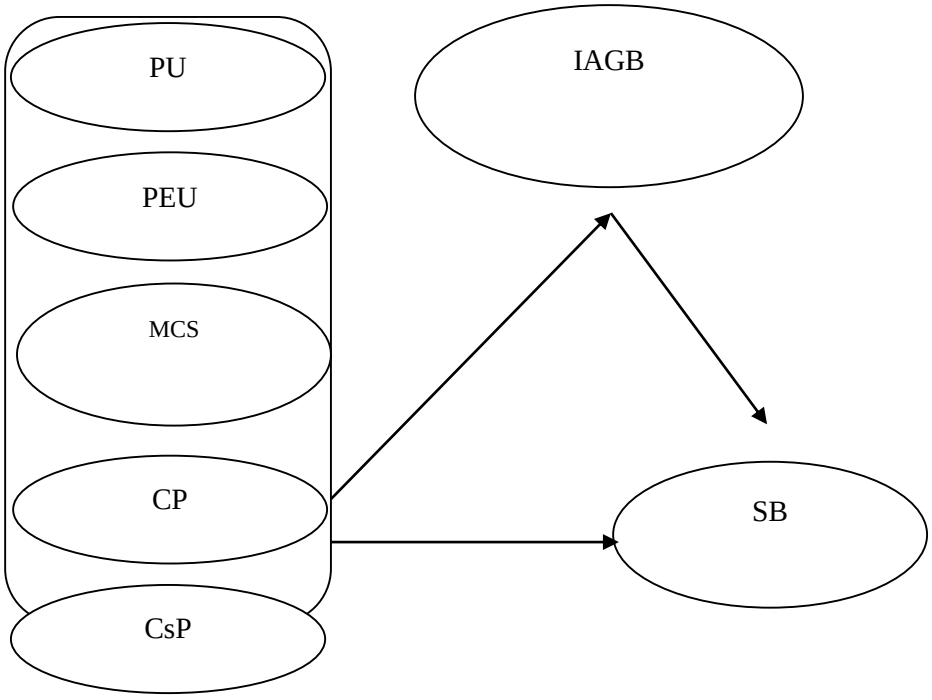

Figure 1: Research Model

3. Methods

3.1 Participants

The participants of the study included randomly selected 400 employees of public and private sector commercial banks in province of Khyber Pakhtunkhwa, Pakistan.

3.2 Scales

We used a combined 37 items' scale to measure the variables understudy. PU and PEU were measured through six items and four items' scales of Davis (1989) respectively. MCS was measured through a 5

items scale used by Bukhari et al. (2022). CP and CsP were measured through five items scale each developed by Aslam & Jawaid (2022). We used five items scale of Aslam & Jawaid (2022) to measure IAGB and seven items scale to measure SB.

4. Data Analysis

SEM was used to analyze the data. At first stage, the factorability and reliability of the scales were measured. Further, model fitness was assessed at second stage. At third stage, direct relationships were examined whereas mediation was examined at fourth stage to test the hypotheses of this study.

4.1 Factor Loadings, Reliability, AVE and MSV

Table 1 contains all of the variables understudy as well as the corresponding validity, reliability, and outer loading values. For each of the different structures, the Cronbach alpha values are all greater than the lower limit of 0.70. Additionally, the AVE grew above the necessary 0.5 threshold. As a result, it is evident that every indicator accurately identifies the structure to which it belongs.

Table 1: Factor Loadings, Reliability, AVE and MSV

Item #	Loading	α-Reliability	AVE	MSV
PU1.	0.635	0.907	0.604	0.305
PU2.	0.826			
PU3.	0.778			
PU4.	0.716			
PU5.	0.811			
PU6.	0.837			
PEU1.	0.774	0.82	0.533	0.169
PEU2.	0.789			
PEU3.	0.774			
PEU4.	0.734			
MCS1.	0.81	0.931	0.736	0.166
MCS2.	0.845			
MCS3.	0.885			
MCS4.	0.848			
MCS5.	0.873			
CP1.	0.71	0.917	0.588	0.305
CP2.	0.837			
CP3.	0.81			
CP4.	0.826			

CP5.	0.759			
CsP1.	0.748	0.842	0.699	0.479
CsP2.	0.701			
CsP3.	0.711			
CsP4.	0.645			
CsP5.	0.719			
IAGB1.	0.812	0.896	0.699	0.479
IAGB2.	0.778			
IAGB3.	0.825			
IAGB4.	0.789			
IAGB5.	0.763			
SB1.	0.799	0.944	0.689	0.283
SB2.	0.783			
SB3.	0.836			
SB4.	0.855			
SB5.	0.848			
SB6.	0.795			
SB7.	0.717			

4.2 Goodness of Fit Indices

Table 2 shows that all the fit measures i.e. CFI, GFI and RMSEA. It is evident that values of all indices are within the defined threshold.

Table 2: Goodness of Fit Indices

Model Fix Index	Recommended Cut-off Value	Reference
P Value <0.05	P <0.05	
CMIN/df	1< CMIN/*df*>3	(HU and Bentler,1999)
CFI	CFI> 0.9	(Bentler and Bonnet, 1980)
GFI	GFI> 0.9	(Bryne (2001); Hair et.al. (2006))
RMSEA	RMSEA<0.08	MacCallum, Browne, and Sugawara, 1996)

4.3 Examination of Direction Relationship

The researcher can investigate the hypothesised relationship between the components of the proposed research model by developing an identified path model.

Table 3: Estimates of Path Analysis

	Sustainable Banking			Intentions to Adopt Green Banking		
	Beta	P-Value	Result	Beta	P-Value	Result
Perceived Usefulness	0.32	0.01	Significant	0.13	0.01	Significant
Perceived Ease of Use	0.23	0.04	Significant	0.06	0.116	Insignificant
Management commitment and Support	0.48	0.02	Significant	0.21	0.02	Significant
Competitors' Pressure	0.41	0.03	Significant	0.68	0.01	Significant
Customers' Pressure	0.27	0.01	Significant	0.74	0.001	Significant
Intentions to Adopt Green Banking	0.55	0.002	Significant			

The path analysis estimates displayed in Table 3 (β= 0.32; $p<0.05$) support our 1st hypothesis (H1) stating a significant positive correlation between PU and SB. The findings provide more evidence in favor of the second hypothesis (H2), which holds that PEU and SB have a positive relationship (β = 0.23; $p<0.05$). In a similar vein, the third hypothesis (H3), which asserts that management commitment and support have a positive relationship with sustainable banking (β = 0.48; $p<0.05$), was also verified. The estimates (β = 0.41; $p<0.05$) are in favor of the fourth hypothesis (H4), which states that CP and SB have a positive relationship. Furthermore, it was verified that the fifth hypothesis (H5), which asserts a positive correlation between CsP and SB (β = 0.27; $p<0.05$), is true. The sixth hypothesis (H6), according to which there is a positive correlation between IAGB and SB (β = 0.55; $p<0.05$), is also supported by our results. The seventh hypothesis of the study was supported by path analysis when

examining the relationship between PU and IAGB ($\beta = 0.13$; $p<0.05$). The eighth hypothesis (H8), which asserts a positive correlation between PEU and SB, is not supported by path analysis estimates ($\beta = 0.06$; $p>0.05$).

The ninth hypothesis of the study was supported by path analysis when examining the relationship between MCS and SB ($\beta = 0.21$; $p<0.05$). Additionally, path analysis estimates ($\beta = 0.68$; $p<0.05$) support 10th hypothesis, which states that CP and SB have a positive relationship. Likewise, the eleventh hypothesis, which proposes a positive correlation between CsP and SB ($\beta = 0.74$; $p<0.05$), was also validated.

4.4 Mediation Analysis

Hypotheses (H12-H16) were tested through mediation analysis as presented at table 4 below.

Table 4: Mediation Analysis

Relationship	Direct Effect	Indirect Effect	Confidence Interval		P-Value	Conclusion
			LLCI	ULCI		
PU→IAGB→SB	0.124 (0.07)	0.372	0.1146	0.2992	0.02	Full Mediation
			LLCI	ULCI		
PEU→IAGB→SB	0.212 (0.04)	0.227	0.1925	0.2532	0.001	Partial Mediation
			LLCI	ULCI		
MCS→IAGB→SB	0.385 (0.06)	0.032	0.3251	0.4501	0.000	Full Mediation
			LLCI	ULCI		
CP→IAGB→SB	0.138 (0.12)	0.018	0.0147	0.1909	0.002	Full Mediation

			LLCI	ULCI		
CsP→IAGB→SB	0.203 (0.09)	0.063	0.2147	0.299 I	0.04	Full Mediation

PU=*Perceived Usefulness*, PEU=*Perceived Ease of Use*, MCS=*Management Commitment & Support*, CP=*Competitors' Pressure*, CsP=*Customers' Pressure*, IAGB= Intentions to Adopt Green Banking, SB=Sustainable Banking, LLCI=*Lower Limit Confidence Interval*, ULCI=*Upper Limit Confidence Interval*

While examining the mediation, we found a significant indirect (b=0.372, P=0.02) and insignificant direct (b=0.124, P=0.07>0.05) of PU on SB through IAGB showing full mediation. Hence 12th hypothesis (H12) was supported.

We found a significant indirect (b=0.227, P=0.001) as well as significant direct effect (b=0.212, P=0.04<0.05) of PEU on SB in the presence of IAGB showing a partial mediation. Hence 13th hypothesis (H13) was supported.

While examining the mediation of Intentions to IAGB in MCS and SB, we found a significant indirect (b=0.032, P=0.000) and an insignificant direct (b=0.385, P=0.06>0.05) of MCS and SB through IAGB showing a full mediation. Hence 14th hypothesis (H14) was supported. Similarly, we found a significant indirect (b=0.018, P=0.002) and insignificant (b=0.138, P=0.12>0.05) direct effect of CP on SB through IAGB. It shows full mediation supporting the 15th hypothesis H15. Moreover, a significant indirect (b=0.063, P=0.04) and insignificant direct (0.203, P=0.09>0.05) effect of CsP on SB through IAGB. It shows full mediation supporting the 16th hypothesis H16.

5. Discussion

According to our research, green banking practices (PU, PEU, MCS, CP and CsP) have a major positive impact on sustainable banking. Our findings are in line with earlier research by Bukhariet al. (2023), Afridi et al. (2023), Chowdari (2022) and Curran et al. (2020). These studies show that banks' growing adoption of green practices is correlated with their capacity to advance sustainable banking and their strategic roles in a nation's economy.

Four out of the five green banking practices and the intention to adopt them were found to be correlated in the study. It is evident that IAGB is predicted by PU, PEU, MCS, CP and CsP. These findings are in line with past studies by Aboelmaged and Gebba (2013) and Al-Samadi (2012), who identified that the IAGB is significantly predicted by green banking practices.

Conversely, the study found no significant connection between the intention to implement green banking practices and how easy something was perceived to use. This supports the theory that the adoption of green banking practises may be hampered by the notion that the processes and technology required to set up and maintain green banking services are not user-friendly. This finding is similar to the previous studies by Khan et al. (2022) and Aboelmaged and Gebba (2013), who found no discernible relationship between PEU and IAGB.

The study also showed that intentions to implement green banking act as a mediator in the relationship between sustainable banking and green banking practices (PU, PEU, MCS, CP and CsP). According to Chu et al. (2017), these results imply that implementing green banking practices does not automatically make a bank sustainable. Rather, the adoption of green banking necessitates a mediating mechanism of intentions. The impact of green banking practices on sustainable banking will increase with the degree of intentions to implement green banking.

6. Conclusion

The study has shed light on the green banking techniques employed in Pakistan's developing economy, where environmental issues are becoming more and more pressing. The study confirms the structural relationship between five components and sustainable banking in the banking industry of Pakistan. The findings of the study could be used to develop marketing plans, especially for environmentally friendly services offered by Pakistan's banking sector. Sustainable development and environmental protection would be the ultimate outcomes. One of the advantages of green banking is that it can give banks a competitive advantage by enhancing their image as environmentally conscious businesses. The study advises banks to employ cutting-edge equipment and facilities that ensure water conservation, reduce energy consumption, and produce less carbon dioxide emissions. It also implies that owners and upper management need to be committed to sustainable banking and actively involved in it. They ought to

show how enthusiastic and supportive they are of the successful execution of green initiatives and be convinced of the benefits of employing green banking techniques.

7. Recommendations

Smaller-scale projects like installing solar panels or micro-grids in rural areas and solar systems in buildings have potential in Pakistan. Estimates indicate that at least 125,000 families in Pakistan currently get their electricity from microbusinesses. Green banks possess the ability to provide funding or investments for these projects, which could potentially alleviate the burden on an already overloaded network or provide electricity to a population that did not have it before. Projects may also lead to an increase in nighttime work and a shift away from the use of harmful fuels like oil. Executives in the banking industry should also be aware of environmental issues and should only fund initiatives that do no damage to the environment. Businesses that receive bank financing are required to install systems for purification, recycling, and stopping gas and smoke. Businesses shouldn't discharge pollutants, smoke, or sewage into the surrounding area. In addition to other initiatives, banks could host conferences and seminars on sustainable banking. Additionally, they are able to plan awareness campaigns in community centers, shopping malls, and business schools. It is imperative for banks to take proactive measures in educating their customers about cutting-edge financial services and offerings, including electronic transfers, e-reports, online and mobile banking, and more. The banker might be expected to carry out a number of initiatives, such as "customer's day," "customer meet," and others, wherein they engage with their clients face-to-face and notify them of their latest products and services.

8. Limitations

Despite best efforts to minimize any limits that may creep in during the investigation, the research was conducted under a number of restrictions. A discussion about them is given below: Sustainability on all three fronts—social, economic, and environmental—is interconnected. The researcher's focus in this study has been exclusively on the environmental implications of Pakistan's banking sector implementing green practices. In this study, the researcher only took into account a small number of factors that affect the adoption of green banking practices, such as management support and commitment, customer and competitor pressure, and intention to adopt green banking practices. The adoption of green banking

practices is influenced by additional factors that are not taken into account, such as regulatory pressure, earnings, size, age, etc. The investigation used only primary data. The size of the sample, which comprised 400 respondents carefully chosen from various KP locations, limits the generalizability of the research's findings, despite the researcher's best efforts to ensure that the sample is an accurate representation of the population.

9. Future Directions

Since there is still uncertainty and room for compromise regarding the integration of environmental issues into bank policy, more research should be done to determine the relationship between the bank's financial performance and its environmental performance.

To gain insight into the green practices that the banks follow, a comparative analysis of the green banking systems across Pakistani banks can be undertaken. It will also be fascinating for researchers in the future to examine and validate the model developed for this study in other cultural contexts, like other developing or industrialized countries in Asia or the West. This will be useful in demonstrating the validity of the study model across a wide range of cultural contexts. Because the robustness of the model might differ in different cultural contexts, empirical testing is required.

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