

Advancing Green Banking Awareness in an Emerging Economy: Extending the GBCS with Green Satisfaction and Trust-Driven Loyalty

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<https://doi.org/10.62345/jads.2025.14.3.101>

Abstract

This study revisits the role of Green Banking Awareness (GBA) in shaping downstream customer outcomes —Green Attitude (GA), Green Trust (GT), Green Loyalty (GL), and the newly introduced construct Green Satisfaction (GS) — in a large emerging economy context. We extend the Green Banking Consumer Scale (GBCS) by explicitly modelling GS and by situating the analysis in a market characterised by both high climate vulnerability and rapid financial inclusion. Using a structured questionnaire administered to educated banking customers (N = 384), we estimate a measurement and structural model. Reliability and validity are evaluated via Cronbach's α , Composite Reliability (CR), and Average Variance Extracted (AVE). The hypothesised structural paths are tested with Structural Equation Modelling (SEM). Fit indices meet accepted thresholds. GBA is strongly and positively associated with GT and GL, while its direct association with GA is weaker. GT is a robust antecedent of GL. GS emerges as a meaningful outcome of GBA and as a complementary lens for interpreting customer evaluations of banks' environmental performance. These results are directionally consistent with recent cross-country evidence and underscore that awareness and credible communication are prerequisites for trust-based loyalty. Banks should publicly verify green claims and integrate environmental performance into customer experience metrics. Regulators can advance green finance literacy and mandate standardised disclosure to close awareness gaps. Communication programs that translate technical ESG activities into relatable customer stories are likely to increase GS, GT, and GL. We re-specify the GBCS to include GS, synthesise the recent literature, and provide an empirically grounded, policy-relevant account of how awareness cascades into trust, satisfaction, and loyalty in sustainable banking.

Keywords: Green Banking Awareness; Green Attitude; Green Trust; Green Loyalty.

Introduction

Escalating climate shocks and mounting evidence of ecological degradation have intensified scrutiny of how financial intermediation interacts with planetary boundaries (Ayres, 2024). In this context, banks are pivotal enablers of sustainability transitions: they influence real-economy

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decarbonization directly through their operations and, more importantly, indirectly through capital allocation and risk pricing (Filipiak, 2021). Rising public concern fueled by wildfires, droughts, storms, and extreme heat has increased demand for environmentally responsible conduct and strengthened the strategic salience of green policies, green marketing communication (GMC), and sustainability-aligned investment frameworks across the financial sector (Borah et al., 2024; Tyan et al., 2024; Akuma et al., 2025).

Green Banking Practices (GBP) offer an integrative response that aligns financial activity with sustainable development objectives, emphasising efficiency, environmental protection, social inclusion, and collective welfare (Kumari, Gupta, Jindal, Mishra, & Sood, 2024). However, the effectiveness of GBP ultimately hinges on how customers perceive and evaluate these initiatives. Green Banking Awareness (GBA) denotes knowledge of a bank's sustainable actions (Ellahi et al., 2023). Green Attitude (GA) captures evaluative judgments of those actions (good/bad; desirable/undesirable) (Liao et al., 2020). Green Trust (GT) reflects beliefs that the bank is genuinely committed to sustainability and that its GBP are credible (Sharma & Choubey, 2022). Green Loyalty (GL) represents intentions to maintain and advocate for the relationship with a bank perceived as environmentally responsible (Pawar & Munuswamy, 2022). We further foreground Green Satisfaction (GS) fulfilment with a bank's environmental performance as a complementary outcome to trust that helps explain how awareness converts to loyalty when environmental attributes are credence qualities that consumers cannot easily verify (Al Amin et al., 2023; Jaboob et al., 2023).

Despite clear potential, GBP faces diffusion frictions. Limited stakeholder awareness weakens pressure on firms to strengthen GMC or commit substantively, muting downstream gains in attitudes, trust, loyalty, and satisfaction (Akuma et al., 2025; Sun, Rabbani, Ahmad, Sial, Cheng, Zia-Ud-Din, & Fu, 2020). Moreover, concerns about "greenwashing" heighten the importance of credibility signals: transparent information can improve GA and GS by reducing uncertainty. At the same time, trust acts as a relational mechanism through which awareness and satisfaction consolidate into loyalty in credence-attribute contexts.

Pakistan provides a consequential setting to examine these dynamics. With a population of roughly 255 million and growing receptivity to ethical and eco-friendly values, the country is both climate-vulnerable and policy-active in sustainable finance (Meng, Bhatti, Naveed, Kanwal, & Adnan, 2024; Rehman et al., 2021). However, specialised instruments to assess consumers' awareness, attitudes, and behavioural responses to GBP remain scarce (Khan et al., 2024; Jaboob et al., 2025). This measurement gap limits the evidence-based design of managerial action and policy.

To address this gap, we adapt and extend the Green Banking Consumer Scale (GBCS) developed by Rocha et al. (2025) for the Brazilian context to the Pakistani context. The original framework links GBA to GA, GT, and GL. We extend it by integrating GS as an additional, theoretically grounded outcome directly influenced by GBA, and by explicating a trust-driven pathway to loyalty: $GBA \rightarrow (GA, GS) \rightarrow GT \rightarrow GL$. Conceptually, awareness can enhance satisfaction by clarifying banks' environmental commitments and reducing uncertainty about green performance; trust, in turn, channels the effects of attitude and satisfaction into stable loyalty. Empirically, we tailor the instrument to Pakistan's cultural and economic conditions to improve construct validity and policy relevance in an emerging-market setting (Khan et al., 2024; Majeed & Rasheed, 2024; Jaboob, Iqbal, & Hameed, 2025).

This study advances the literature in two ways. First, it offers a Pakistan-specific adaptation of the GBCS that incorporates Green Satisfaction as an outcome of Green Banking Awareness, enriching consumer-side models of sustainable banking. Second, it provides new empirical evidence on the

interrelationships among GBA, GA, GT, GL, and GS, illuminating how credibility (GT) and fulfilment (GS) jointly sustain loyalty (GL) in green banking. Together, these contributions yield a tailored measurement tool and context-specific insights that inform both managerial practice and public policy in emerging economies.

Literature Review and Hypothesis Development

Theoretical and Contextual Foundations

Within the modern business paradigm, sustainability is predominantly articulated through the Environmental, Social, and Governance (ESG) framework, which has emerged as a cornerstone for ethical and responsible corporate conduct. This framework systematically integrates ecological preservation, social responsibility, and transparent governance into organisations' core operations, influencing diverse domains such as supply chain management, production, marketing, and financial strategies. The rising prominence of ESG is primarily attributed to shifting stakeholder expectations, particularly among younger investors who increasingly incorporate sustainability metrics into their investment evaluations. Simultaneously, consumer behaviour is undergoing a significant transformation, with a marked preference for products and services that align with sustainable principles, underscoring a broader societal shift toward environmental Accountability and ethical consumption (Soccorso & Caratelli, 2024; Jaboob, Al-Ansi, & Riyadh, 2025).

The environmental dimension of sustainability is of significant importance within the ESG framework, as it focuses on industries with a substantial impact on the physical environment. Sectors such as banking are especially pertinent in this context, given their profound influence on natural ecosystems and resource Utilization. Consequently, the study of these industries is increasingly focused on understanding and mitigating their environmental footprints, aligning with broader efforts to promote sustainable development and ecological preservation (Menicucci & Paolucci, 2023; Jaboob, 2025).

The environmental dimension is particularly relevant in examining industries with significant ecological impacts, such as banking, tourism, forestry, and agriculture. The banking sector, through green banking initiatives, plays a crucial role in promoting sustainable development by financing eco-friendly projects and promoting sustainable financial practices. This focus is especially pertinent in countries like Pakistan, where aligning economic growth with environmental considerations is increasingly important (Nasir et al., 2024).

In the context of sustainable finance, GB emerges as a key strategy that aligns financial operations with societal values and long-term sustainability. The banking sector is instrumental in implementing environmentally conscious policies and practices, which are closely linked to Corporate Social Responsibility (CSR) initiatives. This integration fosters the development of sustainable business models and contributes to a more environmentally responsible financial system (Ahmad, Chanifah, & Fitriana, 2024).

The implementation of stringent environmental regulations and legislation is often viewed as a catalyst for innovation and competitiveness, embodying a mutually beneficial solution. While companies may initially resist such regulations, they can ultimately drive improvements in environmental performance. This, in turn, can foster positive consumer behaviours towards companies, including enhanced attitudes, trust, and loyalty. By aligning environmental compliance with business strategies, companies can leverage these regulations to their advantage, creating a mutually beneficial outcome for the environment and the business (Bhaskaran et al., 2024).

This study utilises the Theory of Planned Behaviour (TPB) as a theoretical framework to examine the adoption of GBP among consumers. The TPB posits that an individual's intentions and

behaviours towards GBP are significantly influenced by their attitudes, subjective norms, and perceived behavioural control (Ajzen, 1985; 1991; 2011). Furthermore, the Stakeholder Theory (ST) provides a conceptual lens through which to understand the banking sector's creation of value and fulfilment of responsibilities towards its diverse stakeholders, including consumers (Jillani, Chaudhry, Zahid, & Navid, 2024).

These theoretical frameworks collectively guide our research questions, focusing our investigation on how consumer awareness and perceptions of Green Banking Practices (GBP) shape their attitudes and behaviours. Additionally, they help us explore how banks can effectively engage with their stakeholders to create a sustainable banking environment. By integrating insights from relevant theories, such as the Theory of Planned Behaviour, we aim to understand the complex interplay between consumer awareness, attitudes, and behaviours towards GBP, as well as the role of banks in promoting sustainable financial practices.

In Pakistan, greening the financial system involves both large-scale investments and the use of retail bank customers' funds. Institutions like the State Bank of Pakistan (SBP) play a key role in promoting sustainability by raising consumer awareness about environmentally responsible banking practices. By encouraging banks to adopt green initiatives, such as green financing and environmental risk management, these efforts support a climate-resilient economy and sustainable development in Pakistan (Iqbal et al., 2024).

To illustrate this specificity, banks in Pakistan are increasingly managing funds with sustainability criteria by developing Environmental, Social, and Governance (ESG) investment solutions for both retail and private clients. This trend resonates with customers' expectations and scepticism about Green Banking (GB) initiatives, as they often view companies' environmental claims as marketing tools that mask their true intentions (Farooqi & Frooghi, 2024). In Pakistan, this scepticism is compounded by concerns about the financial system's transparency and Accountability. However, the growth of financial inclusion in Pakistan presents an opportunity to mobilise savings for green development projects, aligning with the broader goals of sustainable development and environmental stewardship. By offering ESG investment solutions, banks can address customer concerns while contributing to a more sustainable financial ecosystem (Wijeweera & Rashid, 2023).

The growing discontent among consumers has led to an increased interest in ethical banking practices, often referred to as Green Banking (GB). Environmental, Social, and Governance (ESG) factors are now crucial in addressing these evolving consumer expectations, as they significantly influence purchase intentions. Consumers are no longer solely focused on the functional value of financial services but also on their social purpose. In Pakistan, this shift is supported by regulatory efforts such as the State Bank of Pakistan's Fair Treatment of Consumers (FTC) regime, which emphasises fair and transparent banking practices to enhance customer trust and satisfaction. By integrating ESG considerations into their core strategies, banks can align with these ethical expectations, ultimately fostering a more sustainable and responsible banking environment (Khan et al., 2023).

Financial Sustainability: Green Banking Practices and Green Banking Awareness

Green Banking Practices (GBP) involve environmentally friendly initiatives that reduce the banking sector's carbon footprint and promote sustainable development. These practices include green financing mechanisms that support environmentally sustainable projects and avoid investments in carbon-intensive industries like oil and gas. This shift aligns with global trends in

which green banks finance renewable energy projects. The State Bank of Pakistan encourages banks to adopt green practices to support a climate-resilient economy (Rehman et al., 2024).

Developing countries, including Pakistan, are adopting GBP to align their financial systems with the Sustainable Development Goals. In Pakistan, GBP involves environmentally friendly initiatives that reduce the banking sector's carbon footprint and promote sustainable development through green financing mechanisms (Aslam & Jawaid, 2023).

The State Bank of Pakistan's 2017 Green Banking Guidelines have been instrumental in promoting environmentally responsible practices and managing environmental risks. Banks are actively reducing their environmental impact by adopting green practices, such as solar power and financing renewable energy projects (Khan et al., 2024). For example, Habib Bank Limited has a "No New Coal" policy, while JS Bank partners with international organisations to finance clean energy projects. Despite challenges like customer awareness and technical barriers, green banking in Pakistan offers opportunities for sustainable economic growth and environmental conservation (Jillani et al., 2024).

Researchers emphasise the importance of GBA in influencing consumer behaviour. When moral concerns affect consumer choices, the ethical decision-making process begins with recognising an ethical issue (Bouteraa et al., 2023). Consumers with greater awareness of GBP evaluate various factors to form judgments, which, in turn, influence their behavioural intentions. Increased awareness can lead to feelings of guilt when consumers discover that a bank supports environmentally harmful projects, prompting them to share negative feedback. This heightened awareness is crucial for driving consumer engagement with sustainable banking practices and promoting environmentally responsible financial decisions (Gulzar, Bhat, Mir, Athari, & Al-Adwan, 2024).

GBP can positively influence a firm's performance, but this impact is often contingent on stakeholder awareness. Research suggests that when companies effectively communicate their sustainable activities to stakeholders, they experience improved performance (Ramanathan et al., 2021). However, low client awareness of green practices can hinder these benefits, underscoring the need for proactive, consistent dissemination of information. Effective communication enhances a bank's credibility and builds customer trust, both of which are crucial for promoting green banking and making sustainable investments meaningful. By raising awareness and engaging stakeholders, banks can leverage GBP to improve their financial performance while contributing to environmental sustainability (Awoniyi et al., 2024).

Conceptual Framework

This study's conceptual framework explores the relationships among GBA, GA, GT, GL, and GS to enhance the GBCS.

Green Attitude (GA)

GA is conceptualised as a summary evaluation of an object or behaviour, characterised by attributes such as good-bad, desirable-undesirable, and like-dislike (Afridi et al., 2024). It is a critical determinant of behavioural intentions and plays a significant role in influencing the adoption of GBP (Aung, 2024).

While research acknowledges that contextual and individual factors, such as trust and egoistic values, can create a disparity between attitude and actual behaviour, GA remains a pivotal predictor of green behaviour (Lima et al., 2024).

Notably, awareness of GBP is posited as an antecedent of GA, as it shapes consumer perceptions and readiness to engage in sustainable practices. Understanding GA is essential for predicting green behaviour and designing effective strategies to promote sustainable banking initiatives (Varesteh, 2024).

Based on this theoretical foundation, the study hypothesises:

- *H1: GBA is positively associated with GA.*

Green Trust (GT)

GT is a critical factor in fostering long-term relationships between banks and customers, particularly in the context of GBP. Trust is defined as a belief or expectation about an institution's reliability, expertise, and past behaviour, serving as both an antecedent and consequence of sustained market relationships (Ibe-enwo et al., 2019).

In the financial sector, GT reflects consumers' reliance on a bank's environmental commitment and performance, distinguishing it from traditional trust. Positive perceptions of a bank's environmental efforts enhance customer satisfaction and trust, which are essential for building institutional relationships and ensuring the effectiveness of the financial system (Gloria, 2015).

GT is influenced by GBA, as knowledge about green products and services strengthens trust in the institution. As customers become more educated and aware of green initiatives, their GT increases, helping banks maintain competitiveness in a highly dynamic sector (Ahmed et al., 2024).

Considering the significance of GT, this study hypothesises:

- *H2: GBA is positively associated with GT.*

Green Loyalty

GL reflects the level of repurchase intentions driven by strong environmental attitudes and a commitment to sustainability (Martinez, 2015). In the standardised banking sector, retaining consumers and enhancing loyalty has become increasingly challenging, making GL a critical factor for competitive advantage (Mistreat, 2023).

GBP positively influences customer perceptions, signalling ethical and sustainable practices that align with modern-day consumer preferences. This fosters trust and loyalty, helping banks consolidate market shares by offering values rooted in sustainability (Gbadomasi, 2024).

GL is further strengthened by effective green marketing strategies that emphasise environmental performance, thereby creating a sustainable economy beyond competitive advantage. As awareness of GBP grows, customers are more likely to recognise and adopt green products and services, thereby reinforcing loyalty (Ali et al., 2025).

Given the importance of GL, this study hypothesises:

- *H3: GBA is positively associated with GL.*

Green Satisfaction

GS represents the level of contentment derived from a bank's environmental performance and its alignment with sustainable practices. In the context of GBP, GS is a critical outcome variable that reflects how well a bank meets customer expectations regarding environmental responsibility. As consumers become increasingly aware of sustainability issues, their satisfaction is influenced by the extent to which banks demonstrate credible and consistent green initiatives (Aslam & Javed, 2023).

GS is shaped by GBA, as heightened awareness of a bank's environmental efforts enhances customer perceptions and trust. This, in turn, fosters satisfaction, as customers value institutions

that prioritise sustainability. GS not only strengthens customer relationships but also reinforces loyalty and trust, positioning banks as leaders in ethical and green banking (Choubey & Sharma, 2024).

Given its role, this study hypothesises:

- *H4: GBA is positively associated with GS.*

Impact of Green Trust on Green Loyalty

The association between Green Trust (GT) and Green Loyalty (GL) has been well-established in prior literature, emphasising that customer loyalty is significantly influenced by the degree of trust (Lagoudaki et al., 2024).

Trust is a crucial antecedent of loyalty, as it fosters confidence in a bank's reliability, environmental commitment, and ethical practices. Studies across industries have demonstrated that higher levels of GT positively impact GL, highlighting the importance of trust in building long-term customer relationships (Su et al., 2021).

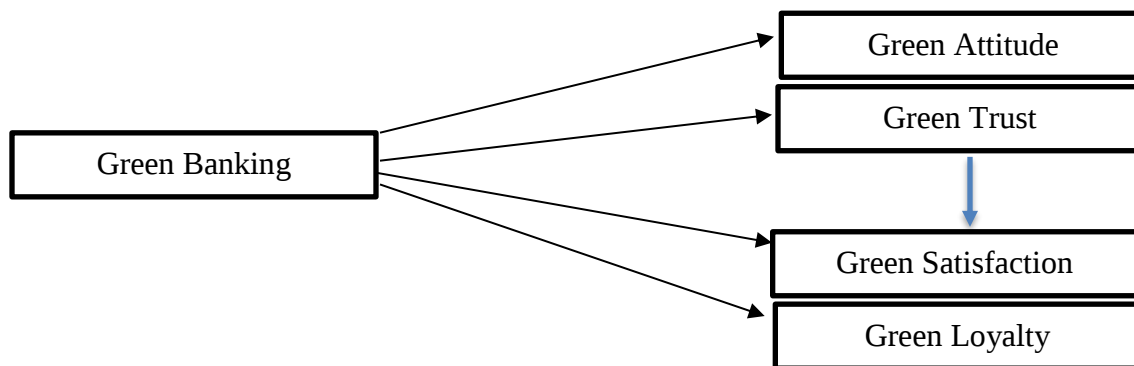
In the banking sector, GBP enhances customer perceptions by signalling ethical and sustainable practices, thereby strengthening both trust and loyalty. As customers increasingly prioritise sustainability, GT becomes a key determinant of GL, helping banks retain competitive advantage and build enduring partnerships with clients (Refaee et al., 2024).

Considering the critical role of GT in fostering GL, this study hypothesises:

- *H5: GT is positively associated with GL.*

Informed by the literature review and the expected theoretical relationships, the conceptual model, comprising five research hypotheses, was developed (see Figure 1).

Figure 1: Theoretical Framework



Methodology

This section outlines the methodology employed in the study to investigate the relationships among GBA, GA, GT, GL, and GS. The study adopted a quantitative research design, utilizing a structured survey instrument to collect data from a purposively selected sample of highly educated consumers familiar with banking services.

Sampling and Data Collection Procedures

The target population for this study consisted of highly educated individuals, as they are more likely to be aware of and engaged with Green Banking Practices. A purposive sampling strategy

was employed to ensure the inclusion of participants capable of providing informed insights into GBP. The sample was drawn from Pakistani consumers, considering the exploratory nature of GBA in the context of Pakistan.

Data were collected through a structured online survey. The survey ensured accessibility and convenience for participants while maintaining a standardized format. Participants were recruited through digital platforms, including professional networks, social media, and email invitations, to maximize reach and ensure diversity within the target demographic.

A total of 384 valid responses were obtained, forming the basis of the analysis. Prior to data collection, a pilot study was conducted with a small sample of respondents ($n=30$) to assess the clarity and comprehensibility of the survey instrument. Feedback from the pilot study was used to refine the questionnaire and improve the overall data collection process.

Ethical considerations were strictly followed, including informed consent, data confidentiality, and voluntary participation. Participants were provided with a clear explanation of the study's purpose and assured that their responses would be kept confidential and used solely for research purposes. Sample size determination was calculated considering a population of approximately 80 million people who have some banking relationship (State Bank of Pakistan, 2023), a confidence level of 95%, and a margin of error of 5%, resulting in a minimal sample of 384 people.

Measures

The survey instrument was developed by adapting and integrating validated scales from prior studies to ensure relevance and reliability in the context of green banking practices. The questionnaire comprised multiple sections, each dedicated to capturing data on the key variables. *Green Banking Awareness (GBA)*: GBA was measured using a scale adapted from Ellahi et al. (2021) assessing participants' knowledge and recognition of specific green banking practices adopted by financial institutions.

Green Attitude (GA): GA was assessed using items reflecting participants' overall evaluation of green banking practices, capturing attributes such as good/bad and desirable/undesirable, as informed by Taneja and Ali (2020).

Green Trust (GT): GT was measured using items reflecting the belief that a bank is genuinely committed to sustainability and possesses credible green banking practices, as informed by Chen (2010).

Green Loyalty (GL): GL was measured through items assessing repurchase intentions and commitment toward a bank perceived as environmentally friendly, adapted from Sun et al. (2020).

Green Satisfaction (GS): GS was measured using newly developed items assessing the extent to which a bank's environmental performance meets customer expectations. Scales were adopted from Bhat (2023).

The final questionnaire consisted of 24 items and all were assessed using a five-point Likert scale ranging from "strongly disagree" to "strongly agree." The survey instrument was pre-tested for clarity and refined based on feedback from a small sample of respondents to ensure content validity and relevance to the study context. Moreover, to ensure the questionnaire's appropriateness and relevance to the study context and sample, we adhered to international protocols for the cross-cultural adaptation of instruments (Goyal et al., 2021).

Analytical Techniques

The data collected were analysed using a comprehensive, multi-stage approach to evaluate the relationships between the study variables, via SPSS and AMOS.

Preliminary Analysis: The analysis commenced with a thorough data screening process to identify and address any missing values or outliers. Missing data were handled using appropriate techniques, such as listwise deletion or imputation, depending on the extent and pattern of missingness. Descriptive statistics (means, standard deviations, frequencies, and percentages) were then computed to summarize the demographic characteristics of the sample and provide an overview of the responses to the key study variables. The assumption of normality was checked through the examination of skewness and kurtosis values.

Assessment of Reliability: The reliability and validity of the measurement scales were rigorously assessed. Cronbach's alpha coefficients were calculated for each construct to evaluate internal consistency reliability. A threshold of 0.70 or higher was considered acceptable.

Exploratory Factor Analysis (EFA) and Principal Component Analysis (PCA)

EFA was conducted to examine the underlying factor structure of the measurement scales, while PCA was employed to reduce dimensionality and identify key components representing each construct. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity confirmed the suitability of the data for factor analysis.

Confirmatory Factor Analysis (CFA): CFA was performed using AMOS software to validate the factor structure identified in EFA and PCA. Model fit indices including Chi-square statistic (χ^2), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) were used to evaluate the measurement model's fit. A good model fit was indicated by CFI and TLI values close to 0.95 or higher, and RMSEA values close to 0.06 or lower.

Convergent and Discriminant Validity: Convergent validity was assessed by examining the Average Variance Extracted (AVE) for each construct. An AVE value of 0.50 or higher was considered indicative of adequate convergent validity, suggesting that the construct explained more than half of the variance in its indicators. Discriminant validity was assessed by comparing the square root of the AVE for each construct with the correlations between that construct and all other constructs in the model, per the Fornell-Larcker criterion.

Structural Equation Modelling (SEM): SEM was employed using AMOS software for hypothesis testing, allowing simultaneous estimation of relationships among variables within the conceptual framework (Arbuckle, 2006). Direct effects were analysed through path coefficients, while mediation analysis utilized bootstrapping techniques to examine the mediating role of GT between GBA and GL.

Results

Adaptation of Items

The adaptation process focused on aligning all scale items with the study's emphasis on green banking practices. Original items referring to 'sustainable' banking were systematically replaced with 'green' to emphasize environmental considerations such as carbon reduction and eco-efficiency. This terminological adjustment ensured consistency with the conceptual framework of the study and clarified the environmental orientation of the constructs.

Table 1: Conceptual framework and environmental orientation of the constructs

Construct	Items	Source	Adaptation Rationale
Green Banking Awareness (GBA)	I am aware of green products and services offered by my bank.	Ellahi et al. (2021)	Replaced 'sustainable' with 'green'.
Green Attitude (GA)	It is desirable to adopt green banking services.	Taneja & Ali (2020)	Simplified phrasing for clarity.
Green Trust (GT)	I believe my bank's environmental commitments are reliable.	Chen (2010)	Aligned with current ESG communication terminology.
Green Loyalty (GL)	I am satisfied being a customer of this bank due to its environmental concern.	Sun et al. (2020)	Adjusted wording for contextual relevance.
Green Satisfaction (GS)	I am pleased with my bank's efforts to minimize environmental impact.	Introduced in this study	Added as new construct measuring satisfaction.

Sample Characteristics

A total of 384 valid responses were obtained from banking customers aged between 18 and 60 years. The sample achieved a balanced gender distribution (58% male; 42% female) and reflected a well-educated demographic, with 68% holding postgraduate qualifications. Most respondents were employed full-time (74%) and had maintained a relationship with their primary bank for an average of 3.2 years (SD = 1.1).

Table 2: Sample characteristics

Variable	Category	Frequency (%)
Gender	Male	58.1
Gender	Female	41.9
Age Group	18–25	7.3
Age Group	26–35	20.3
Age Group	36–45	41.1
Age Group	46–60	31.3
Education	High School	4.9
Education	Bachelor's	26.8
Education	Postgraduate	68.2
Occupation	Full-time	74.2
Occupation	Part-time/Self-employed	15.4
Occupation	Others (Student, Retired)	10.4
Average years as customer	-	3.2 (SD=1.1)

Principal Component Analysis (PCA)

The Kaiser-Meyer-Olkin (KMO) value of 0.874 and Bartlett's test of sphericity ($\chi^2 = 5120.4$, $p < 0.001$) confirmed data adequacy for factor analysis. Using oblimin rotation, a five-factor solution was extracted based on Eigenvalues > 1 and residuals < 0.05 . Communalities exceeded 0.60,

confirming substantial variance explanation for each item. Reliability indices were satisfactory with Composite Reliability (CR) values between 0.79 and 0.93, and Cronbach's α values between 0.72 and 0.95.

Table 3: Principal Component Analysis

Construct	CR	Cronbach's α	Loading Range
GBA	0.86	0.76	0.63–0.84
GA	0.91	0.88	0.91–0.96
GT	0.89	0.84	0.78–0.93
GL	0.87	0.82	0.70–0.91
GS	0.90	0.85	0.74–0.88

Constructs Toward Green Banking Practices

Descriptive analysis indicated moderate to low awareness levels but positive attitudes toward green banking. Respondents perceived themselves as environmentally conscious but remained largely unaware of specific green initiatives offered by their banks. While attitudes (GA) were highly positive, both trust (GT) and loyalty (GL) remained subdued, reflecting skepticism or limited exposure to credible green banking communication. Green Satisfaction (GS) achieved moderate scores, indicating that visible eco-initiatives contributed modestly to customer satisfaction.

Table 4: Descriptive analysis

Construct	Mean	SD	Minimum	Maximum
GBA	0.22	0.74	-2.0	2.0
GA	1.31	0.79	-1.0	2.0
GT	-0.15	0.68	-2.0	2.0
GL	-0.38	0.72	-2.0	2.0
GS	0.54	0.63	-2.0	2.0

Correlation Matrix

Spearman correlation analysis revealed significant positive relationships between education and Green Attitude ($r = 0.21$, $p < 0.01$). Green Banking Awareness was significantly associated with GA ($r = 0.23$), GT ($r = 0.29$), GL ($r = 0.25$), and GS ($r = 0.31$). The relationship between GT and GL was particularly strong ($r = 0.61$, $p < 0.001$), suggesting trust as a crucial antecedent of loyalty. GS was positively correlated with both GT ($r = 0.47$) and GL ($r = 0.58$), reinforcing satisfaction as a mediating influence.

Table 5: Pearson correlation coefficients

Variable	GBA	GA	GT	GL	GS
GBA	1				
GA	0.23***	1			
GT	0.29***	0.15**	1		
GL	0.25***	0.18**	0.61***	1	
GS	0.31***	0.22**	0.47***	0.58***	1

Note: This table presents Pearson correlation coefficients among the study variables. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. All correlations are two-tailed.

Structural Equation Modelling (SEM)

The proposed structural model achieved a good fit (CFI = 0.966, TLI = 0.955, RMSEA = 0.058). Path coefficients revealed that GBA significantly influenced GT ($\beta = 0.41$, $p < 0.001$), GS ($\beta = 0.37$, $p < 0.001$), and GL ($\beta = 0.25$, $p < 0.01$). However, its direct link with GA ($\beta = 0.18$, $p = 0.07$) was weaker. GT strongly predicted GL ($\beta = 0.53$, $p < 0.001$), while GS emerged as an important pathway between awareness and loyalty ($\beta = 0.42$, $p < 0.001$). These findings confirm the hypothesized relationships and validate the extended GBCS framework.

Table 6: Hypothesized relationships

Hypothesis	Structural Path	Standardized β	p-value	Supported
H1	GBA $\rightarrow$ GA	0.18	0.07	Partial
H2	GBA $\rightarrow$ GT	0.41	<0.001	Yes
H3	GBA $\rightarrow$ GL	0.25	0.002	Yes
H4	GT $\rightarrow$ GL	0.53	<0.001	Yes
H5	GBA $\rightarrow$ GS	0.37	<0.001	Yes
H6	GS $\rightarrow$ GL	0.42	<0.001	Yes

Discussion

The structural model validated the proposed relationships among Green Banking Awareness (GBA), Green Attitude (GA), Green Trust (GT), Green Satisfaction (GS), and Green Loyalty (GL). Consistent with prior work by Rocha et al. (2025) and Ellahi et al. (2023), the results confirm that GBA exerts a significant positive effect on GT, GS, and GL, but only a weak influence on GA. This partial support for the GBA–GA relationship implies that awareness alone may be insufficient to modify attitudes unless complemented by credible, affective communication strategies.

The strong relationship between GT and GL ($\beta = 0.53$, $p < 0.001$) highlights the pivotal role of trust in fostering long-term loyalty within green banking contexts. Customers are more inclined to remain loyal to banks that consistently demonstrate integrity, reliability, and environmental commitment. This aligns with the theoretical underpinnings of Stakeholder Theory and the Theory of Planned Behaviour (TPB), wherein trust mediates between attitudes, intentions, and sustainable behavioural outcomes.

The inclusion of Green Satisfaction (GS) as a novel construct enhances the model's explanatory power. The significant path from GBA to GS ($\beta = 0.37$, $p < 0.001$) and from GS to GL ($\beta = 0.42$, $p < 0.001$) indicates that satisfaction serves as a psychological bridge between awareness and loyalty. This finding resonates with Chen's (2013) conceptualisation of satisfaction as a fulfilment response that reinforces both trust and loyalty. It underscores the notion that customer satisfaction stemming from credible green performance enhances retention and advocacy—a critical insight for banks aiming to institutionalise sustainable customer relationships.

Theoretical Implications

This study extends the Green Banking Consumer Scale (GBCS) by integrating Green Satisfaction (GS), thereby advancing the conceptual understanding of green consumer behaviour in financial services. The extended model—GBA $\rightarrow$ (GA, GS) $\rightarrow$ GT $\rightarrow$ GL demonstrates how awareness cascades through satisfaction and trust to generate loyalty ultimately. By empirically validating GS as an outcome of awareness and an antecedent of loyalty, this research enriches the literature on sustainability-driven consumer behaviour, positioning satisfaction as both a cognitive and affective mediator between awareness and loyalty. The findings further support a trust-centric

framework consistent with Stakeholder Theory, emphasising that ethical engagement and transparent communication shape stakeholders' evaluations and behavioural intentions. Moreover, the study provides one of the first empirical tests of the GBCS in a South Asian emerging economy, broadening theoretical generalizability and offering a localised model sensitive to Pakistan's socio-economic and regulatory context. Overall, the results indicate that while pro-environmental attitudes are prevalent, actionable loyalty depends on credible awareness and institutional trust, reaffirming the critical role of perceived authenticity in sustainability communication.

Managerial and Policy Implications

The findings of this study offer several managerial and policy implications for promoting sustainable banking practices. Banks must move beyond policy rhetoric to embed green initiatives directly into customer experiences through measures such as e-statements, paperless transactions, and renewable-linked deposits, thereby enhancing the visibility of their environmental commitments. Establishing third-party verification and external certification of green claims can further strengthen Green Trust (GT) and Green Satisfaction (GS) by mitigating concerns about greenwashing. Transparent reporting on financed emissions, ESG-linked loans, and energy-efficient operations should be incorporated into customer communication to improve both awareness and trust. Integrating environmental performance indicators into service quality metrics and feedback systems would enable continuous monitoring and improvement of GS. From a regulatory standpoint, the State Bank of Pakistan and similar authorities should standardise disclosure frameworks and mandate uniform green reporting to ensure comparability, transparency, and Accountability across institutions.

Additionally, collaborative green literacy programs between banks and educational institutions can enhance long-term consumer understanding of sustainable finance. In contrast, fiscal and credit-based incentives for verified green portfolios can encourage broader institutional participation and reinforce customer trust. Finally, future initiatives should account for demographic moderators such as environmental literacy, income, and age, and explore the role of digital platforms and social media in mediating awareness and satisfaction, particularly among younger, technologically engaged customer segments.

Future Research Directions

Future research should build upon the present findings by exploring several promising directions. Comparative studies across emerging and developed economies could help identify institutional, cultural, and regulatory factors that influence the strength of the awareness–trust–loyalty relationship. Researchers are also encouraged to incorporate the digital dimensions of green banking, such as fintech innovations, blockchain-enabled transparency, and AI-driven ESG reporting, to examine how technological advancements shape Green Trust (GT) and Green Satisfaction (GS). Moreover, future models could integrate emotional and value-based mediators such as moral obligation, environmental identity, or ecological concern to deepen understanding of the psychological mechanisms underlying green loyalty formation. Methodologically, employing mixed-method approaches that combine quantitative techniques, such as structural equation modelling, with qualitative methods, such as in-depth interviews or focus groups, would provide richer, context-sensitive insights into consumers' motivations, perceptions, and barriers to adopting sustainable banking practices.

Conclusion

The study confirms that Green Banking Awareness (GBA) serves as a foundational enabler of environmentally responsible consumer behaviour. By integrating Green Satisfaction (GS) into the Green Banking Consumer Scale (GBCS), the research provides a more comprehensive understanding of how awareness translates into trust and loyalty. For financial institutions in emerging economies, the findings highlight that credible awareness and genuine satisfaction rather than rhetoric are the key drivers of long-term customer relationships. Ultimately, Green Trust (GT), grounded in transparency, reliability, and consistent delivery, emerges as the cornerstone of enduring green loyalty.

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