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From Demand to Impact: Can Sustainable Banking Services Advance UN Sustainable Development Goals?

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ABSTRACT

In response to growing climate change debate and sustainability concerns, business organizations must adopt relevant sustainable strategies aligning with the United Nations Sustainable Development Goals (UN-SDGs). Extant research examines integration of sustainability in banking and finance, but demand-side mechanisms influencing sustainable banking remain underresearched. With a mixed-method approach, we analyse how consumers' adoption of sustainable banking services can be augmented in order to contribute to the SDG attainment. We develop a model that integrates theory of planned behaviour (TPB), value-belief-norm, and goal framing theory. Using focus group discussions and structural equation modelling, the results indicate that TPB variables, environment-specific factors and altruistic values significantly influence adoption behaviour, with interesting mediating effects. We highlight the moderating role of biospheric, altruistic and hedonic values on linkage between intentions and behaviour. The study provides a comprehensive framework to assess demand-side perspective of sustainable banking and offers insights to managers and policymakers on strategies for promoting these services for sustainable development.

1 | Introduction

Rapid economic growth, specifically in emerging economies, has sparked the debate on environmental and social issues, such as rising pollution levels, depletion of natural resources, social exclusion and unequal distribution of wealth, that pose a major challenge to sustainable development (Suki et al. 2022). The Sustainable Development Agenda 2030, which comprises 17 Sustainable Development Goals (SDGs), includes balanced achievement of the goals for 'people', 'planet', 'prosperity', 'peace' and 'partnership' and requires all stakeholders to collaborate at local, regional and global levels (United Nations 2015; Goworek et al. 2018; Shaw et al. 2018). Globally, academic research and professional practice focuses primarily on ensuring sustainability in the manufacturing sector, supply chain linkages at the national and global level (Foroudi et al. 2022; Mio, Panfilo, and Blundo 2020). The analysis of scholarly works accentuates the significance of the services sector's potential contribution towards realizing the SDGs as expounded by Galletta et al. (2021). Similar to other sectors, the services industry must also undergo transformation and innovation in terms of their processes to synchronize their organizational objectives with the SDGs (Shen et al. 2020; Javaid et al. 2022; Adomako et al. 2023).

Within the financial services sector, sustainable banking and finance are increasingly a priority for policy formulation in light of countries' aim to achieve SDGs by 2030. Following the 2008 global financial crisis, financial services sector and banks were blamed for the economic and social consequences (Cunha et al. 2021; Stauropoulou et al. 2023). The role of banks in potentially supporting the SDGs has been widely recognized, and customers have expressed an interest

in sustainable banking—a form of banking where operations reflect initiatives and actions by banks to support and promote sustainable development (Bryson et al. 2016; Úbeda et al. 2022). Studies recognize that banks do not exert a direct influence on environmental degradation and sustainability (Taneja and Ali 2021) but can have indirect environmental effects through financing of projects, such as those involving fossil fuels, which impact the environmental sustainability in the region/country (Burhanudin, Ronny, and Sihotang 2021; Adedoyin, Nwulu, and Bekun 2021). The increasing recognition of potential indirect effects of banking institutions has resulted in integrating sustainability into the overall corporate social responsibility strategy. Through such strategies, banking institutions are likely to contribute to the attainment of four SDGs, namely, SDG 10 (i.e., reducing inequalities), SDG 12 (i.e., responsible consumption and production), SDG 13 (i.e., climate action), and SDG 17 (i.e., partnership for goals). Earlier studies emphasize how banks align sustainability strategies to achieve SDGs and how this shift is impacting banks' performance (Bătae, Dragomir, and Feleagă 2021; Jan et al. 2019; Sardianou et al. 2021). Studies on sustainable banking focus on the theoretical discussion (Nájera-Sánchez 2020), with some articulating approaches how to incorporate sustainable practices into banking and others suggesting measures to improve banks' sustainable performance (Yip and Bocken 2018; Olmo, Saiz, and Azofra 2021). Yet others investigate consumer awareness and their intentions for sustainable banking (Burhanudin, Ronny, and Sihotang 2021). Noting the paucity of research in this direction, recent literature stresses the significance of examining the demand-side perspective, that is, how customers perceive the role of sustainable banking in the pathway towards SDGs (Aramburu and Pescador 2019; Stauropoulou et al. 2023). Nonetheless, no study has been conducted to date on the manner in which consumer behaviour may promote the objective of sustainable banking in India. Recent research confirms that sustainable banking remains an area that requires comprehensive scrutiny, particularly when examined from the vantage point of demand-side considerations (Bugandwa et al. 2021; Nájera-Sánchez 2020). Stauropoulou et al. (2023) stress that there is lack of emphasis on consumers in literature related to banking institutions and sustainability-oriented efforts. Further, researchers analysing sustainable individual behaviours have identified the importance of consumer's behavioural aspects and attitude-intention-behaviour gap (Jaiswal and Singh 2018), which is a gap from the demand perspective analysis as to how banks can implement sustainability-oriented initiatives successfully.

This paper fills this gap by analysing how consumer behaviour impacts sustainable banking services in Indian banking sector. The rationale to focus on India is the sector's contribution to India's ongoing economic growth (Bryson et al. 2016; Kumar and Prakash 2020) and its role in prioritizing the design, implementation and promotion of sustainable banking through responsible investments, green credit cards, green bonds and promotion of green channels. We argue that the growing size of India's banking sector and growing population can play a significant role in addressing sustainability and enable meeting the SDGs (Das 2021). India plays a pivotal role in advancing the SDGs, as highlighted by recent research (Khalid, Sharma, and Dubey 2021; Sravan, Mandal, and Alphonse 2024). Despite being a developing nation, India bears a substantial portion of the global challenges, positioning it as a critical player in achieving the SDGs (Khalid, Sharma, and Dubey 2018; Shankaranarayana et al. 2023). India's large population presents a significant opportunity to drive global change by fostering greater engagement among diverse stakeholders across various levels of demand and supply. Notably, the demand side is gaining momentum as consumer mindsets increasingly shift towards sustainability (Taneja and Ali 2021). However, the widespread adoption of sustainable banking practices continues to face significant challenges and remains limited. To address this issue, the Government of India has been actively implementing robust measures in this direction. The Reserve Bank of India (2021) report highlights the significant rise in public awareness regarding green and sustainable banking options. We argue that consumers are likely to adopt sustainable banking services as awareness of sustainability and SDGs grows, highlighting the importance of consumer's adoption behaviour towards sustainable banking services as an area for research. Such a shift (positive) in consumers' behaviour is likely to lead to an improvement in banks' standing in terms of sustainability strategies targeted at climate action, responsible consumption patterns and partnership among stakeholders and contribute to SDGs. Hence, this paper investigates consumers' demand and paves the way towards pondering on how the adoption of sustainable banking could support SDGs. This paper examines the following research questions:

a. How do consumers perceive sustainable banking services offered by the service providers as part of their sustainable strategies?

b. What factors influence consumers' demand and adoption behaviour with respect to sustainable banking services?

We use a mixed-method approach (Molina-Azorin 2016) that follows a sequential research design and consists of qualitative phase followed by use of quantitative methods. Such research design is adopted to, first, generate dimensions to measure significant constructs through a qualitative study and, second, to test the conceptual model with quantitative techniques. India has been making huge efforts to promote sustainable banking as a significant component of its green economy initiatives (Kumar 2022). Several studies highlight the role of green banking and finance in promoting sustainability, especially in developing economies at the social, economic and environmental levels (Sharma and Choubey 2022). For the purpose of integrating sustainability into core functioning, the Indian banking sector needs to align people (stakeholders) and processes (strategy) to sustainability, and customers are integral in the success. We examine consumers' environmentally sustainable usage behaviour by testing an integrated behavioural framework based on value-belief-norm (VBN) theory, goal framing theory (GFT) and theory of planned behaviour (TPB) (Ajzen 1985; Stern and Dietz 1994; Steg and Vlek 2009). Prior literature has increasingly supported integrating different theories including TPB, VBN and GFT to investigate the adoption behaviour towards innovative sustainable products and services (Alalwan et al. 2024; Gansser and Reich 2023). Through empirical testing, the research validates the role of

TPB variables in shaping the usage of sustainable banking services. The study establishes the direct and indirect effects of environment-specific variables and the influence of specific values in moderating the relationship between consumer's intentions and behaviour.

This paper contributes to the literature by first, providing insights into consumer demand and adoption behaviour by identifying and establishing variables leading to adoption and usage of sustainable banking services. Second, we contribute to the theoretical framework by extending the applicability of existing theories by conducting a demand-side assessment of sustainable banking and SDGs and how consumer behaviour supports banking institutions to achieve SDGs with a special emphasis on India. Third, by touching on the microperspectives of consumer behaviour, including their environment-specific perceptual factors and value orientations, we add to the literature on how sustainable banking is an important dimension of sustainable and responsible consumption. Thus, the paper advances theory on banking organizations' sustainability-oriented initiatives and consumer's adoption behaviour for achieving the SDGs. From a practical perspective, the outcomes are likely to support banking sector, policymakers and researchers on designing initiatives to promote sustainable banking by fostering consumer's involvement. Finally, the insights provide an insight into how UN SDGs can be achieved through sustainable banking.

The structure of the paper is as follows: Section 2 presents the theoretical background and literature review, followed by an overview on methods employed. Section 3 discusses the research methodology and procedure for data analysis. Section 4 discusses the findings. We present implications for theory, practice and policy in Section 5. The last part, Section 6, concludes and proposes directions for future research.

2 | Theoretical Background and Literature Review

2.1 | Sustainable Banking

Sustainable banking is referred to as ethical banking (Igbudu, Garanti, and Popoola 2018), green banking (Burhanudin, Ronny, and Sihotang 2021), environmentally sustainable banking (Taneja and Ali 2021), responsible banking (Park and Kim 2020) and social banking (Mendez and Houghton 2020) in different contexts. In practice, it is the conduct of banking activities in a manner that preserves the environment. From a sustainability perspective, it is defined as an ideology that follows from the need to adopt novel and sustainable approaches to implement innovative technologies for transforming the banking industry and to aid effective and efficient service delivery to banks consumers (Jeucken and Bouma 2017; Aspara et al. 2018; Luo et al. 2022). From the stakeholders' perspective, sustainable banking refers to the development of a culture focused on three facets of performance, namely, financial, social and environmental, which are likely to foster long-term customer relationships, improve governance and meet the economic and community needs (Korslund and Spengler 2012; Paetzold et al. 2022). Other concepts found in the literature define sustainable banking as a notion that banks that follow this type of philosophy place the responsibility for environment and society as their prime goal (Nepomuceno, Daraio, and Costa 2019). Yip and Bocken (2018) define sustainable banking as the provision of financial products and services developed to meet the needs of people, which safeguard the environment and generates profits for banks. They developed eight sustainable banking archetypes—encourage efficiency, substitute with digital processes, adopt a stewardship role, inclusive value creation, resilience in loan grants, repurpose for society/environment, encourage sufficiency and create and deliver sustainable financial products. These were classified as technological, social and organizational sustainability archetypes. The most popular with consumers were substituting with digital processes, encouraging sufficiency and adopting stewardship role. The integration of sustainability elements in financial services, especially banking, has been becoming more urgent because of the rising pressures from the regulatory bodies to implement ESG components, that is, environment, social and governance in their frameworks (O'Loughlin and McEachern 2024; la Torre et al. 2024).

Nosratabadi et al. (2020) identify three approaches for a bank's transition to sustainability. The first approach promotes corporate social responsibility as the pathway for sustainable banking and highlights the association between corporate social responsibility commitment, the bank's reputation and its financial performance. The second encourages banks to adopt activities that mitigate greenhouse gas (GHG) emissions, reduce the overall carbon footprint of the industry and protect environmental sustainability and in doing so reduce the negative impacts on the environment and society (Burhanudin, Ronny, and Sihotang 2021). Further, adopting practices such as waste management, lower energy and water consumption, innovative service delivery channels help banks reduce their overall costs and develop a positive brand image (Igbudu, Garanti, and Popoola 2018), and this also sets them to fulfil environmental responsibility. The third approach suggests that banks offer products and services by offering value propositions that contribute to SDGs (Nwagwu 2020). A recent review (Ante 2024) has established consumer preferences among the most important drivers of organization's adoption of low-emission technologies in the area of green finance. A conceptual framework leading to the shift of banking sector to sustainability, by Seyfang and Gilbert-Squires (2019), recommends identifying the regimes and transitions in banking practices while simultaneously recognizing the obstacles and challenges to sustainable banking in manoeuvring and facilitating a successful shift to sustainability. Recent research across countries reinforces that the financial sectors has great potential to facilitate and promote responsible utilization of scarce natural resources for protecting the planet from the adverse effects of climate change (Pu et al. 2024; Yadav et al. 2024). For example, there are significant recent evidence on understanding and examining how different technologies such as data analytics, artificial intelligence and internet of thongs (IoT) can be leveraged in banking sector to promote green finance (Alalwan et al. 2024; Chang et al. 2024; Younis et al. 2024).

Global sustainability research has increasingly concentrated on developing countries, recognizing the opportunities provided by the UN SDGs for these nations to contribute to the global development agenda (Leal Filho et al. 2019). Evidence highlights the

critical role of adopting sustainable banking practices in developing countries as a powerful catalyst for sustainable development (Pal, De, and Herath 2020; Siddik, Yong, and Sharif 2024). India, as a rapidly emerging nation with the world's largest population (Statista 2024), has attracted considerable research interest in this context. There have been recent research efforts to encapsulate the sustainable banking scenario in the Indian context (Munjal and Sharma 2024; Sravan, Mandal, and Alphonse 2024).

Researchers have increasingly focused on the economic, social and environmental dimension of sustainable development while jotting down the role of banking sector and their sustainable practices in developing nations, especially India (Kandpal 2024; Rao and Shukla 2024). For instance, Munjal and Sharma (2024) underscore the importance of strategically engaging various stakeholders within the banking sector to achieve sustainable development, while also highlighting the necessity of examining stakeholder perceptions regarding these practices. Kumar and Prakash (2020) debates on how Indian banking sector has responded to the sustainability challenges and how it needs to go a long way to achieve wide-range adoption of sustainable banking practices. The literature reveals a gap in understanding the demand-side perspective of sustainable banking (Pal, De, and Herath 2020). However, researchers have consistently highlighted the critical role of consumer awareness, trust and perceived brand image in the successful implementation of sustainable banking practices (Ante 2024; Sharma and Choubey 2022).

2.2 | Theories

2.2.1 | Theory of Planned Behaviour

Ajzen (1985) conceptualized the TPB as an extension of the theory of reasoned action (TRA) (Fishbein and Ajzen 1975). TRA is based on the notion that an individual's behaviour is guided by their will. Ajzen (1985) extended the TRA by stressing that behaviour can be guided by other factors and that behaviour is guided by rational choices rather than wilful actions. Behaviour is influenced by attitude, subjective norms with perceived behavioural control emerging through their influence on behavioural intention (Ajzen 1985). Therefore, behavioural intention governs human behaviour. Attitudes are an individual's affective evaluation of performing a behaviour, where subjective norms are the perception of what other people or society thinks of about adopting the particular behaviour (Gao, Melero-Polo, and Sese 2020). The perceived behavioural control has been defined as the belief of the level of one's control in performing that behaviour and the availability of resources facilitating the focal behaviour.

TPB predicts behaviour in several behavioural contexts (Chen and Hung 2016). Within the milieu of environmental and sustainable behaviour, researchers have supported the applicability of TPB (Frommeyer et al. 2022) (Yadav and Pathak 2016; Taufique and Vaithianathan 2018). For example, if viewed from the angle of how intentions are being shaped, Wallace and Buil (2023) utilized TPB as a grounding model to study conspicuous green behaviour of consumers who post about climate change on social media, thereby reflecting their 'proenvironment (virtual) self-identity'. Similarly, TPB has been established as a robust theory for measuring consumption behaviour towards organic vegetables in Brazilian context by Dorce et al. (2021). There is growing evidence on strength and validity of TPB in investigating sustainable behaviours from a variety of angles. However, there is still a paucity of research in explaining such behaviours in services context, especially banking and financial services. There are only a few that have touched upon effectiveness of TPB in explaining sustainable behavioural intentions within the context of sustainable banking services (Taneja and Ali 2021), such as by underscoring why do customers intend to adopt digital sustainable banking, and suggested it as a robust theory for explaining such behaviours. As per the synthesis of TPB literature, we expect that perceived behavioural control, subjective norms and attitude impact behavioural intention (Berki-Kiss and Menrad 2022; Liu et al. 2022), which further influences actual usage behaviour. Based on the notions established in the literature on basic variables of TPB influencing relevant behaviours, we propose the following hypotheses from the angle of sustainable banking:

H1ac. : *(a) Perceived behavioural control, (b) subjective norms and (c) attitude have a significant influence on consumer's behavioural intention to adopt sustainable banking services.*

H1d. : *Consumer's behavioural intention has a significant influence on adoption behaviour regarding sustainable banking services.*

H1eg. : *Consumer's behavioural intention mediates the relationship between (e) perceived behavioural control and adoption behaviour, (f) subjective norms and adoption behaviour and (g) attitude and adoption behaviour.*

2.2.2 | VBN and GFT

Current research considers values in understanding sustainable banking adoption with studies establishing the vital role of values in determining environmental psychology and behaviour (Dunlap et al. 2000; Van Riper and Kyle 2014). Values guide a person's judgement about the world, and research shows that values impact an individual's behaviour through his/her beliefs, norms and attitudes (Liobikienė, Grincevičienė, and Bernatonienė 2017). In investigating environmental attitude and behaviour, it is important to assess the role of values (Puntiroli, Moussaoui, and Bezençon 2022) because the values of an individual are usually guided by goals or motives that determine a specific behaviour, and Lindenberg and Steg's (2013) GFT is effective in conjunction with understanding value orientation in explaining environmental behaviour. In this respect, three goals are considered to govern environment-friendly behaviour in any given situation, which include gain goals, normative goals and hedonic goals. Gain goals are the motives that prompt an individual to seek any material payback, for example, monetary benefits. Normative goals urge an individual to behave in a way perceived as appropriate and sensitive to the perception of others regarding the adoption of a specific behaviour under consideration. In essence, individuals are usually willing to adopt environment-friendly behaviour believing such behaviour to be

morally right. Further, hedonic goals focus on attaining feelings of pleasure and excitement with little effort (Steg et al. 2014b).

The VBN theory states that values of individuals lead to building belief with respect to awareness of consequences, assumption of responsibility and personal norms that further shapes behaviour (Stern 2000). Prior researchers have applied VBN in predicting environment-friendly behaviours in diverse contexts (Han et al. 2018; Park et al. 2022) and also extended this theory to incorporate relevant contextual variables (Han, Hwang, and Lee 2017). Various types of value orientations are propounded in literature that shape one's environmental behaviour (Hurst et al. 2013; Steg et al. 2014a). The egoist value orientation concerns the focus of a person on improving and/or safeguarding his/her resources; that is, this is inherent in the gain goals in line with the GFT. Hedonic values are associated with a person's inclination towards joy, pleasure or newness in a behaviour to be adopted. Altruistic values influence a person's behaviour producing consciousness for the well-being of others; in other words, the prime concern is for social welfare. Biospheric values represent a person's orientation towards the protection of nature and the environment, yet ultimately for their own welfare. Altruistic and biospheric values inherently lead to an impact on normative goals associated with a given situation.

Though literature around role of values and goals framing in shaping individual behaviours is emerging, there are significant knowledge gaps concerning how these can be leveraged in developing sustainable behaviours (Baxter and Pelletier 2020; Ng et al. 2024). Some recent research attempts highlight their importance such as Onwezen (2023), who examined the role of goal-framing theory in sustainable food behaviours and directed to the significance of incorporating moral goal frames in addition to gain, hedonic and normative goal frames due to inconsistencies in sustainable behaviours across contexts.

Literature discusses strong association between altruistic and biospheric values leading to orientation towards collective interests (Stern and Dietz 1994; De Groot and Steg 2010). Some researchers suggest a broader category of values, that is, self-transcendence values, which comprise normative motives. Self-enhancement values deal with egoistic value orientation that leads to concerns for one's own interest (Steg et al. 2014a). One of the most important goals or motives in explaining people's environmental behaviour is the normative goal, as highlighted in the significance of subjective norms (i.e., the perception of one's significance others when adopting an environment-friendly behaviour) by the researchers (Chen and Hung 2016; Ting et al. 2019). In line with prior research (Jenkin, McShane, and Webster 2011; Juvan and Dolnicar 2014), although individuals assign higher values to nature and environment, they do not necessarily reflect such values in their actual behaviour, as they do not perceive themselves to effectively help protect the environment individually. Therefore, scrutinizing the impact of various environmental orientations such as perception of issues, consequences and responsibility concerning environmental behaviour is required to gain deeper insights into the phenomena (Liobikiene and Juknys 2016). Studies in the recent past have been indicating that individual values, especially biospheric and altruistic values play a significant role in motivating him/her to adopt environmentally sustainable behaviours (Ghazali et al. 2019). To put differently, if the individuals perceive themselves to be following these values, they will have greater awareness of possible consequences of their behaviour, will assume it as their personal responsibility to preserve environment and therefore will be more inclined towards adopting such behaviours (Hua and Dong 2022). Panda et al. (2020) also stated that environmentally sustainable behaviours can result from the perception of altruistic values. Recent research has established the importance of studying values for scrutinizing the adoption behaviour in newer contexts such as green internet of things applications (Alalwan et al. 2024). Further, literature also suggests that values can moderate the relationships among variables concerning environmental behaviours such as the association between personal norms, intention and behaviour (Park et al. 2022). Therefore, it can be assumed that value orientations of individuals can have direct, mediating and moderating role in promoting environment-friendly behaviours (Alalwan et al. 2024; Ghazali et al. 2019; Park et al. 2022). We frame the following hypotheses based on literature discussed above:

H2ad. : *(a) Egoistic values, (b) hedonic values, (c) biospheric values and (d) altruistic values have a significant influence on adoption behaviour towards sustainable banking services.*

H2eh. : *(e) Egoistic values, (f) hedonic values, (g) biospheric values and (h) altruistic values moderate the relationship between behavioural intention and adoption behaviour towards sustainable banking services.*

2.3 | Consumers and Sustainability

Some studies on banking and sustainability scrutinize the consumer's perspectives towards sustainable banking (Yip and Bocken 2018; Nosratabadi et al. 2020). The review of research (Aramburu and Pescador 2019; Bugandwa et al. 2021) directs us to the knowledge gap about the need to study consumers' adoption of sustainable banking services and practices. Prior research attempts to relate consumers' sustainability orientations with online banking adoption. For instance, Burhanudin, Ronny, and Sihotang (2021) establishes a positive association between consumers' perceived nature relatedness and the intention to use online banking by stressing the role of nature relatedness as a catalyst for technology and sustainability as well as consumer happiness.

Researchers examining sustainability identify consumers as among the most influential stakeholders for development and implementation of sustainable business models by organizations (Ante 2024; O'Reilly, Allen, and Reedy 2018; Ostrom et al. 2021; van Doorn, Risselada, and Verhoef 2021). In the context of sustainable banking, research has focused on customers' receptiveness of sustainable business model archetypes by banking organizations concerning customer traction (Yip and Bocken 2018). As consumers are considered to play an important part in leading the way to responsible consumption for the achievement of SDGs, Taneja and Ali (2021) attempt to understand the factors that determine consumer's intention to environmentally sustainable banking services and technologies by stressing that the adoption of sustainable banking services by banks is indispensable for sustainable banking. Sustainable

banking practices not only helps to protect the environment (Jenkin, McShane, and Webster 2011) but is also effective in attaining consumer loyalty to the bank (Roberts-Lombard and Petzer 2024; Yip and Bocken 2018) and improving the bank's brand image in the market (Igbudu, Garanti, and Popoola 2018). Researchers have established that consumers' concerns for environmental issues (Adıgüzel and Donato 2021), awareness of environmental consequences and assumption of responsibility towards environmental issues play important roles in shaping sustainable behaviours (Liobikiene and Juknys 2016; De Canio, Martinelli, and Endrighi 2020). Further, environmental concern has been observed as an important antecedent to consumer's decision-making processes in terms of environment-friendly behaviours (Khare 2023). It confers that a consumer who is more concerned about the environmental aspects will be more likely to purchase and use environment-friendly products (Liu et al. 2022). The precious research has shown a significant association among consumer's environmental knowledge, concerns and attitude towards green and sustainable products. This relationship might also exist because of the perceived consequences of using such products and services. For instance, Khare (2023) claimed that the consumers with green product knowledge perceive these products to be beneficial for maintaining sustainability and for their own self-image enhancement, which leads to purchase behaviour. Consequently, environmental concern has been argued as an important determinant of consumers' attitudes and intentions towards sustainable consumption behaviour (De Canio, Martinelli, and Endrighi 2020; Taneja and Ali 2021), having direct as well as indirect effects (Gansser and Reich 2023; Liu et al. 2022). Out of several variables studied, Gansser and Reich (2023) spotted environmental concern as the most significant antecedent to attitude towards sustainable behaviour. In addition, research is increasingly signifying how perceived environmental consequences in terms of benefits and costs influence individual's support for sustainable development in the context of different fields such as tourism (Park et al. 2022), social media (Wallace and Buil 2023) and food consumption (Dorce et al. 2021). Considering the perceived consequences, it is expected that the individuals are more inclined to adopting sustainable behaviours if they assume it as their personal responsibility to bring a change and move towards sustainability (Hua and Dong 2022). With respect to environment-specific factors, the study proposes the following hypotheses:

H3ac. : *Environmental concern has a significant influence on (a) attitude, (b) behavioural intention and (c) adoption behaviour towards sustainable banking services.*

H3de. : *(d) Perceived environmental consequences and (e) assumption of environmental responsibility have a significant influence on adoption behaviour towards sustainable banking services.*

H3f. : *Attitude mediates the relationship between environmental concern and behavioural intention.*

H3g. : *Behavioural intention mediates the relationship between environmental concern and adoption behaviour.*

H3h. : *Attitude and behavioural intention both mediate the relationship between environmental concern and adoption behaviour.*

We propose a theoretical model based on the abovementioned discussions and hypotheses framed (see Figure 1).

3 | Methodology

3.1 | Design

The study follows a mixed-method research design. Focus group discussions were undertaken followed by a survey of bank customers. Given this paper investigates sustainable banking, which has not been investigated from a demand-side perspective, we adopt the triangulation approach. By adopting sequential design (Molina-Azorin 2016), we develop an initial pool of items from an extensive literature review, followed by two focus group discussions and a final survey administered to 401 participants. Details on steps are provided in the following section. The rationale for adopting a mixed-method approach is that the combined use of qualitative and quantitative methods helps enrich the understanding of the complex phenomena and the research problem as compared to using either approach on its own (Creswell and Clark 2018). To identify the themes and variables from the literature, the focus group was convened (Churchill 1979). The research process is shown in Figure 2.

3.2 | Sample and Procedure

For the qualitative investigation, the focus group discussions were conducted using a semistructured questionnaire. Two focus groups were set up, with each group consisting of eight participants from academia and the banking industry. Each discussion took between 60 and 90 min. The focus groups consisted of respondents who were mindful of sustainability issues and had a basic understanding of SDGs, sustainable banking services and initiatives. Discussions include topics regarding participants' awareness of SDGs, sustainable banking services and environmentally sustainable initiatives taken by banks plus their perceptions and attitudes towards digitalization of banking as an environmentally sustainable strategy. The participants were also invited to evaluate the various scale items, that is, for values, and other attitudinal and behavioural factors identified from literature. This phase helped in exploring various dimensions of consumer's adoption. The items thus generated were assessed for face and content validity by a panel of eight experts from academia and the banking industry on a range of dimensions: content, clarity, wording, language, structure and exhibition. A questionnaire was then pretested on a convenience sample of 40 bank consumers. The internal consistency of the pilot survey data was assessed using Cronbach's alpha score based on the recommendations of (Hair et al. 2010); that is, all the items having $\alpha > 0.7$ were retained for the final survey.

The study used a purposive sampling design for collection of final survey data. Those consumers having a basic understanding of sustainable/environment-friendly banking services and initiatives were selected for collecting data for the quantitative phase. For this purpose, a cut-off criterion was fixed as a question asking the respondents whether they are aware of such services and SDGs. The questionnaire consisted of a covering page describing the context of sustainable banking defined for the current research. The respondents were informed that sustainable banking services

includes all the services offered by banks, which are environment friendly (such as account management, digital services, green credit cards, green bonds, green marketing and solar-powered ATMs; green investments, for example, promoting investment in mutual funds targeted towards sustainable companies and projects). The data were gathered during the period June–November 2021 using a web-based survey method. The target respondents were contacted through various channels including emails, social media, social groups and working professionals' groups. Out of 600 questionnaires distributed, a total of 401 valid responses were collected with a response rate of 66.83%. The distribution of data based on sample profile is depicted in Table 1. The majority of the sample consists of females (56.6%) as compared to males (43.4%). A larger proportion of the valid sample was aged between 18 and 25 years, followed by those between 26–35 years and 36–45 years. The vast majority of respondents had a bachelor's degree (46.4%), followed by those with a master's degree (40.9%), representing a well-educated sample of respondents. Most of the sample respondents were in full time employment (42.9%), followed by those who were unemployed (25.2%), employed part-time (20.2%) and those in business (11%).

3.3 | Measures

To understand consumers' adoption of sustainable banking, we integrate TPB, VBN and GFT to design the appropriate scales. The items extracted from literature review were adapted according to the context of the research based on focus group discussions and pretesting outcomes. We developed three items each to measure subjective norms (SN1 to SN3) and attitude (AT1 to AT3) from the works of Ajzen (1985), Venkatesh and Davis (2000), Venkatesh et al. (2003), Ajzen (1985), and Davis, Bagozzi, and Warshaw (1989), respectively. Four measurement items for perceived behavioural controls (PBC1 to PBC4) were adapted (Ajzen 1985; Chen and Chang 2012; Yadav and Pathak 2017). These items were designed to measure the perception of availability and control over the resources required to adopt sustainable banking. The scales for behavioural intention were adapted from Ajzen (1985), Chen and Chang (2012) and Yadav and Pathak (2017). The six items (BI1 to BI6) measured the consumer's intention to adopt sustainable banking services. In addition to TPB variables, we developed 'environmental concern', 'assumption of environmental responsibility' and 'perceived environmental consequences' as environment-specific variables. Five items (EC1 to EC5) were adapted to measure environmental concern (Biswas and Roy 2015; Kumar, Manrai, and Manrai 2017; Jaiswal and Kant 2018). Items for perceived environmental consequences (PEC1 to PEC5) were also adapted (Patterson and Spreng 1997; Kumar, Manrai, and Manrai 2017; Yadav and Pathak 2017; Taneja and Ali 2021). The scales for the assumption of environmental responsibility (AER1 to AER6) were measured using six items extracted from Biswas and Roy (2015) and de Canio, Martinelli, and Endrighi (2020). The dependent variable, that is, 'adoption behaviour', was measured using five items adapted from Jaiswal and Singh (2018); Jenkin, McShane, and Webster (2011); and Taneja and Ali (2021), reflecting consumer behaviour concerning the adoption of sustainable banking services. All the given items were measured on a 7-point Likert scale ranging from 1 = *strongly disagree* to

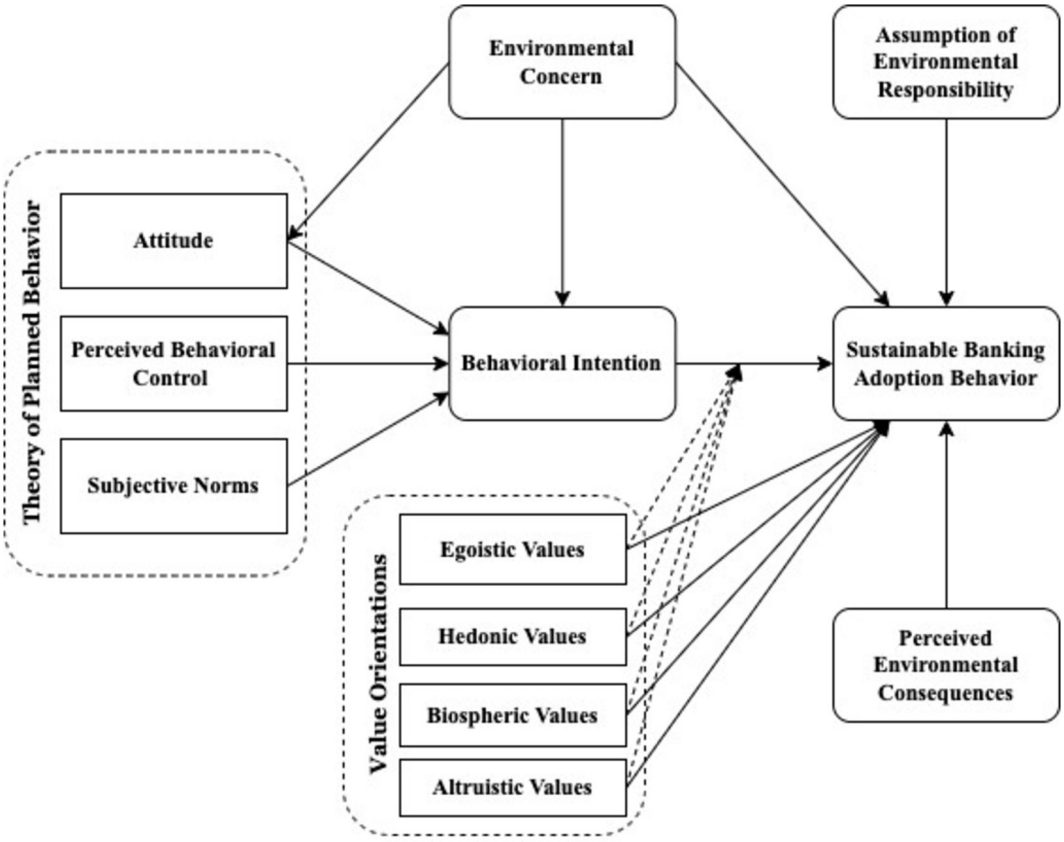

FIGURE 1 | Theoretical model.

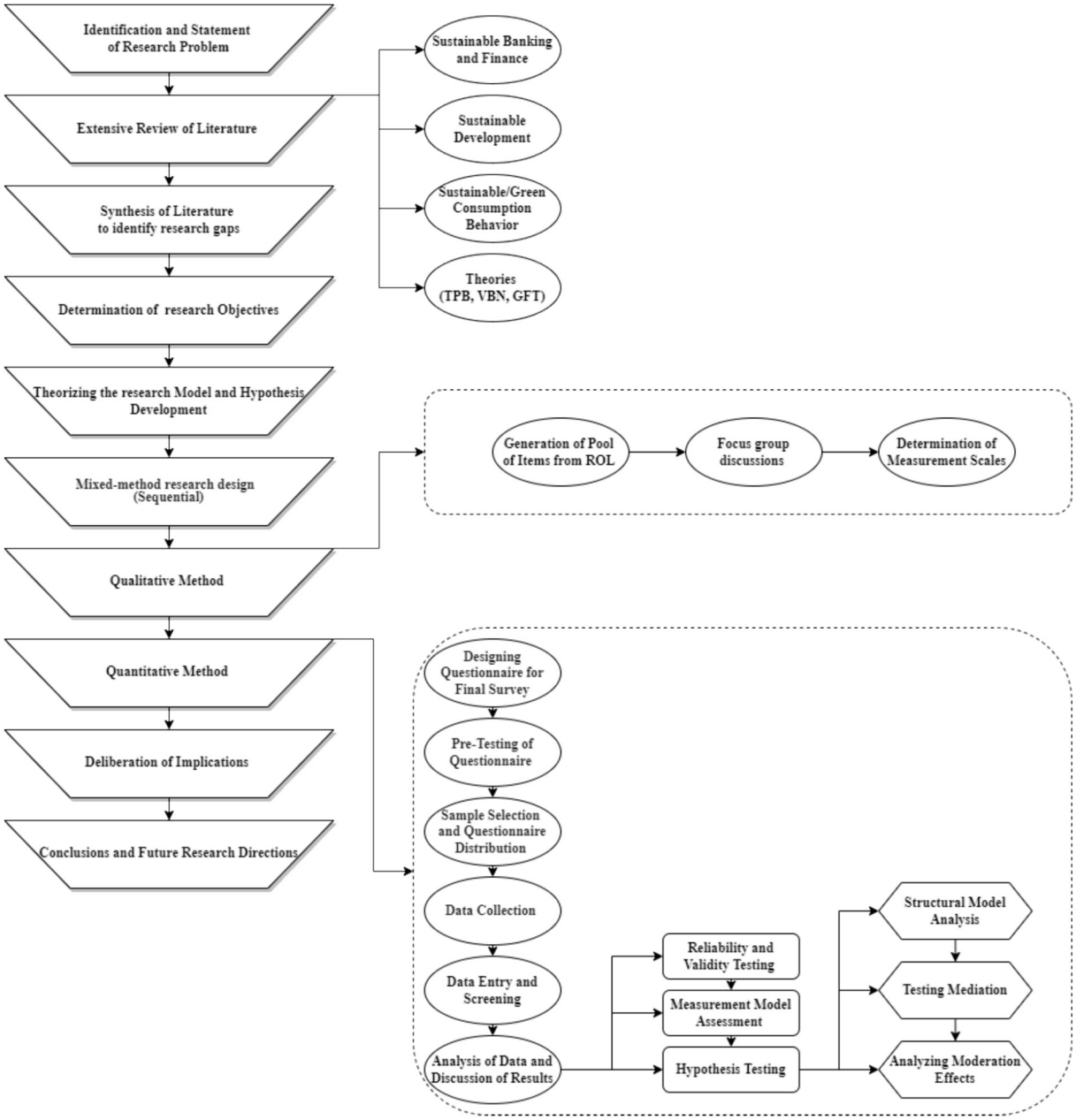

FIGURE 2 | Research process flowchart.

7 = *strongly agree*. Further, the values (i.e., egoistic, hedonic, biospheric and altruistic) showing the guiding principles of one's life were adapted (Schwartz 1992; Steg, Dreijerink, and Abrahamse 2005; de Groot and Steg 2008; Steg et al. 2011). The coding for measuring values was set from 1 = *not at all important* to 7 = *extremely important*.

4 | Analysis and Discussion of Findings

To test the proposed model and assess various direct and indirect causal relationships among focal variables, we use a partial least square (PLS)-based structural equation modelling technique using SmartPLS (v. 3.3.7). PLS-SEM is considered to have an advantage of flexibility in assessing all path coefficients simultaneously while offering more robust structural model estimates in comparison to covariance-based SEM (Reinartz, Haenlein, and Henseler 2009). PLS-based SEM is deemed appropriate for testing causal associations in cases where not much prior theoretical knowledge exists (Petter, Straub, and Rai 2007). Consequently, applying PLS-based SEM can be effective in the case where we are interested in understanding a relatively less explored area of demand-side of sustainable banking initiatives. Further, to test complex models including moderated-mediation like the current one, PLS-SEM is recommended by majority of earlier researchers in diverse contexts (Henseler, Ringle, and Sinkovics 2009).

4.1 | Measurement Model Assessment

First, the unidimensionality, reliability and validity of the data set were evaluated. The composite reliability (CR) scores, Cronbach's α and average variance explained (AVE) were used

TABLE 1 | Sample profile.

Variable	Categories	Frequency	Percentage
Gender	Male	174	43.40
	Female	227	56.60
Age	Under 18 years old	3	0.75
	18 to 25 years old	106	26.43
	26 to 35 years old	175	43.64
	36 to 45 years old	104	25.94
	More than 45 years old	13	3.24
Education	Below high school diploma	2	0.50
	High school degree or equivalent	36	9.00
	Bachelor's degree	186	46.38
	Master's degree	164	40.88
	Doctorate	13	3.24
Employment	Employed full time	172	42.90
	Employed part-time	81	20.20
	Unemployed	101	25.18
	Business man/woman	44	10.97
	Others	3	0.75

to assess the reliability of the measures. The values for all three indices were found to be satisfactory based on the criteria: CR > 0.7, $\alpha > 0.7$ and AVE > 0.5. The outer loadings for all items were found to exceed 0.7 (Hair et al. 2017), thereby depicting indicator reliability (see Table 2). The satisfactory values of AVE, CR, Cronbach's alpha and indicator reliability depict the dataset to be valid in terms of convergent validity. Table 3 presents all the indices meeting the criteria for convergent validity (Hair et al. 2017). Discriminant validity reflects the divergence among the constructs under study; therefore, the diagonal elements in the interconstruct correlation matrix representing square roots of each construct's AVE should be greater than the correlations between respective constructs, that is, off-diagonal values (Fornell and Larcker 1981) (see Table 4).

Further, to confirm discriminant validity, Heterotrait-Monotrait (HTMT) ratios were found to be satisfactory with all values below 0.85 (Henseler, Ringle, and Sarstedt 2015). Prior to testing the measurement model, we conducted a preliminary analysis of our dataset for any potential biases: nonresponse bias and common method bias (CMB). To examine for nonresponse bias, we divided the whole dataset into two parts by differentiating early and late responses. Using a *t* test, no significant differences were found between both these groups at a 5% significance level; therefore, no evidence of nonresponse bias was found (Armstrong and Overton 1977).

Because the data are based on self-reported responses, CMB could be a potential issue (Campbell and Fiske 1959; Podsakoff et al. 2003). In the present context, it can be due to the use of common medium of data collection (Sackett, Larson, and J. 1990) and/or the possibility of social desirability bias while responding to the questions in a way considered to be socially desirable or relevant (Podsakoff et al. 2003). To avoid such as issue, the current research followed relevant approach by assuring the respondents of the anonymity of their information and about the answers mentioning there are no right or wrong answers to any of the questions asked for preventing the issues of social desirability and demand characteristics. In addition, the Harman's single-factor test (Harman 1976) was conducted to examine the data for CMB. With the first factor explaining 41.1% of the total variance, that is, less than 50% criteria (Podsakoff et al. 2003), the data were found to be free from CMB.

4.2 | Hypotheses Testing and Discussion

After assessing reliability and validity, the study applied the bootstrapping method to 5000 resamples (Hair et al. 2017) for testing the hypotheses. Of the 13 hypotheses representing the direct effects and through path estimates based on critical *t* and *p* values, 10 hypotheses were supported. Table 5 summarizes the outcomes of hypotheses testing. The statistical results reveal support for significant and positive relationships of TPB variables, that is, perceived behavioural control, subjective norms and attitude with behavioural intention to adopt sustainable banking services. The findings indicate that consumers who have a favourable attitude, greater control over adopting and using sustainable banking services and who value his/her significant others' opinion have higher intention in this regard. These outcomes are consistent with previous relevant studies that provide support to the significant impact of TPB variables on behavioural intention towards green products (Gansser and Reich 2023; Paul, Modi, and Patel 2016; Taufique and Vaithianathan 2018). The

TABLE 2 | Latent constructs, measurement items, and outer loadings.

Construct	Code	Item	Outer loading
Perceived behavioural control	PBC1	Adopting and using sustainable banking services is completely under my control.	0.728
	PBC2	I have all the necessary resources to adopt sustainable banking services.	0.779
	PBC3	I have the required skills and knowledge to adopt sustainable banking services.	0.809
	PBC4	I am confident that I can adopt sustainable banking services at ease.	0.814
Subjective norms	SN1	People who influence my behaviour support my choice of sustainable banking services.	0.840
	SN2	People who are important to me support my choice of sustainable banking services.	0.834
	SN3	Promotional efforts by banks can influence my adoption and use of sustainable banking services.	0.720
Environmental concern	EC1	I believe that the environment is being adversely affected due to increasing greenhouse gas emissions.	0.837
	EC2	I am concerned about wasting the natural resources of our planet.	0.812
	EC3	Adopting and using eco-friendly products and services is a primary way to protect the environment.	0.810
	EC4	Protection of our natural environment is one of the most important challenges the world is facing.	0.830
	EC5	It is everyone's concern to take environmental protection responsibility in everyday life.	0.852
Perceived environmental consequences	PEC1	I believe that the increased adoption of sustainable banking by banks is environment-friendly.	0.804
	PEC2	Adopting and using environmentally sustainable services will help reduce pollution as there will be less usage of paper and energy.	0.739
	PEC3	Adopting and using environmentally sustainable services will help protect the environment.	0.859
	PEC4	Adopting and using sustainable banking is more beneficial to the environment as compared to traditional banking.	0.743
	PEC5	We should be more concerned about the rising consumption and degradation of natural resources and their consequences for future generations	0.840

(Continues)

TABLE 2 | (Continued)

Construct	Code	Item	Outer loading
Assumption of environmental responsibility	AER1	We as individuals should take the responsibility for environmental issues because our actions cause environmental damage.	0.834
	AER2	Environmental preservation and protection should be one of our priorities	0.777
	AER3	It is important to me that the products and services I use do not harm the environment.	0.813
	AER4	I always consider the potential environmental consequence of my actions while making my decisions regarding consumption.	0.779
	AER5	I can forego my immediate inconvenience to take environmentally sustainable actions.	0.758
	AER6	I consider myself as environmentally responsible.	0.804
Attitude	AT1	I think it is a good idea to use sustainable banking services.	0.864
	AT2	I think it is desirable to use sustainable banking services.	0.827
	AT3	I like the idea of adopting and using sustainable banking services.	0.787
Behavioural intention	BI1	I intend to adopt and use sustainable banking services.	0.775
	BI2	I predict that I would adopt and use sustainable banking services in future.	0.779
	BI3	I plan to use and adopt sustainable banking services in future.	0.784
	BI4	I intend to use sustainable banking services when they are available.	0.792
	BI5	I intend to use sustainable banking services regularly when I can do so.	0.788
	BI6	I would patronize and recommend the use of sustainable banking services to others.	0.806
Sustainable banking adoption behaviour	AB1	I choose to receive e-receipts for transactions to save paper usage.	0.852
	AB2	I have increased using digital banking channels because they are less harmful to the environment.	0.853
	AB3	I choose not to drive to the branch and use digital systems to reduce pollution.	0.782
	AB4	I prefer to use solar-powered ATMs over general ATMs to safeguard the environment.	0.786
	AB5	When there is a choice, I always choose actions that have less harmful effects on the environment.	0.851

(Continues)

TABLE 2 | (Continued)

Construct	Code	Item	Outer loading
Egoistic values	EV1	Being ambitious	0.718
	EV2	Being influential	0.695
	EV3	Being in authority	0.763
	EV4	Being in social power	0.692
	EV5	Having wealth	0.673
Hedonic values	HV1	Enjoying life	0.772
	HV2	Gratification for yourself	0.830
	HV3	Pleasure	0.788
Biospheric values	BV1	Preventing pollution	0.893
	BV2	Protecting the environment	0.872
	BV3	Respecting the Earth	0.911
	BV4	Unity with nature	0.906
Altruistic values	AV1	A world at peace	0.910
	AV2	Being helpful	0.916
	AV3	Equality	0.923
	AV4	Social justice	0.914

TABLE 3 | Construct reliability and validity results.

Construct	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Sustainable banking adoption behaviour	0.883	0.889	0.914	0.681
Assumption of environmental responsibility	0.883	0.885	0.911	0.631
Attitude	0.768	0.773	0.866	0.683
Altruistic values	0.936	0.937	0.954	0.839
Behavioural intention	0.877	0.878	0.907	0.620
Biospheric values	0.918	0.918	0.942	0.802
Environmental concern	0.886	0.887	0.916	0.686
Egoistic values	0.753	0.758	0.834	0.502
Hedonic values	0.715	0.717	0.839	0.635
Perceived behavioural control	0.790	0.800	0.864	0.613
Perceived environmental consequences	0.857	0.861	0.898	0.637
Subjective norms	0.719	0.739	0.841	0.64

idea that behavioural intention positively influences adoption behaviour for sustainable banking services is also supported by our research. This finding is in line with the findings of previous work by Jaiswal and Singh (2018) and Liu et al. (2022).

In terms of environment-specific factors, the results reveal environmental concern as a statistically significant determinant of attitudes, behavioural intentions and adoption behaviour. Taneja and Ali (2021) also find a similar association—individuals that are concerned with environmental issues tend to have a positive attitude to sustainable banking. Further, the works of Ante (2024) and Yalabik and Fairchild (2011) also supported the importance of customer's environmental concerns in sustainable finance. Previous researchers have stressed the favourable impact of environmental concern on sustainable buying intentions and behaviours (see Bryson et al. 2016; Mai et al. 2019;

TABLE 4 | Discriminant validity.

	AB	AER	AT	AV	BI	BV	EC	EV	HV	PBC	PEC	SN
AB	0.825											
AER	0.695	0.795										
AT	0.566	0.672	0.826									
AV	0.529	0.460	0.431	0.916								
BI	0.706	0.721	0.773	0.446	0.787							
BV	0.605	0.656	0.634	0.389	0.641	0.896						
EC	0.703	0.794	0.740	0.482	0.736	0.620	0.828					
EV	0.439	0.599	0.524	0.293	0.518	0.548	0.549	0.709				
HV	0.430	0.596	0.571	0.341	0.499	0.547	0.544	0.666	0.797			
PBC	0.457	0.561	0.626	0.293	0.606	0.482	0.570	0.465	0.473	0.783		
PEC	0.698	0.791	0.716	0.451	0.745	0.640	0.784	0.565	0.565	0.558	0.798	
SN	0.407	0.522	0.613	0.309	0.587	0.449	0.536	0.507	0.438	0.616	0.565	0.800

TABLE 5 | Hypothesis testing results.

Label	Effect	Original sample (O)	Standard deviation (STDEV)	VIF	*T* statistics (|O/STDEV|)	*p* values	Result
H1a	PBC → BI	0.106	0.048	1.967	2.197	0.028	Supported
H1b	SN → BI	0.100	0.050	1.882	2.024	0.043	Supported
H1c	AT → BI	0.410	0.084	2.747	4.857	0.000	Supported
H1d	BI → AB	0.242	0.111	2.852	2.184	0.029	Supported
H2a	EV → AB	−0.039	0.036	2.104	1.065	0.287	Not supported
H2b	HV → AB	−0.074	0.040	2.094	1.852	0.064	Not supported
H2c	BV → AB	0.131	0.105	2.140	1.247	0.212	Not supported
H2d	AV → AB	0.182	0.081	1.363	2.251	0.024	Supported
H3a	EC → AT	0.740	0.034	1.000	21.821	0.000	Supported
H3b	EC → BI	0.318	0.060	2.326	5.331	0.000	Supported
H3c	EC → AB	0.163	0.083	3.610	1.962	0.049	Supported
H3d	PEC → AB	0.160	0.073	3.667	2.183	0.029	Supported
H3e	AER → AB	0.162	0.082	3.845	1.981	0.048	Supported

Cerri, Testa, and Rizzi 2018; Yew, Molla, and Cooper 2022) supporting our current findings. The statistical analysis indicated a significant influence of perceived environmental consequences on adoption behaviour, in line with Chen and Hung (2016) and Taneja and Ali (2021). This investigation offers support to the hypothesis concerning the significant role of consumers' assumption of environmental responsibility on the adoption of sustainable banking services, consistent with previous research findings (Liobikiene and Juknys 2016; de Canio, Martinelli, and Endrighi 2020; Fatma and Rahman 2016). Among the values, altruistic values were found to exert a significant impact on adoption behaviour towards sustainable banking. In this respect, Liobikiene and Juknys (2016) have established the importance of self-transcendence values in shaping environment-friendly behaviours. Also, Yew, Molla, and Cooper (2022) stated a significant role of altruism in shaping sustainable usage behaviour. In addition, to identify multicollinearity issues, the variance inflation factor (VIF) scores were assessed. Multicollinearity was not an issue among the independent latent variables with all VIF values less than 0.5 (Hair 2014). The present model explained 64% variance in adoption behaviour, 55% for attitude and 67% variance for behavioural intention towards sustainable banking services. The predictive relevance of the model was found to be satisfactory with Q^2 (=1−SSE/SSO) > 0 (i.e., AB = 0.42; AT = 0.37; BI = 0.41) (Hair et al. 2017). Figure 3 shows the structural model with the results

4.2.1 | Testing Mediation

The study identified attitude and behavioural intention as mediating variables. Table 6 represents the specific indirect paths depicting the mediation analysis among the latent constructs (Hair et al. 2017). Environmental concern was found to have a significant direct as well as indirect effect on adoption behaviour. In other words, attitude was found to significantly mediate the association between environmental concern and behavioural intention; attitude and behavioural intention were both seen as significantly mediating the relationship between environmental concern and adoption behaviour. Further, the mediation test asserted that attitude has an indirect effect on adoption behaviour through behavioural intention; this is found to fully mediate the association at $p < 0.05$ significance level. Prior researches have spotted the role of environmental concern in shaping attitude (Liu et al. 2022), which further influences behavioural intentions (Liu et al. 2022; Gansser and Reich 2023).

4.2.2 | Analysing Moderation Effects

In the current research, we study whether one's value orientation plays a role in moderating the relationships among the latent constructs. We tested the moderating effects of all four types of values—egoistic values, hedonic values, biospheric values and altruistic values—on the relationship between behavioural intention and adoption behaviour towards sustainable banking services. From the statistical analysis, the study found significant moderating effects of hedonic, biospheric and altruistic values on the relationship of behavioural intention and sustainable banking adoption behaviour at $p < 0.05$ significance level. Table 7 and Figure 4 show the moderating effects analysed in this research. The positive moderating effects of biospheric and altruistic values can be related to the arguments given by Liobikiene and Juknys (2016), who referred to these values jointly as self-transcendence values, suggesting that these values have a favourable influence on an individual's environmental

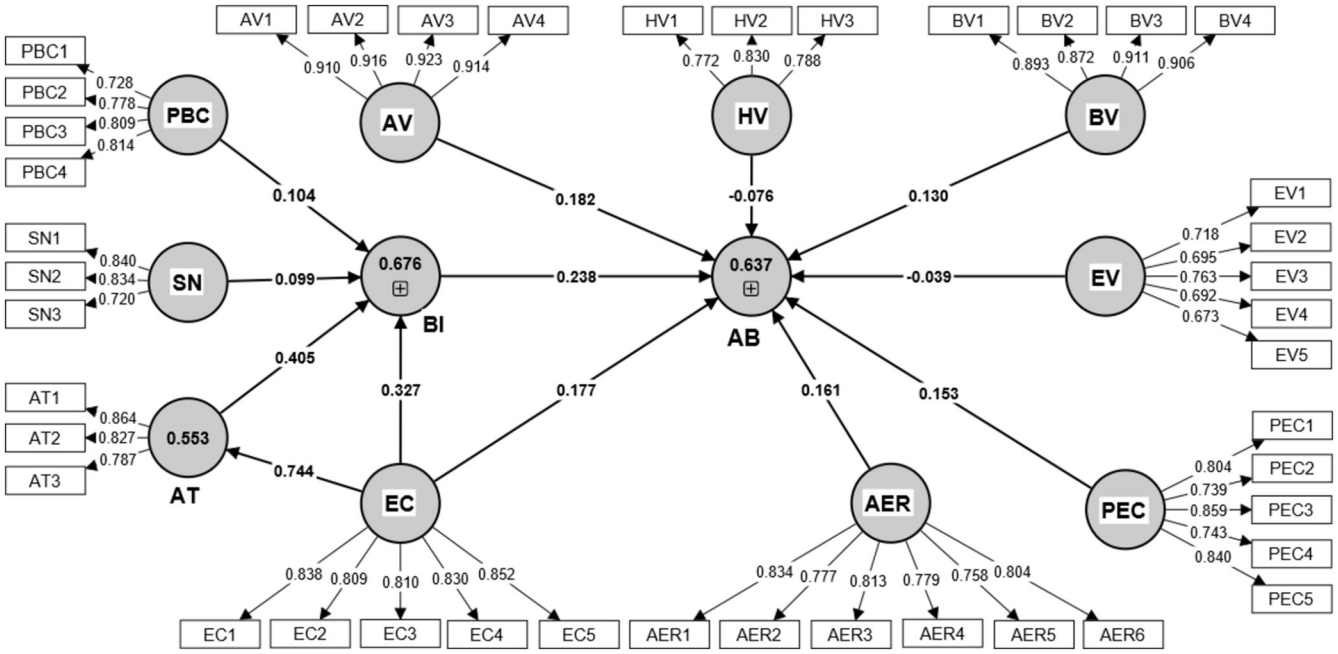

FIGURE 3 | Structural model. AB, adoption behaviour; AER, assumption of environmental responsibility; AT, attitude; AV, altruistic values; BI, behavioural intention; BV, biospheric values; EC, environmental consciousness; EV, egoistic values; HV, hedonic values; PBC, perceived behavioural control; PEC, perceived environmental consequences; SN, subjective norms.

TABLE 6 | Indirect effects.

Label	Effect	Original sample (O)	Standard deviation (STDEV)	*T* statistics (|O/STDEV|)	*p* values	Result
H1e	PBC → BI → AB	0.026	0.02	1.223	0.221	Not Supported
H1f	SN → BI → AB	0.024	0.01	1.585	0.113	Not Supported
H1g	AT → BI → AB	0.099	0.04	2.423	0.015	Supported
H3f	EC → AT → BI	0.303	0.06	5.384	0.000	Supported
H3g	EC → BI → AB	0.077	0.04	1.938	0.053	Not Supported
H3h	EC → AT → BI → AB	0.073	0.03	2.425	0.015	Supported

behaviours. Similar notions have been propounded by researchers including de Groot and Steg (2008). However, hedonic values were found to be a negative moderator with $\beta = -0.13$ at $p < 0.05$, inferring that the relationship between the behavioural intention becomes weaker for individuals who assign higher importance to hedonic values. This may be due to the assumption that people do not see adopting behaviours that help save the environment as beneficial and/or enjoyable (Steg et al. 2014b).

5 | Implications

5.1 | Theoretical Implications

The research adds to the literature on sustainable banking and finance, sustainable individual behaviour and orientations, sustainable development and SDGs, and business and management in general. We develop a theoretical model and empirically test it. Despite increasing sustainability initiatives by banks and financial service sector, and recurring calls for investigation of the demand-side perspectives of sustainable finance and banking (see Jan et al. 2019; Olmo et al. 2021), research still fails to answer important questions regarding how consumers view sustainable development initiatives. To address the knowledge gaps, we examine consumers' perspectives on adopting sustainable banking practices for promotion of sustainable development. By addressing the gap on consumer demand and adoption behaviour towards sustainable banking, the study advances the business and management literature in general and the emerging sustainable banking and finance literature in particular. In addition, the study adds to the literature on SDGs, more specifically SDG 10, 12, 13 and 17 by uncovering the role of sustainable banking and consumer adoption behaviour towards achievement of these goals.

Our research contributes to the theoretical knowledge by integrating TPB with VBN from the lens of GFT to apply a comprehensive framework in the field of sustainable banking. Our findings highlight the applicability of these models in understanding consumers' sustainable intentions and behaviour towards adopting sustainable banking services. Further, our research contributes by presenting a framework to fill the gap

TABLE 7 | Moderation effects.

Label	Effect	Original sample (O)	Standard deviation (STDEV)	*T* statistics (|O/STDEV|)	*p* values	Result
H2e	EV*BI → AB	−0.076	0.046	1.668	0.095	Not supported
H2f	HV*BI → AB	−0.135	0.053	2.528	0.011	Supported
H2g	BV*BI → AB	0.201	0.089	2.255	0.024	Supported
H2h	AV*BI → AB	0.153	0.075	2.045	0.041	Supported

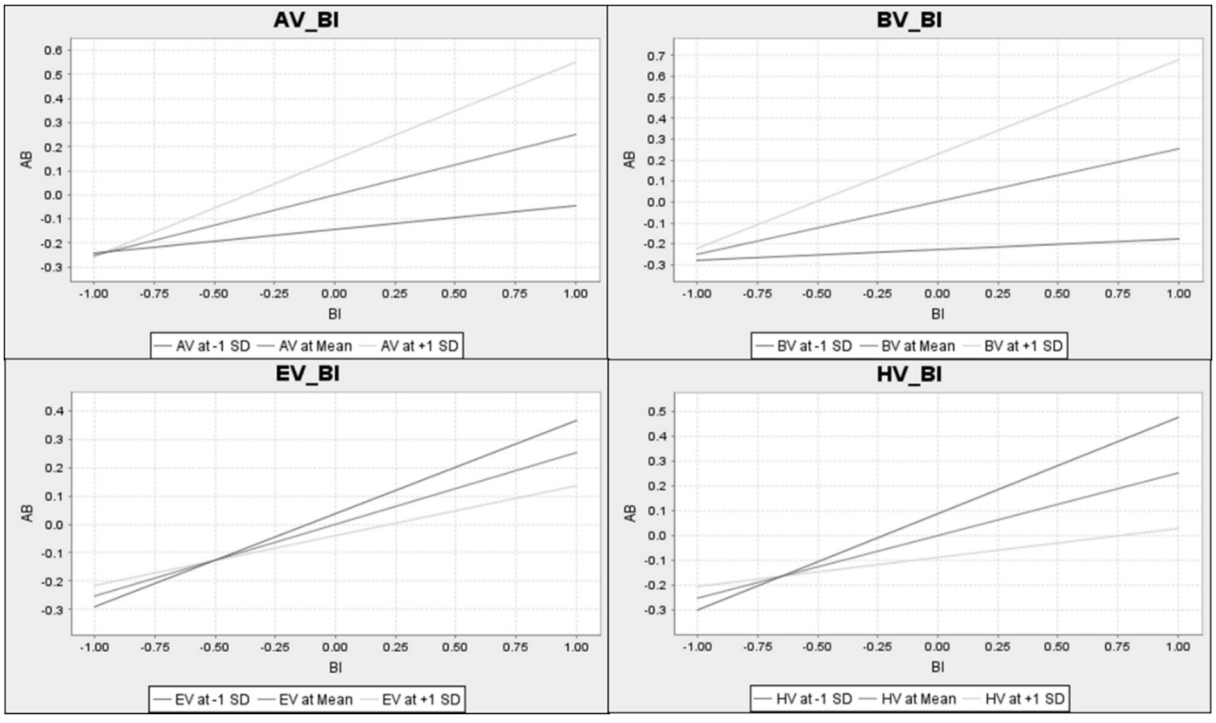

FIGURE 4 | Moderation effects.

between sustainable intentions and behaviour through leveraging the moderating effects of value orientation of the consumers. As a result, we can demonstrate the significance of studying consumers' value orientation as the moderator for addressing the divergence between sustainable intention and behaviour for promoting such behaviours. The study also stresses the importance of environment-specific factors in shaping adoption behaviour towards sustainable banking services. The study theoretically adds to the business and management literature by offering a conceptual framework to understand the dynamics in the field of sustainable service research, particularly in financial services. It is because the existing research focus more on the products and often overlooks the role of services and service management in promoting sustainability.

5.2 | Managerial and Policy Implications

The empirical investigation holds significant insights for managers and policymakers for improving the adoption of sustainable banking services. To achieve this objective, banking managers and policymakers attempt to create greater awareness among consumers by communicating about such initiatives being undertaken. Based on our findings, policy makers can focus on aspects that are crucial to drive intention to adopt sustainable banking services. In terms of policies, significant improvement in the adoption of sustainable banking practices can be achieved by initiating campaigns that expose the consumers to relevant information, shape favourable attitudes and beliefs, and trigger a sense of concern and responsibility to make a difference. To achieve this, banks can communicate with their customers about the benefits of using sustainable banking services, which can promote a favourable attitude. For instance, they can demonstrate to consumers how adopting paperless transactions is more convenient and helps reduce carbon emissions in the environment. Promoting the adoption of sustainable finance and banking services as socially acceptable behaviours through campaigns can be effective in shaping favourable intentions.

The mechanism that guides a consumer's intention may sometimes not lead to the behaviours as anticipated. To this end, this study identifies the role of values in moderating this relationship. Our findings underline the importance of biospheric and altruistic value orientation that reflects an individual's orientation towards the welfare of others, society and the environment. To leverage this effect, managers and policymakers must promote information on how consumers can contribute to environmental welfare by taking green loans, using paperless banking, driving less frequently to bank branches and investing in green projects. There are negative moderating effects of hedonic value and insignificant effects of egoistic value. By increasing the cost of services or actions that are harmful to society and/or the environment, highlighting possible gains and designing these services to be convenient and enjoyable to use, managers and policymakers can improve the adoption behaviour of their consumers. Banks and the government need to educate and encourage their consumers to assume responsibility to safeguard society and the environment to achieve SDGs. This can be done by framing appropriate strategies for attempting to reach wider audience by communicating the abovementioned benefits through different mediums, for example, advertisements, public events and other media outlets.

6 | Conclusion, Contributions, Limitations and Future Research Directions

6.1 | Conclusion

Sustainable financing and banking are catalysts for sustainable economic growth that support the attainment of SDGs. In emerging economies like India, there is tremendous potential for sustainable banking initiatives because the socially and environmentally responsible banking niche remains untapped. Banks not only need to increase direct investments in sustainable development projects but also need to exercise control over the client's actions to make their activities more sustainable and eco-friendly. Taking note of the importance of assessing the demand-side perspective of such initiatives, we present and test an integrated framework based on TPB, VBN using GFT lens and environment-specific variables. Using a mixed-method approach, the current findings offer useful insights to the researchers, practitioners and policymakers. This investigation improves understanding of how banks can promote the consumer-level adoption of sustainable banking services as part of their initiatives towards the achievement of SDGs.

6.2 | Contributions of the Study

The focus on the demand-side of sustainable banking is a unique contribution and adds to the literature by proposing a theoretical framework, coupled with empirical findings. To the best of our knowledge, this study is among the first to examine consumer adoption behaviour to sustainable banking services. Prior research primarily focused on what banking and financial industry has been doing for environmental sustainability (Jan et al. 2019; Merello, Barberá, and la Poza 2022). Scarce research exists on understanding the demand-side dynamics, which is important due to the rising consumer consciousness with respect to environment and sustainability. Furthermore, none of the studies investigate consumer's intentions and behaviour, which are vital for successfully implementing the initiatives being taken up by the banks. Therefore, this study contributes to the broad literature on financial services, sustainable banking, sustainable services and sustainable and environmental behaviours of individuals.

Our research provides support to the integration of earlier theories, that is, TPB, VBN, underlying goals and environment-specific factors, in shaping sustainable behaviours. The applicability of these psychological theories and dimensions to the management literature has been underscored. The study has attempted to address the gap between the consumer's intention and behaviour concerning sustainable banking in the management literature. Another novel aspect of this research is about integrating the role of individual value orientations in assessing adoption behaviour in sustainable banking landscape. By indicating the significant moderating effects of biospheric and altruistic values and the negative impact of hedonic values in the intention-behaviour relationship, our findings revealed that the

individuals who exhibit greater orientation for the well-being of others and the welfare of society and the environment are more likely to adopt sustainable adoption behaviour. It will help the banking managers to understand the importance of inculcating these values among the individuals by spreading awareness on these aspects through various methods such as marketing efforts and public campaigns. Consequently, managers and policymakers can draw upon these findings to trigger the adoption of sustainable banking services to promote sustainable development and to achieve SDGs.

6.3 | Limitations and Future Research Directions

The empirical investigation opens up several important avenues for research in this direction. Future research might focus on undertaking a longitudinal investigation to examine the changes in adoption levels concerning sustainable banking services over time; an assessment can be made of the effectiveness of various sustainable initiatives being undertaken. Future researchers can also extend our framework by including other relevant factors, such as perceived cost, perceived sacrifice and perceived value to uncover further insights. Research can focus on examining what hinders increased adoption of such services by consumers. Finally, we recommend conducting an experimental examination to capture the actual behaviours of consumers for adopting sustainable behaviours in banking transactions.

Conflicts of Interest

The authors declare no conflicts of interest.

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