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Exploring green brand equity for millennials: an SEM-ANN analysis of green brand knowledge, environmental attitude, and green brand image

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Abstract: This study aims to examine the purchasing behaviour of millennials in the banking sector by analysing the mediating effect of environmental attitude (ERA) and green brand image (GRI) on the relationship between green brand knowledge (GRK) and green brand equity (GRE). Structural equation models (SEM) and artificial neural networks (ANN) are utilised to establish a significant relationship between these variables. The study finds that GRK, GRI, and ERA significantly impact GRE among millennial customers. The ANN model identifies non-compensatory and non-linear correlations between the independent and dependent variables. By using the Feedback-Propagation ANN algorithm and multi-layered perceptions, the study identifies positive impacts on GRK, brand image, environmental attitudes, and brand equity. The results show that the ANN method can predict 73.6% of the green brand value. This study is the first to examine the impact of GRK on GRE using SEM-ANN.

Keywords: ERA; environmental attitude; GRI; green brand image; GRK; green brand knowledge; GRE; green brand equity; SEM-ANN.

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1 Introduction

Over the past decade, an increasing number of organisations have recognised the environmental challenges faced by the millennial generation, prompting them to consider more environmentally friendly products. It has now become common for companies to prioritise environmental protection in their goals, operations, and plans. Green branding has gained popularity in bank advertising campaigns, with Chen (2010) identifying several methods for testing consumers' perceptions of eco-friendly brands. However, studies on green brands in the banking sector are relatively few, with academics paying little attention to millennials' environmental awareness and preference for eco-friendly products in environmentally-friendly areas. Despite growing interest in green-branded banking sectors worldwide, Wang and Zhi (2016) and Taghizadeh-Hesary and Yoshino (2019) note that relatively few studies have investigated Millennials' attitudes towards green brand image (GRI) and green brand equity (GRE).

To transition to a sustainable economy, the economic system has critical responsibilities that must be fulfilled. Firstly, it must evaluate the costs and risks associated with high-carbon emissions. Secondly, it must allocate appropriate capital to companies that generate low-carbon emissions. Financial market participants are increasingly aware that long-term planning for sustainable ecosystems is crucial for the smooth functioning of the financial market. Louche et al. (2019) emphasised the significance of green economic needs in line with this view. Economic and environmental factors impact the banking industry, which plays a crucial role in a country's long-term prosperity and growth. Banks can contribute to reducing climate risk by directing funds to climate-sensitive sectors. To enhance their public image, financial institutions promote corporate social responsibility programs such as 'green banking' and increase their expenditures on green products and services. Reducing banks' carbon footprint can benefit the industry, banks, and the economy as a whole (Sharma and Choubey, 2022). This study aims to examine millennials' perceptions of green brand knowledge (GRK), environmental attitude (ERA), GRE, and GRI in the banking sector, in order to further research this topic.

Banks play an important role in promoting sustainability and often use their GRE initiatives to influence customer behaviour. While some studies have looked at brand equity and image from an ecological perspective in the past (Chen, 2010; Ng et al., 2014), few have examined the relationship between millennials' ERAs, brand image, green brand awareness, and GRE in the banking industry. However, previous research has suggested that millennials are environmentally conscious and seek out eco-friendly products (Smith and Brower, 2012; Heo and Muralidharan, 2019). Additionally, some studies have explored the importance of green innovation (Wong, 2013; Ryszko, 2016) and the commercialisation of environmental knowledge in green

management (González and Corral, 2017; Bennett and Satterfield, 2018). As a result, the focus on GRI has become increasingly important in the banking industry (Lymperopoulos et al., 2012; Nekmahmud and Fekete-Farkas, 2013).

The significance of brand evaluation has been emphasised by several academics, including Dacin and Smith (1994) and Khan (2012). Some researchers have established a link between GRI and GRE, as observed by Chen and Liu (2009) and Chen et al. (2016). Previous studies have shown that GRE is associated with green trust (Chen, 2010; Kang and Hur, 2012), green satisfaction (Kang and Hur, 2012; Cheng et al., 2016), and green switching behaviour (Wu et al., 2016). According to Warschewicz (2021), image, trust, value, satisfaction, and loyalty are the most commonly studied variables in GRE research. Lee et al. (2011) have suggested that brand attitude has an indirect impact on brand equity. Our study seeks to contribute to marketing literature by analysing ERA, GRI, GRK, and GRE using the SEM-ANN method. This study aims to address a methodological gap in research on millennials' environmental behaviours. The primary objective of this study is to determine the mediating effect of ERA and GRI on millennials in the relationship between GRK and GRE. Scholars have increasingly turned to SEM-ANN methodology, which helps to fill modelling gaps, particularly in understanding the non-linear interactions of constructs, as noted by Parhi et al. (2022), Milošević et al. (2021) and Ng et al. (2022).

The following sections of the study will explore the Indian banking industry, the theoretical foundations, methodology, analysis, discussion, and conclusion. Additionally, the final part of the study will provide several suggestions for future research.

1.1 The Indian banking sector

The importance of addressing climate change and creating a low-carbon economy is widely recognised by economists (Wang et al., 2019). Climate change exacerbates health, economic, and environmental issues in countries, making it imperative for banks to take action in combatting climate change. One way banks can contribute to this effort is by implementing green tax and investment policies that promote a low-carbon and resilient economy. Collaboration between private and public financial institutions is essential in green risk management. Private banks are responding to climate change by developing green financial products and adopting climate protection measures (Shaydurova et al., 2018). As a result of the significant changes in weather and ecology in recent years, customers' environmental awareness has increased, prompting several Indian banks, including SBI, ICICI, HDFC, and Axis, to take steps towards becoming more environmentally sustainable. Some banks have also begun to enforce stricter sustainability requirements. A green bank is one that conducts its business sustainably.

1.2 Theoretical foundations

Keller (2003) suggests that consumers' perception of a brand is influenced by their associated memories. The GRI is a compilation of the brand's environmental image and responsibilities in the eyes of consumers (Chen, 2010). The value belief norm (VBN) paradigm proposes that environmental protection requires understanding and responsibility for environmental impacts. This study offers a comprehensive framework for analysing GRE factors, which takes into account human motives such as millennials'

perspectives on green products and environmental issues, as well as branding concepts like image, attitude, and fairness. Our study aims to establish and validate a model by examining the relationships between green knowledge, attitudes, images, and equity among millennials, all of which are closely related to green brands. Additionally, this paper significantly contributes to our understanding of the environmentally-conscious behaviour of millennials and enhances our knowledge of GRE overall. GRE is a relatively new concept that has emerged in the context of environmental sustainability and corporate responsibility. It refers to the value that a brand generates by being associated with environmentally sustainable practices, products, or services. The concept of GRE is built upon the theories of brand equity, which were developed in the 1990s by marketing scholars such as Kevin Lane Keller and David Aaker. Brand equity is defined as the value that a brand adds to a product or service beyond the functional benefits it provides. This value is created by the brand's ability to create positive associations in the minds of consumers, including perceptions of quality, trust, and uniqueness. In the context of green branding, the value added by a brand is based on its ability to create positive associations with environmentally sustainable practices, products, or services. The development of GRE is closely linked to the evolution of the sustainability movement, which gained momentum in the 1980s and 1990s. During this period, businesses began to realise the importance of environmental sustainability as a key issue for consumers, investors, and other stakeholders. Companies started to adopt environmentally sustainable practices and to promote these practices through their marketing efforts. Over time, the concept of green branding has evolved to encompass a range of practices, including eco-labelling, carbon offsets, and sustainable packaging. Today, GRE is seen as a critical factor in the success of businesses that seek to appeal to environmentally conscious consumers. As consumers become increasingly concerned about the environmental impact of their purchasing decisions, the value of GRE is likely to continue to grow (Cuesta-Valiño et al., 2021).

While some researchers, such as Agarwal and Rao (1996), and Avcilar and Demirgünes (2017), have argued against using one-dimensional scales to measure GRE, others have emphasised the importance of incorporating multiple dimensions. Ishaq (2021) defines GRE as an organisation's social, environmental, and economic obligations that add value to its brand, and proposes a six-dimensional GRE scale that includes brand recognition, brand association, leadership, perceived quality, social influence, and sustainability. Previous research has also found relationships between dimensions such as perceived quality, brand recognition, and brand awareness (Susilowati and Sari, 2020), and brand association and emotional attachment (Merrilees and Miller, 2005). In addition, Aaker and Joachimsthaler (2012) have identified brand leadership as one of the dimensions of the GRE, emphasising the importance of constant innovation to maintain a company's leadership position. Hofburg et al. (2010) suggest that the fourth dimension of GRE pertains to the quality of information provided to customers to increase the likelihood of repurchase. Similarly, Algesheimer et al. (2005), Ruediger Kaufman et al. (2021), and Ozuem et al. (2021) believe that knowledgeable customers have a greater social influence than new customers. Sustainability, as part of the fifth dimension, encompasses developing and protecting the environment, as well as creating social value for products and services. Grubor and Milovanov (2017) assert that eco-friendly brands are integral to a sustainable marketing strategy aimed at protecting the environment. Furthermore, Holden (1993) argues that a company's accessibility affects

brand awareness. With consumers' increasing awareness of environmental issues, companies are shifting their focus from brand equity management to GRE management. Therefore, it is crucial to comprehend the relationship between GRK and GRE.

Over time, businesses in developing countries have employed various marketing strategies to boost their brand value. To maintain a sustainable competitive edge, they are now embracing green practices to elevate their brands. Khandelwal et al. (2019) posit that research on green branding is essential for developing countries due to the increasing awareness of environmental protection. With a quarter of the world population being millennials (Cannariato et al., 2006), banks can foster sustainable development by adopting green practices and introducing innovative green products. Millennials, particularly those born between 1981 and 1996, have the potential to impact the environment significantly. They prioritise social responsibility and attach great importance to environmental issues. Previous research suggests that millennials hold a high regard for environmental protection and frequently exhibit environmentally conscious behaviour (Velazquez, 2005).

The impact of GRE on millennials' purchasing habits has not been studied extensively, unlike the extensive research on brand equity's effect on this demographic (Shahzad et al., 2019; Das, 2020). This study aims to examine the impact of ERA on millennials through various green brand characteristics. It is essential to understand the impact of the environment on society in the climate change era (Gambro and Switzky, 1996). Consumer ERA refers to the ability to recognise environmental data-based concepts and behavioural patterns (Liobikienė and Poškus, 2019). Dunlap and Van Liere (1978) introduced a one-dimensional scale to measure human-environmental relationships. In the New Environmental Paradigm (NEP), humans are portrayed as affecting nature, expanding society, and seeking to dominate nature. The NEP scale, originally one-dimensional, has been used as a multidimensional scale by scholars such as Tanford and Montgomery (2015) and Taye et al. (2018). Despite being a topic of theoretical interest for scholars, there needs to be greater clarity in understanding this behaviour. Researchers have used various methods and interconnected variables in sociology and psychology to quantify customers' ERA. The NEP scale is appropriate for capturing millennial attitudes towards the environment (Koltko-Rivera, 2004), and has been utilised in sociological and psychological research (Stern et al., 1995).

To ensure that their brands meet certain standards, GRI requires companies to fulfil five criteria: maintaining a professional image regarding environmental impact, having a reputation for ecological protection, being efficient in terms of green performance, being environmentally conscious, and making credible ecological claims. According to previous research on the green environment, there is a positive correlation between GRI and customer purchasing habits (Chen et al., 2010, 2020). For millennials, a company's green image is crucial in determining their eco-friendly shopping habits. Chen et al. (2010) argue that companies can improve consumer buying habits by investing resources in building their green brand. Thus, this study posits that there is a relationship between the GRE and GRI of banks.

1.3 Green brand knowledge

Strong brand knowledge among consumers is essential for companies to maintain a professional image and reputation for their products and services (Hsu and Cai, 2009). Brand knowledge goes beyond brand awareness and involves remembering the

company's name, logos, icons, and experiences associated with it. Marketing and promotional efforts by the company evoke emotions in customers and contribute to building a strong brand identity.

The cumulative experience of interacting with a brand helps customers retain the brand's identity, and GRK emphasises the importance of environmental preservation (Aulina and Yuliati, 2017). Keller (2003) links GRK to environmental concerns and highlights its various dimensions such as brand awareness, brand image, and how easily customers recall a brand. Brand image reflects customers' positive and distinctive feelings towards a brand. Advertising not only creates brand awareness but also helps maintain it.

Green Brand Promotion (GRP) enhances customers' perceptions of GRK. Companies using green marketing strategies (Huang et al., 2014) promote their environmentally conscious brands. GRK is considered a critical component of GRI (Phau and Ong, 2007), which emphasises the importance of environmentally friendly and eco-conscious products. The term 'green' refers to a company's perception of its environmentally friendly products (Alimen and Cerit, 2010; Langaro et al., 2019). Unlike Environmental Responsibility Attitude (ERA), GRP not only affects GRK but also influences consumer attitudes and intentions to purchase environmentally friendly products.

Butt et al. (2017) found a positive association between environmental awareness and attitudes. Furthermore, GRI and environmental trust are positively associated with green brand awareness. Brand image is a perception primarily created by companies and maintained by retailers. In eco-friendly marketing, GRK refers to customer perceptions, attitudes, and concerns about sustainability and ecological issues. Our constructs are based on Keller's nine measures, which were developed from studies on green brand awareness and GRI. GRK has been found to have a positive effect on GRE. GRK refers to the consumer's knowledge and understanding of a brand's environmental performance and sustainability practices. A higher level of GRK can lead to greater perceived value and trust in a green brand, which can ultimately lead to higher levels of GRE. This has been supported by several studies in the literature on green branding and consumer behaviour.

We propose the following hypothesis:

H1: There is a positive relationship between green brand knowledge (GRK) and green brand equity (GRE), such that higher levels of GRK lead to higher levels of GRE.

1.4 Environmental attitude

An individual's psychological disposition towards the environment can be either positive or negative and is influenced by culture, socioeconomic status, ideology, and environmental awareness (Leppänen et al., 2012). However, it is crucial to note that having a positive ERA can guide customers' actions and thoughts about the environment. Conative ERAs, which affect customers' will, impulses, and desires, also shape their behaviour towards the natural world (Quoquab and Mohammad, 2020). The way companies treat the environment today will determine the future of humanity on this planet, and developing a comprehensive ERA can contribute positively to solving global ecological problems.

Environmental attitudes shape the ethical values of individuals and societies regarding nature, ecology, and the environment (Schultz, 2002). Arcury (1990) suggested that age, politics, environmental education, and ecological behaviour, which are influenced by ERAs, often determine people's actions, which can either benefit or harm the environment. This is also dependent on an individual's cognitive, emotional, or conative attitude towards nature. With the recent global climate change conditions, people's perceptions of the environment have shifted, and factors such as age, gender, socioeconomic status, and ethnicity now influence consumer attitudes towards the environment (Gifford and Sussman, 2012). The dominant theories explaining the interaction between ERAs and behaviour are the projected behaviour and value-belief norms, each with its advantages and disadvantages.

The theory of planned behaviour (TPB) is a theoretical framework that individuals use to link their beliefs with their actions. This model measures an individual's attitudes, perception of others' actions, and societal expectations (De Groot and Steg, 2007). TPB, based on Ajzen's (1985) work, suggests that an individual's intentions can predict their decision on specific behaviours, such as gambling or not gambling. An individual's intention reflects the effort they are willing to put into achieving a particular task. The more committed a person is to achieving a goal, the more likely they will take action. TPB proposes three elements. The first is personal attitudes, which are the unique set of emotions that an action evokes. People typically draw upon their past experiences, insights, and biases when planning an action. The second is subjective norm, which is how an individual perceives society's attitude towards a behaviour, such as smoking. This could be how a coworker or friend views an individual smoking. Ultimately, what matters is how an individual feels about other people, not what they think. If an individual can change their behaviour, then they have 'perceived behavioural control'. This perception is influenced by factors such as ability, motivation, and availability of support. The intention to act in a particular way is influenced by the belief that an individual has more control over their behaviour when they believe in their ability to regulate it. Self-efficacy, based on assessments of confidence in one's ability to perform necessary tasks to overcome future challenges, is best suited to the modern understanding of perceived behavioural control (Ajzen and Fishbein, 1980).

Millennials connect their beliefs with their environment, and environmental protection is an emotional act that encompasses a unique set of emotions. The intention of millennials to act in a specific way is influenced by their attitude and belief. Generally, Environmental Responsibility Attitude (ERA) refers to "the beliefs that shape a person's behavioural intentions concerning environmental activities or situations" (Abun and Racoma, 2017). Several scholars, such as Grob (1995), Abun and Racoma (2017), and Sugandini et al. (2017), support the notion that ERAs influence human behaviour towards the environment. Mostafa (2007) classifies ecological attitudes into two categories: indifference to the environment and sensitivity to the environment. The two-dimensional model proposed by Milfont and Duckitt (2004) categorises ERAs into eccentric and anthropocentric categories. Eccentric concerns relate to the environment, while anthropocentric problems relate to environmental ethics. It is crucial to understand environmentally conscious consumer behaviour (ECCB) (Roberts and Bacon, 1997). This study aims to investigate the indirect impact of Millennial GRI on GRE. Given the above-mentioned arguments, we propose the following hypothesis:

H2: Environmental attitude (ERA) positively affects green brand equity (GRE).

This hypothesis suggests that consumers' attitudes towards the environment can influence their perception of a brand's commitment to sustainability and environmental responsibility, which in turn affects their willingness to purchase products or services from that brand. As consumers become more environmentally conscious, they may seek out brands that align with their values and beliefs. This may lead to a positive impact on the brand's reputation and ultimately on its equity.

1.5 Green brand image

Companies must evaluate their GRE and image as consumer awareness of climate change and the need for green business practices continues to grow. In recent decades, environmental friendliness has become a crucial selling point. Customers now consider the GRI before purchasing products. Companies must produce eco-friendly and sustainable products and services to show that they care for the environment. Customers require not only the best product but also the best environmental performance from companies. Customers recognise and appreciate a company's superior environmental credentials when it has built a GRI compared to its competitors (Kang and Hur, 2012). Building a positive ecological reputation for a company's brand takes time and effort. When a GRI aligns with green practices, customers will trust the company's commitment to environmental responsibility. Using environmentally friendly production processes, offering a greener alternative to the competition, and communicating environmental policies can help a company build 'green brand equity' (Shrivastava, 1995). A GRI shows that a company's business is environmentally conscious and forward-looking.

Environmental friendliness has become an essential selling point in recent decades, with customers now considering a company's GRI before purchasing its products. To demonstrate their commitment to the environment, companies must produce eco-friendly and sustainable products and services. Customers expect the best environmental performance from companies, and those that have built a GRI are recognised and appreciated for their superior environmental credentials compared to competitors (Kang and Hur, 2012). However, building a positive ecological reputation takes time and effort. When a company's GRI aligns with its green practices, customers trust its commitment to environmental responsibility. Using environmentally friendly production processes, offering greener alternatives, and communicating environmental policies can help companies build 'green brand equity' (Shrivastava, 1995). A GRI reflects a company's environmental consciousness and forward-thinking business approach.

- Top of Form
- Bottom of Form.

The positive attitude of consumers towards the environment can enhance the perceived equity of a brand, leading to a preference for green brands. According to Wong et al. (1996), environmental beliefs play a significant role in consumer choice for green brands, even if the competing brand offers similar performance characteristics. Moreover, Hartmann et al. (2005) suggest that negative brand image strongly influences consumers' attitudes towards opportunities presented by competing brands, such as eco-friendly brands. Therefore, our proposed conceptual model includes GRE as the output variable. The GRI is founded on a company's ability to influence the emotions, perceptions, attitudes, and behaviours of environmentally conscious consumers towards its brand

(Chen, 2008). It is a crucial aspect of assessing the value of a consumer brand, widely discussed and documented in academic literature (Faircloth et al., 2001; Shabbir et al., 2017). Researchers have also recognised GRI as an environmental component linked to a specific product or brand (Ng, 2014).

The concept of 'green brand image' comprises two distinct aspects: functional and psychological, which do not overlap. When consumers interact with a particular brand or product, it shapes their impression of its functional and emotional characteristics. Their personal experiences with the brand further shape their perception. The establishment of a GRI relies on the green practices of the organisation (Ginsberg and Bloom, 2004). Taking into account the aforementioned discussions, we formulate the following hypothesis.

H3: GRI has a positive effect on GRE.

1.6 Green brand equity

In developing countries, consumers' preference for 'green' brands is influenced by the perception that a company is environmentally responsible. However, if a company cannot demonstrate its environmental practices and efforts, claims about ecological procedures and actions may seem meaningless to customers (Rondinelli and Vastag, 2000). To be successful in developing countries, companies must identify the factors that influence consumer perceptions and preferences for green brands. Customers in emerging markets are aware and skeptical of green brands, so companies must demonstrate integrity and credibility in their environmental initiatives. Consumer perception and familiarity with brands play a vital role in purchasing decisions in these markets. Therefore, companies targeting developing countries should pay attention to the impact of consumer attitudes and values on GRE. Moreover, educating customers on environmental issues is also essential to ensure sustainable systems, and focusing solely on positive brand equity is not enough.

The concept of GRE encompasses a set of actions and attitudes exhibited by customers, distribution channels, and business owners, which result in a brand generating greater sales and profits compared to unbranded products. It is essentially the value that a product or service holds based on consumer behaviour and attitudes towards it, with intangible assets being the primary driver of a brand's worth (Burmann et al., 2009). This can have both psychological and financial implications for the organisation, as the popularity of a product can increase its brand value (Bick, 2009). Copyright, brand recognition, brand loyalty, perceived service quality, and brand associations are the five key components that contribute to a product's brand value, as outlined by Pappu et al. (2006). The GRE is crucial for multiple reasons, such as providing superior labelling, lower costs, reduced purchasing risks, and greater symbolic significance. According to Farquhar and Equity (1989), the GRE serves as an indicator of how much value a brand adds to a product or service, a notion that Myers (2003) supports. To comprehend GRE, we can compare it with rival brands (Ng, 2014). Jain (2017) define a brand as a name, word, logo, or emblem that can influence the perceived value of a product or service in customers' eyes, a concept that Chen (2010) shares in relation to brand equity. Brand strategies play a significant role in altering GRE by changing brand names, symbols, logos, and attitudes, which can impact the value of green products and services. Establishing a robust GRE in today's environmentally conscious age allows organisations

to differentiate their products or services and gain a competitive advantage in the market (Ng, 2014; Butt et al., 2017). Ng et al. (2014), Chen (2010), and Ha (2020) are among the authors who have attempted to reveal a significant link between GRI and GRE. Namkung and Jang (2013) noted that having a brand image can enhance GRE. It is worth noting that green marketing and GRE are distinct concepts. 'Green marketing' is more focused on being environmentally friendly and increasing awareness among customers about the environment (Kaur and Kaur, 2019). Yasin et al. (2007) suggested that green brand preference, attitude, and buying habits can influence GRE. According to Keller (2003) and Krishnan (1996), GRE is linked to green brand attributes and eco-friendly health benefits. In light of the preceding discussions, we propose the following hypothesis:

H4: ERA mediates the relationship between GRK and GRE.

H5: GRI mediates the relationship between GRK and GRE.

H6: ERA and GRI mediate the relationship between GRK and GRE.

1.7 Conceptual framework

In the last few years researchers have shown interest to understand GRE (See Table 1).

Table 1 Literature summary of key variables environmental attitude, green brand image, green brand knowledge, green brand equity

Authors	*Constructs*	*Methods*	*Service context*	*Key findings*
Ng et al. (2014)	IV: Brand perceived quality and credibility DV: Greener image, green perceive value and green brand equity	Survey	Consumers of electrical and electronic good	"The results suggest that brand perceived quality and its overall credibility does have a significant influence on generating a greener image, green perceive value and green brand equity"
Mehdikhani and Valmohammadi (2022)	IV: Green brand equity (GBE) DV: Green word of mouth (GWOM) DV: Green brand attachment (GBA), Green self-brand connection (GSBC), Green brand attitude (GBAT)	Literature review and structural equation modelling technique	Customers of disposable tableware brands in Tehran	"The obtained results showed that GBE has positive impacts on GBA, GSBC, GBAT and GWOM. GBA, GSBC and GBAT have positive impacts on GWOM. Also, GBA, GSBC and GBA partially mediate the relationship between GBE and GWOM"
Khandelwal et al. (2019)	IV: Green brand equity DV: consumer attitude	Survey (Asian countries like India	Survey in metro and non-metro city (India).	"Green brand image, satisfaction, trust, loyalty, reference group and green advertisement emerged as a strong influencing agent of customer attitude towards green brand equity"

Table 1 Literature summary of key variables environmental attitude, green brand image, green brand knowledge, green brand equity (continued)

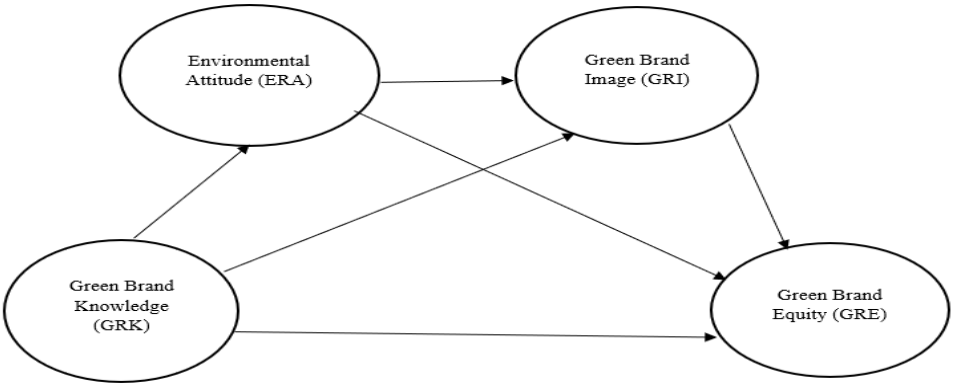
Authors	*Constructs*	*Methods*	*Service context*	*Key findings*
Namkung and Jang (2013)	IV: Green practices DV: Green brand image and behavioural intentions	Survey	American diners	"In upscale casual dining restaurants, food-focused green practices improved brand image and behavioural intentions more than environmental ones. Compared to food-focused efforts, environmental-focused green practices improved a restaurant's green brand image and behavioural intentions for casual dining guests"
Butt et al. (2017)	IV: Consumers' personal concerns for the environment and general attitudes DV: Brand-related knowledge structures for green brands and relationship preferences for green brands	Questionnaire-based survey method (Convenience sampling)	Customer Survey	"The results confirmed that a positive relationship exists between consumer concern for environmental values and general attitudes towards green products"
Górska-Warsewicz et al. (2021).	IV: Excessive product packaging DV: Green brand attachment. Mediators: Green brand attitude and green brand image	Survey	Taiwanese consumers	"Excessive product packaging does not affect green brand attachment. However, green brand attitude and image totally mitigate the unfavourable association between excessive product packaging and green brand attachment"
Chang and Chen (2014)	IV: Green perceived quality and green brand awareness DV: Green brand equity Mediator: green perceived risk	Survey	Taiwanese consumers	"Green brand equity increases with perceived quality and brand awareness. This study also shows that green perceived risk, which is negatively influenced by green perceived quality and brand awareness, lowers green brand equity"

Source: Developed by the researcher based on review of the literature

Previous studies on brand knowledge have primarily focused on brand image and brand awareness for products and services (Keller, 2003). However, there is still much to

discover about the direct and indirect effects of GRK on GRE. In light of our research goal of investigating the mediating role of ERA and GRI in the relationship between GRK and GRE, we propose a non-linear association between these variables. To empirically explore this relationship, we suggest using SEM-ANN, which would be a more appropriate analytical method. With ANN-SEM, we can gain further insight into how GRK, ERA, and GRI impact the GRE of millennials. Figure 1 presents the conceptual model for our study.

Figure 1 Conceptual framework



Source: Keller (2003), Ishaq (2021), Dunlap and Van Liere (1978) and Chen (2010)

2 Research methodology

Convenience sampling was utilised in this study due to the specific nature of the participants, which were Millennials (Sedgwick, 2013). Participants were chosen based on their long-standing association with the bank, and data was collected via surveys from November 2020 to February 2021 in Delhi. Commercial bank customers were the target population for the survey, and demographic variables such as age, education, years of experience, and gender were collected alongside the measurement of four constructs: GRK, ERA, GRI, and GRE. To measure GRK, we employed Keller's (2003) approach, which was simplified by Huang et al. (2014). We adapted Huang's study to develop our GRK scale. The twelve-dimensional ERAs scale developed by Dunlap and Van Liere (1978) was reduced to three dimensions to measure green brand attitudes. Additionally, a five-dimensional scale developed by Chen (2010) was combined with a three-item scale to assess GRI.

Furthermore, Chen (2010) created a four-item scale to gauge GRE (refer to Appendix 1). We utilised measurement items from previous studies and adjusted them to meet our research requirements while ensuring the content validity of these items (Leong et al., 2018, 2020). We interviewed millennial customers who had banked with the institution for over two years and had accounts with other banks. Customers with multiple bank accounts might hold a more favourable perception of the bank's brand. Respondents were chosen based on their prior awareness of environmentally friendly products and services. The researcher utilised the Likert scale (Chen et al., 2015) to

collect data on GRK, ERA, GRI, and GRE. With an alpha value of 0.3 and a p-value of 0.05, our sample of 491 exceeded the minimum sample size of 111, as determined using G * Power (Erdfelder et al., 2009).

In this study, the SEM-ANN technique was employed to investigate the complex relationships between millennial GRK, ERA, and GRI and GRE of banks. This method allowed us to examine both linear and non-linear interactions between variables and identify the most important predictors of GRE. The findings of this study can be useful for banks in India to enhance their GRE among millennial customers. While SEM alone can identify relationships between variables, it may not be adequate for detecting non-compensatory relationships. Therefore, a two-step SEM-ANN modelling analysis was conducted to ensure construct validity and assess each construct's mediation relationships and relevance in explaining GRE. This innovative methodology adds a new dimension to the existing literature on green branding and provides a deeper understanding of the factors influencing GRE among millennial customers.

It is important to note that before conducting the final survey, the researcher carried out pilot tests to ensure the content validity of the survey tool. To do this, the researcher sought input from three professors who had experience in banking research studies, following the methodology used by Almanasreh et al. (2019). Based on the feedback received from these professors, the researcher identified any inaccuracies in the wording of the survey questions and made appropriate improvements to ensure the survey questions were accurate and reliable.

The purpose of the study was explained to participants before they received the three-page questionnaire, which took between ten and fourteen minutes to complete. The 50-fold rule in ANN requires a sample size of at least 50 times the number of variable parameters in a neural network (NN), which, in this study, is seven, resulting in a minimum sample size of 350. As the ANN analysis had a sample size of 491, it was deemed sufficient (Alwosheel et al., 2018). Relevant predictors were ranked using the normalisation method. SEM-PLS is effective at capturing linear relationships but may fail to detect non-linear interactions, so the two-step 'SEM-PLS-ANN' technique was used to address this. However, the ANN's 'black box' nature makes it insufficient to test theories (Mjalli et al., 2007). To avoid potential common method bias (CMB) distortion, data were collected from multiple sources in this study by collecting dependent and independent items separately (see Appendix). According to Kock (2015), CMB may be an issue if a single latent component explains much of the variation, but the analysis of non-rotating components showed that the first normalised and linear combination only accounted for 38.23% of the total deviation of 76.54%, indicating that CMB was not a significant concern in this study.

According to Depew and Gonzales (2019), a millennial is defined as an individual born between 1981 and 1996, which means they are currently between the ages of 25 and 40. Among this generation, men make up 51.93% of the population. Analysis of the demographic profiles of millennials reveals that 50.10% of them hold graduate degrees, while 18.74% have completed postgraduate studies. On the other hand, 31.25% possess intermediate or lower certifications, while only 2.03% are illiterate. In terms of income, 28.51% of respondents earn less than INR 16,000 (US $199) per month, while 28.30% earn between INR 16,000 and 36,000 (US $198 to US $464) per month, as shown in Table 2.

Table 2 Demographic characteristics of the respondents

Characteristics		*Sample*	*Percentage* (%)
Age (Years)	25–40	491	100
Gender	Male	255	51.93
	Female	236	48.06
Education	Intermediate and below	143	31.25
	Graduation (GRD)	246	50.10
	Post-graduation (PG)	92	18.74
	None	10	2.030
Income	<16,000/- (INR)	140	28.51
	16,000–36,000 (INR)	139	28.30
	37,000–57,000 (INR)	125	25.46
	58,000 (INR) – (Equal and Above)	87	17.71

Source: Based on Field Survey

2.1 Non-linear relationships (robustness test)

Smart PLS was utilised to examine non-linear effects in our model. Additionally, Ramsey's recommendation (Ramsey, 1969) suggests testing latent variables, hence we evaluated the quadratic relationship among GRI and ERA, GRI and GRE, ERA and GRE, GRK and ERA, GRI and GRI, GRI and GRE, and GRI and GRE (as shown in Table 3). This study incorporates the behavioural patterns of millennials with their preference for environmentally conscious brands and discovered that millennials are responsive to the GRE of banks. Our constructs were evaluated using bootstrapping on 15,000 samples (maintaining the sign), and we observed significant non-linear effects on GRI and ERA ($p < 0.05$), GRI and GRE ($p < 0.05$), ERA and GRE ($p < 0.05$), GRK and ERA ($p < 0.05$), GRK and GRI ($p < 0.05$), and GRK and GRE (($p < 0.05$) (Table 3), indicating that our model is non-linear. Thus, SEM-ANN is an appropriate method for testing non-linear relationships, and the predictors should be assessed using a two-stage SEM-ANN model (Lee et al., 2020).

Table 3 Linearity

Path	*Coefficient*	*F2*	*P-value*	*Result*
Quadratic Effect of GRI on ERA	0.012	0.732	0.001	Significant
Quadratic Effect of GRI on GRE	0.045	0.356	0.003	Significant
Quadratic Effect of ERA on GRE	0.058	0.087	0.004	Significant
Quadratic Effect of GRK on ERA	0.065	0.165	0.000	Significant
Quadratic Effect of GRK on GRI	0.038	0.136	0.002	Significant
Quadratic Effect of GRK on GRE	0.057	0.452	0.000	Significant

Source: Processed Data from Smart PLS3

2.2 Partial least square results

The study employs partial least squares (PLS) using SEM to estimate. We assessed the reliability of the scale using Cronbach's alpha and confirmed that our model has a Cronbach's alpha within the acceptable range of 0.70–0.82. However, one factor loading, GRE 4, fell below the threshold of 0.7. Nonetheless, factor loadings in social science studies are typically lower (Latif et al., 2020), and thus, we should only eliminate them if they impact other outcomes such as discriminant validity, convergence validity, or AVE. Our results showed that the AVE is significantly higher than the required threshold of 0.50 (Farrell, 2010), indicating convergence validity. Additionally, all items exhibited high factor loading and a standardised lambda coefficient greater than 0.50, indicating convergent validity (Cheung and Wang, 2017). Discriminant validity was established by comparing the square root of AVE to its correlation for each construct score, and the quadratic correlation coefficient of AVE was significantly higher than those of the other variables (Voorhees et al., 2016). Finally, we ensured that our model met the threshold for multicollinearity by keeping the VIF below 5% (Table 4).

Table 4 Reliability and validity

Indicators	*Factor loading*	*Cronbach's Alpha*	*Composite reliability*	*Average variance extracted* (*AVE*)	*Variance inflation factor* (*VIF*)
GRK1	0.757	0.832	0.889	0.667	1.666
GRK2	0.881				2.342
GRK3	0.798				1.768
GRK4	0.825				1.826
ERA1	0.791	0.719	0.843	0.641	1.376
ERA2	0.836				1.608
ERA3	0.774				1.379
GRI1	0.766	0.708	0.836	0.629	1.372
GRI2	0.788				1.421
GRI3	0.825				1.358
GRE1	0.767	0.754	0.844	0.575	1.704
GRE2	0.796				1.559
GRE3	0.791				1.785
GRE4	0.673				1.172

Source: Processed Data from Smart PLS3

We utilised a theoretical model (SEM) to explore causality, and the results indicated that the structural model was a good fit with acceptable indicators (SRMR = 0.082, Chi-Square = 249.546, and NFM = 0.741) (Table 5). Using Smart PLS, we were able to compare the relationships, and the Stone-Geisser effect of 23% was present in our model. External constructs can be used to predict endogenous patterns if Q2 is zero. Q2 values between 0% and 15%, 15% and 35%, and over 35% indicate poor, moderate, and high predictive values, respectively (Stone, 1974; Geisser, 1974). Our model predicts a moderate effect size since our Q2 value falls within the range of 15–35%. The dataset is

consistent with our model as our R-squared value is 38.8%, which is considered acceptable in survey research (Sarstedt and Mooi, 2014). According to Sarstedt and Mooi (2014), a lower R-squared value is preferred in survey research.

Table 5 Model fit summary

	Saturated model
SRMR	0.082
D_ULS	0.711
D_G	0.238
Chi-Square	249.546
NFI	0.741
Q^2	0.23
R^2	0.388

Source: Processed Data from Smart PLS3

In addition, the latent variable correlation in Table 6 suggests that the correlation between GRK and GRI is 53.3% (a moderate correlation). In contrast, the correlation between ERA and GRE is 45.6% (another moderate correlation).

Table 6 Latent variable correlation

	GRK	*ERA*	*GRI*	*GRE*
GRK	1.000	0.491	0.533	0.521
ERA	0.491	1.000	0.469	0.456
GRI	0.533	0.469	1.000	0.511
GRE	0.521	0.456	0.511	1.000

Source: Processed Data from Smart PLS3

In our model, there are no issues of discriminant validity (Table 7).

Table 7 Fornell-Larcker discriminant validity criterion

	GRK	*ERA*	*GRI*	*GRE*
GRK	0.817			
ERA	0.491	0.801		
GRI	0.533	0.469	0.793	
GRE	0.521	0.456	0.511	0.758

Source: Processed Data from Smart PLS3

2.3 Analysis of artificial neural networks (ANN)

The architecture of the ANN used in this study followed the framework proposed by Wu and Feng (2018). ANNs are well-suited for large datasets due to their ability to handle noise and outliers. They can also accommodate non-compensatory models where

changes in one component do not necessarily affect the other components. The IBM SPSS artificial neural network was used to conduct the study, which does not require data to be normally distributed (Büyükşahin and Ertekin, 2019). The feed-forward-backpropagation neural network (FFBP) technique was employed, which involves forwarding the input and back-propagating the estimated error to learn and predict outcomes (Mohammad et al., 2020). To test the hidden layers of the ANN, a multilayer perceptron was employed in the study.

We utilised sigmoid activation methods in the hidden layers of the ANN, following the approach of Iqbal et al. (2020). To improve prediction accuracy and minimise errors, we incorporated learning cycles, as suggested by Yang et al. (2018). Our training data consisted of 70% of the samples, while the remaining 30% were used for testing, following the methodology of Alrashed et al. (2018). To prevent overfitting, we used the 10-fold cross-validation and RMSE method, as recommended by Kurtgoz et al. (2017). The resulting RMSE values for learning and testing were within the range of 0.145 to 0.199, indicating that our model fits the data well (see Table 8). Our findings suggest that the ANN outperforms the SEM model in analysing the data, making the ANN model more suitable. It is worth noting that if we had used 90% of the data for training, instead of 70%, the ANN results would have differed significantly, as suggested by Ding (2018). Our ANN model predicted 73.6% of green brand equity accurately, which is consistent with the R2 value reported by Moayedi et al. (2019). We obtained the normalised relevance of each input neuron by dividing the relative value by the highest value and multiplying it by the number of input neurons. Figure 2 illustrates the hidden layer function of the ANN.

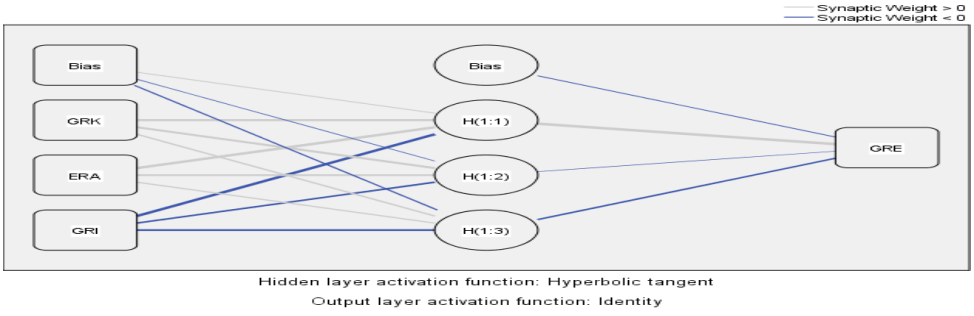
Table 8 RMSE (ANN)

Sample size (*Training*)	*Sum of square error* (*Training*)	*RMSE* (*Training*)	*Sample size* (*Testing*)	*Sum of square error* (*Testing*)	*RMSE* (*Testing*)
332.000	15.587	0.217	159.000	0.415	0.051
348.000	3.384	0.099	143.000	7.672	0.232
333.000	15.417	0.215	158.000	3.488	0.149
330.000	7.919	0.155	161.000	1.270	0.089
338.000	9.987	0.172	153.000	2.646	0.132
358.000	6.876	0.139	133.000	26.986	0.450
337.000	7.895	0.153	154.000	9.571	0.249
343.000	42.020	0.350	148.000	0.288	0.044
349.000	39.010	0.334	142.000	0.161	0.034
345.000	8.539	0.157	146.000	0.051	0.019
Average	15.663	0.199		5.255	0.145
St. Dev	13.626	0.079		7.897	0.134

RMSE: Root mean square of errors, St. Dev. = Standard deviation.

Source: Processed Data from SPSS

Figure 2 Hidden layer activation function in ANN (see online version for colours)



Source: Processed ANN Data from SPSS

The sensitivity analysis results in Table 9 show that the most important predictor is the ERA, with a normalised significance of 100%, followed by GRK, with normalised importance of 92%, and GRI, with normalised importance of 77%.

Table 9 Sensitivity analysis

Constructs	*GRK*	*ERA*	*GRI*
NN(1)	0.944	0.854	0.199
NN(2)	0.865	0.965	0.522
NN(3)	0.656	0.561	0.479
NN(4)	0.641	0.741	0.682
NN(5)	0.683	0.840	0.994
NN(6)	0.565	0.864	0.504
NN(7)	0.656	0.866	0.717
NN(8)	0.773	0.674	0.180
NN(9)	0.421	0.321	0.526
NN(10)	0.565	0.655	0.853
Average importance	0.677	0.734	0.566
Normalised importance	92%	100%	77%

NN = Neural network.

Source: Processed Data from SPSS

2.4 The structural model

The study's first hypothesis proposed a relationship between GRK and GRE, which is statistically significant ($\beta = 0.491$; $p = 0.000$), confirming H1. This finding aligns with Ha's (2020) research that identified a link between brand knowledge and equity. Similarly, the second hypothesis, H2, proposed a connection between ERA and GRE, which is also statistically significant ($\beta = 0.291$; $p < 0.05$), and supports previous research (Khandelwal et al., 2019). The analysis of H3 also confirms that GRI affects GRE, with a statistically significant relationship ($\beta = 0.264$; $p < 0.05$), aligning with Chen's (2010) earlier findings. The path coefficients of the model are shown in Table 10, indicating that all hypotheses (H1-H6) are supported.

Table 10 Path coefficient

Direct effect	*Original sample*	*Sample mean*	*Standard deviation*	*T Statistics*	*P values*
GRK → ERA	0.491	0.501	0.052	9.425	0.000
GRK → GRI	0.263	0.267	0.079	3.318	0.001
GRK → GRE	0.203	0.204	0.083	2.450	0.015
ERA → GRI	0.392	0.395	0.076	5.186	0.000
ERA → GRE	0.296	0.298	0.090	3.281	0.001
GRI → GRE	0.264	0.263	0.071	3.711	0.000
Indirect effect	*Original sample*	*Sample mean*	*Standard deviation*	*T Statistics*	*P values*
GRK → ERA → GRE	0.145	0.149	0.047	3.085	0.002
GRK → GRI → GRE	0.070	0.070	0.028	2.516	0.012
GRK → ERA → GRI → GRE	0.051	0.052	0.018	2.827	0.005

Source: Processed Data from Smart PLS3

In particular, H3, H4, and H5 meet the criteria for mediation. The predictor GRK has a statistically significant impact on the mediator ERA, which, in turn, has a significant effect on the dependent variable GRE ($\beta = 0.145$; $p < 0.05$), suggesting that ERA acts as a partial mediator. Similarly, GRK has a statistically significant impact on the mediator GRI, which has a significant effect on GRE ($\beta = 0.070$; $p < 0.05$), indicating that GRI also acts as a partial mediator.

Furthermore, the study's sixth hypothesis, H6, proposes that ERA and GRI mediate between GRK and GRE ($\beta = 0.051$; $p < 0.05$), indicating a partial mediation effect in the model. Therefore, the alternative hypothesis, H6, is accepted. The full-effect model has a path coefficient of 38.8, which may be due to an interaction between the mediating variables. Table 10 presents the partial mediation outcomes.

3 Discussion

This study utilised SEM to investigate whether GRI and ERA could serve as positive mediators between GRK and GRE for millennial consumers by analysing their relationship with GRK and GRE. The study developed and validated an integrated model focused on GRE, which analysed millennials' environmental knowledge, attitudes, and perceptions of green brands. All of the hypotheses were proven to be true, and the study found that the majority of millennials possess environmental abilities and perspectives. Additionally, the study found that millennials are sensitive to banks' GRE and that organisations should allocate more financial resources to enhance millennials' GRK, ERA, and GRI, as these constructs have a positive correlation with GRE. This study is different from previous studies by Khandelwal et al. (2019), Butt et al. (2017), and Ha (2020) due to the observation of new GRE drivers (GRK, ERA, and GRI) among specific customers (Millennials). The findings suggest that ERA has a more significant impact on GRE than any other construct, indicating that millennials' beliefs have

influenced their behavioural intentions towards environmental activities in the banking sector (Abun and Racoma, 2017). The contribution of this study is that this study is consistent with the theory of planned behaviour (PTB) and indicate that millennials exhibit environmentally friendly behaviour in banking (De Groot and Steg, 2007). The study's empirical results could be utilised to extend PTB in environmental studies and practical applications. Based on the study's modelling, the proposed theoretical path for millennials shopping for green banking products or services is ERA → GRI → GRK → GRE. Future researchers could use this new path to extend the theory of planned behaviour to environmental sensitive areas.

The study's findings demonstrate that millennials are swayed by GRE when purchasing banking products and services. As they make up a significant portion of the global population, we suggest that organisations prioritise the promotion of environmental knowledge for commercial purposes (Bennett and Satterfield, 2018). The contribution of this study is that previous research has explored green marketing (Peattie, 2016; Dangelico and Vocalelli, 2017), this study is the first to identify a link between green branding and millennial ERAs. Through the use of an ANN approach, we discovered that ERA plays a crucial role in shaping GRE. To succeed in the banking industry, banks should develop policies that meet their customers' esteem needs. Our research indicates that millennials value the environment.

3.1 Managerial implications

Our research has significant implications for banking organisations aiming to establish a strong brand image among millennial consumers. Existing literature on GRE has explored the preferences, attitudes, and purchasing behaviours of consumers towards green brands (Yasin et al., 2007). Our study confirms that millennial consumers' ERA and GRK are key drivers of GRE, with GRI also playing a role, albeit smaller in comparison. It is recommended that strategic managers integrate eco-branding into their long-term marketing strategies to address the determinants of GRE. The research findings indicate that millennial consumers' purchasing habits are influenced by environmentally friendly brands. Given the demographic profile of millennials, banks should organise green awareness campaigns targeted at graduate and undergraduate students. A positive attitude towards environmental preservation is beneficial, while a negative attitude towards the environment is detrimental. Our study supports the notion that protecting nature is a categorical imperative for all human beings, as suggested by Cuomo (2021) and Bennett et al. (2017). Hence, strategic leaders should strive to communicate and justify their green commitments in their service delivery. Finally, our study proposes a model for building GRE by consistently exceeding consumer expectations and influencing their attitudes towards green products.

4 Conclusion

In conclusion, this study highlights the importance of understanding millennials' purchasing behaviour in the banking industry and the impact of their ERAs on GRE. The use of the ANN approach revealed that consumer knowledge, brand image, and ERAs play a significant role in determining the green brand value. Our findings suggest that millennials' positive perception of green banking practices can encourage banks to invest

in environmentally friendly products and services effectively. The study also emphasises the significance of developing green banking practices that prioritise environmental sustainability and continuously raise the green brand's value. The positive perception of millennials towards green product and service initiatives underscores the importance of financial institutions considering environmentally friendly practices to enhance their reputations. Overall, our study provides insights that can help strategic managers in the banking industry develop effective marketing strategies that address the drivers of GRE and cater to millennials' environmentally conscious behaviour.

4.1 Limitations and future research

The study acknowledges several limitations that can be addressed by future research. The first limitation is the focus on GRE within the banking industry in India, which limits the generalisability of the findings to other industries and countries. Future research can explore GRE in other emerging markets and compare it with developed markets to provide a more comprehensive understanding of the subject.

Secondly, the research methodology employed cross-sectional survey analysis, which could not assess changes in consumer perceptions of green businesses over time. Future studies can use longitudinal research designs to examine the changes in consumer preferences and perceptions towards eco-friendly products and services.

Thirdly, the study did not compare the opinions of millennials living in metropolitan and non-metropolitan areas. Given the differences in environmental issues and lifestyles between these two groups, future studies can compare the opinions of millennials living in different areas to provide a more nuanced understanding of green branding in emerging markets.

Finally, the study did not analyse the impact of cultural and social factors on millennials' green purchasing behaviour. Future studies can examine the influence of culture, social norms, and other demographic factors on millennials' ERAs and behaviour.

Despite these limitations, the study provides valuable insights into the factors that influence millennials' GRE in the banking industry in India. The ANN model used in the study has proven to be an effective tool for predicting GRE, which can be applied in other industries and countries to support sustainable business practices.

Conflict of interest

All authors declare they have no conflicts of interest.

Ethical approval

This paper does not contain any studies with human participants or animals performed by any of the authors.

Informed consent

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Author's contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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Appendix 1

Constructs	*Items*	*Sources*	*Authors*
Green brand knowledge (GRK)	GRK1	I have heard about green products and services of the banks	Huang et al. (2014)
	GRK2	This bank is the first to come to my mind when talking about environmentally friendly products and services	Huang et al. (2014)
	GRK3	Our bank has good environmental reputation	Huang et al. (2014)
	GRK4	I know that the banks products and services are related to environment	Huang et al. (2014)
Green brand equity (GRE)	GRE1	I consider bank's products and services are environmentally responsible	Chen (2010)
	GRE2	I consider bank's products and services is as economical with eco-friendly technology	Chen (2010)
	GRE3	It is important for me that this branded bank act as a sustainable	Chen (2010)
	GRE4	It is important for me that this branded bank fulfil its social responsibility	Chen (2010)
Green brand image (GRI)	GRI1	This branded bank is regarded as the best benchmark of environmental commitments	Chen (2010)
	GRI2	This branded bank is professional about environmental reputation	Chen (2010)
	GRI3	This branded bank is sensitive about environmental concern	Chen (2010)
Environment attitude (ERA)	ERA1	If asked, I would contribute time or money to an organisation that works to improve the quality of the environment	Dunlap and Liere (1978)
	ERA2	I would be willing to make personal sacrifices for the sake of slowing down pollution even though the immediate results may not seem significant	Dunlap and Liere (1978)
	ERA3	We must prevent any type of animals from becoming extinct, even if it means sacrificing some things for ourselves	Dunlap and Liere (1978)