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## **Exploring Green Brand Equity: Does Perceived Quality matter in green products?**

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ISCTE Business School

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Department of Marketing, Operations and General Management

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## **Acknowledgments**

Ao Professor Álvaro cujo apoio foi imensurável durante todo o processo e ao qual todos os agradecimentos nunca serão suficientes.

Ao João Pedro, obrigada por seres o meu fã número 1 e acreditares em mim incondicionalmente.

À minha mãe Isabel, obrigada por me ensinares a sonhar. Espero deixar-te orgulhosa.

À minha família e amigos, pela paciência e apoio durante este processo, obrigada.



## Resumo

Os consumidores têm vindo a tornar-se mais atentos à responsabilidade social das empresas e aos desafios ambientais, levando as empresas a concentrarem-se nos seus esforços de marketing ambiental. Este estudo investigou outros conceitos de marketing ambiental à luz da Teoria do Empenho-Confiança e da Teoria do Risco Percecionado, de modo que as empresas e os profissionais de marketing possam melhorar o valor ambiental da sua marca (Green Brand Equity). Foi utilizado um inquérito com dados primários transversais de 202 consumidores residentes em Portugal e que identificaram uma marca de *fast fashion* que lhes fosse familiar. As hipóteses propostas foram testadas utilizando técnicas de modelação de equações estruturais (SEM, IPMA), bem como a Análise Qualitativa Comparativa Fuzzy-set (fsQCA). Os resultados mostram que a relação entre a Qualidade Verde Percecionada (Green Perceived Quality) e o valor da marca ambiental (Green Brand Equity) não é tão linear como a investigação sugeria anteriormente. Ou seja, os consumidores mostram diferentes graus de importância em termos de qualidade percebida (perceived quality), quando se trata de produtos “verdes”. De um modo geral, ao procurar ativamente certificações ecológicas, concentrando-se nas normas ODGs e ISSO; praticando e comunicando uma transparência ambiental radical e investindo tempo e recursos em causas ecológicas, as empresas podem alcançar um maior valor ecológico da marca (Green Brand Equity).

**Palavras-chave:** Valor Ambiental da marca (Brand Equity); Teoria do Empenho-Confiança; Teoria do Risco Percecionado; *Fast Fashion*.



## **Abstract**

Consumers have been becoming more perceptive to corporate social responsibility and environmental challenges, leading companies to focus on their green marketing efforts. This study investigated further green marketing concepts in the light of Commitment-Trust Theory and Perceived Risk theory, in order for companies and marketers to improve their Green Brand Equity. A survey design using cross-sectional primary data from 202 consumers that lived in Portugal and who identified a familiar fast fashion brand. The proposed hypotheses were tested using structural equation modelling techniques (SEM, IPMA), as well as Fuzzy-set Comparative Qualitative Analysis (fsQCA). The results show that relationship between Green Perceived Quality and Green Brand Equity is not as linear as research previously suggested. Meaning that, consumers show different degrees of importance in terms of perceived quality, when it comes to green products. Overall, by actively search for green certifications; focusing on SDGS and ISO standards, practicing and communicating radical environmental transparency and investing time and resources into green causes, companies can achieve Green Brand Equity.

**Keywords:** Brand Equity; Commitment-Trust Theory; Perceived risk theory; Fast Fashion.





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## **Introduction**

Over the last decade, sustainability and environmental concerns have been steadily increasing in the companies' agenda (Chen, 2010; Ha et al., 2022). Considering the environmental pollution and the global warming, society and consequently consumers have been becoming more demanding when it comes to corporate social responsibility and environmental challenges (Chang & Chen, 2014; Chen & Chang, 2013; Lee et al., 2013; Musgrove et al., 2018). Under this context, green marketing has been valued by companies as a way to capitalise on the green movement, integrating into all marketing elements and concepts (Chen, 2010; Ha et al., 2022; Ottman, 1992).

Previous research suggested that brand equity could be analysed from two perspectives: a company perspective and a consumer's perspective. Focusing on a customer-based approach, Yoo and Donthu (2001) proposed a scale that sustained – just like Aaker (2009) suggested – that Perceived Quality was a dimension of Brand Equity, establishing a positive link between the two concepts. In addition to that, Perceived Quality is also proposed as a predecessor to Customer Trust, meaning that increasing perceived quality can promote consumer trust (Chen & Chang, 2013; Koehn, 2003; McKnight et al., 2002; Pavlou & Gefen, 2004).

According to study findings, people prefer to purchase brands that are linked with low levels of perceived risk since these brands tend to have stronger brand equity and reputation (Mitchell, 1999). On the other hand, literature showed that there is a negative relationship between perceived quality and perceived risk (Clow et al., 1998; Snoj et al., 2004). Accordingly, a low-level perceived risk associated with a brand may increase the brand's equity (Mitchell, 1995). Finally, the idea that brand equity is a relational market-based asset suggests that building and maintaining trust is at the core of brand equity. Prior research has shown that trust is a crucial component of any successful long-term relationship (Chen & Chang, 2013; Garbarino & Johnson, 1999; Larzelere & Huston, 1980; Morgan & Hunt, 1994).

In response to the growing relevance of environmental issues, the notions of Green Brand Equity, Green Perceived Quality, Green Trust, and Green Perceived Risk were developed (Chen & Chang, 2013; Chen, 2010). Green Brand Equity relates to the green commitments and environmental concerns of a brand, while Green Perceived

Quality suggests environmental excellence or superiority. The notion of Green Trust establishes itself considering a brand's credibility, benevolence, and environmental ability. Finally, Green Perceived Risk associates with the environmental consequences. While these concepts are fundamental to the construction of green marketing theory, their implications on green products are still underexplored.

There are four main novelties in this study. First, by answering Chang & Chen (2014) call to focus on other countries. To provide comparison between the two studies, this work studies the influence of Green Perceived Quality in Green Perceived Risk and in Green Brand Equity but extends it by adding Green Trust as a mediator of the relationship of Green Perceived Quality and Green Brand Equity. For both academics and managers working to increase Green Brand Equity in Portugal, this might provide a better understanding of the moderating impact that perceived risk and trust can play in the link between Green Perceived Quality and Green Brand Equity. Second, this study took advantage of the fact that the fashion industry was still scarce in this context of Green Brand Equity (Chang & Chen, 2014). In addition to that, this work intertwines the Trust-Based Model of Relationship Marketing with the Perceived Risk Theory, allowing a better understanding of the precedents in a customer-brand relationship. Finally, unlike previous research suggested, the role of Perceived Quality in Green Products is non-linear among the green consumers.

Against this background, this research aims to shed light on this inconsistency by exploring the nuanced role of green perceived quality in shaping green brand equity. We investigate the potential for segmentation among green consumers and examine the moderating effect of green trust on the relationship between perceived quality and brand equity. Additionally, we explore the influence of green perceived risk on green brand equity. In sum, this study aims to answer the following questions: What is the impact of Green Perceived Quality on Green Brand Equity? What is the role of Green Perceived Risk and Green Trust as mediators of this relationship?

Theoretical foundations for our arguments are twofold: first, in the Commitment-Trust Theory (Morgan & Hunt, 1994), where the foundations of the definition of Green Trust and its subsequent relationship with Green Brand Equity rely on, both directly and indirectly; second, the Perceived Risk theory (Dowling & Staelin, 1994) sustains the importance of analysing the customer's perceptions and its influence

on Green Brand Equity. These ideas are empirically tested on a sample of Portuguese residents by means of variance-based structural equations modelling (SEM) (Hair et al., 2021), namely with an importance-performance map analysis (Ringle & Sarstedt, 2016) and Fuzzy-Set Qualitative Comparative Analysis (Pappas & Woodside, 2021). Our findings contribute to the existing body of knowledge in several ways. We reveal an unsymmetrical role for green perceived quality, identifying different consumer segments with distinct priorities. We further solidify the moderating role of green trust. Finally, we explore the potential mitigating effect of the halo effect on green perceived risk. This research offers valuable managerial implications. By understanding the drivers of green brand equity, companies can develop targeted strategies to enhance their environmental image and build stronger relationships with eco-conscious consumers.

In line with the research aims, this study starts with a literature review, representing all the theoretical knowledge useful for the construction of the conceptual model and consequently the research hypothesis. Next, the methodological approach chosen is graphically represented and the characteristics of the sample, how the hypothesis were measured, and the data collection approach are detailed. Subsequently, this work presents the research results, and discusses them from both a macro and micro perspective. Concluding, this work presents the possible theoretical and managerial implications, as well as an orientation for future research.





## Literature Review

### a. The influence of Green Perceived Quality on Green Brand Equity

Perceived quality is referred as a subjective customers' assessment regarding overall supremacy excellence or superiority (Zeithaml, 1988). Aaker (2009) defines perceived quality as "*the customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives*", sharing a similar opinion. Perceived Quality is also detached from "objective quality" by Mitra and Golder (2006) who characterized it as a "perception of the customer". Brand Perceived Quality has been considered one of the main variables influencing customer decisions by presenting them with a compelling cause to favour one brand over another (Aaker, 2009; Pappu et al., 2005).

Brand Equity is explained by Keller (1993) as the effect that brand knowledge produces in the consumer when it comes to the marketing of a brand. There are two ways that it could be analysed: from a customer perspective – considering customer's knowledge, familiarity, and associations with respect to the brand – and a company perspective, focused on the value of set brand in the marketplace (Washburn & Plank, 2002). In this study, consumers' perspective is adopted, and with this in mind it makes sense to consider Yoo and Donthu (2001) scale of costumer-based brand equity. In this scale, Yoo & Donthu (2001), just like Aaker (2009) considered that Perceived Quality was one of the dimensions of Brand Equity, establishing an undeniable positive relationship among the two constructs. Baldauf et al. (2003) suggests that brand equity is the customers' impalpable and subjective evaluations of a brand perceived value, this means that, the development of a positive and strong perceived value of a brand by a customer, leads to a strengthening of the customer-based brand equity (Kim & Kim, 2004; Malik, 2012; Ng et al., 2014).

In the more recent years research suggests that consumers have become increasingly more conscious is their fashion purchasing decisions and considering the usual lack of durability of the items, and consequent process of going to waste, many consumers are now criticizing fast fashion for producing large amounts of these low-quality products that stimulate unnecessarily excessive consumption (Kim et al., 2013). This means that, just like Ng et al. (2014) suggests, that environmental-friendly qualities will be a source of addition value, possibly generating preference towards such brands

(Hartmann & Apaolaza-Ibañez, 2012; Ng et al., 2014; Sriram & Forman, 1993). Therefore, this study proposed that customer Green Perceived Quality will positively influence Green Brand Equity.

*Hypothesis 1 (H<sub>1</sub>):* Green Perceived Quality is positively associated with Green Brand Equity.

b. The negative effect of Green Perceived Quality on Green Perceived Risk

Perceived product quality derives from the gap between real items and alternatives that may be made accessible or offered by the particular industry (Hardie & Walsh, 1994). Dodds et al. (1991) sustains that perceived product quality must be seen as a mediator between external cues and customer value. Nowadays, quality is a significant competitive weapon now because consumers demand it more than ever before (Chang & Chen, 2014; Parasuraman et al., 1985). In addition to that, environmental consciousness has been establishing great popularity, which requires the use of appropriate terms, like Chang & Chen (2014) suggestion: Green Perceived Quality.

On the other hand, even though certain decision outcomes might be favourable for consumers, any option implies risk when the repercussions are connected with uncertain judgements (Hsu & Lin, 2006; Jaradat et al., 2018; MacCrimmon et al., 1986). The presence of perceived risk is determined by whether the decision consequences fit the expectations and needs of the consumers. In sum, customers want to know how to maximise their enjoyment while minimising their dangers. Lindley (1991) suggests that if anticipated values are equal, smaller risks are chosen over bigger risks, but higher expected values are preferred over smaller expected values if other parameters, such as risk, are equal (Hsu & Lin, 2006).

Considering the increase in importance of environmental subjects, the concept of Green Perceived Risk was created and defined as an anticipation of unfavourable environmental effects related to purchasing behaviour (Chen & Chang, 2012). Literature showed that there is, in fact, a negative relationship between perceived quality and perceived risk (Clow et al., 1998; Snoj et al., 2004). With this in mind, this study proposes that Green Perceived Quality would negatively affect Green Perceived Quality, proposing the following hypothesis:

*Hypothesis 2 (H<sub>2</sub>):* Green Perceived Quality is negatively associated with Green Perceived Risk.

c. Green Perceived Quality as an antecedent of Green Trust

Considering consumer judgement is a lot of times based on incomplete or asymmetric information, customer trust is usually rooted in four modalities: Perception, Product, Person, and Place (Kardes et al., 2004; Oude Ophuis & Van Trijp, 1995). Perceived quality is a set of attributes that are associated with the perception of a brands or product's quality. If perceived quality is positive, it can have multiple positive outcomes namely positive word-of-mouth, customer retention and even impacts in terms of profit (Qualls & Rosa, 1995).

Customer trust has been studied considering two main approaches. First, as a subjective belief or expectation about certain attributes of an exchange partner. Furthermore, these characteristics serve as indicators of the seller's trustworthiness. Such characteristics include an exchange partner's perceived credibility and benevolence (Anderson & Weitz, 1989; J.-S. Lee & Back, 2008; Wang et al., 2014). Second, consumer trust denotes the purpose to rely on a partner in a vulnerable position (Coleman, 1998; Wang et al., 2014). Research suggests that customer trust is a vital component that can influence long-term customer behaviour and purchasing patterns (J.-S. Lee & Back, 2008). Besides, consumer trust was recognised as a critical driver of consumer purchase intention by researchers (Amin & Tarun, 2021; Schlosser et al., 2006) and has been treated as a key element in customer relationship management (Amin & Tarun, 2021). Considering the latest environmental trend, Chen (2010) quoted the term "green trust".

According to prior investigation, increasing perceived quality can promote consumer trust (Chen & Chang, 2013; Koehn, 2003) and it's expected to be an antecedent of customer trust (Chen & Chang, 2013; Pavlou & Gefen, 2004). This, perceived quality can affect customer trust (McKnight et al., 2002). Considering the importance of Green Trust for today environmental management (Chen & Chang, 2013), this study implies the following hypothesis:

*Hypothesis 3 (H<sub>3</sub>):* Green Perceived Quality is positively associated with Green Trust.

d. The implications of Green Perceived Risk

The most common definition of perceived risk used by consumer researchers defines risk as the consumer's judgements of the uncertainty and negative repercussions of purchasing a product (or service). Consumer researchers implicitly believe that both the likelihood and result of each purchase event are unpredictable in this manner (Dowling & Staelin, 1994). Research shows that perceived risk has a negative impact on a customer's purchase process (Murphy & Enis, 1986).

Brand Equity is referred as the extra value that a certain brand provides to a company's products (Yoo & Donthu, 2001). In this sense, branding promotes customer choice because it acts as a product-differentiation aspects that aids decision-making based on previous experiences and credibility (Rojas-Lamoren et al., 2022; Sasmita & Mohd Suki, 2015). A high Brand Equity leads to higher margins, customer preferences and purchase intention (Buil et al., 2008; Keller, 1993).

Research shows that consumers prefer to buy a brand associated with low level of perceived risk such that the brand possesses better brand reputation and brand equity (Mitchell, 1999). This means that, a low-level perceived risk about a brand may raise its brand equity (Mitchell, 1995). Considering the current environmental considerations, (Chen, 2010) proposes the construct of Green Brand Equity and defines it as “*a set of brand assets and liabilities about green commitments and environmental concerns linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service*” (p.310). Because previous research has shown that decreasing perceived risk is beneficial to the increase of Green Brand Equity (Chen & Chang, 2013; Faircloth et al., 2001), and the environmental causes have taken a big importance in the latest years, this study contends that green perceived risk has a negative impact on green brand equity and presents the following hypothesis.

*Hypothesis 4 (H<sub>4</sub>): Green Perceived Risk is negatively associated with Green Brand Equity.*

e. The positive effect of Green Trust on Green Brand Equity

Trust can be defined as “*a willingness to rely on an exchange partner in whom one has confidence*” (Moorman et al., 1993: 3). This means that, trust has performance, reliability, and intentionality as its antecedents (Garbarino & Johnson, 1999). As for

Morgan & Hunt (1994), trust is also described as a “*the perception of confidence in the exchange partner’s reliability and integrity*” (p.23). Because its growth is most typically depicted as an individual's experiential process of learning through time, brand trust grows from prior experience and engagement (Delgado-Ballester & Luis Munuera-Alemán, 2005; Garbarino & Johnson, 1999). This means that, trust is impacted by every experience of the consumer with brand, either direct (e.g., trial, usage) or indirect (e.g., advertising, word of mouth) (Delgado-Ballester & Luis Munuera-Alemán, 2005; Keller, 1993; Krishnan, 1996).

Research has defined Brand Equity from two different perspectives: the first, from a financial point of view considers the value of a brand to the firm (Chen, 2010; Simon & Sullivan, 1993); on the other hand, highlights the value of a brand to the consumers (Aaker, 2009; Chen, 2010; Keller, 1993; Rangaswamy et al., 1993). Aaker (2009) defined brand equity from a consumer perspective, considering it a group of brand assets and liabilities linked to a brand, that increase or decrease the value of a good or service to a company and its clients. Furthermore, Keller (1993) proposed that brand equity might establish a differential effect of brand understanding on customer response to brand marketing. Chen (2010) went one step further and taking into consideration the importance of environmental and sustainable issues nowadays, introduced the concept of Green Brand Equity: “*a set of brand assets and liabilities about green commitments and environmental concerns linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service.*” (p.310).

Considering that previous research has proved that trust is a vital component of any successful long-term relationship, considering brand equity as a relational market-based asset suggests that creating and sustaining trust is at the heart of brand equity (Chen & Chang, 2013; Garbarino & Johnson, 1999; Larzelere & Huston, 1980; Morgan & Hunt, 1994). This study contends that Green Trust has a positive impact on Green Brand Equity and presents the following hypothesis.

*Hypothesis 5 (H<sub>4</sub>):* Green Trust is positively associated with Green Brand Equity.

f. Conceptual Model

The research framework is reported in Figure 1.

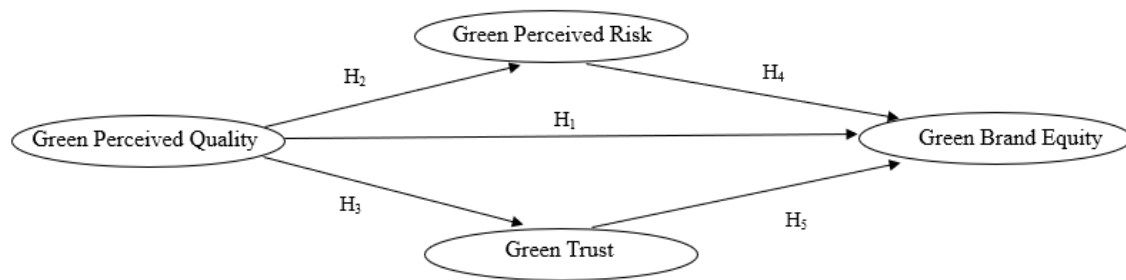


Figure 1. Conceptual Model

## Methodology

### g. Sample

This study applied the questionnaire survey to verify the hypotheses and research framework. The objective of this research was to study the impact of sustainable perceptions in fast fashion consumers. All respondents were older than 18 years old and lived in Portugal at the time of inquiry. Most responses were from women (65.5%), Married/Non-marital Partnership (30.69%), aged between 19 and 25 (53.9%), holding a bachelor's degree (53.96%), workers (48.51%), and with an average monthly household income between 1000€ and 1999€ (43.07%) – [Table 1](#).

Demographic Data		Percentage
Sex	Female	65,5%
	Male	34,50%
	Single	7,92%
Marital Status	Married/ Non-marital Partnership	30,69%
	Divorced/Separated	6,93%
Age	19-25	53,90%
	26-40	21,78%
	40 or higher	23,27%
Level of Education	Basic Education (1th-9th grade)	1%
	Highschool (10th - 12th)	25,74%
	Bachelor's Degree	53,96%
	Master's / Post-graduation	15,84%
	PhD	1,49%
	Other	1,49%
Employment Status	Retired	1,98%
	Student	28,71%
	Student-Worker	19,30%
	Worker	48,51%
	Unemployed	1%
Monthly Household Income	Up to 760€	11,39%
	760€-999€	10,89%
	1000-1999€	43,07%
	2000€-2999€	14,36%
	3000€-3999€	9,40%
	4000€-4999€	4,46%
	5000€-5999€	1,49%
	6000€-6999€	0,99%
	7000€-7999€	0%
	8000€-8999€	0,50%
	9000€-9999€	0,50%
	10000€ or higher	2,48%

Table 1. Characterization of the Sample

### Measures

The questionnaire was divided into three parts: in the first part asked participants to identify a familiar fast fashion brand, then questions were used to measure the proposed constructs, and finally demographic questions.

Validated scales were used to measure the four constructs appearing in the structural model translated into Portuguese, using back translation procedures (Brislin, 1970). All the items were measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The measurement of the constructs in this study is the following:

#### **b.1. *Green Perceived Quality***

In this study, Green Perceived Quality is regarded according to (Zeithaml, 1988) definition “*the customer’s judgment about a brand’s (or a product’s) overall environmental excellence or superiority*”. Besides, to measure this construct this paper refers to (Dodds et al., 1991), (Sweeney et al., 1999), and (Yoo & Donthu, 2001) including five items (Chang & Chen, 2014): (1) The quality of the brand’s products is regarded as the best benchmark with respect to environmental concern; (2) The quality of the brand’s products is reliable with respect to environmental consideration; (3) The quality of the brand’s products is durable with respect to environmental performance; (4) The quality of the brand’s products is excellent with respect to environmental image; (5) The quality of the brand’s products is professional with respect to environmental reputation.

#### **b.2. *Green Perceived Risk***

Green Perceived Risk is regarded as the expectation of negative consequences linked with purchase behaviour of green products (Chen & Chang, 2012). In this analysis, the five measures for this construct are: (1) There is a chance that there will be something wrong with the environmental performance of the brand’s products; (2) There is a chance that the brand’s products will not work properly with respect to its environmental design; (3) There is a chance that you would get environmental penalty or loss if you use the brand’s products; (4) There is a chance that using the brand’s products will negatively affect the way others think of you with respect to green image; (5) The brand’s products would damage your green reputation.

#### **b.3. *Green Trust***

This study defined Green Trust as “*a willingness to depend on a product, service, or brand based on the belief or expectation resulting from its credibility, benevolence, and ability about its environmental performance.*” (Blau, 1964) (Schurr & Ozanne, 1985)(Ganesan, 1994) The measurement of Green Trust includes five items (Chen, 2010): (1) You feel that this brand’s environmental commitments are generally reliable; (2) you feel that this brand’s environmental performance is generally



dependable; (3) you feel that this brand's environmental argument is generally trustworthy; (4) This brand's environmental concern meets your expectations; and (5) This brand keeps promises and commitments for environmental protection.

#### b.4. ***Green Brand Equity***

Green Brand Equity is defined as is “*a set of brand assets and liabilities about green commitments and environmental concerns linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service*” (Chen, 2010). The measurement of Green Brand Equity is made through four items: (1) It makes sense to buy this brand instead of other brands because of its environmental commitments, even if they are the same; (2) Even if another brand has the same environmental features as this brand, you would prefer to buy this brand; (3) If there is another brand's environmental performance as good as this brand's, you prefer to buy this brand; (4) If the environmental concern of another brand is not different from that of this brand in any way, it seems smarter to purchase this brand.

#### h. Data Collection

After pretesting and double checking the face validity of the questionnaire items with five academics, the feedback collected was used to amend the questionnaire where appropriate. To apply the questionnaire in both Portuguese and English, a translation and a reverse translation of the original constructs and measures was performed. The final version of the questionnaire was spread through the snowball technique (Baltar & Brunet, 2012) and selected by non-probabilistic method by convenience. To meet the statistical modelling requirements of the SEM application, a total of 211 questionnaires, 9 of them with missing values, what left the sample with 202 valid answers (still above the minimum sample size of 200 observations (Kyriazos, 2018)).

Data were gathered by a questionnaire, hosted at the Qualtrics® website and spread via researcher's social media (Instagram, Facebook, LinkedIn, and Reddit) for 30 consecutive days, during the month of April of 2023. Considering this, a convenience sample was used since there was no access to the full target population. Nevertheless, to reduce any bias caused by a common method, we used survey design approaches including randomising the sequence of items to eliminate answer biases; crafting clear and unambiguous questions in order to ensure respondents interpret them consistently,

and finally, piloting the survey, issuing potential ambiguities, and refining the questions before the launch of the survey.



## Results

### a. Data Analysis

Taking into account the model's multidimensional character and the necessity to analyse both the measurement qualities of the construct scales and the substantive linkages between them at the same time, Structural Equation Modelling was used. More specifically, three different techniques were applied: SmartPLS 4 software to perform Partial Least Squares (PLS) - a variance-based structural equation modelling technique (Ringle et al., 2022); Importance-Performance Map Analysis (IPMA) - identifying the most important areas of specific actions (Ringle & Sarstedt, 2016) and particularly important in this study researching the impacts that the variables have on phenomena like corporate reputation (Sarstedt et al., 2013); and Fuzzy-set Qualitative Comparative Analysis (fsQCA) providing outcomes regarded as configurations of interrelated structures as an alternative of entities examined isolated (Pappas & Woodside, 2021).

### b. Model Quality and Results

#### ***B1. Partial Least Squares***

Regarding the PLS, the analysis and interpretation of the data were carried out in two stages. We initially studied the measurement model's reliability and validity before moving on to the structured model. By analysing the various markers of reliability, convergent validity, internal consistency reliability, and discriminant validity to assess the quality of the measurement model (Hair et al., 2021), it was possible to comprehend that the standardised factor loadings of all items were greater than 0.6 (with a minimum value of 0.696) and almost all significant at  $p < 0.05$  (except for the last one), indicating that the individual indicator dependability was established (Hair et al., 2021).

All of the constructs' Cronbach alphas and composite reliability (CR) values higher than the cut-off of 0.7, confirming internal consistency dependability (Hair et al., 2021). Convergent validity was also established for three important reasons. To begin, as previously said, all components loaded positively and considerably on their respective structures. Second, every build had a CR value greater than 0.70. Third, as shown in Table 1, the average variance extracted (AVE) for all constructs is above the 0.50 requirement (Bagozzi & Yi, 1988). Two methods were used to test discriminant validity. We started with the Fornell and Larcker criteria. This criterion needs the square

root of AVE of a construct (bold values in the diagonal of Table 2 to be larger than its biggest correlation with any construct (Fornell & Larcker, 1981). This criterion is satisfied for all constructs. Afterwards, the Heterotrait-Monotrait Ratio (HTMT) criterion was used (Henseler et al., 2015). Table 3 shows that all HTMT ratios are in fact below the value of 0.85, providing additional evidence of discriminant validity (Henseler et al., 2015).

Latent Variables	$\alpha$	CR	AVE	1	2	3	4
(1) Green Brand Equity	0.758	0.827	0.545	<b>0.738</b>	0.435	0.292	0.462
(2) Green Perceived Quality	0.898	0.929	0.767	0.436	<b>0.876</b>	0.690	0.785
(3) Green Perceived Risk	0.897	0.924	0.707	-0.282	-0.626	<b>0.841</b>	0.529
(4) Green Trust	0.906	0.930	0.726	0.462	0.711	-0.484	<b>0.852</b>

Note:  $\alpha$  -Cronbach Alpha; CR -Composite reliability; AVE -Average variance extracted. Bolded numbers are the square roots of AVE. Below the diagonal elements are the correlations between the constructs. Above the diagonal elements are the HTMT ratios.

Table 2. PLS: Composite reliability, average variance extracted, correlations, and discriminant validity checks

Path	Path coefficient	Standard errors	<i>t</i> statistics	<i>p</i> value
Green Perceived Quality → Green Brand Equity	0.219	0.103	2.125	0.034
Green Perceived Quality → Green Perceived Risk	0.308	0.094	3.284	0.001
Green Perceived Quality → Green Trust	-0.626	0.063	10.012	0.000
Green Perceived Risk → Green Brand Equity	0.711	0.038	18.705	0.000
Green Trust → Green Brand Equity	0.005	0.086	0.059	0.953

Table 3. PLS: Structural model assessment

An investigation for collinearity (Hair et al., 2021) was performed followed by an evaluation of the structured model. The VIF values varied from 1.00 to 2.562, which was lower than the suggested critical value of 5 (Hair et al., 2021) suggesting that there was no collinearity. The evaluation of the structural model was made using the sign, magnitude, and significance structural path coefficients; the magnitude of R<sup>2</sup> value for each endogenous variable as a measure of predictive accuracy; and the Stone-Geisser's Q<sup>2</sup> values as a measure of predictive relevance (Hair et al., 2021). R<sup>2</sup> coefficients were 39.2%, 23.7%, and 50.6%, for the three endogenous variables of Green Perceived Risk, Green Brand Equity, and Green Trust, respectively. These values surpassed the threshold value of 10% (Falk & Miller, 1992). As for the Q<sup>2</sup> values for all endogenous variables (0.379, 0.176, 0.500, respectively) were above zero, indicating the predictive relevance of the model. Also, bootstrapping with 5,000 subsamples was used to evaluate the significance of the parameter estimates (Hair et al., 2021).

According to Green Perceived Quality has a significantly positive effect on Green Brand Equity ( $\beta = 0.0219$ ,  $p < 0.05$ ), a significantly negative effect on Green Perceived Risk ( $\beta = 0.308$ ,  $p < 0.001$ ), and a positive effect on Green Trust ( $\beta = -0.626$ ,  $p < 0.001$ ). These results provide support for H1, H2, and H3, respectively. Green Perceived Risk has a significantly negative relation with the Green Brand Equity ( $\beta = 0.711$ ,  $p < 0.001$ ), supporting H4. Green Trust has a positive relation to Green Brand Equity ( $\beta = 0.005$ , n.s.), supporting H5. Afterwards, we used a bootstrapping procedure to test the significance of the indirect effects via the mediator (Preacher & Hayes, 2008). Table 4 presents the results of the mediation effects. The indirect effects of Green Perceived Quality on Green Brand Equity are significant with ( $\beta = 0.216$   $p < 0.05$ ).

Indirect effect	Estimate	Standard errors	t statistics	p value
Green Perceived Quality → Green Brand Equity	0.216	0.085	2.551	0.011

Table 4. PLS: Bootstrap results for indirect effects

## ***B2. Importance-Performance Map Analysis (IPMA)***

As for the IPMA Analysis, we started out by checking if three key requirements have been fulfilled (Ringle & Sarstedt, 2016). First, all indicators in the PLS path model must use a metric scale or quasi-metric scale (Sarstedt & Mooi, 2019); second, all the indicator coding must have the same scale direction. In this case, the scale is the same for all four variables ranging from 1-5 (where 1 corresponds to "Strongly disagree" and 5 to "Strongly agree"). Thirdly, all outer weights must be positive and lower than 5 (Hair et al., 2021). Table 5 results show that all outer weights are positive and lower than 1, dismissing future collinearity problems (Ringle & Sarstedt, 2016).

Indicators	Outer weights
Green Brand Equity_1 ← Green Brand Equity	0,580
Green Brand Equity_2 ← Green Brand Equity	0,191
Green Brand Equity_3 ← Green Brand Equity	0,264
Green Brand Equity_4 ← Green Brand Equity	0,279
Green Perceived Quality_2 ← Green Perceived Quality	0,291
Green Perceived Quality_3 ← Green Perceived Quality	0,276
Green Perceived Quality_4 ← Green Perceived Quality	0,290
Green Perceived Quality_5 ← Green Perceived Quality	0,285
Green Perceived Risk_1 ← Green Perceived Risk	0,282
Green Perceived Risk_2 ← Green Perceived Risk	0,214
Green Perceived Risk_3 ← Green Perceived Risk	0,239
Green Perceived Risk_4 ← Green Perceived Risk	0,215
Green Perceived Risk_5 ← Green Perceived Risk	0,239
Green Trust_1 ← Green Trust	0,252
Green Trust_2 ← Green Trust	0,205
Green Trust_3 ← Green Trust	0,234
Green Trust_4 ← Green Trust	0,244
Green Trust_5 ← Green Trust	0,238

Table 5. IPMA: Requirement of non-collinearity check

The importance-performance map (Table 6) shows that Green Perceived Quality has performance slightly below average of 48.650. On the other hand, with a total effect of 0.436, this construct's importance is particularly high, in comparison to the others. Therefore, a one-unit increase in Green Perceived Quality's performance from 48.650 to 49.650 would increase the performance of Green Brand Equity by 0.436 points (Ringle & Sarstedt, 2016). As for Green Trust, despite having a level of importance inferior to latest, it is still above average ( $0.308 > 0.250$ ). In terms of performance, it is the most well-established construct when it comes to Green Brand Equity. Finally, Green Perceived Risk appears to have little importance on Green Brand Equity (0.005), as well as performance below average ( $46.483 < 48.755$ ) (Ringle & Sarstedt, 2016)-Figure 2.

Constructs	Importance	Performance
Green Perceived Quality	0,436	48,650
Green Perceived Risk	0,005	46,483
Green Trust	0,308	51,131
Mean Value	0,250	48,755

Table 6. Data of the Importance-Performance Map for Green Brand Equity



Figure 2. Importance-Performance Map for Green Brand Equity: Constructs

A prioritization of managerial activities can be established (Ringle & Sarstedt, 2016). Hence, when managers aim at increasing Green Brand Equity, their first priority must be improving aspects related to Green Perceived Quality, as this construct has the highest (above average) importance, but a relatively low (below average) performance. Next in line as for managers priority, Green Trust, who shows levels of performance only slightly above average, but an importance higher than other constructs. More specifically, in terms of items, GPerceivedQual\_2 (The quality of the brand's products is reliable with respect to environmental consideration) directly followed by

GPerceivedQual\_4 (The quality of the brand's products is excellent with respect to environmental image) and GPerceivedQual\_5 (The quality of the brand's products is professional with respect to environmental reputation) - Table 7 - or in other words, the quality of the brand's products is reliable with respect to environmental consideration, image and reputation should be managers and marketers first priority when it comes to achieving Green Brand Equity, considering the importance is double of the mean values and the performance does not vary much from the average – Figure

Items	Importance	Performance
GPerceivedQual_2	0,127	47,630
GPerceivedQual_3	0,120	52,370
GPerceivedQual_4	0,126	45,735
GPerceivedQual_5	0,124	49,171
GPerceivedRisk_1	0,001	54,147
GPerceivedRisk_2	0,001	54,621
GPerceivedRisk_3	0,001	44,194
GPerceivedRisk_4	0,001	40,047
GPerceivedRisk_5	0,001	38,389
GTrust_1	0,078	53,791
GTrust_2	0,063	52,37
GTrust_3	0,072	52,014
GTrust_4	0,075	48,341
GTrust_5	0,073	48,815
Mean Values	0,062	48,688

3.

Table 7. Data of the Importance-Performance Map for Green Brand Equity

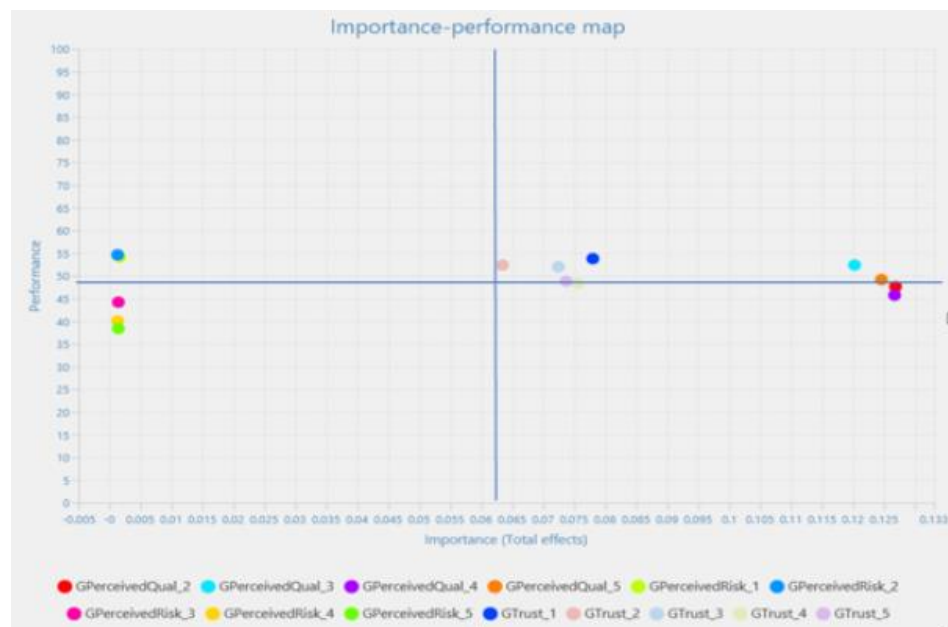


Figure 3. Importance-Performance Map for Green Brand Equity: Items



### B3. Fuzzy-set Qualitative Comparative Analysis (fsQCA)

#### B3.1. Analysis of Necessary and Sufficient Conditions

In accordance with the fsQCA literature a causal condition, or a combination of causal conditions, is considered necessary if it is always present (or absent) when the outcome is present (or absent), respectively (Rihoux & Ragin, 2009).

Table 8 presents the results of the analysis of the necessity relative to the outcomes of both a Green Brand Equity (GBE) and the negation of a high Green Brand Equity (~GBE). Conventionally, for a causal condition to be considered necessary, the consistency must be equal to or greater than 0.9 (Ragin, 2008). As can be seen in Table 8, none of the three conditions nor their negation were a necessary condition for the Green Brand Equity nor for its negation. A condition, or a combination of causal conditions, is “almost always necessary” if the consistency exceeds the threshold of 0.80 (Ragin, 2000).

Condition	Green Brand Equity (GBE)		~GBE	
	Consistency	Coverage	Consistency	Coverage
Green Perceived Quality	0.739599	0.750906	0.621926	0.55068
Green Perceived Risk	0.528255	0.634612	0.695156	0.728314
Green Trust	0.756723	0.762440	0.603288	0.530109

Table 8. Overview of Necessary Conditions

Counterfactual analysis, which distinguishes between simple and difficult counterfactuals, is included into the Quine-McCluskey algorithm (Fiss, 2011). We presented the fuzzy-set intermediate solution for both outcomes - high and low Green Brand Equity - (Fiss, 2011). Table 9 shows the fuzzy set intermediate solution for both high and low Green Brand Equity.

Configuration	High Green Brand Equity	Low Green Brand Equity
	GBE A	~GBE B
Green Perceived Quality	●	
Green Perceived Risk	⊗	●
Green Trust	●	⊗
Consistency	0.85261	0.805368
Raw coverage	0.614105	0.591222
Unique coverage	0.614105	0.591222
Overall solution consistency	0.85261	0.805368
Overall solution coverage	0.614105	0.591222

Note: Black circles (“●”) indicate the “presence” of a condition, and circles with a cross-out (“⊗”) indicate its “negation”.

Table 9. Configurations for high and low Green Brand Equity

The consistency scores for all configurations as well as the consistency score of the overall solution exceeded the threshold of 0.8 (Ragin, 2008). Thus, all configurations could be considered sufficient for Green Brand Equity. Coverage measures the proportion of instances that take a specific path and represents the empirical significance of a configuration (Ragin, 2008). The fraction of cases explained solely by one configuration is referred to as unique coverage. Table 9 demonstrates that for all setups, the unique coverage was more than zero. As a result, all configurations were empirically significant.

### B3.2. *Results*

The first configuration (A) indicated that a high Green Perceived Quality in combination with a low Green Perceived Risk and a high Green Trust, led to a high Green Brand Equity, explaining 61% of the GBE. As previously stated, fsQCA accounts for causal asymmetry, meaning that configurations that predict a high Green Brand Equity are not necessarily the mirror opposites of configurations that predict a low Green Brand Equity (Fiss, 2011). Table 9 presents the fuzzy set intermediate solution for ~GBE.

According to the results, the one configuration resulted in ~GBE exceeded the consistency requirement of 0.8 (Ragin, 2008). Configuration B demonstrates that a high Green Perceived Risk combined with low Green Trust, regardless of the level of Green Perceived Quality, resulted in ~GBE. This configuration accounted for 59% of ~GBE.



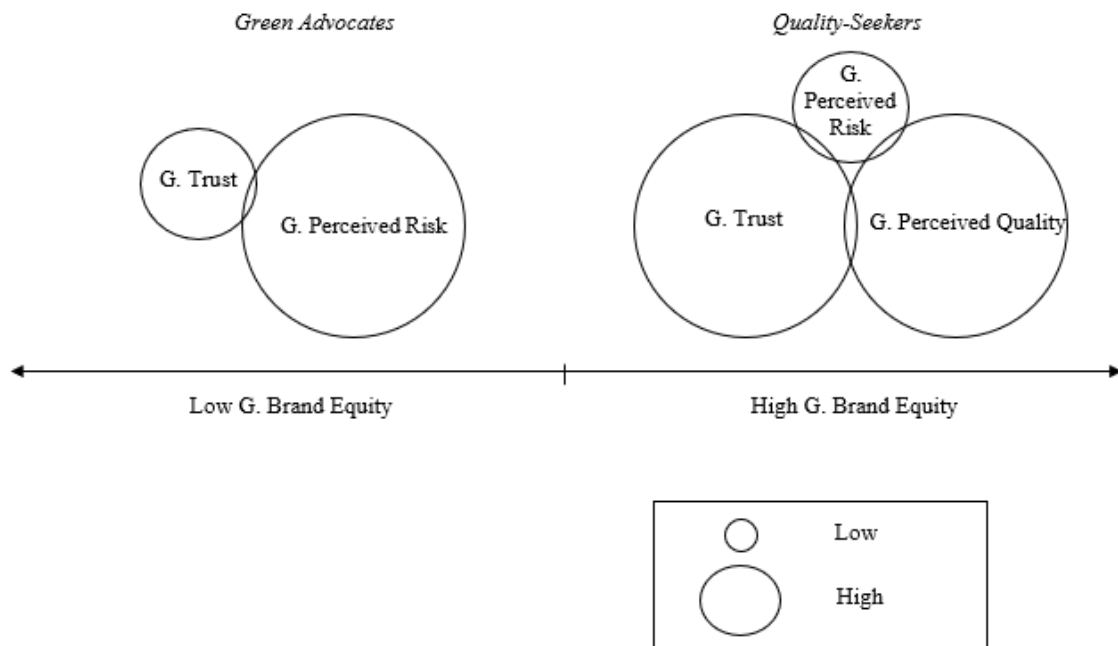
## Discussion

### The Controversial Role of Green Perceived Quality

The findings support that Green Perceived Quality is positively related to both Green Brand Equity and Green Trust, and negatively related to Green Perceived Risk, as research previously showed (Chen, 2010; Ng et al., 2014). Considering this, a one-unit increase in Green Perceived Quality's performance would increase the performance of Green Brand Equity by 0.436 points (Ringle & Sarstedt, 2016). With this in mind, the IPMA analysis (Ringle & Sarstedt, 2016), who has not been applied before in the literature to these constructs, leads to new discoveries. Managers' first priority must be to improve the performance of aspects captured by Green Perceived Quality, as this construct has the highest (above average) importance, but a performance relatively low (below average). Aspects related to constructs Green Trust and Green Perceived Risk follow as a second and third priority, respectively (Ringle & Sarstedt, 2016). More specifically, consumers seem to really take into importance the reliability of the quality of the brand's products in terms of environmental consideration (more than one value above average). In terms of priorities, managers should really consider prioritizing the quality of the brand's products excellence in terms of environmental image, since it has a high importance, but a performance below average. Indicators like the importance of the reliability of the quality of the brand's products in terms of environmental consideration; the importance in terms of professional quality of the brand's with respect to environmental reputation, and the quality of the brand's products in terms of durability with respect to environmental performance follow with second to fifth priority. The other indicators are less relevant for improving Green Brand Equity's performance (Ringle & Sarstedt, 2016).

Nevertheless, accordingly to fsQCA analysis, Green Perceived Quality is unsymmetric, between high Green Brand Equity and low Green Brand Equity, segmenting green consumers into two distinct groups: Green Advocates and Quality-Seekers.

- Green Advocates. Corresponds to consumers who prioritize a brand's environmental perceived risk and green trust, completely disregarding such brand's perceived quality when it comes to environmental concerns.
- Quality-Seekers. Correspond to the consumers who take into account all three dimensions of a brand's environmental equity – Green Perceived Quality, Green Perceived Risk and Green Trust.



By identifying these groups, this study shed light on previous discussion about the role of Green Perceived Quality. Thus, this study confirms that under some conditions Green Perceived Quality influences Green Brand Equity, aligning with previous research (Chang & Chen, 2014; Chen & Chang, 2013; Chen, 2010; Yoo & Donthu, 2001). Simultaneously, our results apparently contradict the same studies proposing an opposite opinion. As such, this study extends existing by recognizing that both situations are possible, and by identifying in which situations Perceived Quality is more likely to influence Brand Equity.

#### The Moderator: Green Trust

Second, the moderating role of Green Trust, as has been investigated before (Chen, 2010) is supported. The study shows that the effect of Green Perceived Quality on Green Brand Equity in trusting consumers would be stronger than for low-trusting consumers. This might be because consumers are more inclined to buy proven

sustainable products. In the landscape of Green Brand Equity, Green Trust has the best performance – according to the IPMA analysis – and the second highest importance, proving to be one of the top priorities in Management. Finally, when joined with a high Green Perceived Risk, low Green Trust accounts for 59% of ~Green Brand Equity.

### Leveraging Green Perceived Risk

Third, one finding that contradicts the researchers' expectation is that Green Perceived Risk, appears to have little importance on Green Brand Equity (0.005), as well as a performance below average. This contradicts the literature (Chang & Chen, 2014) and can be due to the halo effect, as seen in other cases (Ha et al., 2022). Park et al. (2020) suggests that if a brand has a favourable overall evaluation in consumers' minds, this perception will blur out negative events caused by that brand. According to Park et al. (2020), social status is the source of a halo effect since it increases general consumers' environmental emotions about companies, making social evaluations imperfect predictors of firms' environmental performances. In this study, by choosing the fashion brand that they were most familiar with, it's possible that the respondents usually buy from this brand, meaning they like its products and are attached to the brand, and that might lead to a blur in possible negative events of such brand.

Nevertheless, when combined with a high Green Perceived Quality and a high Green Trust, Green Perceived Risk is able to explain more than half of Green Brand Equity, proving value to strengthen the association between Green Perceived Quality and Green Brand Equity.

In summary, both SEM and IPMA reveal similar findings: The green quality of products is, for consumers, a deal-breaker, especially when it comes to environmental consideration and image. This relationship is reinforced with the undiscussable role of Green Trust in the brand itself, probably explained by the fact that consumers were familiar with the brand. Finally, FSQCA reveals that despite Green Perceived Risk being insufficient on its own – probably due to a halo effect – it is a necessary part of the solution (Pappas & Woodside, 2021) meaning that when mitigated and in association with both Green Perceived Quality and Green Trust, consumers are more willing to achieve Green Brand Equity. As well as propose two different groups: Green Advocates and Quality-Seekers that suggest that Perceived Quality is or isn't important depending whether the Green Brand Equity is on a high or a low level, respectively.



## **Conclusion**

### Theoretical Contributions

This study provides some theoretical contributions, enhancing green marketing literature. By taking into account both Commitment-Trust Theory – that sustains that trust and commitment are fundamental for a successful relationship (Morgan & Hunt, 1994) – and Perceived Risk theory – explaining that risk is multidimensional, and can vary from one person to another (Dowling & Staelin, 1994) – we reaffirm the moderating role of Green Trust on the relationship between Green Perceived Quality and Green Brand Equity. This means that, consumers with higher Green Trust are more willing to accept the positive influence of Green Perceived Quality on brand equity, and the highlights de importance of building and maintaining consumers' trust along environmental practices.

The results show that Green Perceived Risk has not great importance or performance in Green Brand Equity, explained by the halo effect. A positive evaluation of the brand among consumers may eclipse any possible risks to the environment. This implies that in order to combat potential biases, a brand's environmental initiatives need to be communicated more clearly. Conversely, it offers both a better insight regarding the impact mechanisms of Green Perceived Quality on Green Brand Equity via Green Perceived Risk and Green Trust as well as important evidence towards a unified theory of brand equity (Ha et al., 2022). Finally, this study extended some of Chang & Chen (2014) knowledge into Portugal and also for an underexplored industry: fast fashion. Finally, according to Commitment-Trust theory and previous research Perceived Quality has a strong influence on Green Brand Equity (Chang & Chen, 2014; Morgan & Hunt, 1994). However, we challenged this relationship. Our findings suggest a segmentation of green consumers into Green Advocates and Quality-Seekers. Green Advocates prioritize environmental trust and perceived risk, while Quality-Seekers consider all three dimensions (perceived quality, trust, risk) of a brand's environmental performance.

### Managerial Implications



In addition to the theoretical contributions, this study also contributes in managerial ways.

First this study highlights that the focus on the perceptions of the consumers are fundamental in achieving brand equity, so companies should prioritize aspects that resonate with consumers, such as the environmental reliability and image of products. Invest in sustainable design, materials, and manufacturing processes to deliver products that meet these expectations. Second, recognize the divergence between Green Advocates and Quality-Seekers, by tailoring marketing messages to resonate with each group. Green Advocates might be convinced by emphasizing your environmental commitments and certifications. Quality-Seekers will respond positively to messaging that highlights both the environmental benefits and the superior quality of your products.

Firms may want to ensure that Green Trust is reinforced. Consumers are more receptive to a brand's perceived quality when they trust its environmental claims. Implementing transparent and verifiable sustainability practices and communicating these efforts clearly and authentically, and including strategies like an active search for green certifications and money back guarantees to build trust with your customer base. At the same time, while this study a potential halo effect, mitigating Green Perceived Risk should not be looked upon. Potential environmental concerns should be addressed proactively. As well as transparency about potential limitations and outline the efforts to minimize them. One way to this is by focusing on Sustainable Development Goals and ISO standards. Finally, just like the IPMA analysis suggests the reliability of the brand's products with respect to environmental consideration, image and reputation should be managers and marketers first priority. This will help optimize the efforts and maximize the impact on Green Brand Equity. By following these implications, managers can develop a comprehensive green marketing strategy that resonates with environmentally conscious consumers and fosters strong green brand equity.

## **Limitations and Future Research**

There are a few limitations in this study that guide us through the directions about future research. First, data were collected at a single point of time, and only by means of questionnaire survey. Future studies could use additional sources (such as employers, and managers) and go towards a longitudinal study to find out the differences of Green Perceived Quality, Green Trust, Green Perceived Risk, and green brand equity in the different stages. Second, this study has a great percentage of young Portuguese consumers. Future studies could deepen this work by focusing on other consumers in other countries and compare with this study. Additionally, the respondents identified a Fashion brand to consider in all constructs. Thus, as the results might differ depending on the industry the firm operates, future studies could pursue a comparison between industries. Besides that, considering the results, it might be important to deepen the knowledge of the importance of Green Perceived Quality. More specifically, understand why the influence of Perceived Quality on Brand Equity doesn't corroborate with previous research when it comes to green products. Finally, an exploration of a company's-based brand equity could make sense to extent the results to a more global approach. This work hopes to shed a light on future research as reference, as well as be helpful to managers, marketers, and policy makers.



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