

The effect of greenwashing on brand image and purchase intention in the fashion industry

Erasmus University Rotterdam

Master thesis

Business and Economics - Marketing



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Year: 2020-2021

Version: 1

Erasmus School of Economics

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1 Introduction

The global worth of the apparel industry is 406 billion dollars (16,5 billion in The Netherlands), which is 2% of the world's Gross Domestic Product (Niinimäki 2020) (Fashion 2020). The number of garments purchased per year has increased by 60% between 2000 and 2016 (Remy 2016). As Hazenberg describes in his book 'Zo redden we de wereld,' this extreme growth has a significant downside (Hazenberg 2021), as the apparel industry is one of the major polluters in the world. The industry is responsible for 10% of the worldwide carbon emissions, which is more than the aviation and shipping industries combined (Conca 2015) (Nijman 2019) (Hazenberg 2021). Only the oil industry is more polluting than the apparel industry (Queensland 2018).

Fast fashion plays a big part in the pollution problem that the apparel industry is facing. In analogy with fast food, fast fashion is described as cheaply produced and priced garments that are easily available and not designed to last long (Bick 2018). These garments copy the latest catwalk styles and get introduced quickly through (online) stores to capitalize on current fashion trends (Bick 2018) (Queensland 2018). Fast fashion is increasing the pollution problem of the industry because it increases the consumption of garments (Conca 2015) (Niinimäki 2020) (Hazenberg 2021). As mentioned above, the number of garments purchased by consumers increased by 60% in 2016 compared to 2000. Fast fashion is also becoming more available to middle- and low-income countries. Therefore, it is expected that the production of garments will continue to increase in the future (Remy 2016) (Bick 2018). Because of this growth, it is expected that the garment industry will remain a major source of pollution in the future (Remy 2016) (Bick 2018) (Niinimäki 2020).

According to KPMG, 60% of the people worldwide are willing to buy sustainable clothes if it comes at the same price as normal fashion (Kwok-pan 2019). KPMG also found that an increasing number of consumers are aware of the negative effects of the clothing industry and are looking for sustainable alternatives (Kwok-pan 2019). Research confirms this growth and predicts that the sustainable fashion market will grow by 10% annually from 6.35 billion in 2019 to 8.25 billion in 2023 (The Business Research Company 2020). The increased demand for sustainable products is not only a trend in the apparel industry. Companies that sell sustainable consumer goods grow faster than 90% of their conventional counterparts (Whelan 2019). Research has shown that consumers are sensitive towards green messaging by

companies. Green advertisements can have a positive effect on brand image and purchase intention (Nyilasy 2014) (Nagar 2015).

In addition to genuinely sustainable companies, some companies pretend to be sustainable. This phenomenon is called greenwashing, which is a form of brand misconduct. Greenwashing is the act of misleading consumers on the environmental practices of a company or the environmental benefits of a product or service (Delmas 2011). Some fast fashion companies are using greenwashing to improve their brand image and their potential consumers' purchase intention, without increasing their costs by changing to environment-friendly practices, which are often more expensive (Delmas 2011). One example is H&M, which was found guilty of greenwashing by the Norwegian Consumer Authority. H&M launched its 'conscious' collection in April 2019 with the claim that this collection was 100% sourced with organic cotton and recycled polyester. H&M was found guilty of not releasing enough information to verify this claim. In addition, claims that appeared in the campaign, such as "explore the healing power of nature," were too vague and therefore qualified as misleading to consumers by the Norwegian Consumer Authority (Hitti 2019) (Petter 2020).

Stories like this are often reported in the media. Negative publicity like this may backfire and the net effect of greenwashing on a company's brand image and the purchase intention may therefore be negative. Past research has examined the effects of greenwashing on brand image and purchase intention (Esch 2006) (Ankit 2013) (Nyilasy 2014) (Nagar 2015) (Özsoy 2016) (Schmuck 2018) (Akturan 2018). These studies show that when consumers are aware that advertisements are greenwashed, it has a negative effect on brand image and purchase intention. However, this requires awareness of greenwashing by consumers: when consumers are successfully misled, they pick up the advertisements as a normal green advertisement (Nagar 2015).

Most research about green messaging and greenwashing addressed either a business-to-business market or products that are primarily of practical use, like refrigerators and tissues. With these types of products, consumers make choices mainly based on quality (Mirabi 2015). When buying clothes, however, different factors are involved. For example, consumers use clothes to express themselves (Holman 1981). Also, consumers derive status from their clothes (Elliott 1994). Consumers also link their personal value to that of fashion brands (Holman 1981). Clothes, therefore, have a high symbolic value for people (Holman 1981) (Elliott 1994)

(Keller 2013). Because people link their personal values to fashion brands, other effects may occur when it comes to greenwashing. On the one hand, a stronger negative effect may occur, as companies with strong customer relationships are more sensitive to the negative effects of brand misconduct (Huber 2010). On the other hand, a less negative effect may occur when the customer finds out about the greenwashing. This could be because consumers attach more weight to other product features and therefore disregard the misconduct of the brand. Another reason for a less negative outcome might be that consumers do not value the green performance of companies operating in the fashion industry at all or that they are not aware of the polluting proportions of the industry. As a result, they may also not respond to misleading ads.

The goal of this thesis is to investigate what effect greenwashing has on the brand image and the purchase intention of companies operating in the fashion industry. To do so, this thesis first explains what greenwashing entails and why it can be defined as brand misconduct. Secondly, it lays out the factors that contribute to the brand image and purchase intention.

Then the relationships between the constructs are explained and hypotheses are formulated. To test the hypotheses, a moderated mediation model is used. In this model the greenwash perception is the moderator and brand image acts as a mediator. A survey was held to collect data to test the hypothesis. After the results are evaluated, recommendations and limitations are discussed.

The results show that a green message has a positive effect on brand image. In addition, it is found that brand image mediates the relationship between a green message and purchase intention. It is also found that the perception of greenwashing has a negative effect on this mediation. This study found no significant effect of a green message on purchase intention. It also found no significant effect of greenwash perception on the relationship between green message and purchase intention.

This research implies that greenwashing may work and that consumers do not judge companies for it. However, it is ethically questionable whether greenwashing can be used and deliberately misleading the consumer is punishable (Commission 2014). Managers should pay attention to whether employees are taking advantage of the benefits greenwashing offers. For policymakers, this research legitimates stricter enforcement of greenwashing in the fashion industry.

Further research can find out why consumers do not seem to heavily judge greenwashing in the apparel industry. And whether there is a shift in this judgement over time. It can also be investigated whether consumers are aware of the polluting proportions of the clothing industry.

2 Literature review

2.1 Green advertisement and greenwashing

Consumers care more about the environment than they did before, and their concerns are steadily increasing (Chen 2008) (Sanchez-Sabate 2019). Products that can be described as green or eco-friendly are more popular than ever before (Baum 2013) (Parguel 2015). Because of this trend, greenness has become an important component in marketing campaigns (Easterling 1996) (Commission 2014). Green advertisements are advertisements that include a product or a brand with positive environmental claims (Nagar 2015). Green advertisements can have several positive effects. Green advertisements can increase the purchase intention and can also strengthen the brand image of a company (Nagar 2015) (Schmuck 2018).

After it became clear that green advertisements have a positive effect on brand image and purchase intention, a new phenomenon called greenwashing emerged. Greenwashing is the act of misleading consumers on the environmental practices of a company or the environmental benefits of a product or service (Delmas 2011). Greenwashing and green advertisements reach the consumer in the same form, and therefore consumers may fail to distinguish them from one another (Schmuck 2018). A systematic literature study by de Freitas Netto (2020) explored the main concepts and typologies of greenwashing. The study identified four major types of greenwashing: product-level execution, product-level claim, firm-level execution, and firm-level claim. Product-level greenwashing refers to the benefits of a product while firm-level greenwashing refers to the benefits of the brand or company. Firm-level greenwashing is occurring more often because marketers try to establish a positive, general brand image towards the brand rather than towards a specific product. Claim greenwashing is a form of greenwashing where companies refer to an ecological benefit from their product or firm. Executional greenwashing does not use any type of claim, but it uses nature-evoking elements in its advertisements, such as footage of oceans and forests, sources of renewable energy and endangered animals, and nature-related sound effects. (de Freitas Netto 2020) .

In order to detect greenwashing, numerous studies have made use of a list called ‘The seven sins of greenwashing’ (Dahl 2010) (Delmas 2011) (Aji 2015). This list, made by TerraChoice, consists of seven criteria on the basis of which scientists and consumers can test claims made by companies (TerraChoice 2009). If a company meets any of the criteria, it is often guilty of greenwashing. The sins are based on the regulations made by the U.S. Federal Trade

Commission, Competition Bureau of Canada, Australian Competition & Consumer Commission, and the ISO 14021 standard for environmental labeling. TerraChoice researched all products making environmental claims from the category “leading retailers” in the United Kingdom, Canada, Australia, and the United States. In total 2219 products were examined, and they found that in no less than 98% of the cases at least one of the sins of greenwashing was committed.

The fact that a lot of companies make use of greenwashing has a negative effect on the trust in green products and green advertisements (Chang 2013) (Aji 2015). Another study found that greenwashing does not only erode consumer confidence but that it also creates skepticism on green products in general (Aji 2015). Consumer skepticism is related to a decrease in purchase intentions (Nguyen 2019). Nyilasy investigated the effects of firm-level claim greenwashing in the chemical industry and found that it has a negative influence on the brand attitude and repurchase intention.

Consumers may experience a greenwashed ad or green ad in different ways. A part of consumers, regardless of whether an ad is green or greenwashed, will experience it as green (Nyilasy 2014). Another part of consumers may be more skeptical and experience the ad as greenwashed. In addition, the green message in an ad may not come across, in which case the consumer will not experience the ad as green. The negative effect of greenwashing on purchase intention was only observed when the consumers perceived the greenwashing or were made aware of the greenwashing (Nyilasy 2014). Nyilasy also suggests that industry context matters since some industries are more vulnerable to environmental failure and consumer skepticism towards green advertisements. Nyilasy, therefore, suggests further research in different industries (Nyilasy 2014).

This research is not about greenwashing, but about to what extent the consumer experiences greenwashing and how this affects their opinions and choices. There are techniques to determine greenwashing objectively. For example, with TerraChoice’s list discussed above (2009). Determining whether an advertisement is greenwashed or not, however, is not the main objective of this research. As a consumer can experience a truly green advertisement as greenwashed and vice versa, this research rather emphasizes the perception of green/greenwashed ads by consumers.

To gain insight into the extent to which consumers experience greenwashing, it can be measured how skeptical they are towards the green ad (Nyilasy 2014) (Nagar 2015). After all, consumers may believe, not realize, or disbelieve the message of the ad. By observing how skeptical the consumer is towards the green ad, it will become clear to what extent they experience greenwashing. Someone who sees a green ad and is very skeptical will not believe the message, thus qualifying it as greenwashing in his or her eyes. One who is not skeptical of a green ad either does not realize that the ad contains green elements or believes the message of the ad (Nyilasy 2014). The measure of skepticism against a green ad is called the greenwash perception in this study.

2.2 Brand image and brand attitudes

According to Keller, brand equity can be defined in terms of the marketing effects uniquely attributable to the brand (Keller 1993). Brand equity can be viewed from both a financial and consumer-based perspective. From a financial point of view, brand equity is often used for acquisitions, accounting, or mergers. While from a customer-based perspective, brand equity is used to improve and measure marketing productivity (Keller 1993). Keller states that brand equity is made of brand awareness and brand image. Aaker takes a different approach towards brand equity and argues that brand equity creates value in five different ways. Within these five ways, brand image is the most important asset of this value creation (Aaker, 1992). Both researchers agree that brand image consists out of brand associations.

Dobni performed a meta-analysis of 28 studies on brand image. The goal of Dobni's research was to find the foundations of brand image and to define the brand image for future research. Dobni found that the definition and operationalization have been highly irregular and changed over time. One of the most used definitions of brand image is the perceptions of a brand that are reflected by the brand associations by its consumers' (Dobni 1990). This definition suggests that the brand image of a company is owned by the consumer. While this is partly true, companies can still influence the perception of the consumer with multiple activities, such as marketing (Aaker, 1992).

In the book *Strategic Brand Management*, written by Keller, it is argued that brand equity is established by brand image and brand awareness. Before a brand image can be created a threshold value of brand awareness needs to be established. Brand awareness is related to the

brand node in the memory of the consumer and is a combination of brand recall and brand recognition (Keller 2013). Brand recall relates to the ability to memorize a brand in a product category. Brand recognition relates to the ability of a consumer to recognize a certain brand, for example in a convince store. In order for a consumer to create a brand image, it needs to be able to recall and recognize a brand (Keller 2013). The brand image consists out of associations that a consumer holds towards a brand (Aaker, 1992) (Keller 2013). These associations can be either positive or negative and take on different forms. In Keller's book, he suggests that there are three kinds of brand associations: brand attributes, brand benefits, and brand attitudes.

Brand attributes can be either product-related or non-product-related. Product-related attributes can be described as the 'ingredients' of a product. It consists out of the physical components of the product. Non-product-related attributes can be either price information, packaging appearance, user imagery (type of consumer), or usage imagery (when and how the product is used).

Brand benefits relate to the personal value that a brand creates for the consumer and can be categorized based on their motivation. There are three categories: functional benefits, experiential benefits, and symbolic benefits (Park 1986). Functional benefits usually correspond with product-related attributes and focus mostly on the intrinsic advantages of a product. Experiential benefits relate to the experience of using a product. In this category, product-related attributes are commonly used. Symbolic benefits are commonly non-product related and focus more on the extrinsic advantages of a product, such as prestige, status, and exclusivity (Keller 1993).

Brand attitude covers the feelings and thoughts a consumer has about a brand. These thoughts and feelings can be product-related, such as perceived quality. But they can also be non-product related, such as the experiential and symbolic benefits of a brand. Keller describes that the brand attitude can be defined as the overall evaluation of a brand. And that brand attitude plays a major role in the formation of brand image (Keller 1993).

To measure brand image, it is not important what kind of associations a consumer has about a brand or how they are established. It is more important to measure the strength, favorability, and uniqueness of these associations (Keller 2013). To have a positive brand image the brand associations need to be strong, favorable, and unique. The reason why brand associations must

be strong is that a consumer must be able to associate the brand attributes, benefits, and attitudes with the brand in the brand product category (Keller 2013). Brand associations also need to be favorable because if consumers have strong negative brand associations it does not contribute to a good overall brand image. To create favorable brand associations, marketers need to convince the consumer that their brand has brand attributes and benefits that fulfill their needs (Keller 2013). Finally, brand associations also need to be unique so the consumer can link specific benefits and other positive values to a brand. Unique associations make it easier for the consumer to remember and recall a brand and to distinguish it from competing brands (Keller 2013).

Keller suggests that a positive brand image is created by marketing campaigns that establish strong, favorable, and unique brand associations. To create brand associations a company can, use marketing and control its own information. However, brand associations are also established in other ways, such as by direct consumer experience, word of mouth, and sources that communicate information about a brand (reviews, magazines) (Keller 2013).

2.3 Purchase Intention

Many researchers do not define the term purchase intention because it is self-explanatory. It is, however, interesting how the purchase intention is influenced. According to the Theory of Planned Behavior by Ajzen, behavioral intentions form the most important predictor of actual behavior (Ajzen 1991). It is therefore logical that the purchase intention has been an important marketing tool to predict purchasing behavior (Morwitz, 1992) (Morwitz, 2007). The purchase intention can be used to predict sales of new and existing products and therefore is often used by marketing managers (Tsiotsou 2006).

The purchase intention is influenced by the perceptual and cognitive factors of the consumer (Aaker, 1992). The most used model to analyze these factors is Keller's brand equity model (Keller 1993) (Esch 2006). Keller's brand equity model consists out of brand awareness and brand image. Since brand awareness refers to the ability of the consumer to recall and recognize a brand it has less influence on the purchase intention than brand image. This does not mean that brand awareness is unimportant. In fact, to be able to link associations to a brand, consumers must be able to recognize the brand (Keller 1993). But once a consumer is able to

recognize a brand, the strength, uniqueness, and favorability of the associations the consumer has, are of greater influence on purchase intention (Keller 1993) (Esch 2006).

3 Hypotheses

This section will elaborate on how the constructs discussed in section 2 relate to each other. Researchers have investigated which mechanisms explain the relation between perceived green message and purchase intention. Both brand image and purchase intention are influenced by the perceived green message (Esch 2006) (Nagar 2015) (Schmuck 2018). It was found that purchase intention is influenced by the brand image (Nagar 2015). Therefore, it is hypothesized that brand image is a mediator of the relation between perceived green message and purchase intention. Furthermore, it is hypothesized that the greenwash perception moderates the relations between perceived green message and brand image and between perceived green message and purchase intention.

3.1 Perception of greenwashing and purchase intention

Research found that there is a positive relation between green advertisements and the brand image (Nagar 2015). In addition, researchers have also found a positive relation between green advertisements and the purchase intention (Esch 2006) (Ankit 2013) (Nyilasy 2014). This is due to the fact that green advertisements have a positive effect on brand attitudes (Nyilasy 2014). Positive brand attitudes result in a higher purchase intention (Esch 2006) and therefore the following hypothesis is formulated:

Hypothesis 1: A perceived green message has a positive effect on the purchase intention.

3.2 Green messages, perception of greenwashing, and brand image

Research performed by Özsoy and Schmuck showed that when consumers do not perceive greenwashing, greenwashed advertisements can have the same effect as green advertisements (Özsoy 2016) (Schmuck 2018). Green advertisements and greenwashed advertisements appear in the same way. The only difference is that the green claim shown is true in the green advertisement and false in greenwashed advertisements (Schmuck 2018).

Since consumers differentiate products and services based on tangible and symbolic attributes of a brand, successful marketing casts strong impressions when a brand image is constructed. Green advertisements, different from conventional advertisements, lead to differentiated strong, unique, and favorable associations (Nagar 2015). As Keller described, consumers who link

strong, unique, and favorable associations to a brand will have a more positive attitude towards the brand image (Keller 2013).

The goal of being environmentally friendly or environmentally conscious as a company can be described as Corporate Social Responsibility (Huber, 2010). A company that has a clear Corporate Social Responsibility strategy does well to make this voluntary contribution to society known through marketing. Otherwise, it may elude the consumer and the financial benefits that arise from Corporate Social Responsibility will be limited (Huber, 2010) (Keller 2013). Making the consumer aware of Corporate Social Responsibility efforts by a company has been described as Corporate Social Marketing (Hoeffler 2002). Green advertisements are a subcategory of Corporate Social Marketing.

Hoeffler found that Corporate Social Marketing has positive effects on the brand image. He found that Corporate Social Marketing changes the characteristics of a brand and the brand meaning held in the mind of the consumer. Consumers can associate their personal values with a brand and therefore Corporate Social Marketing often creates strong, unique, and favorable associations (Hoeffler 2002). Mohr found that Corporate Social Marketing has a positive effect on the evaluation of a brand. It changes the thoughts and feelings about a brand in a positive way. Specifically, in the case of green advertisements, this effect was stronger if consumers described themselves as environmentally conscious (Mohr 2005). The findings of Hoeffler and Mohr suggest that consumers who are exposed to green advertisements form positive feelings and thoughts about a brand. These perceptions, held in the mind of the consumer, form the brand image (Keller 2013). So, if the consumer has a low perception of greenwashing, the same positive effects as green advertisements occur (Schmuck 2018). Hence it is hypothesized that:

Hypothesis 2: A perceived green message has a positive effect on the brand image.

Brand image is a set of associations that the consumer holds in their mind towards a specific brand (Keller 2013). A positive brand image contains strong, favorable, and unique associations with a brand. There are three kinds of associations that a consumer can have with a brand. These are brand attitudes, brand benefits, and brand attributes (Keller 2013). Multiple previous studies have shown that brand image has a direct influence on the purchase intention (Esch 2006) (Wang 2010) (Razy 2015). Esch found that a positive brand image increases the purchase

intention (Esch 2006). Wang built on these findings and found that a negative brand image leads to a decrease in purchase intention (Wang 2010).

If consumers do not perceive the misleading nature of a greenwashed advertisement, consumers will perceive these advertisements as regular green advertisements. Research has shown that green advertisements have many positive effects on the brand image of a company (Hoeffler 2002) (Mohr 2005) (Van de Ven 2008) (Nagar 2015). Therefore, it is hypothesized that:

Hypothesis 3: A positive brand image has a positive effect on the purchase intention.

When the consumer perceives greenwashing, many negative effects can occur (Huber, 2010). One of the main effects of perceived greenwashing is a negative influence on brand attitudes and the brand perceptions (Nyilasy 2014) (Szabo 2020). Because brand attitudes and brand perceptions form an important part of brand image, it is not surprising that Akturan found a negative effect of perceived greenwashing on brand image (Keller 1993) (Akturan 2018). Wang found that a negative brand image leads to a decreased purchase intention (Wang 2010). Therefore, it is hypothesized that:

Hypothesis 4: The effect of a perceived green message on the purchase intention is mediated by the brand image.

3.3 Relation perception of greenwashing and purchase intention

-Nyilasy and Nagar's studies examine the extent to which consumers experience greenwashing. They do this by measuring how skeptically the consumer reacts to a green ad (Nyilasy 2014) (Nagar 2015). Nyilasy found that the more skeptical the consumer, the more they react negatively to a green ad. This means that the attitude towards the brand shown in the advertisements becomes negative and this may also influence the purchase intention in a negative way (Nyilasy 2014) (Szabo 2020). Therefore, it is hypothesized that:

Hypothesis 5: The perception of greenwashing has a negative effect on the relation between perceived green message and the purchase intention.

3.4 Relation Greenwashing and brand image and perception of greenwashing

In section 2.1 the positive effects of a low greenwash perception and green advertisements are discussed. In short, it is expected to find a positive effect on the brand image if the consumer does not perceive greenwashing.

Since consumers can have a low or high perception of greenwashing and because this perception is of great influence on the brand image, the effects of perceived greenwashing will be addressed. A study performed in the e-commerce industry showed that when consumers have a high perception of greenwashing the brand attitudes and purchase intention decrease (Szabo 2020). Szabo considers greenwashing as a form of deceptive advertisements and therefore the effects of greenwashed advertisements are the same as for deceptive advertisements in general (Szabo 2020). Deceptive advertisement is defined as misleading consumers by deceit or lying (Attas 1999). Deceptive advertisements lead to lower brand attitudes, these attitudes have a great influence on the brand image since they are part of the foundation of brand image (Goldsmith 2000) (Keller 2013).

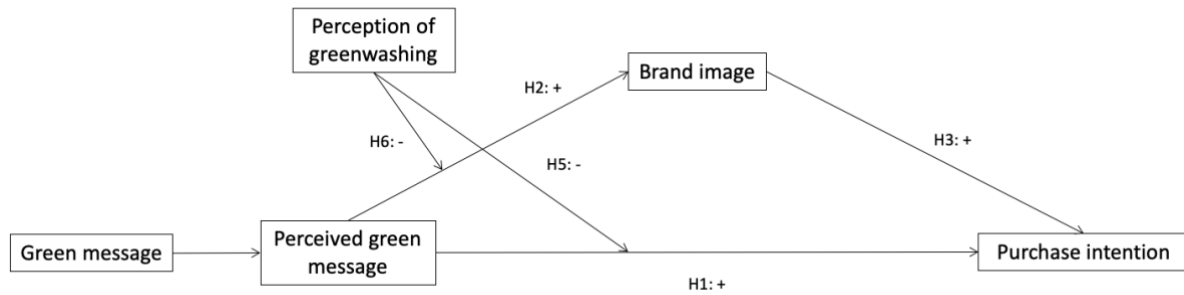
Nyilasy found similar results when he studied the effects on purchase intention and brand image when consumers perceive greenwashing (Nyilasy 2014). Akturan investigated how greenwashing affects brand image. He found that when consumers have a high perception of greenwashing, a negative effect on brand image occurs (Akturan 2018). When consumers have a high perception of greenwashing, it has a negative effect on brand image (Goldsmith 2000) (Nyilasy 2014) (Szabo 2020). Akturan's research confirms this by proving that greenwashing has a negative effect on brand image (Akturan 2018). Therefore, we hypothesize that:

Hypothesis 6: The perception of greenwashing has a negative effect on the relation between a perceived green message and the brand image.

4 Conceptual model

Based on the literature review and hypotheses the following conceptual model is constructed (figure 1).

Figure 1. The conceptual model and the hypotheses



This model consists of an independent variables, a dependent variables, a mediator and a moderator. First, it starts with a green advertisement, then it examines the extent to which consumers perceive this advertisement as green. This variable is called Perceived green message in this model, and is the independent variable. The Purchase intention is the depend variable. It is expected that the relationship between Perceived green message and Purchase intention is mediated by Brand image. In addition, the Perception of greenwashing is expected to have a negative effect on these relationships, therefore this variable is qualified as a moderator. Combining these different relations together, this means this model is a moderated mediation model.

Hypothesis 1: A perceived green message has a positive effect on the purchase intention.

Hypothesis 2: A perceived green message has a positive effect on the brand image.

Hypothesis 3: A positive brand image has a positive effect on the purchase intention.

Hypothesis 4: The effect of a perceived green message on the purchase intention is mediated by the brand image.

Hypothesis 5: The perception of greenwashing has a negative effect on the relation between perceived green message and the purchase intention.

Hypothesis 6: The perception of greenwashing has a negative effect on the relation between a perceived green message and the brand image.

5 Methodology

5.1 Research Method and Data Collection

The purpose of this study is to investigate if the perception of greenwashing affects the brand image and the purchase intention. Based on prior studies, hypotheses were formulated, and a conceptual model was designed. It is a conclusive and quantitative study that tests specific hypotheses and measures relationships (Malhotra 2017).

To test the hypotheses, primary data has been collected with an online survey that was spread through social media and respondents. An online survey has multiple advantages. Firstly, online surveys are inexpensive and do not require long interviews. Secondly, they also limit interviewer bias which increases the reliability of the given answers. Lastly, online surveys are an effective way to collect data in a short period of time (Malhotra 2017). An online survey also has disadvantages, such as a low response rate or insufficient data because the wrong questions were asked (Malhotra 2017). To reduce the risk of insufficient data, a pre-test was implemented before the final survey was conducted.

5.2 Empirical context

This research focuses on greenwashing in the fashion industry. First, it has been investigated to what extent consumers experience/perceive greenwashing. This was done by measuring the 'perception of greenwashing' by the consumer. Subsequently, it was investigated how this perception affects the brand image and purchase intention.

Greenwashed advertisements can differ in the degree to which they mislead the consumer (TerraChoice 2009). This is because an advertisement can mislead the consumer in different ways. For example, by holding back information, but also by vaguely formulating the claim. To distinguish the degree to which an advertisement is greenwashed, TerraChoice's method of "Seven Sins of Greenwashing" has been used. This method tests green claims on seven different points which are briefly outlined below.

1. **Sin or Hidden Trade-off:** committed by suggesting that a product is 'green' based on an unreasonably narrow set of attributes without attention to other important environmental issues.

2. **Sin of No Proof:** an environmental claim that cannot be substantiated by easily accessible supporting information or by a reliable third-party certification.
3. **Sin of Vagueness:** every claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer.
4. **Sin of Irrelevance:** making an environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products.
5. **Sin of Lesser of Two Evils:** claims that may be true within the product category, but that risk distracting the consumer from the greater environmental impacts of the category.
6. **Sin of Fibbing:** making environmental claims that are simply false.
7. **Sin of Worshiping False Labels:** a product that, through either words or images, gives the impression of third-party endorsement where no such endorsement actually exists.

An investigation of existing literature did not turn up a clear definition of various degrees of greenwashing. Therefore, four degrees of greenwashing were constructed specifically for this study. The boundaries of these categories were based on a division within the seven sins. While making these categories, the assumption was made that each sin has an equal impact on the perception. However, the impact of these sins is not simply additive: this means that committing twice as many sins, does not double the impact. Rather, it is expected that when the degree of information raises, the perception of greenwashing will increase. This is because it should become clearer to the consumer that the information is misleading.

The four categories of greenwashing are as follows:

- **Not greenwashed:** the advertisement contains no false claims.
- **Slightly greenwashed:** the advertisements contain a minimum of one and a maximum of two green claims-
- **Moderately greenwashed:** the advertisements contain three green claims.
- **Severely greenwashed:** the advertisement contains four, five, six, or seven green claims.

5.2.1 Survey design

For this survey, an ad was developed that strongly resembles that of H&M's conscious collection. With this collection, which has been accused and found guilty of greenwashing several times (Hitti 2019) (Liukku 2021), H&M is trying to build a more sustainable collection. To make the ad seem as real as possible, it was based on other "real" ads from the conscious collection. The same type of font was used, the sentences were the same length, and the ad had a background evoking "nature".

There are three reasons why an ad with the H&M brand in it was chosen. First, H&M is one of the biggest players in the fast fashion industry (Reports 2021). Second, H&M enjoys great name recognition in Europe. Therefore, people are more likely to have associations with this brand. Third, H&M features a campaign that has been found guilty of greenwashing.

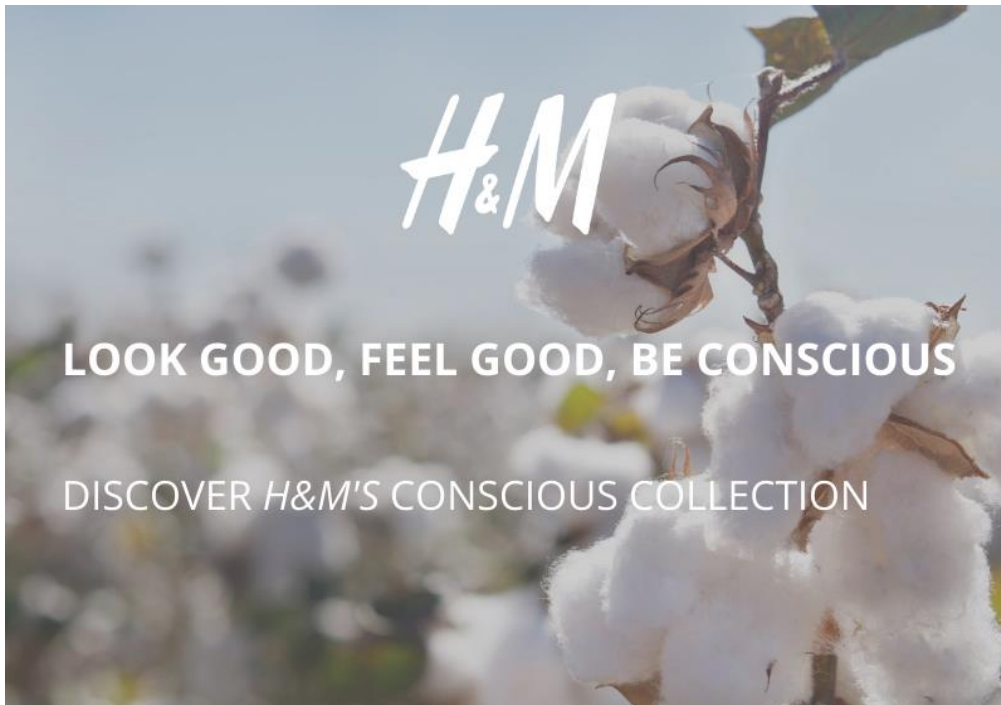
Each advertisement is the same in appearance but the text/claim in the ad is different. In advertisement 1, no sin has been committed (not greenwashed). In advertisement 2, a single sin has been committed (slightly greenwashed). In advertisement 3, three sins have been committed (moderately greenwashed). And in advertisement 4, five sins have been committed (severely greenwashed).

To avoid bias, each participant has only reviewed one advertisement. Thus, this study employed a between-subject design. To investigate the effect of different levels of greenwashed claims, one advertisement with three different claims has been used.

The ads are shown below:

5.2.2 Ad 1 – Not greenwashed

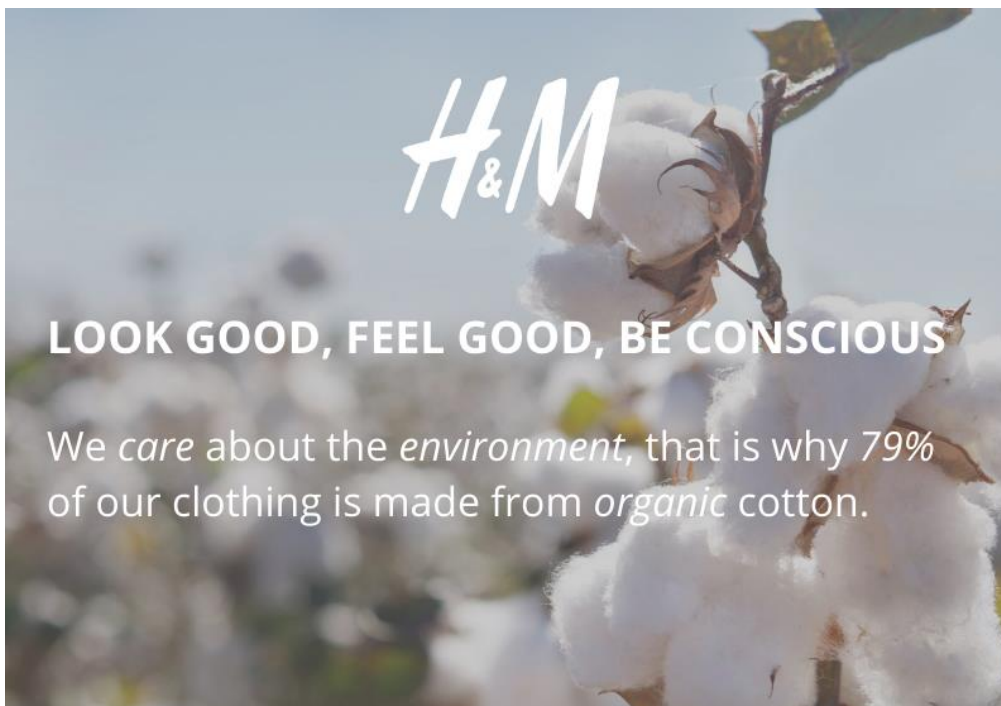
Figure 2. Ad 1 does not contain any green claim



Claim: No claim

5.2.3 Ad 2 - Slightly greenwashed

Figure 3. Ad 2 contains a green claim

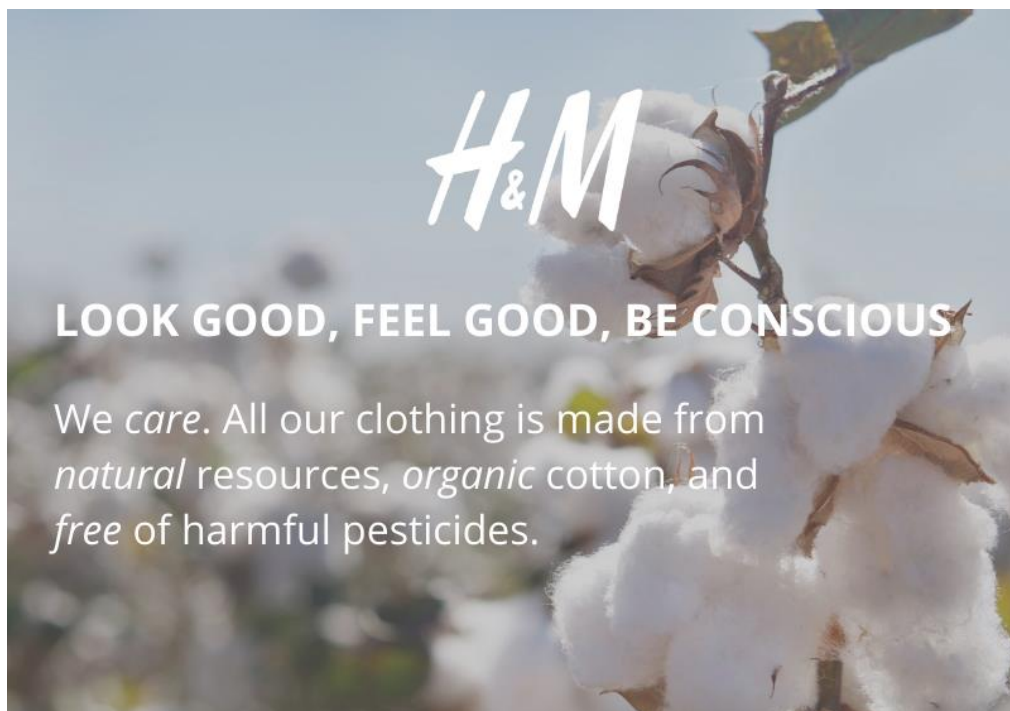


Claim: We care about the environment, that is why 79% of our clothing is made from organic cotton.

- **Hidden trade-off:** this is a hidden trade-off because using organic cotton is not environmentally preferable just because it is organic. Organic cotton still has a large impact on the environment. In addition, the process of making clothes with organic cotton is still just as polluting as conventional cotton (Adanacioglu 2012).

5.2.4 Ad 3 - Moderately greenwashed

Figure 4. Ad 3 contains three green claims

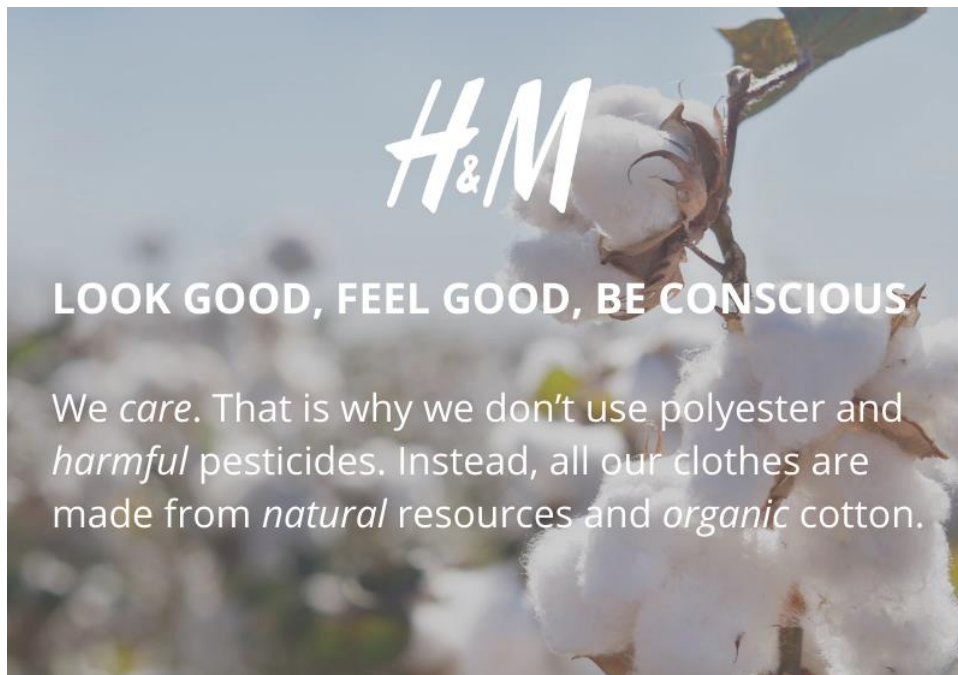


Claim: We care. All our clothing is made from natural resources, organic cotton, and free of harmful pesticides.

- **Hidden trade-off:** this is a hidden trade-off because using organic cotton is not environmentally preferable just because it is organic. Organic cotton still has a large impact on the environment. In addition, the process of making clothes with organic cotton is still just as polluting as conventional cotton (Adanacioglu 2012).
- **Sin of Vagueness:** using natural resources does not mean it is good for the environment. Co2 gasses are also natural just like Uranium, Arsenic, and Mercury.
- **Sin of Irrelevance:** it is forbidden by law to use harmful pesticides in clothing. This claim is irrelevant because everyone must obey the law (Environment 2021).

5.2.5 Ad 4 - Severely greenwashed

Figure 5. Ad 4 contains five green claims



Claim: We care. That is why we don't use polyester and harmful pesticides. Instead, all our clothes are made from natural resources and organic cotton.

- **Hidden trade-off:** this is a hidden trade-off because using organic cotton is not environmentally preferable just because it is organic. Organic cotton still has a large impact on the environment. In addition, the process of making clothes with organic cotton is still just as polluting as conventional cotton (Adanacioglu 2012).
- **Sin of Vagueness:** Using natural resources does not mean it is good for the environment. Co2 gasses are also natural just like Uranium, Arsenic, and Mercury.
- **Sin of Irrelevance:** it is forbidden by law to use harmful pesticides in clothing. This makes it irrelevant because they are just obeying the law instead of doing something for nature (Environment 2021).
- **Sin of Lesser of Two Evils:** Making use of organic cotton instead of polyester is still more polluting than using no cotton. And making clothes with organic cotton does not mean it is better for the environment.

5.3 Measures

5.3.1 Perception of greenwashing

Greenwashing is defined as the act of misleading consumers on the environmental practices of a company or the environmental benefits of a product or service (Parguel 2015). To measure the greenwash perception this research project uses the five items questionnaire developed by Chen and Chang (2013). This questionnaire measures the consumers' perception of greenwashing and is often used to measure consumers skepticism on green advertisements.

In general, Cronbach's alpha is considered high enough if it is at least 0.7 or higher (Hair 2009). In the study performed by Chen and Chang a Cronbach's alpha coefficient of 0.862 was found (2013). Another study by Szabo found a Cronbach's alpha coefficient of 0.76 (2020). Chen and Chang (2013) use a five-point Likert scale with a 1 to 5 rating, from strong disagreement to strong agreement, to ask for the consumer's response to the following 5 statements:

1. This product or brand misleads with words on its environmental features
2. This product or brand misleads with visuals or graphics in its environmental features
3. This product or brand possesses a green claim that is vague or seemingly un-provable
4. This product or brand overstates or exaggerates how green its functionality actually is
5. This product or brand leaves out or masks important information, making the green claim sound better than it is.

5.3.2 Brand image

Plumeyer (2019) developed a roadmap to find the correct way to measure brand image. Because this study uses a questionnaire, it uses a predefined set of associations. This study further aims to investigate how strong these associations are. Therefore, the roadmap suggests a Likert scale to measure brand image (Plumeyer 2019).

To measure brand image, the General Brand Image questionnaire of Aaker was used (1996). In a study performed by Martinez, a Cronbach's coefficient of 0.84 was found (2004). Some of the items are slightly modified to fit the context of the survey. This questionnaire consists of six items that are answered with a 7-point Likert scale, with 1 being strongly disagreed and 7 strongly agreeing. The six items are:

1. This brand provides good value for money.
2. There is a reason to buy the brand instead of others.
3. This ad is made by an organization I would trust.
4. The brand is interesting.
5. I have a clear impression of the type of people who consume the brand.
6. This brand is different from competing brands.

5.3.3 Purchase intention

This research project uses purchase intention as a dependent variable. A common questionnaire to measure purchase intention is the one developed by Lu, Chang, and Chang (2014). These researchers found a Cronbach's alfa coefficient of 0.914, which means that the scale is highly reliable. This measure consists of four items that are answered on a 7-point Likert scale, with 1 being strongly disagreed and 7 strongly agreeing. The four items are:

1. I would consider buying this product.
2. It is possible that I would buy this product.
3. I will purchase (brand) the next time I need a (product).
4. If I am in need, I would buy this (product).

5.3.4 Demographics

To get more information about the respondents, some general demographic questions were also included in the survey. The demographic questions are:

1. Nationality (Dutch, Other country in Europe, Other country outside Europe)
2. Age (Under 18, 18-24, 25-34, 35-44, 45-54, 55-64, above 65)
3. Education level (High School, MBO, HBO, University Bachelor, University Master, PhD)
4. Gender (Male, female, non-binary, prefer not to say)

5.3.5 Perceived green message

Finally, this survey measured whether the participant perceived the ad as green, regardless of whether it was greenwashed. Participants were asked to what extent they feel there are clearly green elements in the ad. This was done by adopting two two-item questionnaires from Ekebas-

Turedi (2021) and Nyilasy (2014)). Subjects are asked to rate their level of agreement on a 7-point Likert scale, with 1 being strongly disagreed and 7 strongly agree. Some statements were slightly changed to fit the context of the study. Besides serving as an independent variable, these questions can also be used as a manipulation check to see whether the perception of greenwashing by the respondents corresponded with the actual amount of greenwashing.

1. This brand focuses on protecting the environment
2. This advertisement presents a clear green message
3. The ad suggests that H&M is an innovative company
4. The ad suggests that H&M is an environmentally friendly company.

6 Results

6.1 Respondents

In total 176 respondents were taken into the analyses. They completed the whole survey and were familiar with the brand H&M. The moderated mediation model consists of multiple regressions. A general rule of thumb stated by Fields claims that an adequate population for multiple regression analyses is at least 30 observations per variable (2017). In this study, four variables are used. This means that a population size is adequate.

6.2 Descriptive statistics

Most of the respondents were male with a total of 116. The average respondent was 29 years old with a standard deviation of 12.76. Most respondents indicated that they had higher education. This group consisted out of 126 respondents which are 72.2% of the total population. Most of the respondents indicated that they completed or followed higher education (72.2%). 80 respondents indicated that they had completed a master's degree at university, making them the largest group in terms of education level. Most respondents indicated that they have a Dutch nationality (94.9%). Table 1 to 4 shows the demographic information of the respondents.

Table 1. descriptive statistics gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	116	65.9	65.9	65.9
	Female	59	33.5	33.5	99.4
	Non-binary/third gender	1	.6	.6	100.0
	Total	176	100.0	100.0	

Table 2. descriptive statistics education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	8	4.5	4.5	4.5
	MBO	5	2.8	2.8	7.4
	HBO	36	20.5	20.5	27.8
	University bachelor	46	26.1	26.1	54.0
	University master	80	45.5	45.5	99.4
	PhD	1	.6	.6	100.0
	Total	176	100.0	100.0	

Table 3. descriptive statistics nationality

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dutch	167	94.9	94.9	94.9
	Other country in Europe	8	4.5	4.5	99.4
	Other country outside Europe	1	.6	.6	100.0
	Total	176	100.0	100.0	

Table 4. descriptive statistics age

N	Valid	176
	Missing	0
Mean		2.91080
Median		2.40000
Std. Deviation		12.76445
Range		54.00
Minimum		16.00
Maximum		70.00

6.3 Factor analysis

To construct the measures of interest to this study, a series of parallel factor analyses was performed for every questionnaire. The new scales were then subjected to a reliability test to examine validity. A principal component analysis (PCA) was used for the variable's perception of greenwashing, brand image, and purchase intention. To test if there was an adequate sample size a Kaiser-Meyer-Olkin (KMO) test of sampling adequacy has been used. A minimum value of 0.5 was needed to have an adequate sample size (Fields 2017). To test the reliability of the scales, Cronbach's alpha was computed. If Cronbach's alpha was at least 0.7, the scale was regarded as reliable (Fields 2017).

6.3.1 Perceived green message

For perceived green message, the factor analysis (PCA with varimax rotation) on the four items described in the methodology section found that one component had an eigenvalue higher than 1. All four items are loaded on this component (table 6). The total variance explained by this component was 54.62% (table 5). As shown in table 7, a KMO value of 0.71 was found. This means that the sample size was adequate for the analysis. A reliability test was executed to validate the scale. A Cronbach's alpha coefficient of 0.718 was found (Table 8). This means that the scale was valid. The mean scale was 4.76 with a standard deviation of 1.03 (table 9).

Table 5. Total variance explained by the components

Component	Initial Eigenvalues		
	Total	% Of Variance	Cumulative %
1	2.185	54.617	54.617
2	.743	18.570	73.188
3	.637	15.923	89.111
4	.436	10.889	100.000

Table 6. Component matrix perceived green message

Component Matrix	Factor loadings
This brand focuses on protecting the environment	.667
This advertisement presents a clear green message	.780
The advertisement suggests that H&M is an innovative company	.712
The ad suggests that H&M is an environmentally friendly company	.791

Table 7. Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.710
Bartlett's Test of Sphericity	Approx. Chi-Square	137.927
	Df	6
	Sig.	.000

Table 8. Cronbach's alpha on green message scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.718	.721	4

Table 9. descriptive statistics perceived green message scale

Green Message		
N	Valid	176
	Missing	0
Mean		4.7628
Median		4.7500
Std. Deviation		1.03104
Range		5.00
Minimum		2.00
Maximum		7.00

6.3.2 Brand Image

The factor analysis (PCA with varimax rotation) on the six measures, that are described in the methodology, found that one component had an eigenvalue higher than 1. All six items are loaded on this component (table 11). The total variance explained by this component was 47.87% (table 10). As shown in table 12, a KMO value of 0.81 was found. This means that the sample size is adequate for the factor analysis. A reliability test was executed to validate the scale. A Cronbach's alfa coefficient of 0.77 was found (Table 13). This means that the scale is valid because a value above 0.7 is considered reliable (Fields 2017). The mean scale is 4.30 with a standard deviation of 1.01 (table 14).

Table 10. Total variance explained by the components

Component	Initial Eigenvalues		
	Total	% Of Variance	Cumulative %
1	2.872	47.866	47.866
2	.954	15.900	63.765
3	.709	11.824	75.589
4	.596	9.929	85.518
5	.458	7.639	93.156
6	.411	6.844	100.000

Table 11. Component matrix Brand Image

Component Matrix	Factor loadings
This brand provides good value for money	.617
There is a reason to buy the brand instead of others	.755
This ad is made by a brand I would trust	.731
This brand is interesting	.776
I have a clear impression of the type of people who consume this brand	.430
This brand is different from competing brands	.775

Table 12. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.807
Bartlett's Test of Sphericity	Approx. Chi-Square	262.329
	Df	15
	Sig.	.000

Table 13. Cronbach's alpha coefficient Brand Image

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.770	.772	6

Table 14. Descriptive statistics Brand Image scale

Brand Image		
N	Valid	176
	Missing	0
Mean		4.2964
Median		4.3333
Std. Deviation		1.01437
Range		5.33
Minimum		1.67
Maximum		7.00

6.3.3 Purchase intention

The factor analysis (PCA with varimax rotation) on the four measures, that are described in the methodology, found that one component had an eigenvalue higher than 1. All four items load on this component (table 16). The total variance explained by this component is 78.69% (table 15). As shown in table 17, a KMO value of 0.75 was found. This means that the sample size is adequate for the factor analysis. A reliability test was executed to validate the scale. A Cronbach's alfa coefficient of 0.91 was found (table 18). This means that the scale is valid because a value above 0.7 is considered reliable (Fields 2017). The mean scale is 4.18 with a standard deviation of 1.42 (table 19).

Table 15. Total variance explained by the components

Component	Initial Eigenvalues		
	Total	% Of Variance	Cumulative %
1	3.148	78.688	78.688
2	.534	13.353	92.042
3	.196	4.904	96.945
4	.122	3.055	100.000

Table 16. Component matrix Purchase Intention

Component Matrix	Component
	1
I would consider buying this brand	.914
It is possible that I would buy this brand	.883
I will purchase H&M the next time I need clothes	.866
If I am in need for clothes, I would buy this brand	.885

Table 17. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.746
Bartlett's Test of Sphericity	Approx. Chi-Square	555.057
	df	6
	Sig.	.000

Table 18. Cronbach's alpha coefficient Purchase Intention

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.909	.910	4

Table 19. descriptive statistics Purchase Intention scale

Purchase Intention		
N	Valid	176
	Missing	0
Mean		4.1776
Median		4.5000
Std. Deviation		1.42431
Range		6.00
Minimum		1.00
Maximum		7.00

6.3.4 Greenwashing perception

The factor analysis (PCA with varimax rotation) on the five measures, that are described in the methodology, found that one component had an eigenvalue higher than 1. All five items load on this component (table 21). The total variance explained by this component is 70.32% (table 20). As shown in table 22, a KMO value of 0.84 was found. This means that the sample size is adequate for the factor analysis. A reliability test was executed to validate the scale. A Cronbach's alfa coefficient of 0.89 was found (table 23). This means that the scale is valid because a value above 0.7 is considered reliable (Fields 2017). The mean scale is 3.39 with a standard deviation of 0.86 (table 24).

Table 20. Total variance explained by the components

Component	Eigenvalues		
	Total	% Of Variance	Cumulative %
1	3.516	70.316	70.316
2	.623	12.454	82.770
3	.359	7.184	89.954
4	.276	5.513	95.467
5	.227	4.533	100.000

Table 21. Component matrix Perception of Greenwashing

Item	Factor loadings
This product or brand misleads with words on its environmental features	.830
This product or brand misleads with visuals or graphics in its environmental features	.826
This product or brand possesses a green claim that is vague or seemingly un-provable	.794
This product or brand overstates or exaggerates how green its functionality actually is,	.884
This product or brand leaves out or masks important information, making the green claim sound better than it is.	.856

Table 22. Kaiser-Meyer-Olkin Measure of Sampling Adequacy

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	519.795
	df	10
	Sig.	.000

Table 23. Cronbach's alpha coefficient Perception of Greenwashing

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.894	.894	5

Table 24. descriptive statistics Perception of Greenwashing scale

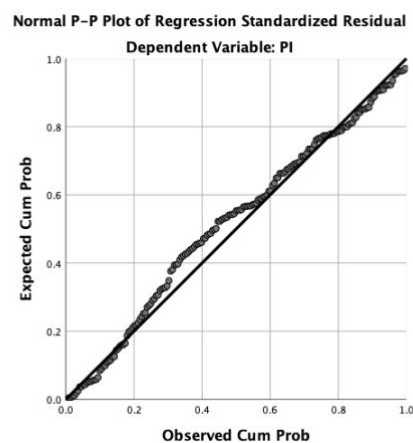
Perception of Greenwashing		
N	Valid	176
	Missing	0
Mean		3.3875
Median		3.6000
Std. Deviation		.86326
Range		4.00
Minimum		1.00
Maximum		5.00

6.4 Statistical analysis

First, it is important to check whether the respondent perceived the ad as green. After all, the positive effects of a green ad will only occur if the consumer perceives it (Nagar 2015) (Nyilasy 2014). After examining whether consumers perceive the ad as green, the effects of Perceived Green Message, on Brand Image and Purchase Intention were examined through mediation analysis. First, the direct effect of Perceived Green Message on Purchase Intention, that is, the effect that remains after controlling for Brand Image. This analysis also shows the effect of Perceived Green Message on Brand Image and the effect of Brand Image on Purchase Intention, which together constitute the indirect effect of Perceived Green Message on Purchase Intention. If a consumer realizes that an advertisement is misleading (greenwashed), this can have a negative effect on Brand Image and Purchase Intention (Nyilasy 2014). Therefore, the effect of the Perception of Greenwashing on these two variables was investigated. This thesis uses a confidence interval of 95%.

For the statistical analysis, a moderated mediation model is used. This model makes it possible to test all the hypotheses from section 4.1. To analyze the data the PROCESS Macro of F. Hayes is used. For the analysis model 8 is used, which is a moderated mediation model. This model makes it possible to test all the hypotheses. The PROCESS Macro makes use of regression models and therefore makes certain assumptions. To meet the assumption of normality, bootstrapping is used. To ensure homoscedasticity, a heteroscedasticity consistent standard error is used. In the plot below, linearity is tested.

Figure 6. test for linearity



In this model, the Perceived Green Message is the independent variable and is measured on a continuous scale. Perception of Greenwashing is the moderating variable which is also measured on a continuous scale. Brand Image is a mediating variable measured on a continuous scale. And Purchase Intention is the dependent variable measured on a continuous scale.

6.4.1 Hypothesis 1, 3 and 5

In table 26 we find that the variables Perceived Green Message, Brand Image, and Perception of Greenwashing explain 50.01% of the variation in Purchase Intention. To test hypotheses 1, 3, and 5 the following equation is used:

$$\begin{aligned} \text{Purchase Intention} = & b_0 + b_1 * \text{Perceived Green Message} + b_2 * \text{Brand image} \\ & + b_3 * \text{Perception of greenwashing} + b_4 * \text{Age} + b_5 * \text{Gender} + b_6 * \text{Edu} + b_7 * \\ & \text{Perceived green message} * \text{Perception of greenwashing} + e \end{aligned}$$

The variables gender and education level are changed into dummy variables. The data shows that one person is non-binary. Because this group is too small to perform reliable analyses it will not be included in the analysis. This results in two groups: men (value = 0) and women (value = 1). The variable education level is also divided into two categories. High School, MBO, and HBO form one group (value = 0) and university bachelor, university master, and Ph.D. the other group (value = 1). The reason that the group is not divided into lower and higher education is that there were too few respondents who indicated to have followed lower education. By adding the group HBO, reliable findings from the analyses can be drawn. A total of 9 people indicated that they were not from the Netherlands. Because this group is too small to perform a reliable analysis, this variable was not divided into different groups. In addition, no major differences based on nationality will be expected because H&M runs the same advertising campaigns worldwide.

Hypothesis 1: A perceived green message has a positive effect on the purchase intention.

First, the direct effect of Perceived Green Message on Purchase Intention is analyzed. The results are presented in table 25. With a P-value of 0.484, the effect of Perceived Green Message is not significant. Therefore, Perceived Green Message has no significant effect on Purchase Intention, and hypothesis 1 is rejected, $b=0.315$, $t=0.702$, $p=0.484$.

Hypothesis 3: A positive brand image has a positive effect on the purchase intention.

Secondly, the effect of Brand Image on Purchase Intention is examined. The results are presented in table 25. In table 25, we see that Brand Image has a positive effect of 0.902 on Purchase Intention, $b=0.902$ $t=8.779$ $p=0.000$. This means that a unit increase of 1 in the Brand image will increase Purchase Intention by 0.902. Therefore, hypothesis 3 is accepted.

Hypothesis 5: The perception of greenwashing has a negative effect on the relation between perceived green message and the purchase intention.

In table 25 it can be found that the Perception of Greenwashing has no significant effect on the relation between Perceived Green Message and Purchase Intention because the P-value is 0.408. Therefore, hypothesis 5 is rejected, $b=-0.098$, $t=-0.829$, $p=0.408$.

Furthermore, two significant effects were found for the control variables. It can be concluded from table 25, that being a woman positively influences Purchase Intention, $b=0.515$, $t=3.166$ $p=0.002$. Besides gender, age also influences Purchase Intention. As age increases, Purchase Intention decreases. Thus, age has a negative effect on Purchase Intention, $b=-0.014$, $t=-2.665$ $p=0.009$. No significant effect was found for the variable education.

Table 25.

	Model Summary			
	B	se(HC4)	t	p
Constant	-.7062	2.5877	-.2729	.7853
Perceived Green Message	.3151	.4491	.7017	.4839
Brand Image	.9017	.1027	8.7786	.0000
Perception of Greenwashing	.4098	.6640	.6171	.5380
Int_1	.0980	.1181	-.8294	.4081
Female	.5147	.1626	3.1659	.0018
Uni	-.1023	.1789	-.5718	.5683
Age	-.0142	.0053	-2.6652	.0085

Table 26.

		Model Summary				
R	R Square	MSE	F(HC4)	df1	df2	P
.7072	.5001	1.0565	46.6864	7.000	167.000	0.000

6.4.2 Hypothesis 2 and 6

In table 28 we find that the variables Perceived Green Message and the Perception of Greenwashing explain 29.36% of the variation in the difference in Brand Image. To test hypotheses 2 and 6 the following equation is used:

$$\mathbf{Brand\ image = b0 + b1 * Perceived\ Green\ Message + b2 * Perception\ of\ greenwashing + b3 * Age + b4 * Gender + b5 * Edu + b6 * Perceived\ green\ message * Perception\ of\ greenwashing + e}$$

Hypothesis 2: A perceived green message has a positive effect on the brand image.

With a P-value of 0.0586, it can be concluded that the effect of Perceived Green Message on Brand Image is marginally significant. Because the population size is small and because the P-value is marginally significant, this hypothesis is accepted. $b=0.5939$, $t=1.904$, $p=0.0586$.

Hypothesis 6: The perception of greenwashing has a negative effect on the relation between a perceived green message and the brand image.

With a P-value of 0.191, it can be concluded that the effect of Perception of Greenwashing on the relation between Perceived Green Message and brand image is not significant. Therefore, Hypothesis 6 is rejected $b=-0.115$, $t=-1,313$, $p=0.191$.

Furthermore, there were no significant effects of the control variables Age, Gender, and Education (covariances) on the relationship between Perceived green message and Brand image.

Table 27.

Model Summary^a				
	B	se(HC4)	t	p
Constant	2.7531	1.5006	1.8347	.0683
Perceived Green Message	.5939	.3119	1.9040	.0586
Perception of greenwashing	.0703	.4226	.1664	.8680
Int_1	-.1147	.0873	-1.3130	.1910
Female	.2228	.1358	1.6407	.1027
Uni	.0545	.1820	.2995	.7649
Age	.0067	.0056	1.2025	.2309

a. dependent Variable:

Brand image

Table 28.

Model Summary						
R	R Square	MSE	F(HC4)	df1	df2	P
0.5418	0.2936	0.7501	97.420	6.000	168.000	0.000

6.4.3 Hypothesis 4

Hypothesis 4: The effect of a perceived green message on the purchase intention is mediated by the brand image.

For this analysis, three values of the standard deviation are used: -1SD, 0, and +1SD. Because the results are bootstrapped, we look at the confidence interval.

Table 29.

Perception of Greenwashing	Effect	BootSE	BootLLCI	BootULCI
2.5213	.2748	.0873	.1041	.4553
3.3783	.1862	.0662	.0593	.3188
4.2353	.0976	.0888	-.0760	.2703

Table 29 shows the indirect effect of Green Message on Purchase Intention via Brand Image for different levels of Perception of Greenwashing. The first two results are significant since they do not include zero. The last result is not significant since it includes zero.

The table shows that for a low value of the Perception of Greenwashing (-1 SD), a positive indirect effect occurs (0.2748). That is a positive effect of Green Message on Purchase Intention via Brand image. For a medium value of the Perception of Greenwashing (0 SD), a positive indirect effect also occurs, but it is less strong (0.1862). From this, it can be concluded that as the Perception of Greenwashing increases, the effect of Green Message on Purchase Intention via Brand Image decreases. If the Perception of Greenwashing increases even further (+1 SD) then there is no effect at all of Perceived Green Message on Purchase Intention via Brand Image. The mediation is moderated. Mediation occurs at low and medium levels of the Perception of Greenwashing. But not at above-average levels.

6.4.4 Other results

Because different degrees of greenwashing were used for this study, their effects on Purchase Intention, Brand Image, and the Perception of Greenwashing were examined. The results are shown in Table 30. From the table, it can be concluded that a slightly greenwashed advertisement produces the best results. What is also noticeable is that the ad without a green claim, scores relatively low on Perceived Green Message.

Table 30.

Reviewed Advertisement		BI	PI	GM	PGW
No Claim	Mean	4.12	3.95	4.26	3.39
Slightly	Mean	4.58	4.59	4.98	3.21
Moderately	Mean	4.22	4.19	4.93	3.52
Severely	Mean	4.26	3.98	4.94	3.43
Total	Mean	4.30	4.18	4.76	3.39

7 Conclusion

The goal of this research project is to investigate what effect greenwashing has on the brand image and the purchase intention of companies operating in the fast fashion industry. First, all the important concepts were explained, and the existing literature was examined in the literature review. Based on this, a conceptual model was then developed containing 6 hypotheses. To test these hypotheses, an empirical study was conducted that relates to greenwashing in the fast fashion industry. Variables used in this study included purchase intention, brand image, and the perception of greenwashing. The results of the empirical study were analyzed using Hayes' PROCESS macro. Model 8, which is a moderation mediation model, was used to test the hypotheses.

7.1 Key findings

The most interesting findings are presented below. This study did not find a significant effect of green message on purchase intention. What was found, was a positive effect of green message on brand image. In addition, a strong positive effect of brand image on purchase intention was found. Another finding is that the perception of greenwashing has no negative effect on purchase intention. The same applies to the relationship between green message and brand image, again no significant negative effect of the greenwash perception was found.

However, it was found that the brand image mediates the relationship between green message and purchase intention. It was also found that when the perception of greenwashing increases, the effect of mediation decreases. This is to be expected since a strong relationship between brand image and purchase intention was found. What is interesting about this relationship is that it is moderated by greenwash perception. As consumers experience more greenwashing, the mediation effect decreases. This is a logical effect because, in the case of greenwashing, the consumer is misled. However, the evidence for this moderated indirect effect is weak. In fact, when zooming in on the effect of the greenwash perception on the relationship between green message and brand image, there is no significant effect (table 25). Furthermore, it was found that a slightly greenwashed advertisement led to the most positive results regarding brand image and purchase intention, although differences between them are small.

In conclusion, this research shows that greenwashing might work. In various industries, customers judge companies on greenwashing, it can even lead to a boycott (Huber 2010).

However, based on the results of this study, this does not seem to be the case. Reasons for this may be that people do not see the clothing industry as polluting. In that case, a misleading green ad does not matter much, since initially there is no problem in the eyes of the consumer. However, there are strong indications that a lot of consumers are aware of this. In fact, 60% of consumers indicate that they would be willing to buy sustainable clothing if it had the same price as normal clothing. So, there is a discrepancy between what consumers say they want and what consumers think/do.

7.2 Implications

Results of this study show that the respondents with a high greenwash perception do not necessarily have lower brand image or purchase intention. Although evidence was found in the data that the greenwash perception affects the indirect effect, the evidence for this is weak. In contrast, the evidence that it has no effect is stronger. Two things can be concluded from this. On the one hand, it can be concluded that when people do not perceive greenwashing, the brand image and thus partly the purchase intention are positively influenced. On the other hand, it can be concluded that when people do perceive greenwashing it does not have a significant impact on their brand image and purchase intention.

Although misleading the consumer pays off in the first place, there are also risks involved. Besides the question of whether greenwashing is ethical, companies can also be fined by the government. Managers should consider this when using greenwashing. In addition, misleading consumers with advertisements is not socially responsible. Managers that value Corporate Social Responsibility should be careful that employees do not take advantage of the benefits of greenwashing.

Another risk is the fact that consumers may come to condemn greenwashing more heavily. Although the evidence is weak, this research shows that greenwash perception has negative effects. The moment consumers start to place more value on sustainability, this effect is likely to become stronger.

For policymakers within the government, this research legitimizes the need for stricter supervision of advertising by fast fashion companies. Because in addition to the negative effects of the fast fashion industry on the environment and climate, these companies also successfully

mislead consumers in sustainability. Strict enforcement could also create a fairer playing field for companies that actually sell sustainable clothing.

In addition, policymakers could make consumers more aware of the negative consequences of the clothing industry. A consequence of this may be that consumers will evaluate the advertising actions of fast fashion companies more critically.

7.3 Limitations and further research

This thesis researched the effect of greenwashed advertisements on purchase intention and brand image. Although multiple conclusions are drawn, this thesis contains some limitations and implications for further research.

The first limiting factor of this study is the conflicting results of the moderated mediation model. When looking at the effect of greenwash perception on purchase intention and brand image, it can be concluded that it is not a significant effect. However, it appears that when greenwash perception is a moderator of the mediation model, a significant effect does occur. Further research could further identify which of these results are reliable.

Another limitation of this study is the bias people have towards the H&M brand. The respondents were asked to answer the questions based on the advertisement shown. It cannot be excluded that respondents included their already held opinions about H&M in their answers. Finally, it can be concluded that the manipulation did not work well. As an example, it can be seen in Table 30 that respondents do not necessarily judge a ‘severely’ greenwashed advertisement more heavily on greenwashing. The inter-individual differences between the advertisements are contradictory. This may have influenced the results of the study.

The last limitation of this study is the sample size. Although the sample size is sufficient for the analysis, a larger sample will give more reliable results. This should be taken into account when reviewing the results.

Further research could investigate whether consumers are familiar with the polluting effects of the fast fashion industry. This could in part explain why consumers do not judge fast fashion companies heavily on the use of greenwashing.

In addition, it could be investigated how the effect of the greenwash perception on the brand image and purchase intention, in the fast fashion industry, develops in the future. The increasing demand for sustainable products could cause this to change. As a final recommendation, the long-term effects of greenwashing on brand image and purchase intention could be investigated. This would allow companies and governments to make better decisions on the fight against greenwashing and its priority.

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Appendix

Appendix 1 - Survey

Variable of Conceptual model	Source	Question	response	Scale
Perception of greenwashing	(Chang, 2013)	This brand misleads with words on its environmental features	5-point Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree	Ordinal (semi continues)
Perception of greenwashing	(Chang, 2013)	This brand misleads with visuals or graphics in its environmental features	5-point Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree	Ordinal (semi continues)
Perception of greenwashing	(Chang, 2013)	This brand possesses a green claim that is vague or seemingly un-provable	5-point Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree	Ordinal (semi continues)
Perception of greenwashing	(Chang, 2013)	This brand overstates or exaggerates how green its functionality actually is	5-point Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree	Ordinal (semi continues)
Perception of greenwashing	(Chang, 2013)	This brand leaves out or masks important information, making the green claim sound better than it is	5-point Likert Scale: 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree, 5. Strongly agree	Ordinal (semi continues)
Variable of Conceptual model	Source	Question	response	Scale
Perceived Green message	(Nyilasy 2014)	This brand focuses on protecting the environment	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4.	Ordinal (semi continues)

			Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	
Perceived Green message	(Nyilasy 2014)	This advertisement presents a clear green message	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Perceived Green message	(Turendi 2021)	The advertisement suggests that H&M is an innovative company	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Perceived Green message	(Turendi 2021)	The ad suggests that H&M is an environmentally friendly company	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Variable of Conceptual model	Source	Question	response	Scale
Brand Image	(Chen, 2010)	This brand is regarded as the best benchmark of environmental commitments.	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Brand Image	(Chen, 2010)	This brand is professional about its environmental reputation.	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Brand Image	(Chen, 2010)	This brand is well known about its environmental performance.	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Brand Image	(Chen, 2010)	This brand is well established about its environmental concerns.	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4.	Ordinal (semi continues)

			Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	
Brand Image	(Chen, 2010)	This brand is trustworthy about its environmental promises.	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Variable of Conceptual model	Source	Question	response	Scale
Purchase intention	(Dobbs, 1991)	If I were going to purchase clothes, I would consider buying this brand	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Purchase intention	(Dobbs, 1991)	If I were shopping for clothes, the likelihood I would purchase this brand is high	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Purchase intention	(Dobbs, 1991)	My willingness to buy this brand would be high if I were shopping for clothes	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Purchase intention	(Dobbs, 1991)	The probability that I would consider buying this brand is high	7-point Likert Scale: 1. Very unlikely, 2. Unlikely, 3. Somewhat unlikely, 4. Undecided, 5. Somewhat likely, 6. Likely, 7. Very likely	Ordinal (semi continues)
Variable of Conceptual model	Source	Question	response	Scale
Control variable		Nationality	Dutch, Other country in Europe, Other country outside Europe	Nominal
Control variable		Education	High School, MBO, HBO, University Bachelor, University Master, PhD	Ordinal

Control variable		Age	0-100	Scale
Control variable		Gender	Male, female, non-binary, prefer not to say	Nominal

Appendix 2 – TerraChoice seven sins of greenwashing

Exhibit 2 - The 2007 Six Sins of Greenwashing: A Primer

The first edition of the Sins of Greenwashing report, published in November 2007, identified the following Six Sins³ :

1. **Sin of the Hidden Trade-off**, committed by suggesting a product is 'green' based on an unreasonably narrow set of attributes without attention to other important environmental issues. Paper, for example, is not necessarily environmentally-preferable just because it comes from a sustainably-harvested forest. Other important environmental issues in the paper-making process, including energy, greenhouse gas emissions, and water and air pollution, may be equally or more significant.
2. **Sin of No Proof**, committed by an environmental claim that cannot be substantiated by easily accessible supporting information or by a reliable third-party certification. Common examples are facial or toilet tissue products that claim various percentages of post-consumer recycled content without providing any evidence.
3. **Sin of Vagueness**, committed by every claim that is so poorly defined or broad that its real meaning is likely to be misunderstood by the consumer. 'All-natural' is an example. Arsenic, uranium, mercury, and formaldehyde are all naturally occurring, and poisonous. 'All natural' isn't necessarily 'green'.
4. **Sin of Irrelevance**, committed by making an environmental claim that may be truthful but is unimportant or unhelpful for consumers seeking environmentally preferable products. 'CFC-free' is a common example, since it is a frequent claim despite the fact that CFCs are banned by law.
5. **Sin of Lesser of Two Evils**, committed by claims that may be true within the product category, but that risk distracting the consumer from the greater environmental impacts of the category as a whole. Organic cigarettes are an example of this category, as are fuel-efficient sport-utility vehicles.
6. **Sin of Fibbing**, the least frequent Sin, is committed by making environmental claims that are simply false. The most common examples were products falsely claiming to be Energy Star certified or registered.

