The Mediating Effect of Awareness of Greenwashing on the Relation Between Quality Marks & Purchase Intention

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ABSTRACT,

Purpose - This paper aims to research how the use of quality marks influences consumer purchase intention. Furthermore, it aims to research the influence that awareness of greenwashing has on purchase intention of products with and without quality marks.

Methodology – An online questionnaire was conducted in which respondents were asked to answer ten questions on a 5-point Likert scale, ranging from strongly disagree to strongly agree. For the first five questions respondents were shown a packaging of coffee, of which four had a quality mark and one had none. After respondents rated their purchase intention by answering four statements, they were introduced to the concept of greenwashing. Again, respondents were asked to rate the five types of packaging.

Results – Results show that the use of quality marks on products positively influences purchase intention. Making consumers aware of greenwashing seems to have some effect on their purchase intention, as products with non-authentic quality marks have a negative correlation.

Value – This paper combined previous literature of Chi, Yeh & Yang (2009) with that of Song (2017) and Singh & Sharma (2013) to try and prove that there is a relation between quality marks, its perceived value and purchase intention. Furthermore, this paper combined this literature with that of greenwashing to see if greenwashing has a mediating effect on the relation between quality marks and purchase intention.

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Keywords

Quality Marks, Perceived Quality, Purchase Intention, Greenwashing, Awareness, Authentic Quality Marks, Non-Authentic Quality Marks

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1. INTRODUCTION

Companies are increasingly presenting themselves as being green. Using quality marks is one of the ways that companies have been adopting to signal their greener image. A quality mark is a label or symbol on the packaging of a product that indicates that it is in compliance with standards that have been verified by third parties (Song, 2017, p. 3). These standards can be classified into four groups, namely environmental friendly, fair-trade (human rights), animal welfare and health (Voedingscentrum). Making use of such a quality mark can thus indicate to consumers that products meet the requirements in one of these categories; it can be a tool for companies to easily indicate that their products are produced in a green way (Schielke & Altobelli, 2012).

Research by Song (2017) and Singh & Sharma (2013) states that the main reason for consumers buying products with quality marks is that it can indicate the perceived quality of a product. As mentioned before, in order to make use of a quality mark the product has to meet strict criteria. Consumers can only assume the marks on the packaging meet these criteria. In result, consumers perceive a product to have a higher quality if a quality mark is present on the packaging. Furthermore, recent trends show that consumers are becoming more interested in healthy food options and that they are longing for greener products and practices (Ting et al., 2019). Therefore, quality marks can play an important role in the decision making process of consumers. It can be a first indicator of primary information and can serve as a first sign of a product's quality. In other words, quality marks can quickly indicate whether a product meets the standards of quality the consumer is looking for. The research by Chi, Yeh & Yang (2009) confirms this, as a higher perceived quality leads to a higher intention to purchase. What consumers are often not aware of however, is that some of these marks are being created by companies themselves. Companies often present themselves as being green, but reality shows that this is not always the case (Aggarwal & Kadyan, 2014). Despite people wanting to consume greener, companies cannot keep up or do not want to make investments, which results in the creation of these nonauthentic quality marks. A non-authentic quality mark has not been verified and is misinforming and misleading consumers into thinking that the product is green (Poncibò, 2007). Companies that make use of these non-authentic quality marks are not making any efforts to be greener. In other words, companies are symbolically complying to try and keep consumers satisfied, as not doing anything could mean that they would possibly miss out on the market. This phenomenon of adopting non-authentic quality marks is called greenwashing and is being used by a growing number of companies (Aggarwal & Kadyan, 2014).

It is hard for consumers to distinguish authentic from nonauthentic quality marks. What makes it even more confusing for consumers is that products can have multiple quality marks on the packaging. In spite of all, quality marks do give companies an advantage, as it can heighten the perceived quality of a product. The question is whether consumers are still willing to buy products with quality marks while knowing that greenwashing is happening on a big scale.

The objective of this study is to extend the study by **Chi, Yeh & Yang (2009)** by proposing that quality marks are a component of perceived quality. The research done by Chi, Yeh & Yang (2009) indicates that a higher perceived quality can lead to a higher intention of purchasing a product. Adding to this research, the papers by **Song (2017)** and **Singh & Sharma (2013)** have indicated that quality marks can indeed heighten the perceived quality of a product. Furthermore, the objective of this study is to propose that awareness of greenwashing acts as a mediating factor between quality marks and purchase intention. The paper

by **Aji & Sutikno (2015)** describes the consequences of greenwashing on scepticism and will be used as a guideline to describe the effects that greenwashing can have. To the best of our knowledge, no research has tried to combine the literature of quality marks and its positive influence on purchase intention, with that of the influence of greenwashing. There is still a limited amount of information available about the motivations of buying green products and about the effectiveness of quality marks in influencing consumer's purchasing behaviour (Song, 2017). Therefore, this research will focus on the effects of greenwashing awareness on consumer purchase intention. The main aim of this thesis will be on how important is it that consumers are aware of greenwashing, on how this influences their overall judgement on whether the marks are authentic or not, and on how this impacts their purchase decision.

1.1 Central Research Question

How is consumers' purchase intention influenced by awareness of greenwashing?

2. THEORETICAL FRAMEWORK 2.1 Literature Review

2.1.1 Quality Marks and its Perceived Quality

The papers by Song (2017) and Singh & Sharma (2013) have indicated that quality marks can heighten the perceived quality of a product. Quality marks can function as an economic signal and can indicate to consumers that the product was produced following green procedures. As it is hard for consumers to check if a product is green, a quality mark can provide this information for them. It can serve as an indicator of the objective quality of a product. The paper by Chi, Yeh & Yang (2009) further adds to this by explaining what objective quality is and how it adds to the overall perceived quality of a product. The paper makes use of the model by Aaker (1991), whom has written a marketing model for managing brand equity, which he defines as "a set of assets and associations that are linked to the brand that add (or subtract) value to the product or service being offered". One of those assets is perceived quality, which is defined 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". The paper by Chi, Yeh & Yang (2009) states that perceived quality is influenced by both internal and external product attributes. The internal attributes are influenced by objective quality features. These include basic knowledge of the product and manufacturing process and are the basis of one's perception (Garvin, 1983). This objective judgement is in turn influenced by past purchase experiences and word-of-mouth of friends and acquaintances. External product attributes are those that can be seen on the outside, such as the packaging of a product. Using a quality mark can thus add to the overall perception of the external product attributes. As an example, products with organic quality marks can indicate a product's organic nature and can be an indicator for its quality, as the requirements for producing such a product are to follow green procedures. In addition, research by Song (2017) indicates that products without organic logo's raised skepticism amongst consumers, as they were doubting whether any chemicals were used in the production. People would rather buy products that are provided with proper certification.

As the paper by Chi, Yeh & Yang (2009) further suggests there are three reasons why perceived quality is different from the real quality of a product. Firstly, unpleasant experiences of a product in the past will always influence future judgement of a product's quality. So, even though the product might have been improved by the company, the consumer will not necessarily trust the renewed product. Secondly, quality is judged differently by consumers and manufacturers. They have different views of a product's quality, as consumers do not get see the process of making the product. They will form their opinion of the objective quality based on their basic knowledge of the product and its production. Lastly, consumers often do not have enough information to judge a product only based on its objective quality. Time and effort have to be directed at collecting and processing information. Consumers thus select the information that is most important to them and judge the quality of a product based on their own knowledge, experiences and feelings. Perceived quality is thus a combination of a consumers' judgement of the objective features of a product and the subjective feelings of a product's quality (Chi, et al., 2009; Zeithaml, 1988; Dodds, et al., 1991). So, all the different attributes of a product are added up to each other and are then processed and judged by the consumer.

Altogether, the objective quality that a quality mark can provide, together with past experiences, is the base that helps consumers build their judgement. Using quality marks can give an advantage to companies, as the perceived quality of such a product rises. It is an easy way for companies to promote their products and to create awareness about the quality, safety and/or social environmental issues of their products (Poncibò, 2007; Jahn et al., 2005).

2.1.2 Purchase Intention

The paper by Chi, Yeh & Yang (2009) uses the model by Engel, Blackwell & Miniard (1995) to explain purchase intention. As this model describes, the decision making process is divided into five stages. First of all, it is important that the consumer recognizes a need or opportunity. There needs to be a significant difference between his or her current state of affairs and a desired state. If this need is recognized, the consumer will look for information. This can either be internal or external. An internal search includes scanning our own memories, so previous experiences or previous gained knowledge is very important in this stage. External search however, is where the consumer obtains information by advertisements, friends or by scanning the product attributes on the packaging. However, consumers do not always search in a rational way, as previously gained knowledge can bias their decision making process. As mentioned before, the objective judgement can be influenced by past purchase experiences and by word-of-mouth of friends and acquaintances. As the consumer has collected all the information that they need, they will start to look for all the available options. Among the options that we find, we select the product that we most like by using evaluative criteria. For companies to point out that their product is different from others, they have to point out why their product is better than others. Consumers try to compare products by looking at the different attributes, so the product that has the most wanted attributes will be chosen to be purchased. Lastly, post-purchase behaviour is where opinions of experiences are formed. These can influence later purchase decisions. As will be explained later, greenwashing can play an important role in this stage.

2.1.3 The Relation between Quality Marks and Purchase Intention

The paper by **Chi, Yeh & Yang (2009)** explains how perceived quality can positively influence purchase intention. The presence of a quality mark cannot provide information to consumers about what it precisely means. It can merely give an impression about the quality of a product (Jahn et al., 2005; Chi, et al., 2009). In other words, the presence of a mark can only raise awareness of the basic information that is mentioned in the logo. However, it can be an important trigger for consumers to purchase a product, as a quality mark can be used to distinguish a product from others. It can indicate that the product is produced in a green way and in turn can indicate that it is of high(er) quality. The paper by Chi, Yeh & Yang (2009) indicates that a higher perceived quality will lead to a higher purchase intention. Furthermore, the study by Song (2017) indicates that consumers who already have a positive attitude towards green products, are more likely to buy such products. People who favour organic products can thus scan for logos and can recognize them as being an important factor during their decision making process. Following, the use of quality marks can directly influence purchase intention and should positively affect customer behaviour. Therefore, the following hypotheses are proposed.

- H1: The presence of a quality mark on packages will positively affect consumer's intention to purchase the product.
- H1A: The intention to purchase a product without a quality mark will be lower than the purchase intention of a product with a quality mark.
- H1B: The intention to purchase a product with a nonauthentic quality mark will be higher than the purchase intention of a product without a quality mark.
- H1C: The intention to purchase a product with an authentic quality mark on packages will be the higher than the purchase intention of a product with a non-authentic quality mark.

2.1.4 Awareness of Greenwashing and its

Moderating Effect on the Relation between Quality Marks and Purchase Intention

There are many authentic quality marks on the market, but there are also a lot of non-authentic quality marks being used. The use of these non-authentic quality marks is called greenwashing. Greenwashing can be defined as tactics that deceive consumers regarding the environmental practices of a company or the environmental benefits of a product or service (Parguel et al., 2011). In other words, companies are misleading consumers into thinking that they sell environmental friendly products, services, technologies and/or company practices. As mentioned before, products are being assessed before companies are allowed to make use of quality marks on the packaging. People who buy products with quality marks expect them to meet the requirements that are necessary to be allowed to make use of a quality mark. What consumers often do not know is that assessments are on a voluntary basis and are performed by parties that are not necessarily licensed to make such assessments (Poncibò, 2007). Some of the marks are being designed by companies themselves, which means that the claims of the quality marks have not been checked and verified by third parties. It is misleading consumers into thinking that the product has been produced in 'green' way, while in reality this isn't the case. What makes it more confusing for consumers is that products can have multiple logos displayed on the packaging. Some products even have both authentic and non-authentic quality marks on its packaging.

The study by **Aji & Sutikno** (2015) shows that greenwashing can raise scepticism amongst consumers, as the perceived value of quality marks is based on consumer's trust. Making consumers aware of greenwashing will thus influence their decision making process. The perceived quality of a greenwashed product is lower than that of a justified product. However, it is hard for consumers to figure out which quality mark is authentic and which one is not. Greenwashing has made it hard for people to see whether the requirements for using a quality mark is actually met. Making people aware of greenwashing can thus generate a big loss, as consumers do not know how to differentiate between the authentic and non-authentic marks. It can negatively influence the relation between quality marks and intention to purchase. Furthermore, scepticism can lower consumer's knowledge and make them be less interested in green products; it can lower their environmental concern (Goh et al., 2016). Past experiences with greenwashing can also influence purchase intention negatively (Khare, 2015). In addition, consumers can spread the word of greenwashing to acquaintances and friends. This can further influence purchase intention negatively and can also impact the sales of authentic quality marks (Leonidou & Skarmeas, 2017; Yoon & Chen, 2017).

Overall, the study by Aji & Sutikno (2015) and several other studies show that green skepticism negatively influences consumers' intention to purchase a product. Following, purchase intention can be negatively influenced when consumers are made aware of greenwashing. The following hypotheses are proposed:

- H2: The more a consumer is aware of greenwashing, the lower is the intention to purchase a product with a quality mark.
- H2A: The intention to purchase a product without a quality mark will be higher after the consumer is made aware of greenwashing.
- H2B: The intention to purchase a product with an authentic quality mark will be lower after the consumer is made aware of greenwashing.
- H2C: The intention to purchase a product with a nonauthentic quality mark will be the lowest after the consumer is made aware of greenwashing.

2.2 Conceptual Model

According to the purposes of this research the following conceptual model is proposed.



Figure 1. Conceptual Model

3. RESEARCH METHODS

3.1 Data sample

The objective of this research is to investigate the influence of greenwashing on the relation between quality marks and purchase intention. The focus lays on quality marks that are used on food products in supermarkets. Quantitative descriptive data was collected through an anonymous online questionnaire from the 26th of May until the 13th of June. In total a 100 answers were collected, of which 13 were deleted from the data set due to incomplete answers. The respondents were all older than 18 and were a sample of 40 Dutch citizens and 47 internationals. The main reason for choosing participants of 18 years and older is because these are considered being adults in the Netherlands. According to the law, this group is expected to be able to take care of themselves, as well as make their own decisions, which implies that they will come into contact with grocery shopping. Furthermore, this group has been chosen as previous research has shown contradicting results for the variable age. There are studies that suggest there is no significant correlation between age and purchasing green products, while others suggest a significant positive or significant negative correlation (Finisterra, Raposo & Filho, 2009). Also, focussing on the age group of 18

and above gave us the chance to reach as many participants as possible in the small time frame that was available. Respondents were recruited by using personal connections and by using the snowballing effect. Furthermore, the link to the questionnaire was posted on platforms, such as Facebook groups and websites that are designed to search for respondents. The questionnaire was created with the program Qualtrics via the University of Twente. Respondents had to answer all questions by using the option 'force response' in order to minimize the amount of missing data, but were given the possibility to stop answering the questionnaire at any given point.

3.2 Dependent Variable

The dependent variable that was used is 'purchase intention'. This variable was tested using reliable scales on purchase intention from previous research by Bao, Bao & Sheng (2011). They combined items from research by Dodds et al. (1991) and Grewal et al. (1998) and used these items in the context of private brands. A 5-point Likert scale was used on which participants could indicate their preference on statements, ranging from 1=strongly disagree to 5=strongly agree.

The scale consisted of the following four statements:

- The likelihood of me purchasing this product is very high
- The probability that I would try this product is very high
- My willingness to buy this product is very low
- I will buy this product

3.3 Independent Variables

The independent variables that were used are 'quality mark' and 'awareness of greenwashing'. At the start of the questionnaire, a short introduction was given to respondents. They were asked to imagine doing their regular groceries in a supermarket. Following, five different packages of the same product were shown: two with authentic quality marks, two with non-authentic quality marks and one without a quality mark. In order to minimize bias, a fictional product package was made for a coffee brand and two non-authentic quality marks were designed (both the complete questionnaire and the pictures can be found in chapter 7.1 and 7.2). For each of the packages respondents were asked to respond to the four items of the dependent variable. After answering for all the five packages, respondents were asked to read an introduction about greenwashing. Again, the five packages were shown and respondents were asked to respond to the same 4 items of purchase intention. Furthermore, the statement 'I am familiar with this quality mark' was added in order to see whether there is a difference in answers between the authentic and non-authentic quality marks.

Thus, the independent variables were not measured by using scales, but were used as conditions in the questionnaire. Respondents were made aware of greenwashing halfway through the questionnaire, which makes it possible to see whether their intention to purchase changes before and after they are made aware of greenwashing.

3.4 Control Variables

Control variables that were taken into account are age, gender, nationality and current country of residence, environmental consciousness, and familiarity of a quality mark. Based on the literature review it was expected that people are more sensitive to greenwashing if they already were environmental conscious. Therefore, respondents were given the statement 'I consider myself as an environmental friendly consumer' on which they could answer on a 5-point Likert scale ranging from 1 to 5. Nationality and current place of residence were taken into account, because quality marks can be country specific. To account for this, respondents were given the statement 'I am

familiar with this quality mark'. Furthermore, this would give us the possibility to see how people differentiate in their purchase intention between authentic and non-authentic quality marks.

3.5 Estimation Techniques

Collected data was analysed with the program IBM SPSS Statistics 25. Firstly, reliability and factor analysis were performed to see whether the items of the questionnaire indeed measured the proposed construct. A reliability analysis was carried out on the variable 'purchase intention' compromising four items. Inter-item correlations were checked using Cronbach's a. Guielford (1965) suggests that a Cronbach's a greater than 0,7 shows that a questionnaire has a relative high internal reliability. Furthermore, if the data set is small in size it is recommended to maximize communalities in the factor analysis (Mvududu & Sink, 2013; Hogarty, et al., 2005). After removing the item 'willingness' descriptive analysis was performed. Means, standard deviations and frequencies were calculated of both the control variables and the dependent variable. Using this data, characteristics of the respondents could be indicated and an initial indication of differences could be seen.

Next, the Shapiro-Wilk test was performed to see whether the data set has normal distribution. This is important to know for selecting the right correlation and regression tests. The Shapiro-Wilk test is suitable for datasets smaller than 2000 elements. The test showed that the data set does not have a normal distribution, the data set is thus non-parametric. Furthermore, all questions were answered by the same group of respondents. Taking this into account, tests were selected to test the hypotheses.

Spearman's Rank-Order Correlation was used to see if there is a difference is purchase intention between products that do not have a quality mark and products that do have a quality mark. This test was used for both the questions before and after greenwashing was introduced. Furthermore, this test was also used to see whether any of the control variables had any influence on purchase intention. This test was selected, as it can be used for ordinal data (our dependent variable 'purchase intention' is ordinal). Also, it does not assume that the variables are normally distributed. Furthermore, the assumptions that have to be met in order to use this test are that the respondents were selected randomly and answered the questionnaire independently. We can assume that respondents answered independently, as it is unlikely that the respondents talked with each other about the answers. We do have to take into account however, that the data set might not be totally random, as people could decide for themselves

whether to fill in the questionnaire. Nonetheless, we can still use this test, but have to take this into account for the conclusion.

Next, the Wilcoxon Signed-Ranks test was used to see if there is any difference in purchase intention before and after greenwashing was introduced. In other words, to see if awareness of greenwashing affects the relation between quality marks and purchase intention. This test does not assume normality and it does not require a large data set. Furthermore, this test can be used to compare two sets of scores that come from the same set of participants. As we measure the difference in purchase intention before and after greenwashing is introduced, we can use this test. Lastly, this test can be used for ordinal data.

4. DATA ANALYSIS AND RESULTS

Firstly, the dependent variable contained four items, of which three were positively worded and one was negatively worded. The item 'My willingness to buy this product is very low' was reverse scored by using the function 'recode into different variables'. Furthermore, the answers to the question 'How old are you?' were recoded into the age categories 18-25, 26-35, 36+.

4.1 Factor Analysis and Reliability Analysis

As shown in table 1 (Initial Values), Cronbach's α of purchase intention for all questions is greater than 0,7. It indicates that the reliability of the questionnaire is acceptable. Furthermore, most items appeared to be worthy of retention, resulting in a decrease in α if deleted. The one exception to this was the item 'willingness', which would increase the α in all cases if deleted. As such, removal of this item should be considered.

Factor analysis confirmed that the four items measure one underlying factor. However, the table 'communalities' shows that r^2 is substantially lower for the item 'willingness' compared with the other three items in all cases. In addition, the correlation matrix shows that the item 'willingness' has low correlations with the other three items. As such, it was decided to remove the item 'willingness' from the dataset as it was indicated in both the reliability and factor analysis that this item did not contribute much to the variable 'purchase intention'. In table 1 the new values for the squared loadings and Cronbach's α can be found. As can be seen all values for Cronbach's α are greater than 0,9. The internal consistency can be considered as excellent.

	Initial Va (with 4 ite	llues ems)	New Values (with 3 items)		
Purchase Intention Before Awareness	Squared loadings (Cumulative, %)	Cronbach's a	Squared loadings (Cumulative, %)	Cronbach's α	
PI1 Non-authentic quality mark 'earth globe'	70,269	0,843	85,121	0,912	
PI2 Authentic quality mark 'EKO'	79,435	0,909	86,126	0,917	
PI3 No quality mark	72,320	0,862	85,042	0,910	
PI4 Authentic quality mark 'rainforest alliance'	81,011	0,918	90,432	0,946	
PI5 Non-authentic quality mark 'coffee beans'	80,585	0,916	91,474	0,953	
Purchase Intention After Awareness					
PI6 Authentic quality mark 'rainforest alliance'	80,425	0,917	91,522	0,953	
PI7 No quality mark	72,221	0,864	83,766	0,901	
PI8 Non-authentic quality mark 'earth globe'	76,872	0,891	91,510	0,953	
PI9 Non-authentic quality mark 'coffee beans'	78,610	0,905	89,979	0,944	
PI10 Authentic quality mark 'EKO'	76,932	0,894	87,787	0,929	

Table 1. Factor Analysis and Cronbach's α

4.2 Frequencies, Means and Standard Deviation

After the reliability and factor analysis were performed, the three items of the variable 'purchase intention' were computed into 1 variable for each question. This resulted in mean scores for each question set. As this research aims to see whether there is a difference in purchase intention between products without quality marks, with authentic quality marks, and with nonauthentic quality marks, the mean scores of the two authentic and two non-authentic quality marks were combined. This resulted in having six mean scores of the variable 'purchase intention'. So, three mean scores before greenwashing and three mean scores after greenwashing was introduced. Next, frequencies of the control variables 'age', 'gender', 'nationality', 'current place of residence' and 'environmental consciousness' were calculated.

As can be seen in table 2 the age group that is most represented in the dataset is 18 to 25 years with 62,1%. Next, the age groups of 26 to 35 and 36+ are represented with 26,4% and 11,5% respectively. In addition, the mean and standard deviation of 'age' was calculated. As can be seen in table 3 the average age of the dataset is 28 with a standard deviation of 11.

Table 2. Distribution of Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	54	62,1	62,1	62,1
vana	26-35	23	26,4	26,4	88,5
	36+	10	11,5	11,5	100,0
	Total	87	100,0	100,0	

Table 3. Mean and Standard Deviation of Age

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
How old are you?	87	18	69	27,84	10,938
Valid N (listwise)	87				

Table 4 shows that the dataset is represented more by females, as 70,1% of the respondents is female and 29,9% is male.

Table 4. Distribution of Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	26	29,9	29,9	29,9
	Female	61	70,1	70,1	100,0
	Total	87	100,0	100,0	

Furthermore, 41,4% of the respondents has a Dutch nationality and 58,6% is from outside of the Netherlands (table 5). However, a small portion (12 respondents) of the other nationalities currently lives in the Netherlands. The rest (44,8%; 39 respondents) lives outside of the Netherlands (table 6).

Fable 5. Distribution of National	ity
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		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Netherlands	36	41,4	41,4	41,4
	Other	51	58,6	58,6	100,0
	Total	87	100.0	100.0	

Table 6. Distribution of Current Place of Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Netherlands	48	55,2	55,2	55,2
	Other	39	44,8	44,8	100,0
	Total	87	100,0	100,0	

Moreover, a control question was asked about the level of environmental consciousness: 'I consider myself as an environmental friendly consumer'. As can be seen in table 7 the biggest group of 48,3% says to 'somewhat agree' with the statement that was given. 'Somewhat disagree' with 18,4% and 'neither agree nor disagree' with 17,2% are the next answers that were given most frequently. 13,8% of the respondents answered 'strongly agree' and 'strongly disagree' is the least represented group with 2,3%.

Table 7. Distribution of Level of Environmental Consciousness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	2,3	2,3	2,3
	Somewhat disagree	16	18,4	18,4	20,7
	Neither agree nor disagree	15	17,2	17,2	37,9
	Somewhat agree	42	48,3	48,3	86,2
	Strongly agree	12	13,8	13,8	100,0
	Total	87	100,0	100,0	

Additionally, respondents were asked whether they are familiar with the quality mark that was shown to them. Question 6 and 10 showed the two authentic quality marks of 'EKO' and 'rainforest alliance', whereas question 8 and 9 showed the non-authentic quality marks. Question 7 showed the packaging without a quality mark. As can be seen in table 8 the means for all questions are quite similar. Only the mean for the 'rainforest alliance' quality mark is a bit higher. Also, the standard deviations of the authentic quality marks are slightly higher. The frequency distributions for each question can be found in chapter 7.3.

Table 8. Means and Standard Deviation of Familiarity

Descriptive Statistics

	Ν	Minimum	Maximum	Mean	Std. Deviation
Question 6 - I am familiar with this quality mark	87	1	5	2,93	1,523
Question 8 - I am familiar with this quality mark	87	1	5	2,32	1,225
Question 9 - I am familiar with this quality mark	87	1	5	2,24	1,266
Question 10 - I am familiar with this quality mark	87	1	5	2,26	1,426
Valid N (listwise)	87				

Lastly, the means and standard deviations of the variable 'purchase intention' were calculated (table 9 and 10). As can be seen all means decreased after respondents were made aware of greenwashing. As the differences are small, further tests have to be done to be able to see the exact differences.

Table 9. Means and Standard Deviation of 'Purchase Intention' Before Awareness

		Mean	SD
Non-authentic 'earth globe'	PI1	3,0728	1,02857
Authentic 'EKO'	PI2	2,6973	1,03509
No quality mark	PI3	2,5556	1,03762
Authentic 'rainforest alliance'	PI4	3,1303	1,17396
Non-authentic 'coffee beans'	PI5	3,1303	1,18273

		Mean	SD
Non-authentic 'earth globe'	PI8	2,9349	1,10067
Authentic 'EKO'	PI10	2,6705	1,06688
No quality mark	PI7	2,3831	1,01860
Authentic 'rainforest alliance'	PI6	3,0345	1,23998
Non-authentic 'coffee beans'	PI9	2,8008	1,13718

 Table 10. Means and Standard Deviation of 'Purchase Intention' After Awareness

4.3 Test for Normal Distribution

To test whether the distribution of the dataset is normally distributed the Shapiro-Wilk test was used. As can be seen in the table below all p-values are lower than 0,5. This means that it is statistically significant different from a normal distribution. We have to reject the null hypothesis of a normal distribution and can conclude that the data is not normally distributed.

Table 11. Shapiro-Wilk Test

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
PI_Q1	,140	87	,000	,918	87	,000,
PI_Q2	,121	87	,003	,953	87	,003
PI_Q3	,164	87	,000,	,941	87	,001
PI_Q4	,115	87	,006	,942	87	,001
PI_Q5	,146	87	,000,	,929	87	,000,
PI_Q6	,115	87	,006	,942	87	,001
PI_Q7	,175	87	,000,	,920	87	,000,
PI_Q8	,144	87	,000,	,936	87	,000,
PI_Q9	,142	87	,000	,929	87	,000,
PI_Q10	,114	87	,007	,949	87	,002

a. Lilliefors Significance Correction

4.4 Spearman's Rank Order Correlation

4.4.1 Correlation Before Greenwashing

We performed hypothesis testing to see if there is a significant difference in purchase intention for products with and without quality marks.

The test statistics are the difference of means of purchase intention of products with quality marks (authentic and nonauthentic) and purchase intention of products without quality marks. Therefore, we have to conduct two tests, namely for:

- PI no quality mark (mean of PI3) & PI non-authentic quality marks (mean of PI1 and PI5)
- PI no quality mark (mean of PI3) & PI authentic quality marks (mean of PI2 and PI4)

We have a sample size of 87 for each test and set the significance level for 5% (0,05). The correlation coefficient for a spearman test can have a value between -1 and +1. This value indicates the strength of association between the two variables. A positive value indicates a positive relationship: as values of one variable increase, values of the other variable will increase as well. A correlation coefficient of 0 indicates that no relationship exists between the two variables.

Table 12. Correlation between Non-authentic Quality Marks & No Quality Mark

Correlations

			PI_Nonauthe ntic_Before	PI_No_Before
Spearman's rho	PI_Nonauthentic_Before	Correlation Coefficient	1,000	,553
		Sig. (2-tailed)		,000
		N	87	87
	PI_No_Before	Correlation Coefficient	,553	1,000
		Sig. (2-tailed)	,000	
		N	87	87
**. Correlation	is significant at the 0.01 leve	I (2-tailed).		

As can be seen in table 12, the correlation coefficient between a product without a quality mark and products with non-authentic quality marks is 0,553. The p-value is smaller than 0,05, which means that there is a significant difference. We accept the alternative hypothesis of a significant difference. So, based on this test we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with a non-authentic quality mark ($r_s=0,553$; p<0,001; n=87).

Table 13. Correlation between Authentic Quality Marks & No Quality Mark

Correlations

			PI_No_Before	PI_Authentic_ Before	
Spearman's rho	PI_No_Before	Correlation Coefficient	1,000	,621	
		Sig. (2-tailed)		,000	
		N	87	87	
	PI_Authentic_Before	Correlation Coefficient	,621	1,000	
		Sig. (2-tailed)	,000,		
		N	87	87	
**. Correlation is significant at the 0.01 level (2-tailed).					

As can be seen in table 13, the correlation coefficient between a product without a quality mark and products with authentic

product without a quality mark and products with authentic quality marks is 0,621. The p-value is smaller than 0,05, which means that there is a significant difference. We accept the alternative hypothesis of a significant difference. So, based on this test we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with an authentic quality mark (rs=0,621; p<0,001; n=87).

Based on the two Spearman's Rank-Order tests presented above, we can say that the alternative hypothesis of a significant difference can be accepted in both cases. So, based on this data set we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with an authentic or nonauthentic quality mark.

4.4.2 Correlation After Greenwashing

To be able to see whether this relation still holds after respondents were introduced to greenwashing, the following correlations have to be tested:

- PI no quality mark (mean of PI7) & PI non-authentic quality marks (mean of PI8 and PI9)
- PI no quality mark (mean of PI7) & PI authentic quality marks (mean of PI6 and PI10)

The sample size of 87 and the significance level of 5% (0,05) stay the same.

Table 14. Correlation between Non-authentic Quality Marks & No Quality Mark (After Greenwashing Awareness)

Correlations

			PI_No_After	PI_Nonauthe ntic_After
Spearman's rho	PI_No_After	Correlation Coefficient	1,000	,446
		Sig. (2-tailed)		,000,
		N	87	87
	PI_Nonauthentic_After	Correlation Coefficient	,446	1,000
		Sig. (2-tailed)	,000	
		N	87	87
**. Correlation	is significant at the 0.01 le	vel (2-tailed).		

Table 14 shows the correlation between a product without a quality mark and products with non-authentic quality marks. As can be seen the correlation coefficient is 0,446 and the p-value is smaller than 0,05. We accept the alternative hypothesis, which means that there is a significant difference. So, based on this test we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with a non-authentic quality mark (rs=0,446; p<0,001; n=87).

Table 15. Correlation between Authentic Quality Marks & No Quality Mark (After Greenwashing Awareness) Correlations

			PI_No_After	PI_Authentic_ After
Spearman's rho	PI_No_After	Correlation Coefficient	1,000	,502
		Sig. (2-tailed)		,000,
		N	87	87
	PI_Authentic_After	Correlation Coefficient	,502	1,000
		Sig. (2-tailed)	,000,	
		Ν	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

As can be seen in table 15, for the correlation between a product without a quality mark and products with authentic quality marks the correlation coefficient is 0,502. The p-value is lower than 0,05, which means that there is a significant difference. We accept the alternative hypothesis, which means that there is a significant difference. So, based on this test we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with an authentic quality mark ($r_s=0,502$; p<0,001; n=87).

Based on the two Spearman's Rank-Order tests presented above, we can say that the alternative hypothesis of a significant difference can be accepted in both cases. So, based on this data set we can say that there is a significant difference between purchase intention of a product without a quality mark and purchase intention of a product with an authentic or nonauthentic quality mark. We can conclude that the relation still holds after respondents were introduced to greenwashing.

4.4.3 Correlation of Control Variables with Purchase Intention

We performed correlation tests to see whether any of the control variables have an influence on purchase intention. We have a sample size of 87 and a significance level of 5% (0,05).

As mentioned before, the control question 'I am familiar with this quality mark' and 'I consider myself as an environmental friendly consumer' were asked. The statement 'I am familiar with this quality mark' was added in order to see whether there is a difference in answers between the authentic and non-authentic quality marks. As can be seen in the tables in chapter 7.4 there is a significant difference in six of the eight times that respondents were asked to rate their intention to purchase (p<0,05). Familiarity thus has a positive influence on purchase

intention, which means that purchase intention increases the more consumers are familiar with the quality mark. In two cases, namely those of the non-authentic quality marks before respondents were introduced to greenwashing, familiarity does not have an influence. After greenwashing was introduced familiarity is positively correlated in all cases.

Furthermore, based on the literature review it was expected that people are more sensitive to greenwashing if they already were environmental conscious. Therefore, respondents were given the statement 'I consider myself as an environmental friendly consumer'. As can be seen in the table in chapter 7.5 only the purchase intention for the product without a quality mark after greenwashing is introduced is not significant. In all other cases there is a significant difference (p<0,05), which means that the higher consumers consider themselves as being environmental friendly, the higher their purchase intention will be.

Additionally, previous research showed contradicting results for the age variable. There are studies that suggest there is no significant correlation between age and purchasing green products, while others suggest a significant positive or significant negative correlation (Finisterra, Raposo & Filho, 2009). Results show that only the non-authentic quality mark before greenwashing was introduced had a significant difference. This means that the older a consumer is, the higher the purchase intention is for this product. In all other cases there is no significant difference ($p \ge 0,05$), which means that age does not have an influence on purchase intention.

Furthermore, nationality and current place of residence show to have no correlation (see table in chapter 7.7). Two values are lower than 0,05 by a small margin of 0,007 and 0,001. We can disregard these and can say that these two control variables do not influence purchase intention.

Lastly, gender shows different results, as purchase intention for authentic quality marks before greenwashing shows that there is no significant difference (see table in chapter 7.8). In all other cases there is a significant difference, which means that men and women have different purchase intentions from each other. In the data set value 1 indicates a male and value 2 indicates a female. Based on the correlation matrix we can conclude that females are more likely to purchase a product; they have a higher purchase intention.

4.5 Wilcoxon Signed-Ranks Test

To see if there is a significant difference in purchase intention before and after greenwashing is introduced, a non-parametric Wilcoxon Signed-Ranks test is used. The sample size is 87 and a significance level of 5% (0,05) will be used. As the questionnaire made use of three types of quality marks, we have to perform three tests, namely:

- PI non-authentic quality mark Before (mean of PI1 and PI5) & PI non-authentic quality mark After (mean of PI8 and PI9)
- PI authentic quality mark Before (mean of PI2 and PI4) & PI authentic quality mark After (mean of PI6 and PI10)
- PI no quality mark Before (mean of PI3) & PI no quality mark After (mean of PI7)

The first test is between PI1+PI5 and PI8+PI9, which indicates the purchase intention of the products with the non-authentic quality marks 'earth globe' and 'coffee beans'. PI1+PI5 indicates the purchase intention before and PI8+PI9 after the introduction of greenwashing. In table 18 below can be seen that p=0,024, which is smaller than 0,05. Therefore we have to reject the null hypothesis and accept the alternative hypothesis. This means that there is a significant difference between purchase intention before and purchase intention after the introduction of greenwashing. This can be confirmed by table 16 and 17. As can be seen in table 17, 24 respondents had the same PI score before being introduced to greenwashing compared to after the introduction. 25 respondents had a lower PI score (positive ranks) and 38 respondents had a higher PI score (negative ranks) before greenwashing was introduced. Furthermore, table 16 shows that the mean before the introduction of greenwashing is higher than the mean after. A higher mean indicates a higher intention to purchase. So, the Wilcoxon Signed-Ranks test showed that making people aware of greenwashing did elicit a statistically significant change in purchase intention for products with non-authentic quality marks (Z=-2,252; p=0,024; n=87).

Table 16. Wilcoxon Test of Non-Authentic Quality Marks – Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
PI_Nonauthentic_Before	87	3,1015	1,02940	1,00	5,00
PI_Nonauthentic_After	87	2,8678	1,06783	1,00	5,00

Table 17. Wilcoxon Test of Non-Authentic Quality Marks – Ranks

		N	Mean Rank	Sum of Ranks
PI_Nonauthentic_After - PI_Nonauthentic_Before	Negative Ranks	38 ^a	35,16	1336,00
	Positive Ranks	25 ^b	27,20	680,00
	Ties	24°		
	Total	87		

a. PI_Nonauthentic_After < PI_Nonauthentic_Before

b. PI_Nonauthentic_After > PI_Nonauthentic_Before

c. PI_Nonauthentic_After = PI_Nonauthentic_Before

Table 18. Wilcoxon Test of Non-Authentic Quality Marks – Test Statistics

	PI_Nonauthe ntic_After - PI_Nonauthe ntic_Before				
Z	-2,252 ^b				
Asymp. Sig. (2-tailed)	,024				
a. Wilcoxon Signed Ranks Test					
b. Based on positive ranks.					

The second test is between PI2+PI4 and PI6+PI10, which indicates the purchase intention of the products with the authentic quality marks 'EKO' and 'rainforest alliance'. PI2+PI4 indicates the purchase intention before and PI6+PI10 after the introduction of greenwashing. In table 21 below can be seen that p=0,652, which is greater than 0,05. Therefore we have to accept the null hypothesis, which states that there is no significant difference between purchase intention before and purchase intention after the introduction of greenwashing. This can be confirmed by table 20. The table shows that 27 respondents had the same PI score before being introduced to greenwashing compared to after the introduction. 31 respondents had a lower PI score (positive ranks) and 29 respondents a higher score (negative ranks) before being introduced. Furthermore, table 19 shows that the mean does not differ much (2,9138 and 2,8525). So, a Wilcoxon Signed-Ranks test showed that making people aware of greenwashing did not elicit a statistically significant change in purchase intention for products with an authentic quality mark (Z=-0,451; p=0,652; n=87).

Table 19. Wilcoxon Test of Authentic Quality Marks – Descriptive Statistics

			Old Deviation	A Continue of the	Marilian	
	N	Mean	Std. Deviation	Minimum	Maximum	
PI_Authentic_Before	87	2,9138	,98005	1,00	5,00	
PI_Authentic_After	87	2,8525	,97330	1,00	5,00	

Table 20. Wilcoxon Test of Authentic Quality Marks – Ranks

		Ν	Mean Rank	Sum of Ranks
PI_Authentic_After - PI_Authentic_Before	Negative Ranks	29ª	33,66	976,00
	Positive Ranks	31 ^b	27,55	854,00
	Ties	27°		
	Total	87		
a. PI Authentic After < P	Authentic Before			

b. PI_Authentic_After > PI_Authentic_Before

c. PI_Authentic_After = PI_Authentic_Before

Table 21. Wilcoxon Test of Authentic Quality Marks – Test Statistics

	PI_Authentic_ After - PI_Authentic_ Before			
Z	-,451 ^b			
Asymp. Sig. (2-tailed)	,652			
a. Wilcoxon Signed Ranks Test				
b. Based on positive ranks.				

The third test is between PI3 and PI7, which indicates the purchase intention of the products without a quality mark. PI3 indicates the purchase intention before and PI7 after the introduction of greenwashing. In table 24 below can be seen that p=0,050, which is the same as the significance level. Therefore we have to accept the null hypothesis, which states that there is no significant difference between purchase intention before and purchase intention after the introduction of greenwashing. This can be confirmed by table 23. The table shows that 34 respondents had the same PI score before being introduced to greenwashing compared to after the introduction. 22 respondents had a lower PI score (positive ranks) and 31 respondents a higher score (negative ranks) before being introduced to greenwashing. Furthermore, table 19 shows that the mean does not differ much (2,5556 and 2,3831). So, a Wilcoxon Signed-Ranks test showed that making people aware of greenwashing did not elicit a statistically significant change in purchase intention for products without quality mark (Z=-1,962; p=0,050; n=87).

Table 22. Wilcoxon Test of No Quality Marks – Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
PI_No_Before	87	2,5556	1,03762	1,00	5,00
PI No After	87	2,3831	1,01860	1.00	4,33

Table 23. Wilcoxon Test of No Quality Marks – Ranks

		Ν	Mean Rank	Sum of Ranks
PI_No_After - PI_No_Before	Negative Ranks	31 ^a	30,16	935,00
	Positive Ranks	22 ^b	22,55	496,00
	Ties	34°		
	Total	87		

a. PI_No_After < PI_No_Before

b. PI_No_After > PI_No_Before

c. PI_No_After = PI_No_Before

Table 24. Wilcoxon Test of No Quality Marks – Test Statistics

PI_No_After -PI_No_Before

Z	-1,962 ^b			
Asymp. Sig. (2-tailed)	,050			
a. Wilcoxon Signed Ranks Test				

b. Based on positive ranks.

5. CONCLUSION AND CONTRIBUTIONS

5.1 Conclusion

To test the first hypothesis we used Spearman's Rank-Order correlation. We looked at the difference in purchase intention of products without quality marks and with authentic or non-authentic quality marks. We did this in 2 scenario's: one before greenwashing was introduced and one after greenwashing was introduced.

For the correlations before greenwashing we correlated the PI values of the product without a quality mark against the PI values of the products with authentic and non-authentic quality marks. Both tests showed that there was a significant difference in values (table 25). Furthermore, the correlation coefficient for authentic quality marks is higher than that of non-authentic quality marks.

So, based on this data set we can conclude that the purchase intention of products without quality marks is significantly different from the purchase intention of products with quality marks.

Table 23. Over view Results Delore Greenwashin	Table 25.	Overview	Results	Before	Greenwashi	ing
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Correlation before greenwashing

PI no quality mark					
& PI non-authentic	(r _s =0,553; p<0,001)	Validated			
quality marks	_				
PI no quality mark					
& PI authentic quality	(r _s =0,621; p<0,001)	Validated			
marks					

For the correlations after greenwashing was introduced we also correlated the PI values of the product without a quality mark against the PI values of the products with authentic and nonauthentic quality marks. Again, both tests showed that there was a significant difference in values (table 26). Also, the correlation coefficient for authentic quality marks is higher than that of nonauthentic quality marks.

So, based on this data set we can conclude that the purchase intention of products without quality marks is significantly different from the purchase intention of products with quality marks.

Table 26. Overview Results After Greenwashing

Correlation after greenwashing					
PI no quality mark & PI non-authentic	(rs=0,446; p<0,001)	Validated			
quality marks					
PI no quality mark	(m=0.502; n=0.001)	Validated			
& PI authentic quality marks	(IS=0,502, p<0,001)	v anuateu			

In both settings the presence of a quality mark on packages positively influences consumers' intention to purchase the product. Therefore, we can say that the first set of hypotheses is validated.

- H1: The presence of a quality mark on packages will positively affect consumer's intention to purchase the product. VALIDATED
- H1A: The intention to purchase a product without a quality mark will be lower than the purchase intention of a product with a quality mark. VALIDATED

- H1B: The intention to purchase a product with a nonauthentic quality mark will be higher than the purchase intention of a product without a quality mark. VALIDATED
- H1C: The intention to purchase a product with an authentic quality mark on packages will be the higher than the purchase intention of a product with a non-authentic quality mark. VALIDATED

To test the second hypothesis we used Wilcoxon Signed-Ranks test. We looked at the differences in purchase intention before awareness of greenwashing and after awareness of greenwashing. Results show that in two of the three cases there is no significant difference in purchase intention (table 27).

For the products with authentic quality marks and without quality marks, consumers do not change their purchase intention. Tests show that there is no significant difference. For products with a non-authentic quality mark consumers do change their purchase intention negatively, as the test shows that there is a significant difference.

So, based on this data set we can say that awareness of greenwashing has some effect on purchase intention. Therefore, we have to reject H2A and H2B and accept H2C.

Table 27. Ov	verview	Results	of Infl	uence of	Greenwashing
--------------	---------	---------	---------	----------	--------------

Wilcoxon				
PI non-authentic				
quality mark Before	(7 - 2.252, n - 0.024)	Validated		
& PI non-authentic	(Z=-2,252, p=0,024)	v alluateu		
quality mark After				
PI authentic quality				
mark Before	(7 - 0.451, n - 0.652)	Dejected		
& PI authentic quality	(Z=-0,451, p=0,052)	Rejecteu		
mark After				
PI no quality mark				
Before	(7-1.062, n-0.050)	Dejected		
& PI no quality mark	(Z=-1,902, p=0,030)	Rejecteu		
After				

- H2: The more a consumer is aware of greenwashing, the lower is the intention to purchase a product with a quality mark. PARTIALLY VALIDATED
- H2A: The intention to purchase a product without a quality mark will be higher after the consumer is made aware of greenwashing. REJECTED
- H2B: The intention to purchase a product with an authentic quality mark will be lower after the consumer is made aware of greenwashing. REJECTED
- H2C: The intention to purchase a product with a nonauthentic quality mark will be the lowest after the consumer is made aware of greenwashing. VALIDATED

To conclude, consumers' purchase intention is influenced by awareness of greenwashing to some extent. As results show purchase intention of products with non-authentic quality marks is negatively influenced by creating awareness. However, tests also show that purchase intention of products without quality marks and products with authentic quality marks is not influenced. Additionally, tests show that gender, familiarity of quality marks, and environmental consciousness have a positive influence on purchase intention, whereas age, nationality, and current place of residence do not have an influence on purchase intention.

5.2 Theoretical Contribution

Previous research by Chi, Yeh & Yang (2009) showed that a higher perceived quality can heighten consumers' purchase intention. Research by Song (2017) and Singh & Sharma (2013) showed that quality marks can provide a higher perceived quality. Furthermore, the paper by Aji & Sutikno (2015) explained the consequences that greenwashing could have. However, to the best of our knowledge no research was done on the effects that greenwashing could have on the purchase intention of products with quality marks. Therefore, this paper aimed to combine existing research and to provide extended knowledge on the effects of quality marks, its influence on purchase intention, and the influence of awareness of greenwashing on this relation. Results show that quality marks positively influence purchase intention, both before and after consumers are made aware of greenwashing. Furthermore, it also shows that purchase intention changes to some degree when consumers are made aware of greenwashing, as purchase intention of non-authentic quality marks decreases.

5.3 Practical Contribution

The practical contribution of this research focuses on the implications it can have for marketing purposes. Companies that do not currently use quality marks can see that it has a positive influence on purchase intention, irrelative of greenwashing. They can thus consider to start and make use of quality marks to possibly increase sales. It is a way for companies to make consumers aware that they actively engage in green activities and that their products are different from other products. Using quality marks can thus be an opportunity for a company to differentiate themselves from competitors who do not engage in these activities. Furthermore, results of this study show that awareness of greenwashing has a negative impact on the sales of products with non-authentic quality marks. Companies should take this into account, as consumers do pay attention. Moreover, companies that use non-authentic quality marks can see that it does not have the expected outcome. Using a quality mark does give an advantage, but using authentic marks yields more value than a non-authentic one. Nonetheless, this thesis focuses on a small aspect that influences purchase intention, namely the use of quality marks and the influence of consumer awareness of greenwashing. It cannot cover all aspects that greenwashing has an influence on. The purpose of this paper is to contribute to existing knowledge, but further research needs to be done to be able to understand the whole framework of greenwashing.

6. **DISCUSSION**

This research has a few limitations. Firstly, the questionnaire was distributed by using personal connections (snowball sampling bias) and by using platforms that are designed to get respondents. Therefore, the data set might not accurately represent the population and might not be entirely random. Furthermore, the responses were collected in a short period of time (2,5 weeks) and the study is micro in nature as the sample size is 87. Moreover, the results are based on two authentic quality marks, but also on two non-authentic quality marks that were designed specifically for this study. Therefore, results can be biased, as in real life both authentic and non-authentic quality marks can have the same level of familiarity to consumers. The non-authentic quality marks in this study were completely new to consumers, although some indicated to be familiar with the marks. Consumers have to rely on their trust and many other factors in their decision making process. This study is therefore small in nature as it only focused on purchase intention. Also, a fictional product was created in order to minimize bias of prejudiced opinions of existing brands. However, this fictional product

might not be as appealing to consumers as products that are available in supermarkets. Moreover, results show that purchase intention is partially influenced by greenwashing, as it decreases for products with non-authentic quality marks. However, we also expected purchase intention of products without quality marks to increase and products with authentic quality marks to decrease to some degree. Results show that this is not the case; these hypotheses cannot be confirmed. Also, familiarity of quality marks showed to have a positive influence on products with authentic quality marks, but not on those with non-authentic ones before greenwashing was introduced. It was expected that familiarity would have a positive influence on authentic quality marks and a negative influence on non-authentic quality marks. This is not confirmed, as the influence is positive in all cases. As expected environmental consciousness of consumers had a positive influence on purchase intention in five out of the six cases. Furthermore, females seem to be have a higher purchase intention than men, which was not expected. All in all, there are a lot of underlying factors that were not taken into account in this research and only four quality marks were used in the process of this research. Further research needs to be done to see if this sample is representative, as well as to get a better understanding of other factors that have an influence on purchase intention. Moreover, it would be interesting to see how the control variables that were used in this study influence purchase intention in more depth, as well as to research the influence of existing quality marks in more detail.

7. APPENDICES

7.1 Questionnaire

Informed Consent

Before you proceed in this questionnaire, please read the information below regarding informed consent.

Please be aware that your participation in this research is completely voluntary and that you can stop participating at any time. Under no circumstances will your real name or personal information be included in the report of this research. Nobody, except the researcher and the research supervisor, will have access to the anonymous material. Your data will be treated in a confidential manner and the research results will be published without personal information. Your personal data will not be given to third parties without your permission. If you have any questions or complaints about this research, you may contact the researcher at s.c.bordewijk@student.utwente.nl.

If you continue to fill in this questionnaire, you indicate that you have read and understood the informed consent, and have been informed in a manner which is clear to you about the nature and method of the research. By proceeding you agree with participating in this study.

Introduction

When answering the following questions please imagine you are doing your regular groceries in a supermarket. You are looking to buy coffee and come across the following product.

You will see 5 different packages of the same product, but without or with different quality marks. Quality marks (keurmerk in Dutch) can be used by companies to demonstrate that their products meet certain standards, such as being environmental friendly.

For each picture please indicate the degree to which you agree or disagree with the following statements.

(The statements are the four items as presented in chapter 3.2.)

(Below only the quality marks are shown, the complete pictures can be found in chapter 7.2.)



Q1 Non-authentic quality mark 'earth globe'



Q2 Authentic quality mark 'EKO'



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Q3 No quality mark



Q4 Authentic quality mark 'rainforest alliance'



Q5 Non-authentic quality mark 'coffee beans'

Introduction Greenwashing

Nowadays, a lot of products have quality marks. However, some quality marks are made up by companies themselves. The claims of these quality marks have not been checked and verified by a third party (onafhankelijke partij). So, the environmental friendly claims can be fake and may deceive consumers into thinking that the product has environmental benefits. This is called greenwashing.

Again, you will see 5 different types of packaging. For each picture please indicate the degree to which you agree or disagree with the following statements.

(The statements are the four items as presented in chapter 3.2 and an additional statement 'I am familiar with this quality mark'.)

(Again, the complete pictures can be found in chapter 7.2.)

Q6 Authentic quality mark 'rainforest alliance'

Q7 No quality mark

Q8 Non-authentic quality mark 'earth globe'

Q9 Non-authentic quality mark 'coffee beans'

Q10 Authentic quality mark 'EKO'

Demographic questions

How old are you?

What is your gender?

- Male
- Female
- Other

What is your nationality?

- Netherlands
- Other

Where do you currently live?

- Netherlands
- Other

I consider myself as an environmental friendly consumer

Strongly disagree to strongly agree

Do you have anything that you would like to add and/or do you have any questions?

7.2 Questionnaire Pictures



Figure 5 – Non-Authentic Quality Mark 'coffee beans'

Figure 6 – Non-Authentic Quality Mark 'earth globe'

7.3 Frequency Tables of Familiarity

Table 28. Familiarity of 'Rainforest Alliance' Quality Mark Question 6 - I am familiar with this quality mark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	25	28,7	28,7	28,7
	Somewhat disagree	11	12,6	12,6	41,4
	Neither agree nor disagree	13	14,9	14,9	56,3
	Somewhat agree	21	24,1	24,1	80,5
	Strongly agree	17	19,5	19,5	100,0
	Total	87	100,0	100,0	

Table 29. Familiarity of Non-Authentic Quality Mark'Earth Globe'

Question 8 - I am familiar with this quality mark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	31	35,6	35,6	35,6
	Somewhat disagree	18	20,7	20,7	56,3
	Neither agree nor disagree	20	23,0	23,0	79,3
	Somewhat agree	15	17,2	17,2	96,6
	Strongly agree	3	3,4	3,4	100,0
	Total	87	100,0	100,0	

Table 30. Familiarity of Non-Authentic Quality Mark 'Coffee Beans'

Question 9 - I am familiar with this quality mark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	35	40,2	40,2	40,2
	Somewhat disagree	18	20,7	20,7	60,9
	Neither agree nor disagree	16	18,4	18,4	79,3
	Somewhat agree	14	16,1	16,1	95,4
	Strongly agree	4	4,6	4,6	100,0
	Total	87	100,0	100,0	

Table 31. Familiarity of 'EKO' Quality Mark Question 10 - I am familiar with this quality mark

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	40	46,0	46,0	46,0
	Somewhat disagree	15	17,2	17,2	63,2
	Neither agree nor disagree	9	10,3	10,3	73,6
	Somewhat agree	15	17,2	17,2	90,8
	Strongly agree	8	9,2	9,2	100,0
	Total	87	100,0	100,0	

7.4 Correlation of Familiarity

 Table 32. Familiarity of Non-authentic Quality Mark 'earth globe'

			PI_Q1_mean	PI_Q8_mean	Question 8 - I am familiar with this quality mark		
Spearman's rho	PI_Q1_mean	Correlation Coefficient	1,000	,551	,185		
		Sig. (2-tailed)		,000	,087		
		N	87	87	87		
	PI_Q8_mean	Correlation Coefficient	,551	1,000	,539		
		Sig. (2-tailed)	,000		,000		
		N	87	87	87		
	Question 8 - I am familiar	Correlation Coefficient	,185	,539	1,000		
	with this quality mark	Sig. (2-tailed)	,087	,000			
		N	87	87	87		
**. Correlation is significant at the 0.01 level (2-tailed).							

Table 33. Familiarity of Authentic Quality Mark 'EKO'

			PI_Q2_mean	PI_Q10_mea n	Question 10 - I am familiar with this quality mark
Spearman's rho	PI_Q2_mean	Correlation Coefficient	1,000	,677	,314
		Sig. (2-tailed)		,000	,003
		N	87	87	87
	PI_Q10_mean	Correlation Coefficient	,677	1,000	,470
		Sig. (2-tailed)	.000		,000
		N	87	87	87
	Question 10 - I am familiar with this quality mark	Correlation Coefficient	,314	,470	1,000
		Sig. (2-tailed)	,003	,000	
		N	87	87	87
**. Correlation	is significant at the 0.01 leve	N I (2-tailed).	87	87	

 Table 34. Familiarity of Authentic Quality Mark 'rainforest alliance'

			PI_Q4_mean	PI_Q6_mean	Question 6 - I am familiar with this quality mark
Spearman's rho	PI_Q4_mean	Correlation Coefficient	1,000	,721	,298
		Sig. (2-tailed)		,000	,005
		Ν	87	87	87
	PI_Q6_mean	Correlation Coefficient	,721	1,000	,518
		Sig. (2-tailed)	,000		,000
		Ν	87	87	87
	Question 6 - I am familiar	Correlation Coefficient	,298	,518	1,000
	with this quality mark	Sig. (2-tailed)	,005	,000	
		N	87	87	87

Correlation is significant at the 0.01 level (2-tailed).

Table 35. Familiarity of Non-authentic Quality Mark 'coffee beans'

			PI_Q5_mean	PI_Q9_mean	Question 9 - I am familiar with this quality mark
Spearman's rho	PI_Q5_mean	Correlation Coefficient	1,000	,512	,205
		Sig. (2-tailed)		,000	,057
		N	87	87	87
	PI_Q9_mean	Correlation Coefficient	,512	1,000	,420
		Sig. (2-tailed)	,000		,000
		N	87	87	87
	Question 9 - I am familiar	Correlation Coefficient	,205	,420	1,000
	with this quality mark	Sig. (2-tailed)	,057	,000	
		N	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

7.5 Correlation of Environmental Consciousness

			Environmenta I Consciousne ss - I consider myself as an environmenta I friendly consumer	PI_Nonauthe ntic_Before	PI_Nonauthe ntic_After	PI_Authentic_ Before	PI_Authentic_ After	PI_No_Before	PI_No_After
Spearman's rho	Environmental	Correlation Coefficient	1,000	,246	,299	,306**	,312**	,250	,188
	consider myself as an	Sig. (2-tailed)		,022	,005	,004	,003	,020	,082
	consumer	Ν	87	87	87	87	87	87	87
	PI_Nonauthentic_Before	Correlation Coefficient	,246	1,000	,583	,793	,731 **	,553 ^{**}	,435 ^{**}
		Sig. (2-tailed)	,022		,000,	,000	,000,	,000,	,000
		Ν	87	87	87	87	87	87	87
	PI_Nonauthentic_After	Correlation Coefficient	,299	,583	1,000	,439**	,582	,363	,446
		Sig. (2-tailed)	,005	,000,		,000	,000,	,001	,000
		Ν	87	87	87	87	87	87	87
	PI_Authentic_Before	Correlation Coefficient	,306	,793	,439	1,000	,746	,621 ***	,492
		Sig. (2-tailed)	,004	,000,	,000,		,000,	,000,	,000,
		Ν	87	87	87	87	87	87	87
	PI_Authentic_After	Correlation Coefficient	,312	,731	,582	,746	1,000	,536	,502
		Sig. (2-tailed)	,003	,000,	,000,	,000		,000,	,000,
		Ν	87	87	87	87	87	87	87
	PI_No_Before	Correlation Coefficient	,250 [*]	,553**	,363	,621**	,536 ^{**}	1,000	,728**
		Sig. (2-tailed)	,020	,000,	,001	,000	,000		,000
		N	87	87	87	87	87	87	87
	PI_No_After	Correlation Coefficient	,188	,435	,446	,492	,502	,728	1,000
		Sig. (2-tailed)	,082	,000,	,000,	,000	,000	,000,	
		Ν	87	87	87	87	87	87	87

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

7.6 Correlation of Age

Table 37. Influence of Age on Purchase Intention

			Age	PI_Nonauthe ntic_Before	PI_Nonauthe ntic_After	PI_Authentic_ Before	PI_Authentic_ After	PI_No_Before	PI_No_After
Spearman's rho	Age	Correlation Coefficient	1,000	-,294**	-,093	-,201	-,125	-,206	-,199
		Sig. (2-tailed)		,006	,392	,062	,247	,056	,064
		Ν	87	87	87	87	87	87	87
	PI_Nonauthentic_Before	Correlation Coefficient	-,294 **	1,000	,583	,793	,731	,553	,435**
		Sig. (2-tailed)	,006		,000	,000,	,000,	,000	,000
		Ν	87	87	87	87	87	87	87
	PI_Nonauthentic_After	Correlation Coefficient	-,093	,583	1,000	,439	,582	,363**	,446**
		Sig. (2-tailed)	,392	,000,		,000,	,000,	,001	,000
		Ν	87	87	87	87	87	87	87
	PI_Authentic_Before	Correlation Coefficient	-,201	,793**	,439**	1,000	,746**	,621**	,492**
		Sig. (2-tailed)	,062	,000	,000		,000,	,000 ,001 87 87 746" ,621" ,000 ,000 87 87 1,000 ,536"	,000
		Ν	87	87	87	87	87	87	87
	PI_Authentic_After	Correlation Coefficient	-,125	,731**	,582	,746***	1,000	,536**	,001 ,000 87 87 ,621** ,492** ,000 ,000 87 87 ,536** ,502** ,000 ,000 87 87 87 ,502** ,000 ,000 87 87
		Sig. (2-tailed)	,247	,000,	,000	,000,		,000	,000,
		Ν	87	87	87	87	87	47 ,056 37 87 37 ,553 00 ,000 37 87 2" ,363 00 ,001 37 87 2" ,363 00 ,001 37 87 00 ,000 37 87 00 ,536 . ,000 37 87 30 ,536 . ,000 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 37 87 38 38 39 ,728	87
	PI_No_Before	Correlation Coefficient	-,206	,553	,363	,621	,536	1,000	,728**
		Sig. (2-tailed)	,056	,000	,001	,000	,000		,000
		Ν	87	87	87	87	87	87	87
	PI_No_After	Correlation Coefficient	-,199	,435	,446**	,492	,502	,728**	1,000
		Sig. (2-tailed)	,064	,000,	,000,	,000	,000	,000	
		Ν	87	87	87	87	87	87	87

**. Correlation is significant at the 0.01 level (2-tailed).

7.7 Correlation of Nationality and Current Place of Residence

Table 38. Influence of Nationality and Place of Residence on Purchase Intention

Correlations											
			Nationality	Current Place of Residence	PI_Nonauthe ntic_Before	PI_Nonauthe ntic_After	PI_Authentic_ Before	PI_Authentic_ After	PI_No_Before	PI_No_After	
Spearman's rho	Nationality	Correlation Coefficient	1,000	,710**	,126	,212	,034	,030	,188	,091	
		Sig. (2-tailed)		,000	,244	,049	,758	,781	,081	,400	
		N	87	87	87	87	87	87	87	87	
	Current Place of	Correlation Coefficient	,710	1,000	-,025	,111	-,080	-,043	,117	,081	
	Residence	Sig. (2-tailed)	,000		,815	,307	,460	,690	,282	,455	
		N	87	87	87	87	87	87	87	87	
	PI_Nonauthentic_Before	Correlation Coefficient	,126	-,025	1,000	,583	,793**	,731**	,553**	,435	
		Sig. (2-tailed)	,244	,815		,000	,000	,000	,000	,000	
		Ν	87	87	87	87	87	87	87	87	
	PI_Nonauthentic_After	Correlation Coefficient	,212	,111	,583	1,000	,439**	,582	,363**	,446**	
		Sig. (2-tailed)	,049	,307	,000		,000,	,000	,001	,000	
		N	87	87	87	87	87	87	87	87	
	PI_Authentic_Before	Correlation Coefficient	,034	-,080	,793**	,439	1,000	,746**	,621**	,492	
		Sig. (2-tailed)	,758	,460	,000	,000		,000	,000	,000	
		N	87	87	87	87	87	87	87	87	
	PI_Authentic_After	Correlation Coefficient	,030	-,043	,731**	,582	,746**	1,000	,536	,502	
		Sig. (2-tailed)	,781	,690	,000,	,000	,000		,000	,000,	
		N	87	87	87	87	87	87	87	87	
	PI_No_Before	Correlation Coefficient	,188	,117	,553	,363	,621**	,536	1,000	,728	
		Sig. (2-tailed)	,081	,282	,000	,001	,000	,000		,000	
		N	87	87	87	87	87	87	87	87	
	PI_No_After	Correlation Coefficient	,091	,081	,435**	,446**	,492**	,502	,728**	1,000	
		Sig. (2-tailed)	,400	,455	,000	,000	,000	,000	,000		
		N	87	87	87	87	87	87	87	87	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

7.8 Correlation of Gender

Table 39. Influence of Gender on Purchase Intention

Correlations	
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			Gender	PI_Nonauthe ntic_Before	PI_Nonauthe ntic_After	PI_Authentic_ Before	PI_Authentic_ After	PI_No_Before	PI_No_After
Spearman's rho	Gender	Correlation Coefficient	1,000	,243	,215	,173	,246	,278	,260
		Sig. (2-tailed)		,024	,046	,109	,022	,009	,015
		N	87	87	87	87	87	87	87
	PI_Nonauthentic_Before	Correlation Coefficient	,243	1,000	,583**	,793**	,731**	,553**	,435**
		Sig. (2-tailed)	,024		,000	,000	,000	,000	,000
		N	87	87	87	87	87	87	87
	PI_Nonauthentic_After	Correlation Coefficient	,215	,583**	1,000	,439**	,582**	,363**	,446**
		Sig. (2-tailed)	,046	,000		,000	,000	,001	,000
		N	87	87	87	87	87	87	87
	PI_Authentic_Before	Correlation Coefficient	,173	,793**	,439	1,000	,746**	,621**	,492**
		Sig. (2-tailed)	,109	,000	,000,		,000	,000	,000
		N	87	87	87	87	87	87	87
	PI_Authentic_After	Correlation Coefficient	,246	,731	,582	,746**	1,000	,536	,502
		Sig. (2-tailed)	,022	,000,	,000,	,000		,000,	,000,
		N	87	87	87	87	87	87	87
	PI_No_Before	Correlation Coefficient	,278	,553	,363	,621	,536	1,000	,728
		Sig. (2-tailed)	,009	,000,	,001	,000	,000		,000,
		N	87	87	87	87	87	87	87
	PI_No_After	Correlation Coefficient	,260	,435	,446	,492	,502	,728	1,000
		Sig. (2-tailed)	,015	,000,	,000,	,000	,000	,000,	
		N	87	87	87	87	87	87	87

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

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