IP Sustainability in Global Supply Chains

A stakeholder perspective

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Abstract

This report gathers the work of 11 Master students within the Interdisciplinary Practical Training (IP) on the topic of Sustainability in Global Supply Chains, in the Winter Semester 2016-2017, at the University of Graz, Austria. The teachers were: Prof. Rupert Baumgartner, Matthias Damert, Morgane Fritz and Josef-Peter Schöggl.

This report consists of three papers on different topics related to sustainability in global supply chains. The students were asked to identify a research gap in the field with a focus on an industry of their choice and conducted research to contribute to filling this gap. As research methods literature reviews, surveys and interviews have been used and the results were presented in form of a scientific paper. Each paper was subject to an internal review process between each students´ group and the teachers.

The students presented very interesting and sometimes surprising results that are relevant for researchers in the field of sustainability in supply chains. We hence decided to publish their papers in this report to make their findings publicly available, to enable students promote their work, and to encourage further practical training courses at the Unviersity of Graz.

Rupert Baumgartner, Matthias Damert, Morgane Fritz, and Josef-Peter Schöggl

Graz, 19th September 2017

Kurzfassung

Dieser Bericht enthält die Ergebnisse der Arbeit von 11 Masterstudierenden im Rahmen des Interdisziplinären Praktikums (IP) " Nachhaltigkeit in Globalen Lieferketten", im Wintersemester 2016-2017 an der Universität Graz. Die Lehrenden waren: Prof. Rupert Baumgartner, Matthias Damert, Morgane Fritz und Josef-Peter Schöggl.

Dieser Bericht besteht aus drei Beiträgen zu Themen der Nachhaltigkeit in globalen Lieferketten. Die StudentInnen haben sich darum bemüht, eine Forschungslücke auf dem Gebiet zu ermitteln, die sich auf eine Branche ihrer Wahl bezieht, um mit eigener Forschung dazu beizutragen, diese Lücke zu schließen. Sie führten ihre Forschungen mit Forschungsmethoden wie Literaturrecherchen, Umfragen und Interviews durch und präsentierten ihre Ergebnisse in Form eines wissenschaftlichen Artikels. Jeder wissenschaftlicher Artikel war Gegenstand eines internen Review-Prozesses zwischen jeder Schülergruppe und den Dozenten.

Die Studierenden präsentierten sehr interessante und manchmal überraschende Ergebnisse, die für ForscherInnen auf dem Gebiet der Nachhaltigkeit in Lieferketten relevant sind. Wir haben uns daher entschlossen, ihre Artikel in diesem Bericht zu veröffentlichen, um ihre Erkenntnisse öffentlich zugänglich zu machen, den interdisziplinäre Lehrveranstaltungen an der Universität Graz zu fördern.

Rupert Baumgartner, Matthias Damert, Morgane Fritz und Josef-Peter Schöggl

Graz, 19. September 2017

Inhalt

1. Editorial

Interdisciplinary Practical Training Courses at the University of Graz

The University of Graz offers the unique study program Environmental System Sciences with four fields of specialization, both as a Bachelor and a Master program. Students can choose a specialization in Business Administration, Geography, Economics or Natural Sciences-Technology, which accounts for approximately 70% of their total courses. Additionally, a minor-specialization can be freely chosen under some conditions. This organization, together with further teaching and training in the fields of system-sciences offers an interdisciplinary structure with high regard to a broad methodology and a high standard of knowledge.

In its early days, the program of Environmental System Sciences was initiated by an active group of students. The tradition of active and independent student groups has so far continued and is the core of the organizational process for the Interdisciplinary Practical Training Courses (IPs), which are usually initiated in a highly participatory process by the students themselves. Additionally, the organizers are supported by an active group of students, which are themselves at different stages in their studies.

The IPs are held on a Bachelor- and Master-degree level and are organized on various teaching frameworks. The experiences over the last years have proven the potential and also the pitfalls of this open format, which allows individual initiative and demands personal responsibility from both students and lecturers.

The present IP dealt with the problem of improving sustainability, i.e. reducing negative environmental and social impacts, in global supply chains with a focus on the role of external stakeholders such as consumers or NGOs. In the beginning of winterterm 2016/17 students were provided with an overview of ecological, social and economic key issues in today´s supply chains and introduced to theories on sustainable supply chain (SSCM) and stakeholder management (SM). In addition, Dr. Ulla Saari from the Technical University of Tampere, Finland, and Tim Zahn, NGO coordinator within the Partnership for Sustainable Textiles, held presentations either in the classroom or via an online lecture in the videoconference room of the university. Following these introductory lectures the students conducted their own empirical research, addressing current research gaps in SSCM and SM. The students worked in 3 groups of 3-4 persons in which they each wrote a seminar paper in accordance with the requirements of a scientific journal. In parallel the students also organized the public event "Des einen Freud, des anderen Leid", which took place in the regional parliament of Styria (Landtag Steiermark) at the end of the semester. In this event, introduced and welcomed by the President of the regional parliament herself, Mrs. Dr. Bettina Vollath, the students presented their research results to the public and held a panel discussion with Alexandra Loidl (Fairtrade Graz), Susanne Wolf (author, blogger, journalist), David Horvath (Südwind Steiermark) and Herbert Sigmund Benzinger (ZERUM).

The following seminar papers are presented in this report:

- Danklmaier Andrea, Höller Christina, Krebs Christine, Oberreiter Manuel. *Scandals, Corporate Reputation and Crisis Management Strategies in the Sports Apparel Branch: A Multiple Case-Study*

- Marc Beeg, Michael Peer, Raffaela Reindl, Bernhard Schrempf. *Consumer-based Brand Equity and Sustainable Supply Chain Perceptions: Evidence for the Halo Effect?*

- Mayra del Pilar Quiroz Galvan, Philipp Schörgendorfer, Sülwer-Patrick Jason. *Impact of product and company sustainability information on consumer behaviour in the apparel industry*

Content of the articles

- *Scandals, Corporate Reputation and Crisis Management Strategies in the Sports Apparel Branch: A Multiple Case-Study*

Brand crises, also known as scandals, disappoint consumers' expectations and subsequently threaten brand reputations. Depending on the type of crises that occurred, a brand can take different strategies of corporate responses to the crises in order to keep the reputational damage low and restore brand equity. These crisis management strategies range from defensive actions of denying to accommodative actions where responsibility is taken. Scandals, their associated reputational effects and response strategies are well reported in the literature. Research furthermore indicates that in theory more accommodative strategies are better in terms of restoring the reputation of a brand irrespective of the type of brand crisis. However, there has been little investigation on whether this theory matches practical application. To contribute to bridging this knowledge gap, this paper conducts a multiple case study that involves two strong brands of the sports apparel branch. Within this case study crisis types and response strategies have been analysed to prove that the theory -more accommodative strategies are more suitable for restoring the post-crisis brand reputation- is feasible also in reality.

- *Consumer-based Brand Equity and Sustainable Supply Chain Perceptions: Evidence for the Halo Effect?*

In recent decades, globalisation has enabled firms to concentrate and expand their supply chain networks. The distribution of production processes has increased economic value, however it has been accompanied by environmental and social issues, e.g. water and air pollution, child labor and health and safety concerns. Due to stakeholder pressures, companies implement measures to improve their environmental and social performance. While a significant part of scientific research has addressed the impacts of sustainable business practices on brand equity or consumer perceptions, this study investigates the inverse relation. Often referred to as “halo”, attribute ratings regularly contain a holistic impression of a brand, which describes the effect when perceptions of a brand’s performance on a specific attribute are influenced by perceptions of another attribute. By conducting a survey among 449 students, a possible relation between consumer-based brand equity (CBBE) and sustainable supply chain management (SSCM) perceptions for smartphone brands is analysed. The results disclose that consumer perceptions of a brand’s SSCM performance are significantly associated with a brand’s CBBE, though the impacts are varying in magnitude and significance across brands. In particular, certain attributes, such as perceived quality and brand associations, showed to fuel halo perceptions among common smartphone brands.

- *Impact of product and company sustainability information on consumer behaviour in the apparel industry*

The main goal of this paper is to assess the effect of information about corporate social responsibility and environmental effects of the apparel industry given to consumers via labels onto their purchasing decisions. This study explores the association between socio- demographic variables and green consumer behaviour and additionally evaluates the variables green purchase intention (GPI) and green purchase behaviour (GPB). An online survey containing a choice based conjoint analysis (CBC) was administered to 324 students of the University of Graz. The object of study was a basic grey T-shirt presented with a set of criteria which has been identified to be of high relevance for consumers when purchasing clothes: Price (Low-priced, Medium-priced, High-priced), Brand (H&M, Diesel, Hugo Boss), and Quality (High quality, Medium quality, Low Quality). In addition to these attributes three eco-labels were included in order to assess their influence on consumer purchases: Fair Trade, Fair Wear and GOTS. Two distinct clusters of respondents with high and low environmental concern were formed. The results showed that there are not sharp relationships between socio- demographic variables and high/low environmentally-friendly behaviour. Segments with strong beliefs and attitudes towards ethical consumption though exhibit a higher GPI responding to environmental and social labels. GOTS and Fair Wear labels featured in clothes’ tags don’t have a high significant and positive effect on consumers' green purchase behaviour: they were not preferred by the respondents when choosing which product to buy. However, respondents were more prompt to use Fair Trade as a guideline to make a purchase decision. Brand resulted to be the most influential factor when deciding what to purchase followed by quality, price and lastly eco-labels. Based on these finding, efforts need to be made in order to increase consumers' familiarity with eco-labels and to create long-lasting pro-environmental purchasing practices.

Limitations and disclaimer

The work presented here is the work of students done in a course during one semester. The students are no specialists in sustainable supply chain management research and it was the first time for most of them to write such a research paper according to academic standards. Their work might contain errors and inconsistencies. Therefore, the following disclaimer applies: The readers of this edited volume are fully responsible for the use of the herein presented work. The editors and authors do not claim completeness, correctness or full consistency and will not be liable for any loss, damage or costs incurred by reason of using information from this publication.

2. Seminar papers

Scandals, Corporate Reputation and Crisis Management Strategies in the Sports Apparel Branch: A Multiple Case-Study

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Abstract

Brand crises, also known as scandals, disappoint consumers' expectations and subsequently threaten brand reputations. Depending on the type of crises that occurred, a brand can take different strategies of corporate responses to the crises in order to keep the reputational damage low and restore brand equity. These crisis management strategies range from defensive actions of denying to accommodative actions where responsibility is taken. Scandals, their associated reputational effects and response strategies are well reported in the literature. Research furthermore indicates that in theory more accommodative strategies are better in terms of restoring the reputation of a brand irrespective of the type of brand crisis. However, there has been little investigation on whether this theory matches practical application. To contribute to bridging this knowledge gap, this paper conducts a multiple case study that involves two strong brands of the sports apparel branch. Within this case study crisis types and response strategies have been analyzed to prove that the theory -more accommodative strategies are more suitable for restoring the post-crisis brand reputation- is feasible also in reality.

Keywords: brand misconduct; crisis types; crisis management

1. Introduction

Brand misconduct or brand crises are adverse events that disappoint consumers' expectations of a brand or company, for example the alleged use of child labor in soccer ball factories contracted by Adidas and Nike (Coombs 2007; Dutta and Pullig 2011). Companies continually strive to improve and protect their reputation and their brand equity, however the appearance of brand crises within the supply chain of a company can harm the brand's equity in several ways depending on the type of crisis and the crisis management strategy a company takes to counteract the brand misconduct (Dutta and Pullig 2011). This paper therefore investigates different types of crises that can occur within the supply chain, the effects of crises on corporate reputation and corporate responses to crises with the objective to reestablish a good reputation of the company.

Previous studies mainly focused on how brand misconduct affects the brand-consumer relationship (Huber et al 2010; Hsiao et al. 2015; Jeon and Baeck 2016) and what crisis management strategies can be used to protect a company's reputation during a crisis (Coombs 2007; Dutta and Pullig 2011; Ponis and Ntalla 2016). However until now no satisfactory knowledge about the link between crisis types, corporate reputation and crisis management strategies exists. Furthermore no research has investigated the correlation between the theoretical knowledge in this field and the practical application in a real world scenario. For this reason, this paper first conducts a review of the existing literature to summarize the theoretical knowledge in the area of crisis types, impact of crises on corporate reputation and crisis management strategies and subsequently analyzes in a multiple case study to what extend the theory matches the practical implementation. Particular emphasis in the analysis of crisis management strategies applied in the cases of Nike and Adidas is placed on the hypothesis that more accommodative strategies to mitigate or minimize the effects of crises are better in ways of keeping the reputational damage low since this is the overall agreement within the literature (Comyns and Franklin-Johnson 2016).The paper then proceeds with the presentation of the findings, a discussion and finally points out limitations of the study and offers directions for further research.

2. Literature review

Due to globalization a new trend called outsourcing has developed. As a result of this new development business practices have changed and supply chains are becoming more complex and interlinked since supply chains of companies are spreading across national and international borders (Comyns and Franklin-Johnson 2016) and production processes are dispersed around the globe with suppliers, focal companies and customers being linked with each other by information, material and capital flows (Seuring and Müller 2008). Different stages of production underlie the pressure of stakeholders which demand environmental, ethical and social standards as well as transparency within the supply chain (Seuring and Müller 2008). The relationship that consists between a company and its stakeholders is highly sensitive and can easily be affected if a company does not meet the expectations of its stakeholders, which is then called a brand misconduct or brand crisis (Frank et al. 2010). There are several types of crisis a company can be exposed to and each type can have different impacts on the corporate reputation depending on the setting of the crisis. The main objective if a crisis happens is to mitigate negative effects on the reputation as soon as possible so that negative consequences on the economic situation of the company as well as on the brand-consumer relationship are reduced as far as possible. To do so, there are several ways to deal with crises, which are known as crisis management strategies.

2.1 Types of crises

Crises are adverse events that threaten brand and company reputations (Dutta and Pullig 2011). Crises damage the reputation and subsequently affect the way in which stakeholders like customers, community members, employees, suppliers and stockholders interact with the company or brand. A crisis is a sudden and unexpected event that disrupts a company's operations and results in both a financial and a reputational threat. It can harm stakeholders physically, emotionally and financially and can have an adverse influence on the reputation of a brand or company (Coombs 2007).

According to Comyns and Franklin-Johnson (2016) as well as Coombs (2007), one can generally differentiate between three crisis types where each one has different attributions of responsibility and reputational threat. The first crisis type according to this classification is the so-called "victim cluster". In this type of crisis, the company is also considered to be a victim[1], therefore this crisis type has weak attributions of crisis responsibility and the reputational threat is low. Another type can be described as the "accidental cluster" where actions that lead to the crisis were accidental[2]. This type has marginal attributions of crisis responsibility and a moderate reputational threat. Finally one can differentiate the "intentional or preventable cluster" which includes crises where the company knowingly places people at risk, takes inappropriate actions or violates a law or regulation[3]. This type has very strong attributions of crisis responsibility and leads to a severe reputational threat.

Brand-related adverse events, so-called brand crises, are very common and typically highly publicized. Such crises are unexpected events that threaten a brand's perceived ability to deliver expected benefits and can harm a brand's equity through a weakening of brand confidence and a reduced likelihood of brand consideration and choice. Brand crises can be differentiated into two broad types. On the one hand there are performance-related brand crises which usually involve defective products and reduce the brand's ability to deliver functional benefits, hence a performance-related crisis largely affects confidence related to functional benefits. While on the other hand values-related brand crises have to be mentioned. A values-related crisis does not directly involve the product, it focuses on social or ethical issues within the supply chain of a company or brand like Nike's alleged use of child labor for example. This crisis type questions the brand's ability to deliver symbolic and psychological benefits and consequently values-related crises affect confidence related to symbolic benefits. Both types of

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[1]*natural disasters:* acts of nature damage a company such as an earthquake; *rumour:* circulation of false and damaging information about a company; *workplace violence:* a current or former employee attacks current employees; *product tampering/malevolence: an* external agent causes damage to a company

[2]*challenges:* stakeholders claim an organization is operating in an inappropriate manner; *technical-error accidents:* a technology or equipment failure causes an industrial accident; *technical-error product harm:* a technology or equipment failure causes a product to be recalled

[3]*human-error accidents:* human error causes an industrial accident; *human-error product harm:* human error causes a product to be recalled; *organizational misdeed with no injuries:* stakeholders are deceived without injury; *organizational misdeed management misconduct:* laws or regulations are violated by management; *organizational misdeed with injuries:* stakeholders are placed at risk by management and injuries occur (Comyns and Franklin-Johnson 2016; Coombs 2007)

brand crises affect the overall brand attitude or brand choice of stakeholders (Dutta and Pullig 2011; Jeon and Baeck 2016).

Over the time business practices have changed and supply chains are becoming even more complex and interlinked since companies move their manufacturing activities from wholly owned facilities to supplier-based manufacturing often far from company headquarters. Due to this development, another classification of crisis types is possible. Here one can differentiate between individual and collective crisis settings when talking about a corporate crisis. An individual crisis setting can be defined as one where the controversy focuses on a single company, a collective crisis however, is a corporate crisis where multiple organizations are associated with the same crisis or scandal like for example the Rana Plaza building collapse in Bangladesh in 2013 or the horsemeat scandal in Europe which also took place in 2013 (Comyns and Franklin-Johnson 2016).

2.2 Impact on corporate reputation and image

The relationship between a company and its stakeholders -especially its consumers- is a highly sensitive entity that can easily be affected if companies and their brands do not behave according to the consumers' expectations, which is mostly known as brand misconduct. Actions causing a brand misconduct can be product- and service-related defects as well as socially or ethically debatable actions which means, that brand misconduct can go beyond product-harm crises that only cover product attribute defects. Aside from a brand boycott, negative consequences of brand misconduct can arise for a brand's image and reputation, it furthermore can have negative effects on the economic situation of the company and yield substantial consequences for the consumer-brand relationship. At least, negative word-of-mouth occurs in most cases of brand misconduct (Frank et al. 2010).

The word 'reputation' refers to the aggregated evaluation of a company by stakeholders and describes how well a company meets stakeholder expectations (Coombs 2007). The reputation of a brand is very valuable to a company (Comyns and Franklin-Johnson 2016), since a positive corporate reputation can attract customers, generate investment interest, improve financial performance, attract top-employee talent, increase the return on assets and create a competitive advantage (Coombs 2007). Furthermore, reputation can differentiate a company from its competitors, it is therefore also known as "the observers collective judgements of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time" (Comyns and Franklin-Johnson 2016, p. 3). A reputation develops through the information stakeholders receive about a company, for example through interactions with a company, mediated reports and second-hand information from other people (word of mouth, weblogs). Stakeholders compare their knowledge about a company to some standard to determine whether a company meets the expectations for how it should behave (Coombs 2007).

To what extent a crisis affects the reputation of a company depends on several factors such as the type and scale of the crisis, how responsibility for the crisis is attributed, the crisis history, the pre-crisis reputation, as well as the media (Coombs 2007; Comyns and Franklin-Johnson 2016). Type and severity of the crisis are additional factors that have an impact on the reputation of a company: The more severe an incident has been and the more responsibility for a crisis is attributed to a company the stronger is the negative feeling towards that organization, the greater is the threat to reputation and consequently the more severe are the effects on the purchase intentions of the consumers which can lead to decreasing economic success of the company (Comyns and Franklin-Johnson 2016).

2.3 Crisis management strategy

Impacts on corporate reputation due to a crisis depend on different factors as outlined in the previous section, also the strategies on how to respond to a crisis within the supply chain can differ greatly. However, the goal for every company is the same: To minimize the negative effects on their reputation after a crisis occurred (Comyns and Franklin-Johnson 2016).

In collective crises where multiple organizations are associated with one and the same scandal two main strategies can be differentiated on how to deal with this issue. According to Comyns and Franklin-Johnson (2016), the company involved can either accept its responsibility and follow an accommodative approach, or choose to follow a defensive strategy like denial. What strategy should be followed greatly depends on the crisis setting. If a crisis occurred only in one organization's supply chain (individual crisis), it’s the company’s duty to take actions to restore its reputation. Whenever a collective crisis happens, the reaction to the crisis can be slower, as companies would wait for others to react first or try to unload the responsibility on others (Comyns and Franklin-Johnson 2016).

The rebuilding of reputation of a brand after a crisis involves two distinct steps in different time horizons: Short-term actions could be apologies or justifications whereas long-term actions include financial compensation, employee training or implementing company policies which are supposed to avoid a recurrence of such crises (Sims 2009). The action that is taken reflects how much responsibility a company is willing to accept. As referred to in the upper section, this can range from defensive strategies with denial of involvement to accommodative strategies where companies accept their responsibilities and take corrective actions. Generally, companies that have a prior crisis history tend to be more negatively affected than those with a better prior reputation. They have something like a “reputation capital” that buffers negative effects. This means, companies that are expected to be more negatively affected due to their crisis history should implement more accommodative actions (Coombs and Holladay 2006). On the other hand, there is another argument that says it is not only important for companies with a low reputation to avoid further disapproval, but also organizations with a high reputation should take corrective actions as they face the higher threat because of higher expectations from the brand (Bundy and Pfarrer 2015).

Dutta and Pullig (2011) suggest a contingency-based view to determine what strategy is relatively the most efficient one for a company to use in its specific case. Three major response strategies are investigated in their efficacy of restoring post-crisis brand reputation: denial, reduction-of-offensiveness and corrective action. This is a subset of strategies formerly defined by Benoit (1997). Denial is intuitively self-explaining. It is a strategy where a company either disputes to be involved in some crisis or disavows all knowledge about it. Another possibility for companies is to understate the negative effects of their “misbehavior” and therefore reduce the offensiveness. Taking corrective actions means that a firm promises to actively take preventive actions. In this strategy, the responsibility is accepted. This seems to be the best solution prima facie. However, this is also the most expensive strategy and there might be settings in which firms can do relatively better by choosing another option to achieve the same outcome for lower costs (Dutta and Pullig 2011).

It is posited that “regardless of crisis type denial is the least effective response” (Dutta and Pullig 2011, p. 1282). To define when to use which one of the remaining two strategies they differentiate between a performance-related and a value-related strategy, which were defined in greater detail in the former section. Generally, it can be said that for a performance-related crisis it is always better to take corrective action. If a value-related crisis occurs the intermediate reduction-of-offensiveness strategy can work out just as well as a corrective action (Dutta and Pullig 2011).

Another strategy investigated by Lee (2016) that might be interesting in some cases is “stealing thunder”. This denotes a proactive crisis communication strategy by which a firm releases information about the crisis before the media publishes anything. Advantages for the firms are the possibility to control information flow and the reduction of sensationalizing of the crisis by the media. Thereby a company also seems to be more honest and credible to stakeholders. Stealing thunder as a strategy is nowadays increasingly used to manage crises (Lee 2016).

3. Research Method

The purpose of this study is to understand what strategies firms can take after a scandal occurred and how successful these actions are. Furthermore it investigates whether the type of crisis plays an important role in choosing an appropriate response strategy. The paper follows a deductive approach and was therefore first approached by a literature search in the field of crisis management. Two main databases (Science Direct, Scopus) and an additional search engine (Google Scholar) were selected to conduct the literature research. Keywords that were used include “brand scandal”, “brand misconduct”, “brand crisis”, “supply chain”, “consumer”, “reputation”, “crisis management” and “sustainability, scandal”. The literature used should not be released more than ten years ago as this research should be up to date including recent findings. In the end, 15 papers that are peer reviewed and published in relevant journals like the “Journal of Business Research”, “Industrial Marketing Management” or “Public Relations Review” were selected to be analyzed. The literature review was a necessary step in the research paper to provide an overview of the topic and give an insight into motivations of firms to set actions towards brand value protection and restoration. Moreover, the literature research made up the basis for the hypothesis that is investigated in this paper, especially in the multiple case studies.

The core part of this research paper is a qualitative analysis of firms who have a long crisis history. For the case studies firms were selected that are well known worldwide, for products everybody uses or has used at least once in his or her life. Another selection criteria was, that there had to be some crises or scandals explicitly in the supply chain of the brands. This was necessary as the main part of the research is the investigation of scandals and the thereafter following strategies taken by companies. Hence the multiple case study was set up using two companies that are well known within the sportswear and sporting goods industry. Nike and Adidas were finally selected to be investigated since they are leaders in the sports apparel sector in terms of revenue worldwide with a combined revenue of 50 billion dollar in 2015 (statista.com 2016). Also they both have a history of scandals in their supply chain which was crucial for analyzing what strategies they used thereafter.

Corporate crises attract media attention and are widely spread by various types of media. For this reason, secondary data from reputable newspapers back to the 1990s, but also scientific journals analyzing the brands Nike and Adidas were used to investigate types of crises and the reaction of the firms. The sources were primarily renowned U.S., British and German newspapers, scientific papers analyzing the sporting goods companies’ cases and information released by the companies themselves like press releases, sustainability reports and business reports. The search engine Google and newspaper archives, for example from The New York Times or The Guardian, were utilized to search for articles based on keywords such as “Nike sweatshop” or “Adidas scandal”. Scientific papers used for the case study analyzes had already been retrieved by the general literature review. Aman (2013) suggests a relation between media attention and stock market crashes, so to judge the impact of scandals and the effectiveness of strategies taken by the firms, stock prices were utilized for analysis. Stock price data from Nike was taken from Yahoo Finance! (2016), for Adidas stock price data from Ariva (2016) was used. For the analysis of Nike's stock price index, the time frame 1996-1999 has been chosen, because in 1996 the worldwide massive media attention on Nike's sweatshops started. In the case of Adidas time frames from 1997-2000 and 2007-2016 were of special interest for the stock price analysis, as this was the time frame when the greater scandals happened. It has to be mentioned that a stock price analysis has some limitations though. Also other influencing factors like stock splits, upgrades or downgrades, sales forecasts or advertisement contracts play a role when stock prices are investigated. Regarding this mix of influential factors that sometimes even happen simultaneously, it becomes difficult to analyze the repercussions of crises within the supply chain and applied crisis management strategies to counter theses crises in stock prices. That is why the analysis is strongly based on scientific papers that statistically proved the correlation between scandals in supply chains and stock price index fluctuations.

Moreover, an expert interview with a leading retailer company in Austria took place to prove or refute the findings of the paper through additional insights in the sports goods market. All the relevant questions were noted down and structured beforehand in a brainstorming session to guarantee a fluent execution, as this was a face to face interview of one hour. To keep track of everything, a dictaphone was used and additionally written notes were taken. The interview had a special focus on sales of the two brands Nike and Adidas, especially shortly after a crisis occurred.

4. Multiple case study

The following section presents a multiple case study of two major companies of the sports apparel branch. The case studies are based on detailed crisis and response timelines of the respective firms and a stock price index analysis, which shows how stock prices react to brand scandals. Furthermore, this section contains an analysis of crisis management strategies the companies have taken to counter negative effects on the brand's reputation caused by scandals in the supply chain.

4.1 Nike

Nike Inc. was founded in 1964 by Phil Knight and Bill Bowerman (Murphey and Mathew 2001) and evolved into the largest seller of athletic footwear, apparel and equipment in the sports apparel branch. Nowadays they employ about 62,600 people in 554 factories that are spread over 40 different countries and connected with each other through Nike's global supply chain (Nike Inc. 2015).

4.1.1 Crisis history and stock price analysis

A timeline has been created to give an overview of Nike's scandals and the company's response strategies to mitigate the effects of these scandals. Figure 1 displays the major happenings of Nike's scandal and response history. To make a visual distinction between scandals and responses, scandals have been colored red whereas responses are visualized in black. More detailed information about crisis history, crisis management strategies and corresponding references can be found in Table A1 in the appendix.

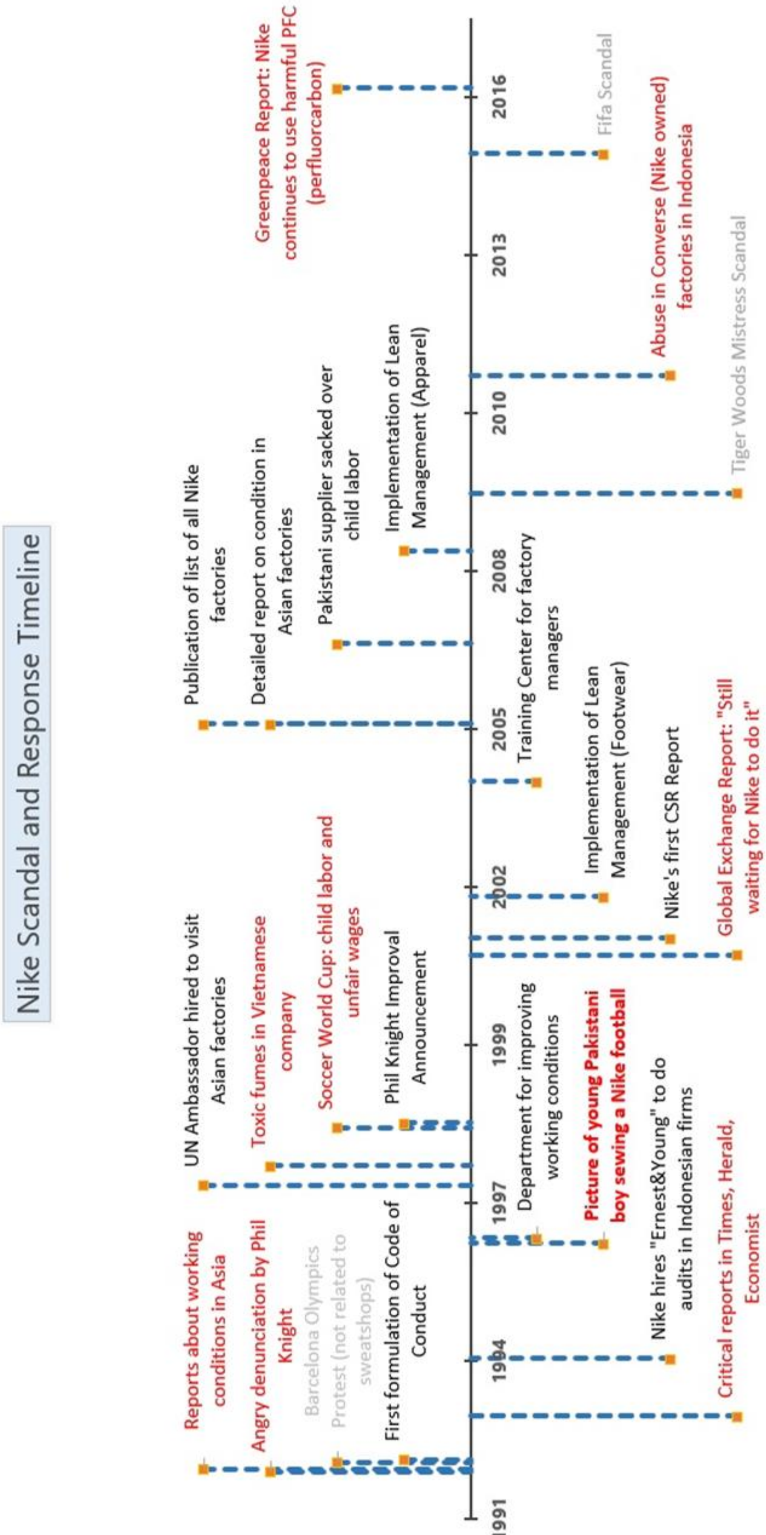

Figure 1: Nike Scandal and Response Timeline (Source: Own illustration based on the references shown in the Appendix, Table A1)

The history of Nike’s sweatshop issues began in the late 1980s with a report by Jeff Ballinger, a worker’s rights activist investigating Nike factories in Indonesia, finding major human rights violations (Greenberg and Knight 2004). Through Ballinger’s NGO “Press for Change”, an interview on an US TV Channel with Nike’s factory workers, and protests at the Barcelona Olympics in 1992 awareness about bad working conditions in Nike's supply chain was raised (Nisen 2013). Broader public attention was generated in the mid-1990s due to two incidents: A raid in a Californian sweatshop in August 1995 and an exposé written in July 1996 by Charles Kernaghan addressing Kathy Lee Gifford’s clothing line which has been associated with bad labor practices (Greenberg and Knight 2004). Furthermore, a picture of a Pakistani boy stitching a Nike football published in Life magazine went viral (Wazir 2001). As a response to these events Nike founded a department that was responsible for improving working conditions for factory workers in 1996. In 1997 Nike additionally hired UN Ambassador Andrew Young to tour Asian factories and write reports on the working conditions there (Nisen 2013; CCCE 2016). Further occurrences like toxic fumes in a Vietnamese company and media reports about child labor and unfair wages associated with the Soccer World Cup in 1998 have also been disclosed (Greenhouse 1997; Lütge 2009). Shortly after these scandals became public, CEO Phil Knight announced new initiatives to counter these issues in Asian factories (Cushman 1998). Three years after that, Global Exchange published the report “Still waiting for Nike to do it” indicating that there were still many problems in Nike’s supply chain that had to be addressed (Global Exchange 2001). In the same year Nike released its first CSR Report and in the following years Nike set several steps to get a grip on the supply chain problems like a lean management and production system, the establishment of a training center for factory managers and the publishing of a list of all its factories (Distelhorst 2015; Nisen 2013; CSR Wire 2001). Shortly afterwards, Nike again appeared in the media for abuse in Nike owned Converse factories (Focus Online 2011). Another scandal hit Nike in 2015, when rumors arose that Nike may be involved in FIFA’s corruption scandal (Splicker et al. 2015). Finally, a Greenpeace report revealed, that in 2016 Nike still continued to use harmful PFC in its products (Frankfurter Rundschau 2016).

Looking at the scandals that appeared within Nike's supply chain, most of the crises have been triggered by sweatshop working conditions. Crises of this kind belong to the so-called intentional or preventable cluster, as the company knowingly takes inappropriate actions and violates regulations. Nike in this case did not comply with regulations about minimum wages, underage workers, over-hours and humane treatment of the workers and has been accused of human rights violations multiple times over the past decades. For crises of this kind, a company is attributed strong responsibility and the company’s reputation is put at high risk (Coombs 2007). Besides the intentional or preventable cluster the aforesaid crises can also be classified as values-related crises since they do not directly involve a product but focus on social or ethical issues within the supply chain (Dutta and Pullig 2011; Jeon and Baeck 2016). Nike has a complex and interlinked global supply chain, therefore scandals can furthermore be differentiated into individual or collective crisis settings. As shown in the timeline (Figure 1) several Asian production sites of Nike’s supply chain are struggling with unbearable working conditions and inhumane treatment of workers, hence these corporate crises belong to the collective crisis setting since multiple sporting goods companies and also other textile companies are linked to the same corporate crisis (Comyns and Franklin-Johnson 2016). Scandals like the release of toxic fumes belong to the accidental crisis cluster, whereas scandals provoked for example by the use of harmful PFC in products can be classified as performance-related crises. To sum up, Nike's crisis history is primarily characterized by preventable, values-related, collective crisis settings mainly triggered by sweatshop working conditions and human rights violations.

The following focuses on Nike’s stock price index to show that the previously mentioned scandals recognizably affected the stock price index in the years from 1996 to the end of 1999.

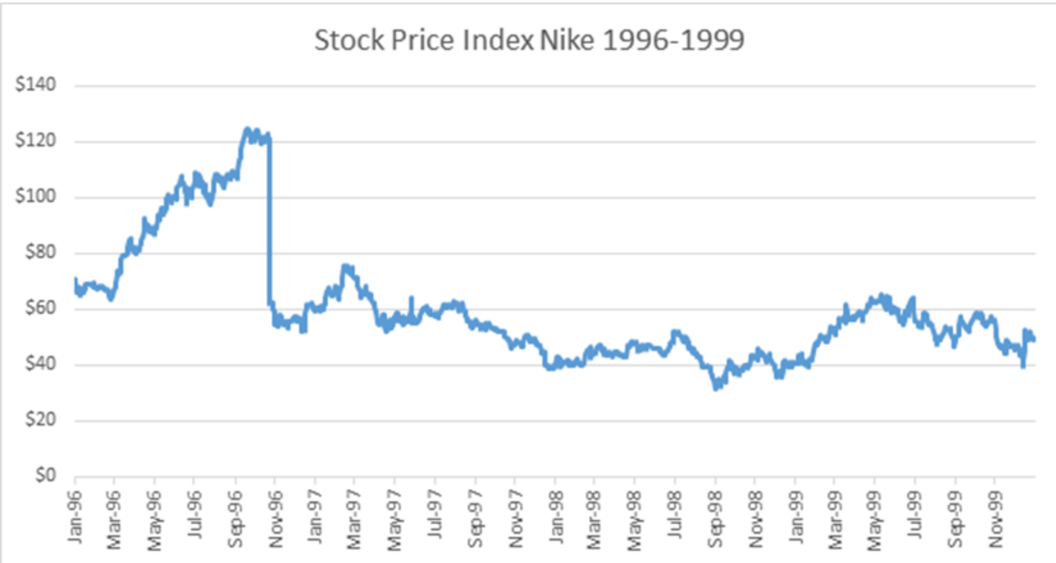

Figure 2: Stock Price Index Nike 1996-1999 (Source: Own illustration based on Yahoo! Finance 2016)

The analysis of stock prices is not completely straightforward as there are many influencing factors that can have an impact on stock prices. Stock splits, signing of major celebrities, stock upgrades and downgrades or sales for example also have an impact on stock prices just as labor and ecological scandals. Nevertheless, negative publicity can have an impact on the development of the stock prices as well (Boje 1999). To prove this claim, subsequently the correlation between negative publicity due to a scandal and (immediate) stock price reactions will be analyzed using selected examples.

Starting in 1996, worldwide media attention on Nike’s sweatshops had been triggered. The decreasing stock prices in the beginning of 1997 can at least partially be attributed to the influence of reporting that revealed poor working conditions in Nike's supply chain. However, other factors like for example the stock split in 1996 (Stock Split History 2016) also affected stock prices. Mocciaro Li Destri (2013) relates Nike’s stock decrease from $ 66 to $ 39 per share between August 1997 and January 1998 to the mentioned sweatshop disclosure. Kaplan (1997) also ascribes the decline from $ 76 in the beginning of August 1996 to $ 52 at the beginning April 1997 to the series of bad press and related incidents.

Another major scandal that went viral all over the world had been published in Life Magazine. This time the scandal had been triggered by a picture showing a Pakistani boy stitching a Nike football which once again illustrated poor working conditions in Nike’s Asian factories in 1996 (CCCE 2016). When looking at Figure 2, it can be seen that during this time, especially in June 1996, Nike’s stock price decreased from $ 107 to $ 98. Nevertheless, within approximately two weeks the stock price was more than back to the original price ($ 109 on July 3rd).

Although some authors point to sweatshop issues as reasons for the declining stock prices from 1997 to 1998, it has to be mentioned that stock prices are not subjected to simple cause-effect relationships. Causes for stock price changes are manifold and while there may be a connection to sweatshop reporting and a tendency towards a decline when scandals are being reported globally, stock price declines can not fully be attributed to the occurrence of a crisis and the reporting of a scandal.

4.1.2 Crisis response strategy and post-crisis reputation

Nike’s strategy in handling sweatshop issues changed over the time. Until the early 1990s the company tried to avert accusations. This strategy can be classified as “denial” (Benoit 1997; Dutta and Pullig 2001). The threat from the media was considered neglectable so the company decided to ignore and dispute the problem. Between 1993 and 1996 more and more reports and articles about poor working conditions in Asian factories were published but Nike still reacted to the crisis by rejecting any wrongdoings and responsibilities by the company. They still followed the “denial”-strategy (Benoit 1997; Dutta und Pullig 2011). Nike tried to disclaim its responsibility for the Asian company’s actions, because these companies only had contracts with Nike but they were completely integrated in Nike’s supply chain. From 1996 to 1998 Nike changed its response strategy to actively taking actions against sweatshop conditions. The year 1996 therefore can be considered as the beginning of a phase from where on Nike takes “corrective action” to counter the problem of poor working conditions in

Asian factories (Benoit 1997; Dutta and Pullig 2011). However, Mocciaro Li Destri (2013) considers this period only as a time of symbolic activities.

A clear distinction between phases of different response strategies is not possible since the transition from one phase into another is a progressive one. This can for example be seen in several actions Nike took in the late 90s, when they already started to take corrective measures, but also seemed to use defensive measures to overshadow negative reporting about bad labor conditions in Asian factories (CCCE 2016).

The major turnaround and real beginning of serious corrective action started in 1998, when Phil Knight, CEO of Nike, announced a 6-step action plan to counter the problems in its Asian factories (Cushman 1998). Nike's CEO told journalists and trade union activists that he would personally take care of several issues concerning working conditions in Nike's factories around the world. The following measures were being declared: (1) All Nike shoe factories should be in line with US air quality standards, (2) NGOs would be allowed to monitor factories and make observations public, (3) the minimum age of workers should be raised to 18 in shoe factories and 16 in clothing factories, (4) an educational program should be established, (5) a loan program for Vietnamese, Indonesian, Pakistani and Thai families should be introduced and (6) there should be University funding for research on responsible business practices (Wazir 2001).

Nike's reaction to the Converse scandal depicts another kind of response strategy, the so-called "stealing thunder" measure. Nike for the first time admitted allegations but at the same time stated, that it cannot do much about it since old contracts with the affected factory owners forbid them to inspect factories and to fully enforce its Code of Conduct in these factories. Nike stated to having put effort into introducing their standards also in Converse factories for the past years, critics however think, Nike was not doing everything they would have been able to do (Focus Online 2011).

Although criticism continues up to the present, and there are still rumors about questionable working conditions in Nike's supply chain, Nike is putting significant effort into solving their sweatshop problem once and for all. These efforts, which include disclosure of its contractors, improved monitoring, introduction of lean management, education of factory managers, introducing external audits, ensuring worker's health, working together with labor groups etc. (Nike 2005; Distelhorst 2014; Nike 2016), helped Nike to recover from sweatshop scandals in the late 1990s and reestablish its reputation. From 2000 to 2015 Nike's sales went up from about $ 9 billion to over $ 30 billion. It can be assumed that the increasing sales over the last years can partially be attributed to Nike's engagement in cleaning up its supply chain.

4.2 Adidas

The Adidas Group was founded in 1949 by Adi Dassler who registered the “Adi Dassler adidas Sportschuhfabrik” and over the time developed to a globally known producer of sports goods that are sold all over the world. Today Adidas employs more than 55,000 people in over 160 countries, and generates sales of € 17 billion per year. 65% of Adidas’s suppliers are located in Asia, 25% are situated in North and South America and the remaining 10% are located in Germany, Turkey, Italy, Spain and South Africa (Adidas 2016).

4.2.1 Crisis history and stock price analysis

Figure 3 represents Adidas’ major scandals and responses. To visually distinguish between scandals and responses, former are colored in red, latter in black. In 1997, Adidas had to face its first severe child labor scandal when it was revealed that workers under the age of 15 years were being employed by an Adidas supplier in China (Winstanley et al. 2002). This incident was reported at about the same time as the arrangements for the FIFA World Cup in France 2008 took place (Winstanley et al. 2002). In 1998 another scandal hit Adidas as the brand was again accused of using child workers in a Pakistani shoe factory for the production of goods designated for the World Cup in France (Winstanley et al. 2002). In the same year the media published that in the production of the FIFA World Cup match ball again children were involved and finally the scandal of child labor in Adidas’ supply chain went viral and spread all over the world (Winstanley et al. 2002). Two years later, in 2000, an investigation was launched to check if the conditions in the aforementioned Pakistani factory had changed and discovered that workers that were fighting for human rights had been fired (Burke 2000). A further inquiry revealed, that at this time Adidas did not only use child labor in China and Pakistan but also in India and Thailand (Burke 2000) and in addition unbearable working hours, that could exceed 70 hours a week were discovered in the affected companies too (Burke 2000). After a report has been published in 2000, Adidas for the first time took countermeasures against the sweatshop conditions in its supply chain by founding the “Department for Social and Environmental Affairs” that controls Adidas' subcontractors, investigates factories (Schmid 2013) and additionally releasing its first sustainability report.

In 2012, the year of the Olympic Games in London, Adidas was again accused of violating labor laws in Chinese factories (Mark 2008). Another severe scandal hit Adidas in 2014, when the Minister for Development in Germany made a call to boycott the brand due to inhumane working conditions.

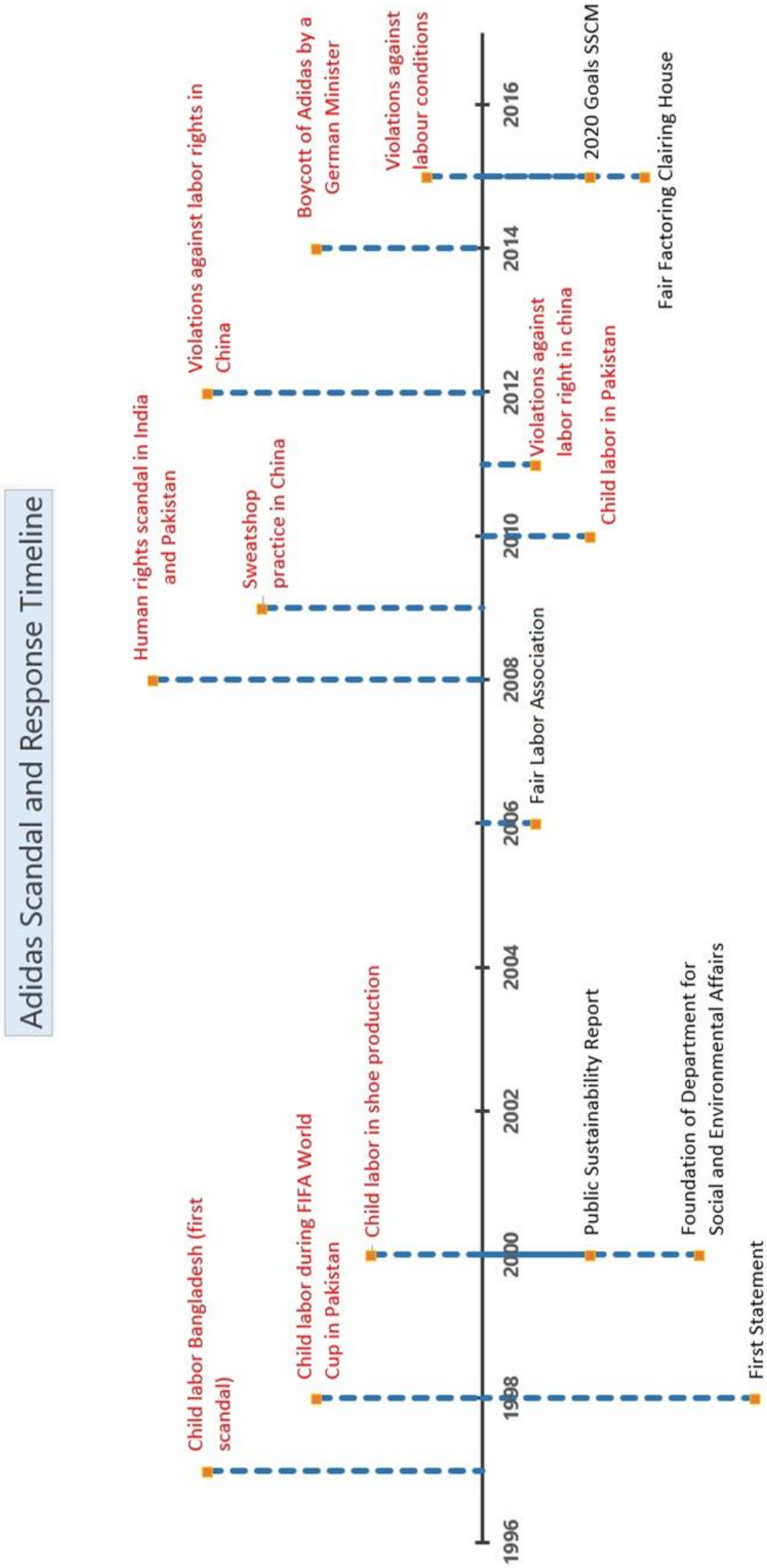

Figure 3: Adidas Scandal and Response Timeline (Source: Own illustration based on the references shown in the Appendix, Table A2)

The scandals of Adidas range from human rights violations (Mark 2008), sweatshops and child labor (Lütge 2009; Hasnian 2010; Schäffers 2014) to labor rights violations (Bork 2011; Mark 2012; Zeit Online 2015). These kinds of scandals belong to the so-called intentional or preventable cluster, as Adidas knowingly disregarded regulations and labor laws. This category of crisis is accompanied by a strong attribution of responsibility, which puts the company's reputation at significant risk (Coombs 2007). Besides the intentional or preventable cluster the aforesaid crises can also be classified as a values-related crises (Dutta and Pullig 2011; Jeon and Baeck 2012) and collective crisis settings as multiple manufacturing sites of its supply chain are accused of exposing their employees to inappropriate working conditions (Comyns and Franklin-Johnson 2016). Hence, Adidas' crises can -just like in the case of Nike- be characterized as preventable, values-related, collective crisis settings.

In the next section, the analysis focuses on how these scandals influenced the stock price of Adidas and therefore investigates the development of stock prices between 1997 and 2000 as well as the period between 2007 and 2016.

Figure 4: Stock Price Index Adidas 1997-2000 (Source: Own illustration based on Ariva 2016)

The child labor scandal that was discovered in 1997 when journalists investigated the supply chains of sports products used in the World Cup in France which resulted in increased media attention on Adidas and intensified investigations so that even more wrongdoings within the supply chain of Adidas were discovered.

As the main sponsor of the World Cup, Adidas attracted a lot of media and public attention. In the period before the World Cup Adidas sold many products, but during the World Cup the media pressure increased significantly and the sales started to decrease (Mark 2008). The stock price index also depicts this development (Figure 4). At the end of 1998 Adidas presented its “Standards of Engagement” and regained trust by its stakeholders. Several months later the next scandal took place and the confidence of the stakeholders again was violated and consequently the stock price decreased until the end of 2000 (Schmid 2013) and remained on a low level for many years, which can be seen in Figure 5.

Figure 5: Stock Price Index Adidas 2007-2016 (Source: Own illustration based on Ariva 2016)

In 2008 the financial crisis had negative effects on the whole global market, so there is no sufficient proof that the sweatshop scandal in 2008 and the child labor scandal in 2009 had an influence on the decreasing stock price as well. Until 2014 the scandals in Adidas' supply chain do not seem to have an influence on the stock price. In 2014 however, the FIFA World Cup triggered another scandal related again to labor conditions in Asian factories which again led to a loss of reputation followed by declining stock prices until the beginning of 2016 when Adidas restored its reputation (Mark 2014).

4.2.2 Crisis response strategy and post-crisis reputation

Between 1997 and 1998 Adidas’ strategy in handling sweatshop issues can be classified as “denial” as the brand admitted that there were problems in the supply chain but at the same time Adidas passed on the responsibility for solving these problems to its subcontractors (Burke 2000; Dutta and Pullig 2011).

In 1998 Adidas published its “Standards of Engagement” (SOE) (Schmid 2013), this can be regarded as the beginning of a period when Adidas actively started taking corrective action to avert further damages and counter sweatshop problems as it recognized that the “denial”-strategy was not solving its problems (Benoit 1997; Dutta and Pulling 2001). Adidas from now on selected its subcontractors through a “Global Operations Unit" and additionally created a team for “Social and Environmental Affairs” (SEA) in this unit. The main task of SEA was to control the compliance of ethical and social standards in factories of its subcontractors and direct suppliers through unannounced audits on a regular basis (Schmid2013). When violations of the applied standards were revealed through these audits, sanctions were imposed like the rescission of the seasonal contracts it had with nearly 80 percent of its suppliers. During this time Adidas was highly criticized by the “Joint Initiative for Corporate Accountability and Workers Rights”, the “Ethical Trade Initiative” and the “Fair Wear Foundation” for its seasonal contracts and the way how the brand solved problems with its suppliers (Schmid 2013).

In 2000 the UEFA European Championship was used to point out, that though Adidas started taking corrective measures to counter crises, it was still struggling with unfair labor practices in the supply chain. For this reason Adidas decided to cooperate with the “Fair Labor Association” and agreed on external inspections and inspection reports that contain outcomes of the inspection, ideas for improvement and results of post-controls after measures of improvement had been taken. (Schmid 2013) From 2000 on the “corrective action”-strategy seems to work out more efficiently than it did before the cooperation as less scandals triggered by sweatshop conditions were revealed and went viral.

Starting in 2008, Adidas changed its crisis management strategy again to a more passive one as the brand declared, that Adidas is aware that there are still problems in its supply chain, but it is not willing to take all blame for the scandals. This downward trend took Adidas back to” denial”-strategy as it was avoiding responsibility for crises in its supply chain.

In 2015 Adidas introduced its own “2020”-strategy which includes the empowerment of its workers and the enhancement of health in its factories to improve the overall working conditions in its manufacturing sites (Adidas 2016). This can be considered as a “corrective action”-strategy again. Adidas' “2020”-strategy consists of a 5-year plan that shall be implemented in its supplier’s factories with the intention to create a better supply chain management that does not only focus on improving working conditions but also on cost optimization (Schmid 2006).

4.3 Summary of the multiple case study analysis

In the previous section a multiple case study of two major companies of the sports apparel branch has been presented. These case studies are based on timelines that depict the crisis history of each brand and the crisis management strategies that were taken to counter negative effects of scandals within the supply chain and restore the brands reputation. In addition to detailed descriptions of the crises and responses shown in the timeline, an analysis of stock prices has been carried out to figure out, whether scandals have an impact on stock prices and a correlation between the crisis history of a company and its economic success can be detected.

Both case studies revealed that crises can lead to fluctuations in the development of stock prices. However, when analyzing stock prices one has to consider that other factors like stock splits, upgrades or downgrades, sales forecasts or advertisement measures can also have an impact on the course of stock prices which makes it difficult to solely attribute a declining stock price to a certain crisis. But still a correlation could be recognized in both cases. Furthermore, the multiple case study pointed out that both brands over the time were persistently facing scandals triggered by sweatshop working conditions, human rights violations and inhumane treatment of workers. These kinds of crises can be summarized as preventable, values-related, collective crisis settings.

Subsequently the crisis response strategies Nike and Adidas implemented after crises were examined. Both brands turned out to have applied the same corporate responses independently from the crisis type. But a small difference could be detected between Nike's and Adidas' strategies. Adidas seemed to change their strategy more abruptly. Nike's negative publicity may have lead Adidas to prepare a contingency plan, so the company could react faster, when they were hit by their first major crisis. Taking a more detailed look at the overall responses applied, one can notice a development of the crisis management strategies from averting accusations and denial to actively taking corrective action which depicts, that there is a progression from defensive strategies towards more accommodative strategies in order to mitigate the effects of crises and to keep the reputational damage low.

5. Discussion

This paper analyzes the impact of crises on the economic success of a brand and furthermore investigates the hypothesis that more accommodative strategies are better in terms of restoring the reputation and reducing negative impacts of corporate crises since this is the general agreement within literature (Benoit 1997; Comyns and Franklin-Johnson 2016; Dutta and Pullig 2011). Comyns and

Franklin-Johnson (2016) suggest a relation between the severity of a scandal and the economic success of a company (Comyns and Franklin-Johnson 2016). This connection can also be detected when analyzing stock price indices, which are used as an indicator for economic success in this paper: After the occurrence of a crisis, especially if massive media attention followed thereafter, declining stock prices can be noticed in both case studies. This implies a relation between negative publicity due to a crisis and fluctuations in stock prices. It needs to be pointed out that also other factors play a role when stock prices are investigated which makes it difficult to analyze the repercussions of crises within the supply chain and applied crisis management strategies to counter theses crises in stock prices. But still a certain connection between declining stock prices and crises could be recognized in both case studies, for Adidas as well as for Nike, given that the crisis went viral and raised public awareness.

The analysis of the applied crisis management strategies by Nike and Adidas revealed that as soon as the external pressure by the media became too high, both companies changed their strategies from formerly denying knowledge or fault about the value-related crises in their supply chain to more accommodative strategies where they started to take corrective action and accepted their responsibility. This development from defensive actions towards more accommodative measures to counter negative effects of crises includes all three major response strategies of the contingency-based view by Dutta and Pullig (2011) for restoring the post-crisis brand reputation. This progress indicates that defensive actions might not have led to the desired restoration of the brands reputation so that the companies changed the applied crisis management strategies from defensive actions to actively taking measures and accepting responsibility. This development might also have been triggered by the media as they did not stop negative reporting until the companies took active measures to counter for example sweatshop working conditions or human rights violations in their factories and admitted their fault. Especially for Nike a correlation between the company's reputation and corporate responses after crises could be discovered like described in Dutta and Pullig (2011). If Nike would not have taken serious action after the sweatshop scandal became public, the company probably would not have been able to recover as quickly and as successfully as it did and its current leading role in the sporting goods industry might have been be compromised.

To double check the findings of the multiple case study and gain some new insights an expert interview with the purchasing manager of a leading sports retailer in the Austrian market has been conducted. This sports retailer chooses its suppliers and the products it buys for resale based on different factors: forecasts of market research institutes, former sales analyzes, best-selling brands within their company, possible profit margins, conditions of delivery and a couple more. Nike and Adidas are within the retailer's top 5 suppliers. Therefore, even after a value-related crisis with corresponding media attention, it would not be possible to boycott the brands Nike and Adidas from the position of the sports retailer. Nevertheless, it does not have negative impacts on the sports retailer when a crisis occurs in Nike's or Adidas' supply chain, as the customers blame the brands for the scandals, not the retailer. After the previously mentioned scandals, no change in customers' demand was noticed by the sports retailer and if there were some fluctuations in demand, this could be also explained by other reasons. Therefore three possible conclusions from the position of the retailer can be drawn: 1) A scandal has no impact on the purchasing behavior of customers, 2) other stakeholders than the consumers have a larger impact on the corporate reputation and economic success of a brand, or 3) the crisis management strategy taken worked out successfully.

6. Conclusion and further research

Increasing global connectivity in terms of global markets, trade and production as well as the instant spread of information across the world has put companies in a complicated position. On the one hand they are given new opportunities like using comparative advantages by transferring manufacturing sites to low-cost countries, on the other hand if a scandal within the globally spread supply chain occurs, reports about the scandal spread across the globe almost instantaneously and thereby create a highly public scandal with major impacts on the brands reputation and economic success.

This paper consists of a literature review on corporate crises, a classification of crisis types and their possible effects on a company's image as well as response strategies companies can take to overcome the reputational threat these scandals impose. With focus on two successful global sporting goods companies facing brand scandals, the paper investigates the hypothesis that more accommodative strategies in dealing with such crises lead to more favorable outcomes than defensive actions. The findings from the multiple case study support this hypothesis and reveal that theoretical knowledge in this field corresponds with practical application since the cases of Nike and Adidas show a development from defensive strategies to counter negative effects of crises towards more accommodative strategies over the time. This indicates that at a certain point in time, defensive actions no longer restored the brands reputation so that they decided to go over to actively taking measures and accepting their responsibility to successfully reestablish their reputation. The findings of the case studies therefore support the assumption that companies facing severe preventable, values-related crises like in the cases of Nike and Adidas can recover the fastest from reputational threats imposed by supply chain crises by taking accommodative actions to prevent or reduce reputational impacts.

For future research the authors suggest to investigate the effects of scandals on the image of a company by analyzing brands of different sectors or branches to examine if the impacts of scandals differ from branch to branch and whether the crisis management strategies mentioned in this paper can be applied to other sectors as well. Further research could also focus on analyzing the impact of scandals not only on the corporate reputation and economic success of the brand itself but also on other supply chain members like retailers. Furthermore, an investigation of the influence of stakeholders like investors or shareholders on the economic success of a brand during a crisis could lead to a deeper insight on the impact of external stakeholders on the supply chain. Apart from that, there is still a lack of knowledge regarding efficient methods for measuring the effectiveness of the response strategies. Another recommendation for possible further research is to compare a company that has successfully managed to restore its reputation after a scandal and one that has failed to adapt to and meet the expectations of its stakeholders and therefore went bankrupt. This could provide additional insight into different forms of crisis management and their respective efficacy.

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Appendix

Table A1: Detailed list of sources for the Nike Scandal and Response Timeline

Year	Incident	Source
1991	Report about working conditions in Indonesia	Nisen 2013
August1992	Harper's magazine article about bad working conditions in Asia	Greenberg & Knight 2004
1992	Lengthy Oregonian Newspaper Article about Indonesia	CCCE 2016
1992	Nike CEO (Phil Knight) writes angry denunciation (including significant inaccuracies)	Alternet 2000
August1992	Protest at Barcelona Olympics (unrelated to sweatshops issues)	LA Times 1992
1992	First formulation of Code of Conduct	Beder 2002
1993	Critical reports in Times, Herald, Economist	CCCE 2016
1994	Nike hires accounting firm "Ernest & Young" to do social audits in Indonesian firms	CCCE 2016
1995	Raid in Californian sweatshop	Greenberg & Knight 2004
1996	Wal-Mart clothing line sweatshop allegations	Greenberg & Knight 2004
1996	Widespread Violations of own Code of Conduct in Indonesia	CCCE 2016
Mid 1996	Massive media coverage about working conditions in Nike's factories	CCCE 2016
1996	US magazine features picture of young Pakistani boy sewing a Nike football	Wazir 2001
1996	Department for improving working conditions	Nisen 2013
1996	Letter to US Universities "explaining" child labor controversy	CCCE 2016
1997	UN Ambassador (Andrew Young) is hired to tour Asian factories: report is named shallow and unhelpful	CCCE 2016
1997	Toxic fumes in Vietnamese company (first reporting about health hazards; earlier low pay & long hours)	Greenhouse 1997
1998	Soccer World Cup overshadowed by media reports on child labor and unfair wages	Lütge 2009
1998	Company claims wanting to raise wages in Indonesia, but Government has banned pay hikes due to inflation	CCCE 2016
1998	Nike CEO announces new initiatives (education for workers, loan programs) and elimination of hazardous chemicals in shoe production	CCCE 2016
1998	Nike CEO Phil Knight announces new initiatives to	Cushman 1998

	counter problems in Asian factories	
2001	Global Exchange Report	Global Exchange 2001
2001	Nike's first CSR Report	CSR Wire 2001
2002	Agreement with long term footwear suppliers to implement lean mgmt. and production system	Distelhorst et al. 2015
2004	Establishment of training center for factory managers and Nike staff	Distelhorst et al. 2015
2005	Nike makes all factory locations public	Focus Online 2011
2005	Publishing of detailed 108-page report about conditions in Asian factories	Nisen 2013
2006	Nike sacks Pakistani supplier because of child labor	Clark 2006
2007	First agreements with apparel suppliers	Distelhorst et al. 2015
2008	Nike's lean capability-building initiative	Distelhorst et al. 2015
2009	Beginning of full training curriculum for apparel suppliers	Distelhorst et al. 2015
2009	Tiger Woods Mistress Scandal	Goldiner 2009
July 2011	Abuse in Converse factories (Nike owned) in Indonesia	Focus Online 2011
May 2015	Fifa Scandal: Nike allegedly paid millions to FIFA to be official sponsor of Brazilian soccer team	Spilcker et al. 2015
July 2016	Greenpeace Report: Nike continues to use harmful PFC (perfluorocarbon)	Frankfurter Rundschau 2016

Table A2: Detailed list of sources for the Adidas Scandal and Response Timeline

Year	**Incident**	**Source**
1997	Child labor in Bangladesh	Winstanleyet al.2002
1998	Child labor during FIFA World Cup in Pakistan	Winstanley et al. 2002
2000	Child labor in shoe production	Burke 2000
2000	Public Sustainability Report	Schmid 2013
2000	Foundation of Department for Social and Environmental Affairs	Schmid 2013
2006	Fair Labor Association	Schmid 2013
2007	Toxin scandal Thailand	Howard 2007
2008	Human rights scandals in India and Pakistan	Marks 2008
2009	Sweatshop practice in China	Lütge 2009

2010	Child labor in Pakistan	Hasnian 2010
2011	Violations against labor rights in China	Bork 2011
2012	Violations against labor laws in China	Marks 2012
2014	Boycott of Adidas by a German Minister	Schäfers 2014
2015	Violations of labor conditions in Germany	Zeit Online 2015
2015	Fair Factory Clearinghouse	Adidas 2015
2015	2020 Goals in SSCM	Adidas 2015

Consumer-based Brand Equity and Sustainable Supply Chain Perceptions: Evidence for the Halo Effect?

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Abstract

In recent decades, globalisation has enabled firms to concentrate and expand their supply chain networks. The distribution of production processes has increased economic value, however it has been accompanied by environmental and social issues, e.g. water and air pollution, child labor and health and safety concerns. Due to stakeholder pressures, companies implement measures to improve their environmental and social performance. While a significant part of scientific research has addressed the impacts of sustainable business practices on brand equity or consumer perceptions, this study investigates the inverse relation. Often referred to as "halo", attribute ratings regularly contain a holistic impression of a brand, which describes the effect when perceptions of a brand's performance on a specific attribute are influenced by perceptions of another attribute. By conducting a survey among 449 students, a possible relation between consumer-based brand equity (CBBE) and sustainable supply chain management (SSCM) perceptions for smartphone brands is analysed. The results disclose that consumer perceptions of a brand's SSCM performance are significantly associated with a brand's CBBE, though the impacts are varying in magnitude and significance across brands. In particular, certain attributes, such as perceived quality and brand associations, showed to fuel halo perceptions among common smartphone brands.

Keywords: Consumer Perception; Sustainable Supply Chain Management; Brand Equity; Halo-Effect

1. Introduction

Global division of production processes brings apart from value of the products environmental and social burden during the different stages of production (Seuring and Müller, 2008). As brand-owning companies are pressured by stakeholders, like NGOs or consumer protection agencies, they respond with implementing measures to improve their environmental and social performance (Carter and Jennings, 2002; Meixell and Luoma, 2015).

Since companies have been increasingly engaging in such practice, a noteworthy part of twenty-first century's marketing research has also been attributed to the interaction of sustainability (or CSR) efforts and the performance and strength of brands (see Klein & Dawar, 2004; Werther Jr. & Chandler, 2005; Kang & Hustvedt, 2014; Staudt et al. 2014). Whereas the predominant part of these publications focus on incorporating sustainability attributes in concepts and measurement metrics of

corporate branding, other research has been especially issued to examine the role of sustainable supply chain management
(SSCM) in this context. Gillespie and Rogers (2016) for instance investigated the effects of SSCM practises on consumer perceptions and revealed that good SSCM performance positively affects consumers' brand evaluation and purchase intentions. The link between the consumer perception of a brand's sustainability performance and the perceived brand equity is already investigated in scientific literature, however there is little evidence about the reversed effect of consumer-based brand equity (CBBE) on the brand's sustainability performance.

The so called *halo effect* has been used as an explanatory model to empirically proof the cognitive bias in which an overall impression of a brand influences an observer's attitudes towards a specific aspect or property (Leuthesser et al., 1995). The concept of the halo effect has already been frequently used to describe distortionary effects in the context of corporate sustainability practises (see Peloza et al., 2012; Madden et al., 2012; Smith, Read & López-Rodriguez, 2010). In differentiation to these former studies, we contribute to the scientific discourse by firstly assessing the halo effect induced by a strong brand equity on a consumer's perception on SSCM practices.

The research was therefore divided into three parts. Firstly, applicable attributes for assessing the consumer perceived SSCM performance and CBBE are derived. These attributes should help to operationalize the perceptions of the respondents concerning SSCM and CBBE and allow for analytical comparisons. On the basis of these attributes, two indicators will be generated: the first summarizing the CBBE and the second the perceived sustainability performance along the supply chain. Secondly, the consumer-oriented brand perception and the perceived SSCM performance (based on the developed attributes) of four smartphone companies are examined. A quantitative online survey among students of the University of Graz was used to gather primary data. Finally, by using a selection of analysis methods, this research attempts to examine how the theoretical concept of the halo effect can be adopted to the research question.

Therewith, it should be investigated,

1) if the consumers' perceptions on brand equity correlates with the perceptions on SSCM performance and
2) if smartphone companies with a strong CBBE (high scores on the perceived CBBE attributes) are perceived to have a better sustainability performance.

The rest of the paper is structured as follows: Section 2 delivers an overview of relevant scientific literature and definitions the research builds on. In Section 3, the methods used to address the research questions are presented. Section 4 contains the results of the online survey and the quantitative analysis for the halo effect. Finally, the discussion section highlights some limitations and issues for further research, while the paper ends with the concluding remarks.

2. Background of the research

As a starting point, the analyses conducted by Seuring and Müller (2008) and Meixwell and Luoma (2014) were used as the major theoretical framework for the present research in the field of SSCM. Based on that, relevant studies were highlighted and collected in order to shed light on different concepts, issues and recent developments within this research area in general. In a second step, literature was reviewed that focus on the consumer perceptions on brands and companies with respect to taken SSCM measures. Additionally, stand-alone literature for SSCM, CBBE and the halo effect was collected. The obtained papers were classified and sorted according to key-words, relevance, and other explanatory characteristics.

Gillespie and Rogers (2016) offer empirical evidence of the positive effect of SSCM measures on the consumer perceptions of a firm within a supply chain. The authors state that although a lot of topic-relevant measures (e.g. environmental protection practices, ensuring the rights of workers or other stakeholders) are practically integrated in a company's' CSR policies, a straightforward theoretical definition of SSCM is missing. The consumer perceptions of a firm are modelled by capturing the impact of SSCM measures on consumers' brand evaluation and further on intended purchase behaviours.

In Kang and Hustvedt (2014), the following question is investigated (among others): 'What creates the perception by consumers that a company is trustworthy?' (Kang and Hustvedt, 2014: 254). To answer it, a model tests the effect of social responsibility measures, trust, attitude and transparency on word-of-mouth and purchase intention. They argue that companies, which are both acting transparent in terms of labour/production conditions and implement socially responsible practises, are more trustworthy. It affected directly the attitude of customers and indirectly the customers' intention to purchase and recommend the company to others (Kang and Hustvedt, 2014). Sustainability is therefore attracted mainly from a social dimension. Additionally, Staudt et al. (2014) examined the impact of CSR efforts on perceived customer value and CBBE, but neglected a holistic supply chain perspective. Same as in the studies before, 'the results of the analysis indicate a significant impact of CSR efforts on perceived customer value and customer-based brand equity' […] (Staudt et al., 2014: 65). The study by Kim et al. (2014) explores the relationship between *green supply chain management (GSCM)* of a company and the consumer preferences for its goods. The gathered data indicate that consumers buy preferred products of a company which 'uses green management systems, engage in resource recovery efforts, and behaves in socially responsible ways' (Kim et al., 2014: 74).

Based on the reviewed studies and on additional literature sources, definitions and studies for the agreed concepts (SSCM, perceived brand equity and halo effect) are given. That was also necessary due to the fact that while the above described studies focus on the effect of SSCM measures on the consumer perceptions of company attributes, there are as far we know no studies that investigate the reverse impact.

2.1 Sustainable Supply Chain Management (SSCM)

As mentioned by various researchers, SSCM is a relatively new field and still lacks a 'firmly agreed-upon definition' (Gillespie and Rogers, 2016: 35). There are also several different terms in use, ranging from *green SCM* or *sustainable global SCM* to *socially responsible SCM* (Kim et al., 2014; Seuring and Müller, 2008; Srivastava, 2007; Wang and Sarkis, 2013), though describing thematically the same concept. According to Gillespie and Rogers (2016), the lack of a concrete definition persists due to different reasons, stressing that the absence of a clear definition of SCM management per se hampers a common understanding.

The definition presented in Seuring and Müller (2008) and used by Handfield and Nichols (1999) tries of overcome this weakness: 'The supply chain encompasses all activities associated with the flow and transformation of goods from raw materials stage (extraction), through to the end user, as well as the associated information flows. Material and information flow both up and down the supply chain. Supply chain management (SCM) is the integration of these activities through improved supply chain relationships to achieve a sustainable competitive advantage' (Seuring and Müller, 2008: 1700). We use this definition also for our research. By SSCM, we define […] 'the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key interorganizational business processes for improving the long-term economic performance of the individual company and its supply chains' (Carter and Rogers, 2008: 368).

2.2 Consumer-Based Brand Equity (CBBE)

Brand equity as a core concept of marketing describes the relationship between a company or brand and its audience. A brand is 'a name, term, sign, symbol, or design, or combination of them which is intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competitors' (Kotler 1991: 442). In Keller (1993), CBBE is defined as 'the differential effect of brand knowledge on consumer response to the marketing of the brand' and occurs 'when the consumer is familiar with the brand and holds some favorable, strong, and unique brand associations in memory' (Keller, 1993: 2). Brand equity can bring for both the customer and the company value and is often divided into a set of assets. Aaker (1991) offers five different factors that shape customer-based brand equity: *brand loyalty*; *brand name awareness*; *perceived brand quality*; *brand associations*; and other *proprietary brand assets* including patents, trademarks and others. The first four main assets were used for the classification of the online survey, as can be seen in *Section 3.2*.

2.3 Halo Effect

The halo effect has its origins in the literature of psychology and was observed for the first time by Frederic Wells in 1907, although the terms "halo effect" or "halo error" were described several years later in *A Constant Error in Psychological Ratings* by Edward Thorndike. In Thorndike (1920), the observation was made that different supervisors (i.e. in a company or in the army) were '*unable to rate their subordinates independently on different (presumably independent) characteristics*' (Leuthesser et al., 1995: 57). The overall or global impression of a subordinate has a high positive correlation with the supervisor's rating of different characteristics.

After calling a spade a spade, scientists of other disciplines also found halo effects in their research fields. In particular marketing researchers have been using surveys with multiattribute rating models to evaluate products and brands for decades. Distortions occur, when the global impression of e.g. a product affects the rating of individual attributes. This in turn may lead to misinterpretations of customer satisfaction by managers and hence, to adverse product placing and strategy (Leuthesser et al., 1995; Wirtz, 2001). In this regard, the use of multi-item scales, like Likert scales, to study attitudes, beliefs, preferences or perceptions, provide the possibility for distortion (Spector, 1992).

However, since the application and analysis of the halo effect per se has been widespread, a precise and definite definition is not available. Albeit, consensus exists about an operational definition of the halo effect, describing it as a systematic response bias that distorts the results of a multi-item rating and thus reduces the variance and validity of the gathered data (Murphy et al. 1993; Beckwith et al. 1978). In the study by Fisicaro and Lance (1990), a further categorization of the halo effect can be found with three causal concepts: general impression halo effect, salient dimension halo effect, and inadequate discrimination halo effect.

3. Methods

The data for the research was collected by using the online survey platform Lime-Survey. The software is especially designed to conduct quantitative online surveys and additionally holds the tools for the evaluation of the collected data. In previous studies conducted by Kang and Huvstedt (2014) or Staudt et al (2014), quantitative online surveys were used to analyze the impact of CSR activities of a certain brand on the perceived customer based brand equity. This approach was adapted in order to collect data about the perceived SSCM performance and the perceived CBBE of smartphone brands. In the centre of this investigation was the assessment of opinions and beliefs of the participating persons about their personal smartphone brand.

As *Figure 1* shows, the perceived SSCM performance and CBBE serve as the two underlying indicators for the assessment of the halo effect. Both indicators consist of several indices. The three pillar model of sustainability was the basis for the development of the SSCM indicator. The supply chain sustainability criterion was modified in accordance to studies by Kang and Hustvedt (2014) and Sloan (2010) towards a focus on social and ecological sustainability. The economic sustainability was not considered as relevant for the perceived SSCM performance index, since this dimension is implicitly captured by the customer based brand equity assessment.

The CBBE assessment was adapted from the findings of Aaker (1996) about the measurement of brand equity. According to his research, the CBBE index consists of four categories, ranging from brand loyalty and brand awareness to perceived quality and brand association. Each index of both indicators included a selection of items, capturing the most important issues of the two concepts. Thereby, the indices also served as question categories in the online survey. In order to focus on the (subjective) perceptions of brand equity and SSCM performance, these questions were formulated as assumptions. Thus, the four CBBE indices included five assumptions each, while the social sustainability category consisted of 10 and the environmental category of 9 assumptions. In total, the measurement of both indicators was based on the analysis of 20, respectively 19 assumptions.

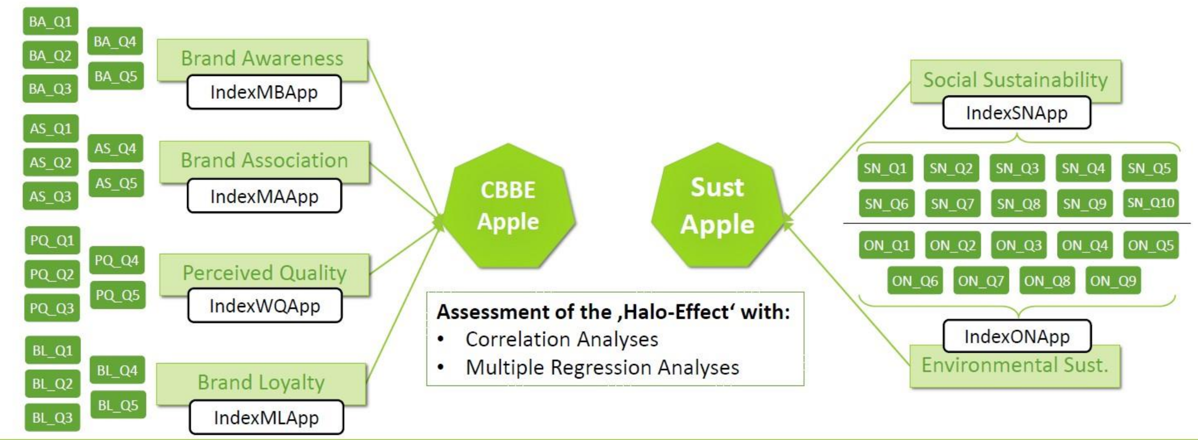

Figure 1: Structure of the online survey: example Apple; own illustration

3.1 Sample characterisation and data collection

The sample addressed all students from the University of Graz, which had been officially registered for the year 2015. The selection of these individuals as the underlying sampling frame was based on two considerations:

1. This population base was the best accessible and most cost-effective option for an online survey within the lecture setting.
2. The possibility to generate a significant result from an online survey is higher for a homogenous population base.

A stratified sampling approach was used as sampling method for the survey. In the process of stratifying, the overall population base (students of the University of Graz) was divided into homogenous subgroups. Each subgroup represented a particular faculty of the University of Graz. In order to achieve representativeness, a minimum sample size for every subgroup (faculty) was calculated according to the quantity of students associated to each faculty (see *Figure 2*).

Faculty	Students (2015)	%
THEOL	629	2%
REWI	4.541	13%
SOWI	4.536	13%
GEWI	8.689	24%
NAWI	9.092	25%
URBI	6.883	19%
global	1.669	5%
Total	**36.039**	**100%**

Figure 2: Defining the sample stratified sampling method (University of Graz 2016); own illustration

The dissemination of the questionnaire was twofold. On the one hand, email lists of the IT service system from the University of Graz were utilized. This dissemination procedure allowed the research team to address all students across all faculties of the University of Graz. In addition to the email lists, social networks, such as Facebook, were used for the recruiting process. The dissemination via Facebook occurred by creating a private event where only students from the University of Graz were allowed to join. To activate the maximum number of participants during the limited time frame, snowballing was tolerated by encouraging every invited person to distribute the questionnaire among other peers from the University of Graz (Handcock et al., 2011).

As a consequence, 449 completed answers were collected. 70 percent of the participants in the survey were women and 29 percent men. These numbers indicate a significant bias on female answers. Compared to the actual gender allocation at the University of Graz (female students 60 percent and male students 40 percent during winter term 2015/ 2016), women are overrepresented in this study.

The actual number of answers diverged slightly from the desired values, as depicted in *Figure 3*. In sum 149 answers were collected above the desired sample size. This surplus was due to more respondents from the faculty of Natural Science and the faculty of Business, Economics and Social Sciences. On the other hand, the faculties of Arts and Humanities, Catholic Theology and the global category (others) generated too less answers. This situation fostered the bias on the Natural Science faculty and it led to an overrepresentation of the Business, Economics and Social Science faculty in the sample size. On the contrary to this situation the Law Faculty and the Environmental, Regional and Educational Sciences faculty reached the desired amount of answers within an accuracy of five percent.

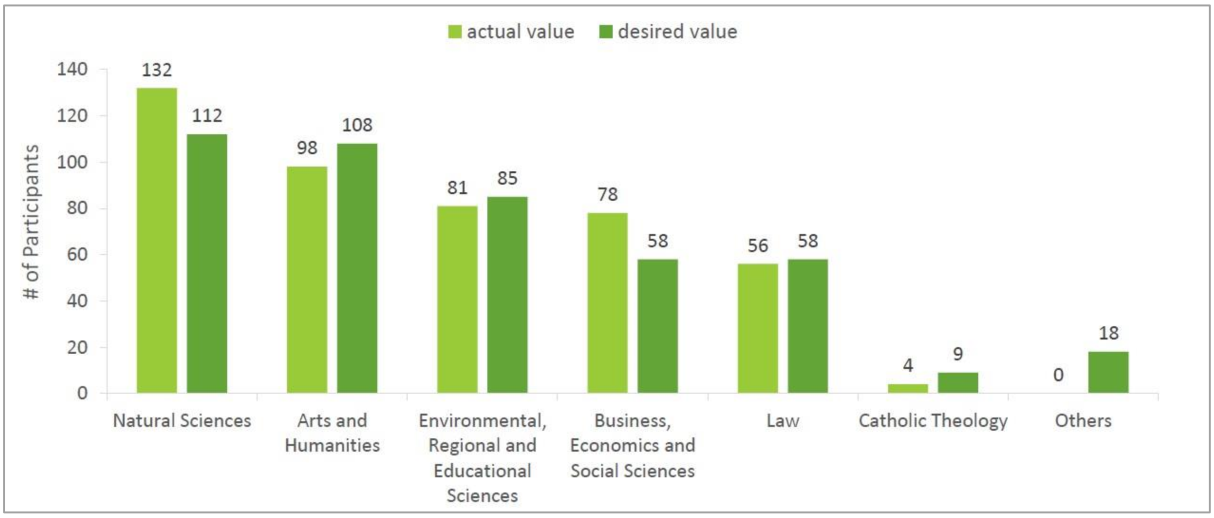

Figure 3: Comparison of actual and desired number of participants by faculty; own illustration

3.2 Criteria development

3.2.1 Criteria for SSCM

After a literature review about tools for firms to incorporate sustainability in their business activities, the study of Sloan (2010) provided a concrete measure of supply chain sustainability. By building on previous studies and addressing all three sustainability dimensions (economic, environmental, social), indicators for each category are selected that should contribute to the measurement of SSCM performance (*Figure 4*). For the environmental dimension six different categories are listed (air, water, land, materials, mineral and energy resources, as well as institutions/systems); three for the social dimension (workplace/internal, community/external, and institutions/systems); and four for the economic dimension (economic performance, financial health, market and structure, and institutions/systems). For each of these categories, indicators are proposed (Sloan, 2010). The proposed categories and indicators were utilized to assess the consumer's perception on SSCM performance. As the economic criterion is already captured in the CBBE assessment and this research is intended to focus predominantly on the perceived sustainability performance of each smartphone brand, the work of Sloan (2010) was deliberately adapted for the purpose of this study. While the economic categories were neglected due to the already proposed reasons, the Social Sustainability and Environmental Indices consist of 10, respectively 9 attributes (=items). The Social Sustainability attributes include assumptions over the transparency, social responsibility and trust along the supply chain. The final measurement of the Environmental Sustainability Index is covering topics like emissions, energy and used materials in the production process.

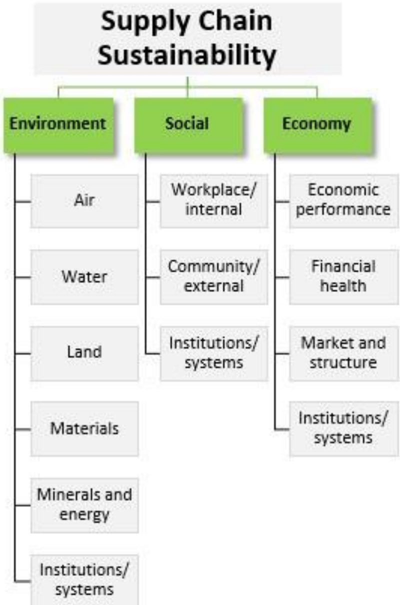

Figure 4: Supply chain sustainability categories based on Sloan (2010); own illustration

3.2.2 Criteria for CBBE

For assessing the perceived strength of the brands under study the study drew on the concept of CBBE, which was initially described by Aaker (1991) and further elaborated by Keller (1993) and Aaker (1996). For a systematic assessment of CBBE several upfront definitions have to be made. Principally, literature offers a vast number of different brand equity measurement approaches, which are basically differentiated by either focusing on behavioural-oriented or monetary-focused models (Holtz, 2012).

As this study opts for exclusively assessing the consumer perspective on brands, a monetary dimension of brand equity was neglected. Given this, a useful psychographic assessment of CBBE is provided by Aaker (1991), who was one of the first to systemize consumer-driven brand equity. The five central dimensions of CBBE in his elaborations are brand loyalty, brand awareness, perceived quality, brand associations and other proprietary brand assets *(Figure 5).* As the study solely relies on consumer perceptions for the assessment of the brand equity, the brand asset dimension of Aaker's brand equity measurement method was dismissed.

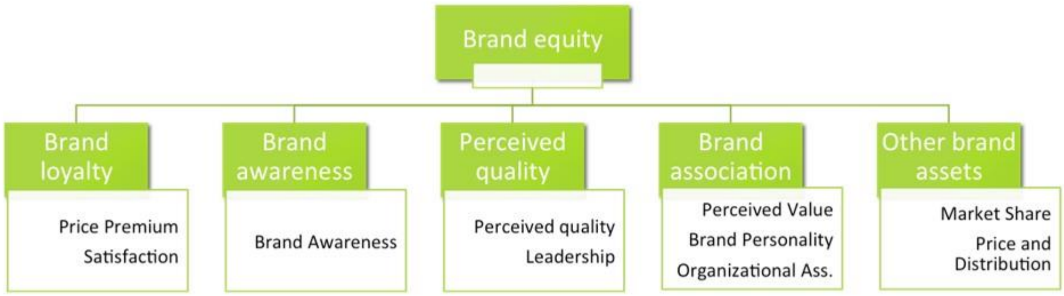

Figure 5: Customer-based Brand Equity model by Aaker (1991, 1996); own illustration

3.3 Data analysis

The item sets of the survey consisted of three parts. The first part of the study measured demographic characteristics. In the second part participants were asked to indicate their opinions on the perceived brand equity of their smartphone company (CBBE criterion). The aim of the third part was to determine the participants' attitude on the perceived SSCM performance for the same smartphone brand (SSCM criterion).

By selecting the ten most commonly used smartphone brands in Austria as research objects, a wide range of smartphone brands was considered with a comprehensive variation of brand properties such as popularity, quality, price range and SSCM efforts within the same product category. Based on the selection function of the online survey system (Lime-Survey), each participant was only able to answer the particular set of questions regarding the individual possessed smartphone brand. As a result, each participant answered a set of 47 questions concerning his or her smartphone brand.

The assumptions related to the different topics of CBBE and SSCM were evaluated by a 5 point Likert-Scale ranging from "strongly agree" to "strongly disagree". Only responses from participants who completed all three parts of the study were taken into consideration. Two inclusion criterions for the permission to participate in the online questionnaire secured the homogeneity of the sample. First, interviewees were only allowed to participate in the whole study, if they were currently enrolled in one of the faculties of the University of Graz during the winter term 2016/2017. The second prerequisite to participate in the online survey was the indication of owning a smartphone or the intention to acquire a smartphone of the ten proposed brands in the next half year.

4. Empirical Results

For the assessment of the collected data and the testing of the hypothesis, SPSS 23 was utilized. The preliminary reliability of the applied scales to measure the two constructs of CBBE and perceived SSCM was first analysed by examining the internal consistency among the selected items. *Table 1* depicts the values of the Cronbach's Alpha test, which reveals the average correlation of all items within the predefined categories (Gliem & Gliem, 2003).

Construct	Items	Cronbachs' Alpha	CBBE Total	Construct	Items	Cronbachs' Alpha	PSSCM Total
A. Brand Awareness	BA001 BA002 BA003 BA004 BA005	0.784	0,930	E. Perceived Social Sustainability	SS001 SS002 SS003 SS004 SS005	0.924	0.951
B. Perceived Quality	PQ001 PQ002 PQ003 PQ004 PQ005	0.797			SS006 SS007 SS008 SS009 SS010		
C. Brand Loyalty	BL001 BL002 BL003 BL004 BL005	0.889		F. Perceived Environmental Sustainability	ES001 ES002 ES003 ES004 ES005	0.903	
D. Brand Association	BAs001 BAs002 BAs003 BAs004 BAs005	0.881			ES006 ES007 ES008 ES009		

Table 1: Cronbach's Alpha Reliability Coefficients

Since the minimum requirement of Cronbach's Alpha is 0.7 and all factors of the construct are above this threshold value, the measurement of this study is acceptable in terms of reliability (Gliem & Gliem, 2003).

Based on this precondition, the items were aggregated to the respective factors and further interpreted as metrically scaled (comparable with Kang and Hustvedt, 2014). Similar to comparable study frameworks, the brand-specific answers were analysed by using the Pearson Correlation Analysis and the Multiple Regression Analysis as assessment methods for the Halo Effect (see Madden et al., 2012). As the aim of this study is to assess the spillover effects of a customer-based brand evaluation on the evaluation of sustainability in the supply chain management, each brand was assessed individually. To ensure representativeness and data validity, only the four brands with the most observation were analysed. Therefore, *Table 2* shows the distribution of Smartphone brands among our sample. The most prevalent smartphone brands among our research population where by far Samsung (143) and Apple (138), followed by Huawei (35) and Sony (30). Every other brand was denominated less than 20 times and thus excluded from further assessment.

Brand	Observations	Percentage	Cumulative percentage	Brand	Observations	Percentage	Cumulative percentage
Samsung	143	32%	32%	*Motorola*	8	2%	90%
Apple	138	31%	63%	*Nokia*	7	2%	92%
Huawei	35	8%	70%	*Blackberry*	7	2%	94%
Sony	30	7%	77%	*Fairphone*	4	1%	94%
HTC	19	4%	81%	*ZTE*	1	0%	95%
LG	19	4%	86%	*others*	12	3%	97%
OnePlus	14	3%	89%	*no smart-phone*	12	3%	100%
				Total	**449**	**100 %**	

Table 2: Sample characterisation

For the four assessable brands, correlation analyses were conducted, depicting the linear association of the respective CBBE and the accompanying values for the perceived SSCM performance (*Figure 6*).

For Apple (R^2=0.276) and Samsung (R^2=0.278), the data set show a highly significant (p<0.01) medium positive correlation between the CBBE and the perceived SSCM performance. Similarly, Sony depicts the same positive correlation, although at a lower significance level (p<0.05) and with less explained variance (R^2=0,135). The same applies for Huawei, showing the same low positive correlation between CBBE and perceived SSCM performance, although being not statistically significant (p=0.053).

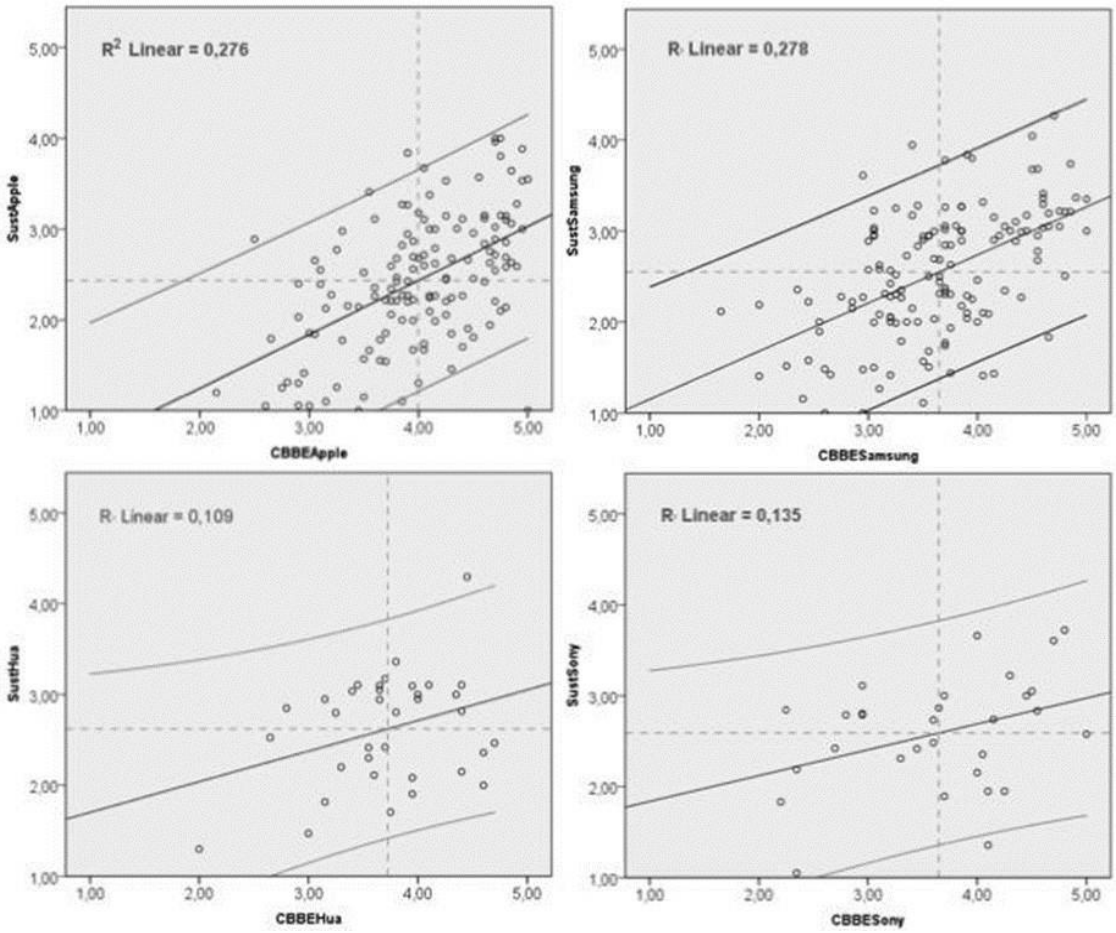

Figure 6: Results of the correlation analysis

Based on this results, a multiple regression model was applied aiming to reveal the driving forces for the assumed association between the dependent variable (perceived SSCM performance) and the independent variables (Brand Awareness, Perceived Quality, Brand Loyalty and Brand Association). To test the hypotheses for every respective brand, *Table 3* indicates the R-values, Beta-coefficients and significance level of the respective included.

The results show significant correlations of Perceived Quality with the perceived SSCM index for the brands Apple and Huawei and a highly significant influence of Brand Association for the brand Samsung. In addition, the data set shows a significant influence of Brand Loyalty for Samsung. All other dimensions of the CBBE-concept did not proof statistical significance.

Independent variable	R (zero-order)	Beta-coefficient	Sig.
Apple			
Brand Awareness	0.058	-0.99	0.190
Brand Association	0.481	0.194	0.087
Perceived Quality Brand	0.484	0.250	0.015*
Loyalty	0.487	0.201	0.090
Samsung			
Brand Awareness	0.292	0.012	0.888
Brand Association	0.527	0.347	0.003**
Perceived Quality Brand	0.416	-0.065	0.574
Loyalty	0.514	0.297	0.016*
Huawei			
Brand Awareness	0.023	-0.145	0.363
Brand Association	0.370	0.085	0.762
Perceived Quality Brand	0.527	0.669	0.009**
Loyalty	0.193	-0.265	0.246
Sony			
Brand Awareness	0.358	0.229	0.421
Brand Association	0.357	0.248	0.521
Perceived Quality Brand	0.314	0.053	0.885
Loyalty	0.298	-0.119	0.764

Table 3: Result of the multiple regression analysis

In a third step the data was evaluated in total. A Pearson correlation assessment with the aggregated value for CBBE and perceived SSCM among all stated brands showed a strongly significant medium positive correlation of r=0.449 (n=437, p<0.0001). The scatter plot depicted in *Figure 7* reveals the general tendency of the survey participants to express a low rating for the SSCM performance across all brands (mean=2.542, sd=0.737), whereby the CBBE earned a significantly higher score (mean=3.741, sd=0.725).

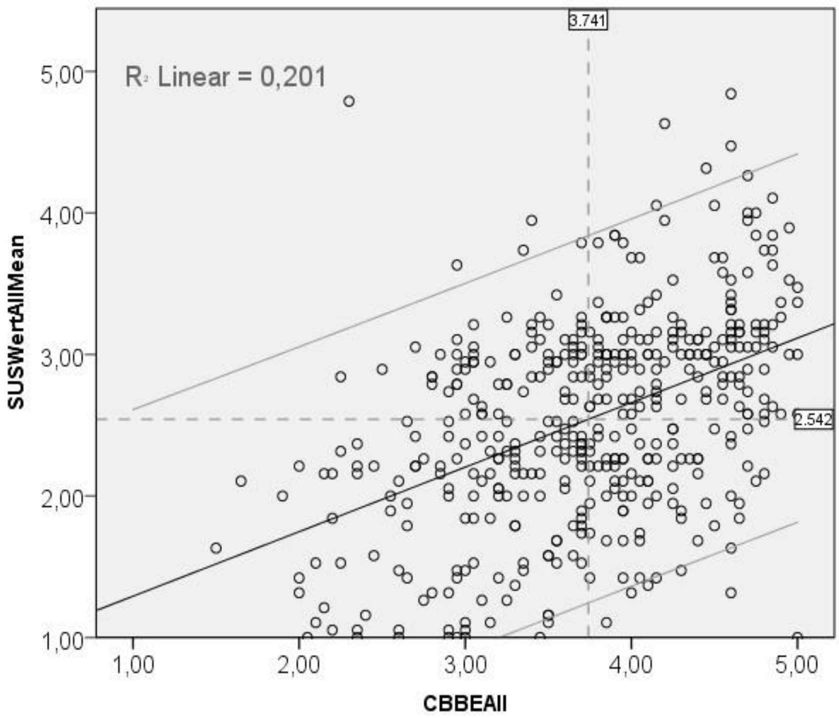

Figure 7: Result of the aggregated Pearson correlation assessment

5. Discussion

The objective of this research was to expand the knowledge about the influence of CBBE on the perceived SSCM performance, in particular the study focused on the question, if a higher CBBE leads to a more favourable rating of the inherent SSCM performance. Initially, the perception of consumers on CBBE and SSCM performance of their smartphone brand has been investigated and later analyzed if and how the perception of CBBE, or selected attributes of it, influence the perception of a brands SSCM performance. The underlying hypotheses assumed a possible relationship between these two constructs, based on the theoretical concept of the halo-effect. Our data show, that for specific smartphone brands the underpinned hypothesis can be supported. Apple, as well as Samsung und Huawei show a significant positive correlation between CBBE evaluation and the perceived SSCM. Also the evaluation of Sony in terms of these two constructs presume a low to medium correlation, whereby lacking full significance. This conclusion is backed by the overall value of CBBE across all brands, which show a significant influence on the evaluation of perceived SSCM performance. In can be assumed, that customers indeed take their individual brand evaluation as a guidance for their evaluation of respective supply chain practises of their smartphone brands.

Furthermore, the individual analysis of the single dimensions of the CBBE construct indicate a dominant influence of Perceived Quality in gauging the perceived SSCM practises. This connection between quality and sustainability issues has already been scrutinized from other perspectives. De Boer (2003) for instances pointed out, that companies often streamline their marketing-signals through bundling sustainability-related product information with quality aspects in order to address quality-sensitive customer segments. On the other hand, research also investigated the managerial necessity to link sustainability-oriented goals with quality targets, to motivate conservative employees to pursue non-traditional organizational objectives (Pagell & Wu, 2009). However, an extensive examination of spillover effect from customer-based quality perceptions on sustainability performance evaluations is currently missing. Further research on the influential character of customer-based brand evaluations on perceived sustainability aspects might open-up new playgrounds for improving management guidelines.

5.1 Limitations

Regarding the reliability of the underlying methods, two critical aspects have to be taken into account. First, the brand selection option at the beginning of the questionnaire led to the overrepresentation of the two most popular brands in Austria. Samsung and Apple combined together for 61 per cent of the total responds. In addition, only two other brands (Sony and Huawei) generated enough observations for a further assessment. This disparity may explain the partly divergent results within this survey. Second, the limitation of the sampling size to students of the University of Graz fostered the restricted generalization of the results, due to the assessment of the perception of only a highly specific user group (students from the University of Graz).

Although studies are being conducted that observe the effects of CSR on brand equity, only a few incorporate questions that target sustainability from a supply chain perspective. Thus, while survey questions regarding brand equity are well formulated and applied in multiple research situations, questions on SSCM are less elaborated. While the questions for the perceived brand equity could be adopted from other papers (i.a. Yoo & Donthu, 2001; Schivinski & Dabrowski, 2014), questions regarding perceived social and environmental sustainability were formulated based on existing categories and indicators (e.g. as in Sloan, 2010). However, as the results show overall lower scores for perceived SSCM performance than for customer-based brand equity, it needs to be questioned, if this is purely explained by the mere fact of different perceptions. The observed discrepancy might also be owed in some extent to the lacking application of SSCM question sets and a consequently less developed repertoire of questions. The conducted pretest supports this assumption, as respondents generally regarded a differentiated rating of the respective SSCM questions as challenging. Although adjustments to questions were performed, this circumstance has to be acknowledged as limitation.

The results show further that surveys regarding consumer perceptions of brands can be seen as a “snapshot in time”. The reason for this can be brand-specific influences of events like scandals, publicity actions, large-scale media reports or the like, which showed a significant impact on one of the brands. In the present study, this was especially notable for Apple’s tax dispute with Ireland in late autumn 2016 and hence, some weeks before the survey was conducted. This event may explain the significant low rating for questions that are directly related to this issue, in particular concerning fair contribution to tax system as part of social sustainability practises. Repeating the survey with the same set of questions could counter this and raise the validity of data due to a further improvement of the survey construct.

Further research with a bigger sampling size is needed to overcome some of the limitations of this research. These studies need to attract a greater heterogeneity and a broader distribution of brands to make general statements. The stratified sampling method can be transferred to a broader survey sample, because it guarantees representative subpopulations. Also questions that attract social and environmental perceptions from a supply chain perspective need a further elaboration and testing.

6. Conclusion

A considerable amount of research has been conducted to prove a positive influence of CSR practices on brand strength or on the customer value and the CBBE. This research has examined the inverse relationship, namely the influence of CBBE on the perception of companies’ sustainability performance. Although there is still much to be understood regarding the perception of sustainable supply chain performances, it is clear that consumers are generally indifferent or critical in assessing both the social and ecological sustainability of supply chains. Low transparency and restrained communication strategies within the branch might be decisive for this attitude.

As the presented research showed, strong smartphone brands do not have a significant impact on how consumers perceive the SSCM performance. Nevertheless, attributes such as the perceived quality and brand loyalty do have a positive influence on how consumers evaluate the SSCM performance of their smartphone-brand. Which attribute significantly influences the perceived SSCM performance differed among various brands. For Apple and Huawei, the perceived quality was the main influencing factor as for Samsung brand association was the main driving factor. The consequences of media covered events – mostly scandals – must also be taken into consideration as having a measureable influence on the perception of a company's’ SSCM performance.

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Impact of product/company sustainability information on consumer behaviour in the apparel industry

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Abstract

The main goal of this paper is to assess the effect of information about corporate social responsibility and environmental effects of the apparel industry given to consumers via labels onto their purchasing decisions. This study explores the association between sociodemographic variables and green consumer behaviour and additionally evaluates the variables green purchase intention (GPI) and green purchase behaviour (GPB). An online survey containing a choice based conjoint analysis (CBC) was administered to 324 students of the University of Graz. The object of study was a basic grey T-shirt presented with a set of criteria which has been identified to be of high relevance for consumers when purchasing clothes: Price (Low-priced, Medium-priced, High-priced), Brand (H&M, Diesel, Hugo Boss), and Quality (High quality, Medium quality, Low Quality). In addition to these attributes three eco-labels were included in order to assess their influence on consumer purchases: Fair Trade, Fair Wear and GOTS. Two distinct clusters of respondents with high and low environmental concern were formed. The results showed that there are not sharp relationships between sociodemographic variables and high/low environmentally-friendly behaviour. Segments with strong beliefs and attitudes towards ethical consumption though exhibit a higher GPI responding to environmental and social labels. GOTS and Fair Wear labels featured in clothes' tags don't have a high significant and positive effect on consumers' green purchase behaviour: they were not preferred by the respondents when choosing which product to buy. However, respondents were more prompt to use Fair Trade as a guideline to make a purchase decision. Brand resulted to be the most influential factor when deciding what to purchase followed by quality, price and lastly eco-labels. Based on these finding, efforts need to be made in order to increase consumers' familiarity with eco-labels and to create long-lasting pro-environmental purchasing practices.

Keywords
Apparel; Consumer behaviour; Ecolabel; Green Purchase Behaviour; Green Purchase

1. Introduction

The apparel industry has negative environmental and social impacts through all stages of the product life cycle, from fiber growth and manufacturing, dyeing and printing, transportation to stores and selling, to end of the garment life disposal (Hill and Lee, 2012). Child labour, working conditions and pay, toxic substances releases to air and water bodies, raw materials consumption, animal welfare (leather and wool production), waste, among others make up the extensive list of unsustainable practices in the production of daily-use clothing items.

Nevertheless, today, consumers have the chance to make informed choices thanks to ecolabels. Labels constitute the means with which sellers assure buyers of the authenticity of their products or services. In particular, environmental labelling schemes refer to the quality of products and production processes that are relevant from a public perspective including issues such as biodiversity and social justice (Boer 2003).

The variety of information about sustainability and social impacts presented as labels on, for instance, food products, seems to be more detailed and diverse in comparison to the existing ones for other products such as clothes. The awareness of sustainability in the clothing industry seems to be somehow delayed. Existing labels for the latter industry appear to be less recognized and known.

Even though the market for green products is considered to be both established and expanding companies have seemingly ineffective strategies to communicate their efforts to improve their production processes and to spur more sustainable consumption. This is reflected in the actual low market shares of such green products (Rex and Baumann, 2007). Accordingly, it is essential to assess the role of these "green claims" in the clothing industry to leverage buying choices. According to D'Souza et. al. (2006) the effect of label information on a consumer's intention to purchase environmental friendly products is not fully understood.

The research objective of this study is to assess the effect of information about corporate social responsibility and environmental effects given to the consumers via labels onto their purchasing decisions in the apparel industry.

After the introduction, the literature review about green consumerism, green purchase intention, green purchase behaviour, and eco-labels is presented. Additionally the most important eco-labels in the apparel industry are highlighted. This will lead the construction of the research model and hypotheses. Then the methodology used to verify such model is described and the research results and discussion are presented. This work ends with the final remarks, limitations and further research.

2. Literature review

In the apparel industry, a set of criteria has been identified to be of high relevance for consumers when purchasing clothes. The criteria conveys price, brand and quality (Iwanow, 2005). Nowadays, manufacturers disclose information they believe can enhance their market position and they hope consumers will respond to them considering the certified products as more attractive than those with no claim (Hoek, 2013). But assessing how ethical attributes influences purchase decisions is challenging since choices do not reflect consumers' expressed concerns or evaluation. It is suggested that consumers with high environmental awareness do not reflect their preoccupation in their buying behaviour (Akehurst, 2012). Therefore, it is imperative to understand green consumer profile and correspondent behaviour.

2.1 Green consumer profile

Over the last years consumers have become more conscious about the negative environmental effects of their consumption. An ecologically conscious consumer is defined as an individual that consumes only products that cause the least harm to the environment (Akehurst, 2012). Therefore, it is of interest for this work to identify the level of concern of consumers towards the environment and social issues and link this to how they express it in their consumption preferences.

Moreover, the sociodemographic profiles of consumers are also salient since significant relations have been suggested. Straughan and Roberts, et.al (1999) tried to correlate demographic variables with ecologically conscious behaviour and/or consumption. However, non-significant relations between some variables for instance age and green-behaviour have been found (Straughan and Roberts, 1999). The following variables will be taken into account in the present study:

2.1.1. Socio-demographic characterization (Straughan and Roberts, 1999)

- **Age:** The general belief is that young people are more sensitive to green marketing since they are more likely to be sensitive to environmental issues (Akehurst, 2012). However results of previous studies are controversial with the significance of this variable
- **Gender:** Women are more likely than men to hold attitudes consistent with the green movement.
- **Education Level**: A positive relationship has been found between literacy and green consumer behaviour.
- **Monthly income:** Individuals with higher incomes can bear the marginal cost of green products therefore income is thought to be positively related to environmental sensitivity**.**

Researchers assert that there exists a positive association between consumers that value environmental attributes and their purchase behaviour. In this work a linear link between consumers, intention and purchase is assumed. These concepts represent the steps of green purchase decision.

2.2. Green Purchase intention and Behaviour

Attitudes toward green purchases (reflected in the consumer profile) influence green purchase behaviour (GPB) via the mediating variable of green purchase intention (GPI) (Chan, 2001). Although intention is not effectively translated into purchase Chan et al. (2001) reported a positive relationship between GPI and GPB (Chan 2001).

2.3. Eco-labels

Studies suggest that environmentally responsible consumption is partly dependent on appropriate information from various sources such as advertising, eco-labels and other awareness programs (Taufique, 2016). When consumers are provided with positive attributes of a product they are being motivated to purchase green products (Joshi und Rahman 2015). Consumers are relying more on eco-claims provided by companies, governments and other organisations but they may disregard these claims if there is lack of trust, misleading information or lacking meaning (Taufique, 2016) . The role of eco-labels is not completely understood and is often influenced by consumers knowledge, concern and trust (Taufique, 2016). Furthermore, Nik Abdul Rashid's (2009) study has shown that awareness of eco-labels has a positive effect with consumer's intention to purchase. Based on the aforementioned and in the context of this study, when a consumer is presented a product with an eco-label (either before shopping or during the purchase situation), eco-labels featured in clothes' tags may have a positive effect on consumers' green purchase intention.

Based on the aforementioned and on Hoek et al. (2013) the first hypotheses is drawn:

H1: Segments with strong beliefs and attitudes towards ethical consumption will exhibit a higher GPI responding to environmental and social labels.

As acknowledged before, green purchase intention is an antecedent of green purchase behaviour. However, another relationship might exist between the presence of ecolabels and green purchase behaviour. Thogersen et al (2000), and D'Souza et. al (2006) have stated in their studies that consumers that purchased green products acknowledged that they look for environmental or ethical information on labels. According to this, in a situation when the consumer goes to a shop the following hypothesis surges:

H2: Eco-labels featured in clothes' tags will have a significant and positive effect on consumers' green purchase behaviour

2.3.1. Eco-labels in the apparel industry

In the apparel industry a variety of different eco-labels is used. They are either product or company related. The labels cover different issues. Some have a focus towards ecological aspects, whereas other labels focus more onto social aspects. Another distinguishing feature of the labels is the stages of the products' lifecycle they cover (Clancy, 2015). For the examination of the stated hypotheses three different eco-labels with different attributes were chosen. They were selected because they expose different dimensions of ethical claims and also their growing popularity in the industry:

- Fair Trade certified cotton
- GOTS (global organic textile standard)
- Fair Wear

GOTS and "Fair Trade certified cotton" are product related labels. Subject of the GOTS certificate are textiles made from organic fibres. The label covers all stages among the production supply chain.
The "Fair Trade certified cotton" label main emphasis lies on the fair pricing of cotton farmers who are at the beginning of the supply chain. Therefore it can be stated that this label is covering the social dimension of sustainability.

The third label considered has its main target field in the improvement of working conditions. In contrast to the first two labels, which are product based labels the whole company has to comply to the standards of the Fair Wear Foundation, if it wants to be certified.

3. Methods

Based on the literature aforementioned and particularly on the work of Akerhust (2012) the following model is proposed Figure 1 which will lead the construction of a subsequent survey. The hypotheses are tested through a quantitative study.

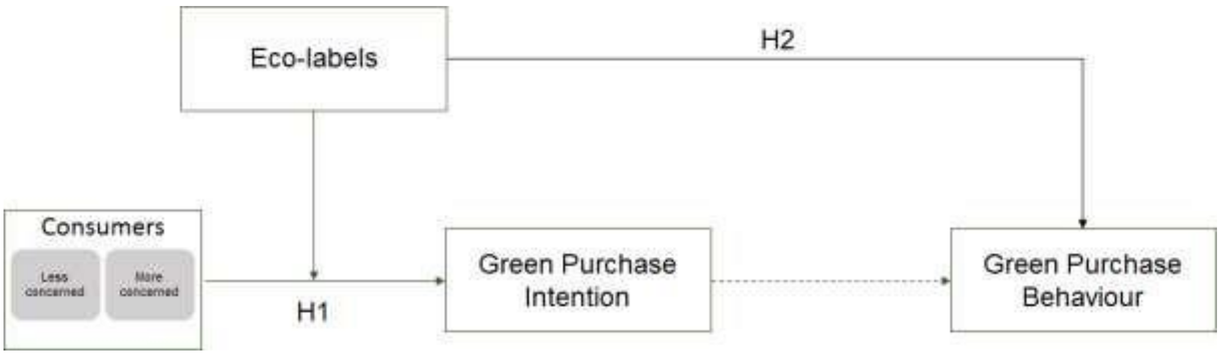

Figure 1: Research Model

Hypotheses:

- *H1: Segments with strong beliefs and attitudes towards sustainable consumption will exhibit a higher GPI responding to environmental and social labels.*
- *H2: Eco-labels featured in clothes' tags will have a significant and positive effect on consumers' green purchase behaviour.*

To verify the proposed model and hypotheses a survey strategy was adopted by means of an online questionnaire. An online-based survey was preferred due to time and resource constraints. Nevertheless, it provides a convenient overview of the preferences of apparel consumers. A convenience sample of 324 respondents was obtained. The questionnaires were administered to college students of the University of Graz in Austria. They were given the same set of questions in a predetermined order. The construction of the survey was initially in English but it was translated to German to facilitate respondents' understanding.

The survey (see Appendix I) contains four sections assessing the following:

- **First section: Sociodemographic variables**
- **Second section: Green purchase behaviour**
- **Third section: Consumer profiling**
- **Fourth section: Green purchase intention**

3.1 First section: Sociodemographic variables

The sample's demographics of respondents is obtained (age range, gender, monthly income, educational level, occupation and yearly clothes spending).

3.2 Second section: Green purchase behaviour

In order to assess the appeal of eco-labels in purchase decisions, a choice-based conjoint (CBC) analysis was used. Choice-based conjoint analysis has been used in similar studies assessing the influence of ethical claims on purchasing decisions related to other product attributes although they have focused in other products such as washing machines (Sammer and Wüstenhagen, 2006) and laundry soap powder (Hoek, 2013). By means of this statistical tool, the results can show what product features are the most and the least desired by the respondents of the survey.

In this study, the respondents are asked to imagine themselves in a clothing store and that they have the intention to buy a piece of clothing. One basic apparel product was selected in order to have a common ground of comparison. In this case a standard grey T-shirt was chosen. In a CBC a product is described in terms of a number of attributes which can be broken down into levels.

The attributes considered for this work are the ones that have been found to have the most impact on apparel choice: price, quality, brand (Iwanow, 2005) and for the interest of this study, eco-labels. This selection is grounded on the main preferences of consumers when purchasing apparel products.

3.2.1 Labels: The labels considered in the experiment are the most relevant in the apparel market today and the ones which reflect different dimensions of ethical consumption. As pointed out in the literature review, GOTS, FairTrade organic cotton and Fair Wear assessed in this work.

3.2.2 Quality: Three levels of fabric quality are selected: low, medium and high.

3.2.3 Brand: Three different brands are chosen reflecting low, medium and high budgets: H&M, Diesel, and Hugo Boss.

3.2.4 Price: The values chosen for this factor are based on the prices displayed on H&M, Diesel, and Hugo Boss websites. Generally people relate brands with different price ranges. Conditional pricing (Orme 2007) was therefore used to increase the realism of the experiment: premium brands are shown higher prices. Nonetheless, price is still treated as a separate attribute with just three levels (even though respondents are shown a larger number of prices) which we will refer in this study as low, medium, and high-priced. The discount brand H&M is shown 9.99 €, 12.99 €, and 17.99 €. Whereas medium budget brand Diesel is shown 19.99 €, 24.99 €, and 39.99 €. The premium brand Hugo Boss is shown 29.99 €, 39.99 € and 64.99 €.

Table 1 summarizes the attributes (in columns) and levels (in rows) used in this study.

Table 1: Attributes and levels for a standard grey T-shirt

Price	Label	Quality	Brand
Low priced [H&M (9.99 €) Diesel (19.99 €) Hugo Boss (29.99 €)]	GOTS	Low Quality	H&M
Medium priced [H&M (12.99 €) Diesel (24.99 €) Hugo Boss (39.99 €)]	FairTrade cotton	Medium Quality	Diesel
High priced [H&M (17.99 €) Diesel (39.99 €) Hugo Boss (64.99 €)]	Fair Wear	High Quality	Hugo Boss
-	No label	-	-

On the survey, fictive products with different attributes are shown in a competitive context. Respondents are shown a set of three products (a choice task) created from a combination of levels and asked to choose from the products that are shown. Also a none option is displayed since a customer can decline a purchase like in real-life situation. The data obtained from all respondents will allow to estimate aggregate utilities.

This step was run in Excel with XLSTAT. This statistical software is a data analysis add-on for Microsoft Excel and includes an option for Design of Experiments (DoE) for choice based conjoint (CBC) analysis and for running the CBC analysis.

Firstly, the CBC was designed with XLSTAT. Twelve profiles (Table A1) are created by means of an optimised fractional factorial design and once they are generated they are allocated in comparison groups using incomplete block designs. XLSTAT uses the methods of experimental design to obtain an acceptable number of profiles to be judged while maintaining good statistical properties.

Secondly, thirteen showcards (Table A2) with three different profiles are generated. Each of them are shown in the survey to each respondent for them to judge. The number of choice tasks to be displayed in a CBC usually ranges between 8 and 20 (Orme 2011). Too many may produce biased or noisy results, and too few will reduce precision (Orme 2007). Therefore in this study 13 showcards have been generated as recommended in the software.

Figure 2 shows an example of one showcard (Comparison 1 in Table A2) presented in the survey:

	Profil 1	Profil 2	Profil 3
Preis (EUR)	39,99	24,99	24,99
Label	Fair Wear FAIR WEAR FOUNDATION	Fairtrade FAIRTRADE Certified Cotton	Fair Wear FAIR WEAR FOUNDATION
Marke	BOSS HUGO BOSS	BOSS HUGO BOSS	DIESEL
Qualität	Low	Medium	High

Figure 2: Showcard example

3.3 Third section: Consumer profiling

In these section questions are formulated to measure respondents' environmental attitudes, beliefs and willingness to take actions that would promote the environment. From these, two distinct clusters with different views and choice behaviour- more and less concerned- are formed by means of a k-means cluster analysis. A certain segment of respondents will be much eager to shop ethically whereas the rest will be less concerned to do so.

Based on past validated scales consumers are profiled by five items in a Likert 5-point scale format. These are used by respondents to rate the degree to which they agree or disagree with a statement (Sullivan and Artino, 2013) anchored by ”Never” (1) and “Always” (5). The items were adapted from (Straughan and Roberts, 1999). Only six items were used to keep an adequate length of the survey.

Once the two clusters of respondents are formed it is of interest to know the preferences respondents of each cluster exhibited in the CBC experiment for every level (Low-priced, Medium-priced, High-priced, GOTS label, Fair trade label, Fair Wear label, No label, H&M, Diesel, Hugo Boss, High quality, Medium quality, Low Quality). These preferences are denominated part-worth utilities. Data from the CBC is therefore analysed by means of a multinomial logistic regression (multinomial logit model) to estimate the utility functions. This is carried out separately for each cluster of respondents (more and less concerned).

3.4 Fourth section: Green purchase intention

Before making the respective questions, respondents are presented with the logo and a very short description of the eco-labels. This is to assure the respondent is aware of them and has a previous knowledge. (Thorgerson 2000) states that it is very unlikely that consumers pay attention to eco-labels unless they value protecting the environment. Moreover, eco-labeling schemes are of no use if consumers do not notice them in the shopping situation. In the case of this study, the consumer is aware of the presence of the eco-label and can judge whether or not to use eco-labels as a tool for decision-making. We considered this point important because if the respondent does not know what he or she is being asking about then it is difficult to assess the effect an eco-label can have on intention. Following (Chan, 2001) three statements in a Likert 5-point scale format were used to measure intention to buy products with eco-labels.

4. Results

4.1 Consumer profiles

K-means cluster analysis was performed with SPSS based on the 6 questions of the Consumer profile section of the survey. Two distinct groups of 110 and 214 respondents were obtained for the less concerned respondents (low mean values) and for the more concerned respondents (high mean values) respectively. The means of the questions are presented in Table 2. When trying to make 3 clusters the differences between the middle and highest groups were minimal. For this reason it was decided to form only two groups. The values are based on a 5-point-likert-scale in which 1 was 1 the lowest one and 5 the highest one. 5 stands for “very sustainable”.

Table 2: K-means cluster analysis based on the consumer profile

	Cluster 1 mean (less concerned)	Cluster 2 mean (more concerned)
I have switched products for ecological reasons	1.89	3.13
I sort my household residues	4.12	4.71
If possible I do not buy throw-away products, I rather buy products with an eco-label	2.55	3.94
I have tried very hard to reduce the amount of electricity I use	3.26	4.38
I buy high quality products, if those have a positive impact towards the environment and humans	2.71	4.10
To save energy, I drive my car as little as possible	2.35	4.20

4.2 Green Purchase Intention

According to the results showed in Table 3 the respondents who belong to the more concerned cluster exhibit a higher GPI than for the less concerned cluster when they are presented with a brief description of an eco-label. To elaborate whether this difference in GPI is significant an independent t-test was conducted via SPSS. For all three questions we could thereby prove a statistical significant difference between the less concerned and more concerned cluster.

The GPI was measured by a five point Likert Scale with the value of 5 expressing the highest purchase intention. The individual results of each cluster have then been aggregated for each question and the mean was calculated. Regarding the first question the mean of the less concerned cluster was 2.32 with a standard deviation of 0.995. For the more concerned the value of the mean was 3.53 with a standard deviation of 1.082. The difference between the two clusters could be proven as significant with the values $(t(322) = -9.830, p = 0.001)$.

The second question of the survey was targeting the ecological motive for switching to an ecolabeled product for the next purchase. The mean of the less concerned cluster was 2.36 with a standard deviation of 1.098 and the mean of the more concerned cluster was

3.58 with a standard deviation of 1.142. The independent t-test proved this difference as statistically significant as well *($t(322) = -9.226$, $p = 0.001$)*.

The third question which was used to elaborate the general GPI of the respondents by asking, if they would buy a green product because it has an eco-label. The mean for the first cluster was 2.17 with a standard deviation of 0.917. The second cluster´s mean was 3.42 with a standard deviation of 1.096. For this question the difference could be proven as statistically significant as well. *($t(322) = -10.197$, $p = 0.001$).*

The Levene's Test for Equality of Variances indicated that for the first two questions equal variances within the clusters could be assumed. For the third question the test portended that the variances within the two clusters are not equal ($p = 0.025 < 0.05$). For a more detailed overview see Table A3, Table A4, and Table A5 in the Appendix.

The results according the GPI can confirm our first hypothesis:

H1: Segments with strong beliefs and attitudes towards sustainable consumption will exhibit a higher GPI responding to environmental and social labels.

Table 3: Intention by cluster

	Less concerned cluster (mean)	**More concerned cluster (mean)**
For the next purchase of clothes, I will consider buying products with an eco-label due to ethical reasons.	2.32	3.53
For the next purchase of clothes, I will consider switching to other brands that have eco-labels for ecological reasons.	2.36	3.58
For the next purchase of clothes, I plan to switch to a **green version** of a product because it has an eco-label.	2.17	3.42

4.3 Results of the sociodemographic variables per cluster

In the following figures Cluster 1 refers to the respondents within the less concerned group and Cluster 2 to the respondents within the more concerned group. Figure 3 shows the different ages of the participants and confirms that they were mainly aged between 18-24 years. It seems that the majority of the youngest group is more sustainable. Participants between 2534 are mainly less concerned about sustainable issues. Regarding gender, two-thirds of the survey participants are females and the evaluation shows also that the majority of females are in the more concerned group. It is vice-versa in the case of male participants: the majority of them are in the less concerned group (Figure 4).

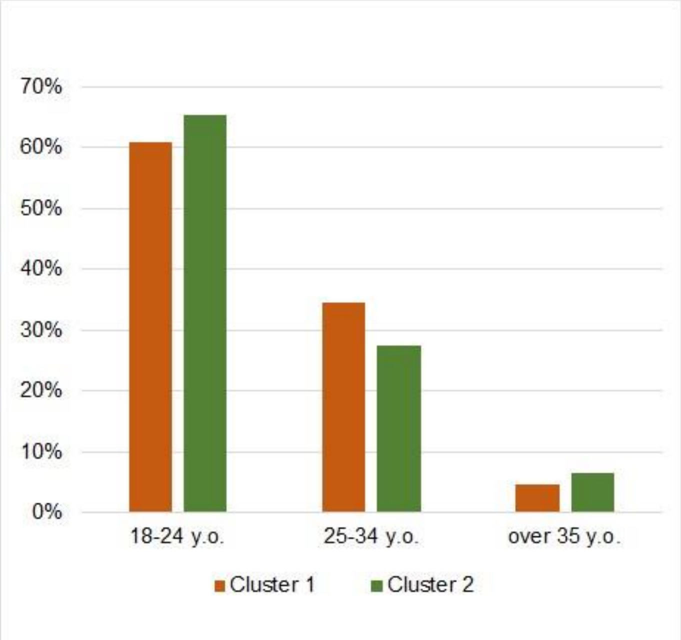

Figure 3: Comparison of Age

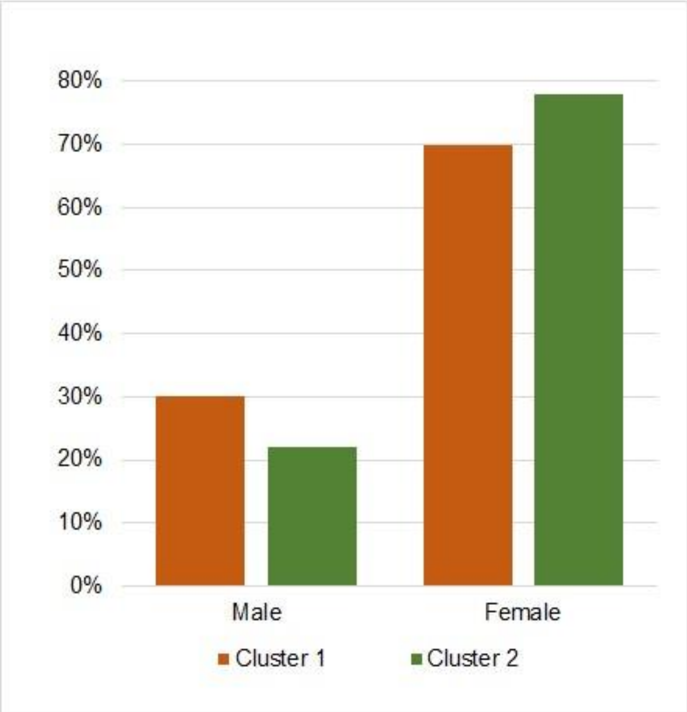

Figure 4: Comparison of Gender

The results for the evaluation of the education level (Figure 5) fit well with the age of the participants - the biggest group of students are aged between 18-24 and therefore the high school level is the most common education level (matura), followed by participants with a Bachelor's degree. Figure 6 gives an overview about the occupation besides the academic studies and shows that if somebody is working in a part-, or full time job there is a high likelihood that she/he will be in the less concerned group.

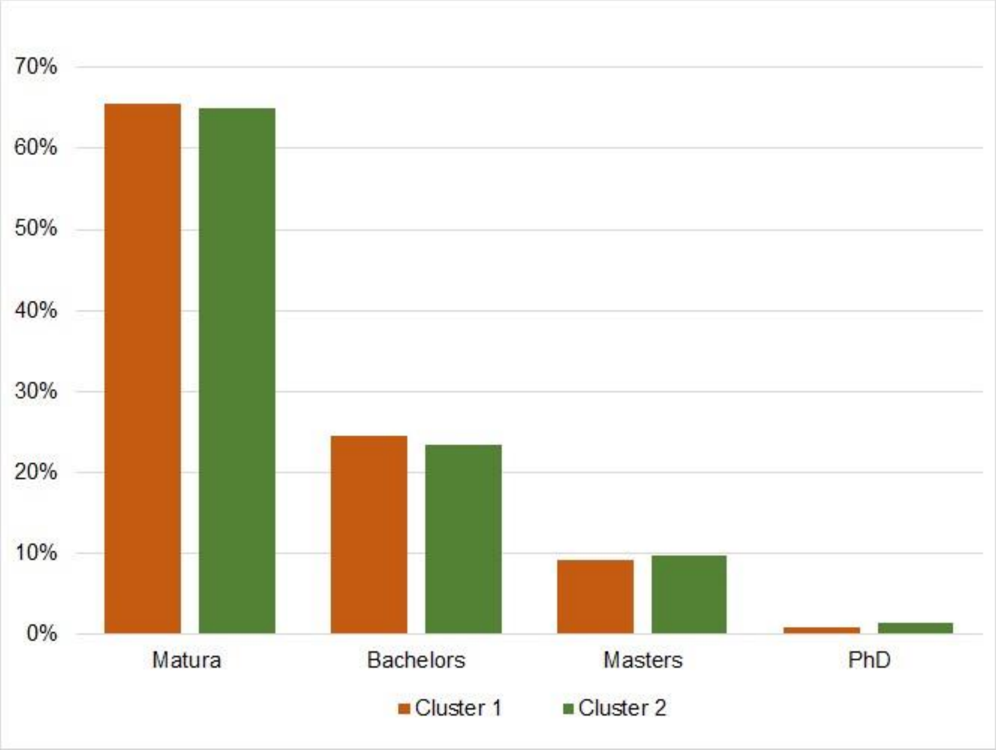

Figure 5: Education level

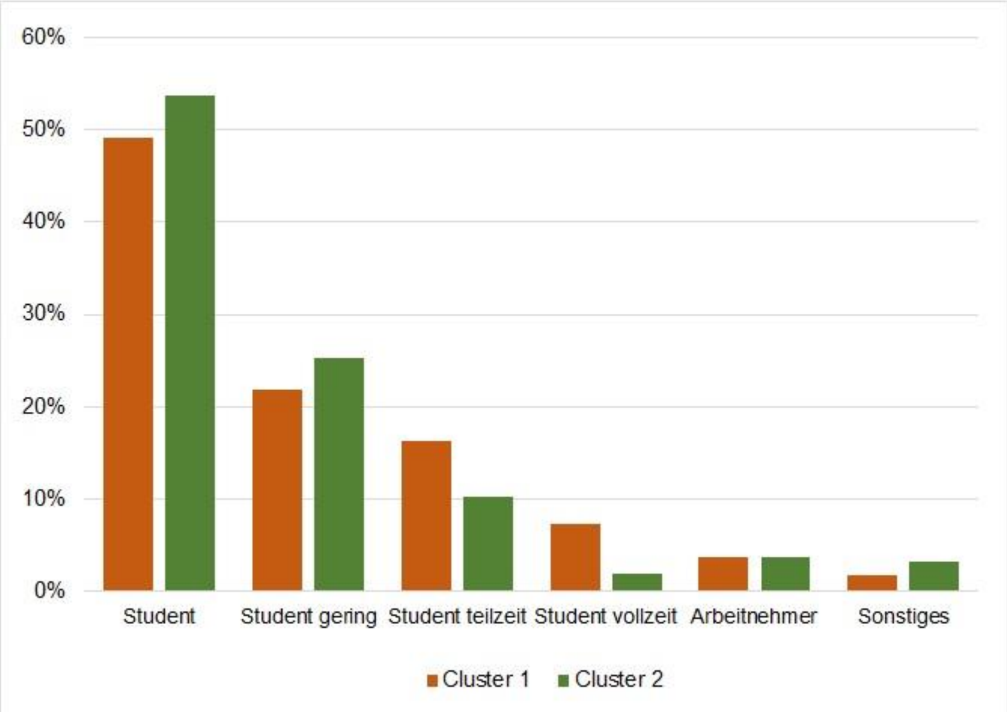

Figure 6: Occupation

The overview of income (Figure 7) shows that the students receive less than 500 €/month, but still can expose a sustainable attitude. In case of an income which is higher than 1301 € the participants belong mainly to the less concerned cluster. On the other hand, considering Yearly clothing spending (Figure 8), the majority of the participants spend less than 501€ on clothes per year and they are mainly located in the more concerned group. In case of a budget with

1301€ or more, people will be most likely in the less concerning group.

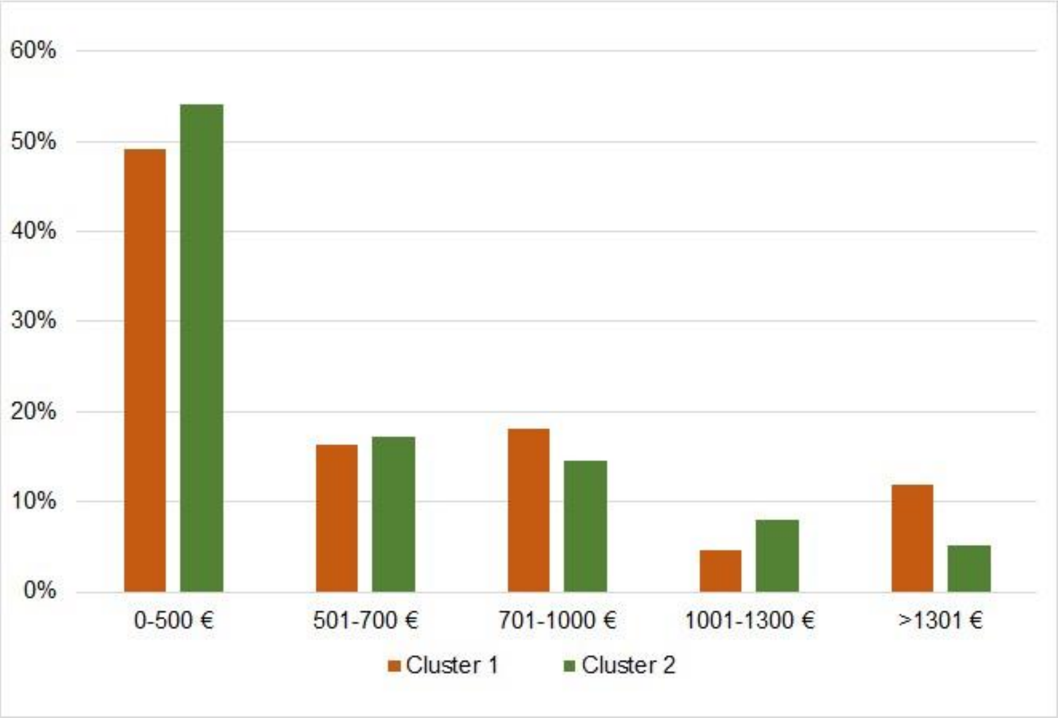

Figure 7: Comparison of monthly income

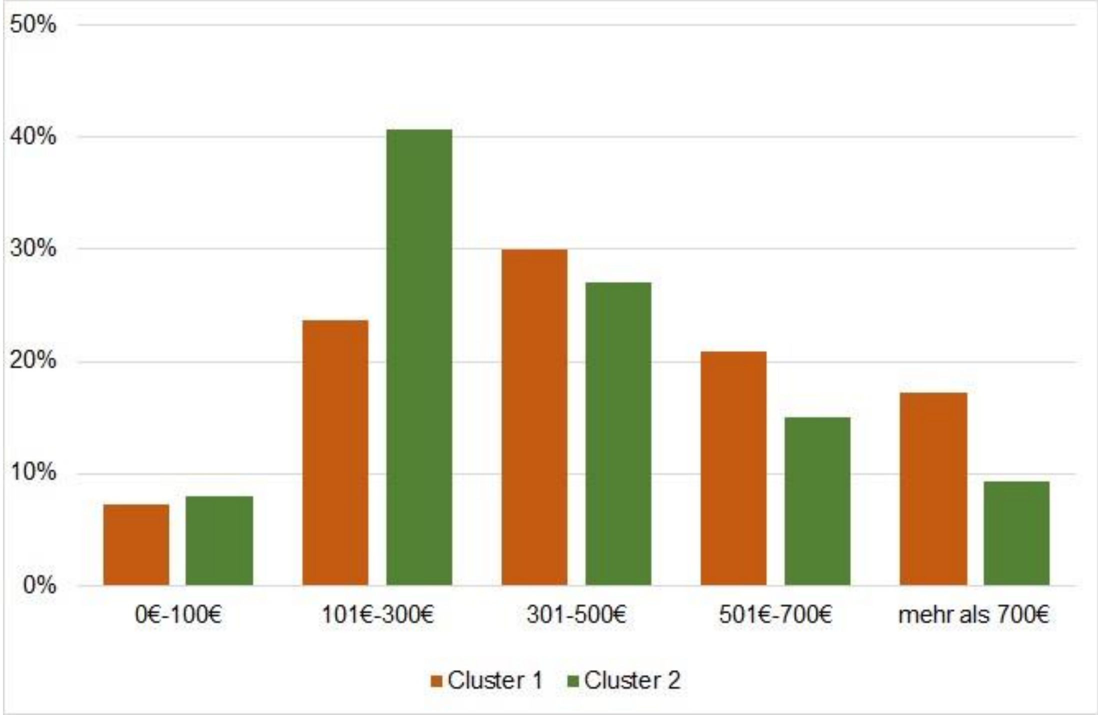

Figure 8: Yearly spending on clothes

4.4 Green Purchase Behaviour

Here the results of the choice based conjoint analysis are presented. The most important results correspond to the utilities and importance of the different attributes evaluated. The aggregated utilities in Figure 9 are an indicator for the preference of the consumers. It means that an attribute has a negative influence on the purchase decision if the value is below zero. In case of a positive number, the attribute will also have a positive impact for the purchase decision. According to the results there is a positive effect of a low/medium price and a negative impact of a high priced shirt. For the eco-labels Fair Wear and GOTS a negative value was obtained and for the eco-label Fair Trade Cotton a high positive utility. H&M is the most preferred brand and consumers “dislike” Hugo Boss, which could also depend on the higher price- in the survey real prices were used and the branded clothes from Hugo Boss and Diesel are more expensive than apparel from H&M. Consumers also prefer products with medium or high quality. In a nutshell it could be said, that the respondents prefer a low/medium price, Fair Trade tagged clothes in a H&M shop with medium/high quality.

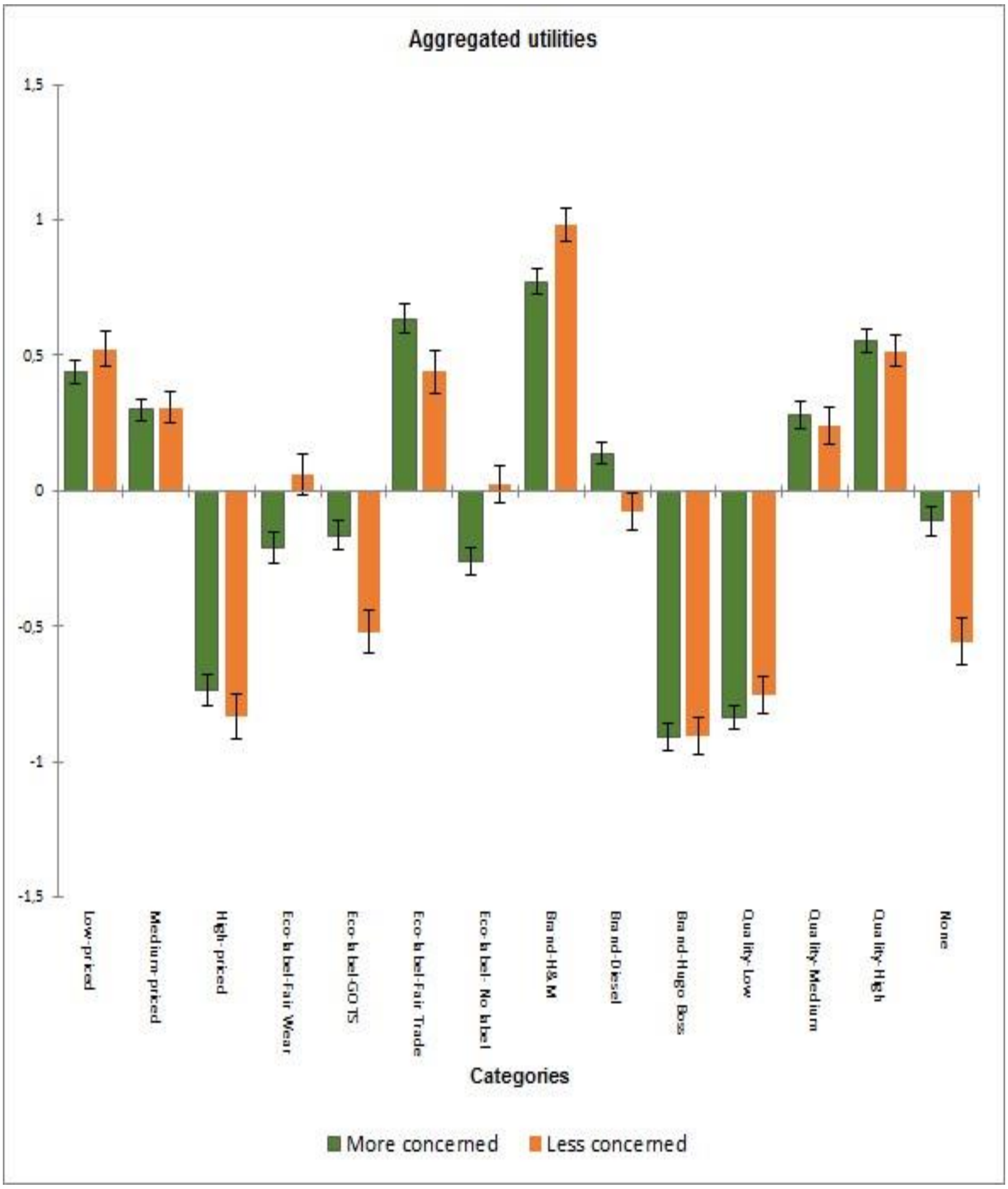

Figure 9: Aggregated utilities for both clusters

4.4.1 Utilities

Looking deeper on the utilities values, within the less concerned group (see Table 4), the attributes Low-priced, H&M, High Quality and Fair Trade were the most preferred ones. From the utility values of these attributes, Fair Trade presents the lowest one compared to Low-priced, H&M, High Quality. This may point out a higher importance of quality, price and brand over eco-label which makes sense for the less concerned respondents. Whereas Diesel, Fair Wear and No Label resulted in a very low influence on respondents' decision. Moreover, the less concerned respondents showed less preference when presented with T-shirts that included any of these attributes: Hugo Boss, High-priced, Low Quality and interestingly GOTS.

The standard errors of the calculated utilities are rather low (all below 0.1) and the Chi² test (<0.005) is passed by almost all values except for No label and Diesel. These point out that these results may not be reliable.

Table 4: Utilities and observations for the less concerned cluster

Source	Utilities	Standard error	Pr > Chi²
Low-priced	0,524	0,065	< 0,0001
Medium-priced	0,308	0,055	< 0,0001
High-priced	-0,832	0,083	< 0,0001
Eco-label-Fair Wear	0,059	0,077	0,440
Eco-label-GOTS	-0,522	0,080	< 0,0001
Eco-label-Fair Trade	0,440	0,080	< 0,0001
Eco-label- No label	0,023	0,071	0,747
Brand-H&M	0,983	0,060	< 0,0001
Brand-Diesel	-0,078	0,066	0,242
Brand-Hugo Boss	-0,905	0,068	< 0,0001
Quality-Low	-0,756	0,070	< 0,0001
Quality-High	0,515	0,068	< 0,0001
Quality-Medium	0,240	0,058	< 0,0001
None	-0,557	0,088	< 0,0001

Regarding the more concerned respondents (see Table 5), H&M, Fair Trade, High Quality, and Low-priced are the attributes with the highest utilities. Fair Trade ranks second- above price and quality- which adjusts to the claimed 'green behaviour' of the more concerned group. Yet, brand plays a significant role influencing the purchasing decision within this group. Similarly to the less concerned respondents, T-shirts Hugo Boss, Low Quality, Highpriced make them dislike the product. However, when the T-shirt has No label (e.g. no eco-label) is also refused- differently to the less concerned group. The standard errors of the calculated utilities are rather low (all below 0.1) and the Chi² test is passed by all values (<0.005).

Table 5: Utilities and observations for the more concerned cluster

Source	Utilities	Standard error	Pr > Chi²
Low-priced	0,438	0,044	< 0,0001
Medium-priced	0,299	0,037	< 0,0001
High-priced	-0,736	0,055	< 0,0001
Eco-label-Fair Wear	-0,211	0,056	0,000
Eco-label-GOTS	-0,164	0,052	0,002
Eco-label-Fair Trade	0,635	0,055	< 0,0001
Eco-label- No label	-0,260	0,053	< 0,0001
Brand-H&M	0,770	0,042	< 0,0001
Brand-Diesel	0,139	0,047	0,003
Brand-Hugo Boss	-0,909	0,051	< 0,0001
Quality-Low	-0,835	0,050	< 0,0001
Quality-Medium	0,282	0,040	< 0,0001
Quality-High	0,553	0,045	< 0,0001
None	-0,110	0,054	0,043

Overall, according to the results presented above it is possible to reject the second hypothesis for the labels GOTS and Fair Wear. The results prove that these labels have little or even negative effect -GOTS in the less concerned group- on the purchasing decision of respondents. Yet it is possible to accept that H2 is still valid for Fair Trade.

H2: Eco-labels featured in clothes' tags will have a significant and positive effect on consumers' green purchase behaviour

4.4.2. Importances

Below the importances associated with each factor are presented (see Table 6). The values obtained for each cluster are not significantly different between both groups.

Brand is the most important factor considered by all respondents, followed by price and quality which are approximately equally important and lastly eco-labels.

Table 6: Importances obtained per cluster

Source	Less concerned	More concerned
Price	25%	23%
Eco-label	18%	17%
Brand	34%	32%
Quality	23%	28%

5. Discussion

According to the results obtained, the level of ecological concern and green behaviour of the students of the University of Graz differs significantly: surprisingly the cluster of more concerned respondents was larger than the less concerned cluster (214 respondents vs. 110 respondents). Below the discussion will focus in the following aspects: the association of sociodemographic variables with green consumer behaviour and intention, differences of preferences of the different eco-labels studied and the importance of eco-labels over other purchasing factors (e.g. price, quality and brand).

First of all, the sociodemographic variables showed that about 64% of the participants are aged between 18-24 (e.g. university students) and a bit more of the half of them are included in the more concerned cluster. 30% of the participants are aged from 25 to 34 and belong mostly to the less concerned cluster. The next age cohort, the smallest group (6%) in the survey sample is older than 35 and the majority are in the more concerned group. Given the unbalanced shares of each age group in the sample, significant remarks of the relationship between age and green consumer behaviour (e.g. sustainable behaviour) couldn’t be grasped. Moreover a third of the participants were males and mainly belonged to the less concerned group. The majority of respondents were females and had a higher share in the more concerned group. For this reason, it could be said that women are more likely than men to hold environmentally friendly attitudes. On the other hand, it seems that the education level (evaluated from high-school degree or above) doesn’t play a role in reference to sustainable behaviour. Therefore, a positive relationship has not been found between literacy and green consumer behaviour. In the case of monthly income could not found a distinct trend but participants in the lower income areas (0-500,00€ and 501-700,00€) seems to act more sustainable. Maybe there is a trend in purchasing second hand apparel or to exchange clothes because in the next point of the sociodemographic evaluation, the clothing budget per year has clearly shown, that participants with a lower clothing budget (0-100€ and 101-300€) are rather in the more concerned cluster. The more somebody spends for clothing the higher is the possibility that this person is less concerned. This is quite astonishing because sustainable products are often more expensive as comparable items without sustainable features. Therefore, income and clothing budget may not be positively related to environmental sensitivity. Overall the results show that there are not sharp relationships between socio-demographic variables and high/low environmentally-friendly behaviour as showed in Straughan and Roberts et. al.

Secondly, considering eco-labels, the main focus of this study, GOTS and Fair wear were not preferred by the respondents when choosing which product to buy. Both clusters were more prone to use Fair Trade (especially the more concerned group). This may be due to the higher popularity that Fair Trade has in comparison to GOTS and Fair Wear which in our perspective seem to be less recognized by the general public. This especially in the Austrian context where Fair Trade is widely popular thanks to massive campaigns of such certification: Fair Trade is also shown in other product categories such as food items which increases the familiarity of the public with the logo (repeated exposure). This fact can be accounted for overcoming the barrier of scepticism of many consumers when faced to ecoclaims. Altogether Fair Trade had a more significant influence on choice behaviours and these results underpin the problem that arises when there is proliferation of sustainability claims.

Thirdly, as acknowledged in the literature review (Iwanow, 2015), consumers base usually their purchase decisions mainly in price, quality and brand. As expected these factors exerted great influence in the purchase decision in comparison to eco-labels (the object of our study). Regarding price, quality and brand, high-priced products, premium-branded (Hugo Boss) and low quality fabrics are the least popular attributes. Whereas low-priced, budget-brand and high quality fabric are the most valued attributes for both clusters. H&M has a high utility for both groups of respondents which means is more preferred and it is so particularly for the less concerned group. This is undoubtedly connected to the level prices of this mass brand. Summing up, the brand resulted to be the most influential factor followed by quality, price and lastly eco-label. These results point out that respondents may not sacrifice their own benefits (price, style, convenience or match) for having a green attitude. Only a very small market segment of consumers is interested in what's displayed on eco-labels and that actually base their purchase decision upon them.

With the results obtained in this study it is possible for procurement managers of brands to decide which type of certification the materials they source should have since recognition and familiarity of eco-labels play an important role on the influence these claims can have in purchasing decisions. Also these results can be of interest for the institutions behind the less recognized labels such as Fair Wear and GOTS in order to work further in marketing campaigns that educate people on the environmental and social benefits that these labels imply. Moreover, the outcomes of this study could potentially serve as contributions to enhance current strategies to stimulate sustainable consumption among regular consumers not only in the apparel industry (which is the main focus of this work) but also to extrapolate conclusions to other industries such as electronics, furniture, tourism, etc...

5.1 Limitations

The limited size of the sample and scope (members of the University of Graz) limit the generalisation of the results. Moreover, the clusters (less and more concerned) were constructed with only six items of self-reported questions which might not give a complete picture of real green consumer behaviour besides being highly subjective. Also, the extension of the survey might have had an impact on the final results since people get fatigued when presented with so many options of choice that all look alike. Besides labelling information, corporate reputation influences greatly the choices consumers make (D'Souza, 2006) but this was not included in this study.

5.2 Further research

Future research could include in the model the evaluation of previous knowledge of the potential respondents about eco-labels. Prior interviews with selected respondents could be of a great utility to assess which specific labels they are more familiar with that can be included in the survey. Also interviews with experts in the area can give insights of interest in this matter. Replication studies with other product areas can also contribute to the generalisation of effects.

6. Conclusion

This study assessed how consumers value different factors when purchasing an apparel item (e.g. grey T-shirt) including price, brand, and quality and especially how eco-labels influence their purchasing intention and behaviour. According to the results, segments with strong beliefs and attitudes towards ethical consumption exhibit a higher GPI responding to environmental and social labels. The results show that there are not sharp relationships between demographic variables and high/low environmentally-friendly behaviour. On the other hand, consumers do not have a higher preference for eco-labels over the other purchasing factors evaluated (e.g. price, quality, and brand); Brand resulted to be the most influential factor when deciding what to purchase. Out of the three labels studied, Fair Trade proved to be the most popular label among the respondents. This can be justified with the popularity the label Fair Trade has thanks to the publicity gained with food items in Austria. These findings can help to draw conclusions for green marketing and serve as solid foundation for related policy making and regulation.

7. Acknowledgement

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Appendix

Table A1: Profiles generated by XLSTAT

Observation	Price	Eco-label	Brand	Quality
Profile1	39,99	Fair Trade	Hugo Boss	Medium
Profile2	64,99	Fair Wear	Hugo Boss	Low
Profile3	24,99	Fair Wear	Diesel	High
Profile4	39,99	No label	Diesel	Medium
Profile5	19,99	GOTS	Diesel	Low
Profile6	12,99	No label	H&M	Low
Profile7	9,99	Fair Wear	H&M	Medium
Profile8	64,99	GOTS	Hugo Boss	High
Profile9	12,99	GOTS	H&M	Medium
Profile10	17,99	Fair Trade	H&M	Low
Profile11	9,99	Fair Trade	H&M	High
Profile12	29,99	No label	Hugo Boss	High

Table A2: Designs for conjoint analysis (numbers correspond to the profiles shown in Table A1)

Comparisons	Choice 1	Choice 2	Choice 3
Comparison 1	2	1	3
Comparison 2	5	4	6
Comparison 3	8	7	9
Comparison 4	11	10	12

Comparison 5	1	5	7
Comparison 6	4	2	8
Comparison 7	3	6	10
Comparison 8	9	12	11
Comparison 9	7	3	4
Comparison 10	6	8	1
Comparison 11	5	9	2
Comparison 12	10	11	1
Comparison 13	12	3	5

Table A3. t-test results (Ethical question)

T-Test

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Ethisch	less	110	2,32	,995	,095
	more	214	3,53	1,082	,074

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Ethisch	Equal variances assumed	,764	,383	-9,830	322	,000	-1,215	,124	-1,458	-,971
	Equal variances not assumed			-10,098	236,984	,000	-1,215	,120	-1,451	-,978

Table A4. t-test results (Ecological question)

T-Test

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Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Umwelt	less	110	2,36	1,098	,105
	more	214	3,58	1,142	,078

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Umwelt	Equal variances assumed	,043	,835	-9,226	322	,000	-1,220	,132	-1,481	-,960
	Equal variances not assumed			-9,344	227,904	,000	-1,220	,131	-1,478	-,963

Table A5. t-test results (General question)

T-Test

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
generell	less	110	2,17	,917	,087
	more	214	3,42	1,096	,075

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
generell	Equal variances assumed	5,043	,025	-10,197	322	,000	-1,243	,122	-1,483	-1,003
	Equal variances not assumed			-10,794	256,929	,000	-1,243	,115	-1,470	-1,016