The Influence of Buy-Now-Pay-Later on Product Return Rates in E-commerce

A quantitative study investigating the influence Buy-Now-Pay-Later has on return behavior comparing customers from Germany and Sweden.

Authors
Alexander Rubanowitz
Paul Pesta

Supervisor
Jonas Colliander

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Abstract

The continuous rise of e-commerce represents a channel shift away from physical retail stores. Additionally, it is also impacting purchase and return behavior. The return rates in e-commerce are higher than in traditional brick-and-mortar stores and are negatively impacting efforts to improve environmental performance. The shift in consumer preference is also fueled by the presence of innovative payment methods such as Buy-Now-Pay-Later (BNPL). This thesis investigates the impact of BNPL on product return rates (PRR) from three perspectives relying on a data set provided by a Scandinavian Retailer. First, the comparison with conventional payment methods such as Card Payment and Direct Bank Transfer shows significantly higher PRR for BNPL purchases. Secondly, the analysis of Swedish and German BNPL users shows significantly higher PRR for the latter consumer group. Thirdly, an analysis of the PRR of BNPL users based on age confirms different behaviors for different age groups. This quantitative analysis contributes to existing research on return management providing theoretical and practical implications.

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Abbreviations

AG	Age Group
BNPL	Buy-Now-Pay-Later
EUR	Euros
PRR	Product Return Rates
SEK	Swedish Kronor
USD	United States Dollar
vs	Versus

1 Introduction

1.1 Background

The vast opportunities for consumers to shop online have led to steady increases in global e-commerce revenue in recent years. These increases are due to numerous factors. While new technologies improved the online shopping experience, consumer preferences have also shifted from traditional brick-and-mortar retail to digital shopping. The Covid-19 pandemic had an immediate impact, forcing traditional brick-and-mortar stores to close and enabling digital channels to rise and better serve the customer, thus shifting the customer experience and creating the new normal (McKinsey, 2020). This new normal has adapted in many ways, ultimately engaging in projected compounded growth rates of 11% in e-commerce from 2017 to 2027. According to estimations, the worldwide e-commerce revenue is expected to exceed USD 4,000 billion in 2023, where the European market's estimated value is set at USD 722 billion (Statista, 2023a). This shift towards digital channels consequently impacts the physical world and in particular, the logistics of delivering and returning products ordered online. Considering the increase in uncertainty and purchase risk due to the intangible nature of e-commerce such as the inability to physically inspect the product in question, this development has become a major issue (Weathers et al., 2007). While return rates of products purchased in a brick-and-mortar setting are roughly 8-10%, e-commerce return rates are two to three times higher averaging roughly 20-30% (Rich Panel, 2023). While e-commerce offers substantial benefits in emissions in comparison to stationary retail due to individuals' transportation of consumers and the "building energy consumption" of brick-and-mortar stores, these benefits are drastically reduced when adding potential product returns. Therefore, subsequent returns can increase the footprint of a single e-commerce order by 300% (Collini & Hausemer, 2022). On a customer level differences in return behavior across countries become evident (Gilboa & Mitchell, 2020; Serravalle et al., 2022). Recent surveys indicate overall return behavior is significant with 73% of Indian, 66% of Chinese, and roughly 50% of British, US American, and German consumers returning at least one product in 2022 (Statista, 2023b). Notably, certain product categories are more prone to be returned than others. Clothing and footwear are the leading product categories returned by customers, accounting for 34% and 19% respectively in Sweden and 35% and 21% in Germany

in 2021 (Statista, 2022c, 2022b). It is no surprise that companies have adopted consumer-friendly return polices since recent reports show that 66% of consumers check these policies before purchasing and that 92% of consumers would repeat the purchases from the retailer if the return process were easy (Deloitte, 2020). This development has led to an average share of 25% of e-commerce-related GHG emissions produced by product returns (Statista, 2022a). In consideration of the projected growth rates of e-commerce, the environmental costs and corresponding product return rates (PRR) are expected to continue to increase. As previously mentioned, the drivers of the overall e-commerce growth are diverse. While some convenience-enhancing measures such as customer-friendly return policies are directly impacting product returns, other measures influencing purchase behavior represent unexplored influences on PRR. As the payment landscape is evolving to enable easy and seamless transactions subsequently the barrier to purchase is lowered. While traditional payment methods ranging from direct bank transfers, invoices, and card payments are continuously used today, a new method of Buy Now Pay Later (BNPL) which the authors classify as a delay in the transaction (e.g. installment payments), has emerged, becoming more widespread. In some cases, these new payment strategies are resulting in impulsiveness and unwanted purchases (Lantz & Hjort, 2013). Subsequently, these developments are contributing to surging return behavior among customers. Despite the rising popularity of BNPL, no previous research has yet investigated the intersection of new payment methods and PRR in e-commerce. The tremendous growth rates and corresponding emissions caused by e-commerce underline the relevance of research in this field. Additionally, the lack of previous research investigating the influence of BNPL payment methods on PRR provides a suitable research gap this thesis intends to address.

1.2 Research Gap

In line with this increase in overall importance, research interest in returns management has been steadily increasing in recent years. Despite efforts to examine this subject from different disciplines, ranging from logistics and operations to marketing and behavioral sciences the current body of knowledge still offers potential for additional research in both breadth and depth (Ahsan & Rahman, 2022). In relation to payment methods only Makkonen et al.'s (2021) study represents an examination

of potential influences on PRR. While their findings will be discussed in Section 2 Theoretical Foundation, the identified impact provides the basis for this investigation. Additionally, this thesis explores the effect cultures have on the PRR of BNPL users. Serravalle et al.'s (2022) investigation confirmed differences between Italy and China while the authors aim to expand this by focusing on two European markets, including a perspective on payment methods. Ultimately, this thesis will explore a research gap in the relationship between age and the return behavior of BNPL users.

1.3 Purpose

Relying on a data sample obtained by a Scandinavian retailer with a global presence, the authors are aiming to contribute to a better understanding of the relationship between the customer's selected payment method and their corresponding return behavior. Relying on statistical analysis, the impact of the selected payment method, culture, and age on return behavior is assessed.

1.4 Disposition

The introduction (1) presents the thematic background of the subject of the thesis, outlines its relevance, and defines the addressed research gap. The theoretical foundation (2) describes the previous findings of relevant research and puts them into context for the investigation at hand. Building up on this, the hypothesis is developed. The methodology (3) elaborates in detail on the chosen approach and process, followed by a detailed description of the used data sample. The results (4) introduce the findings of the investigation and discuss the tested hypotheses. The discussion (5) puts the results into a more holistic context, providing theoretical implications. Practical implications (6) are then highlighted. Subsequently, the overall contribution (7) is presented and limitations and directions for future research (8) are stated.

2 Theoretical Foundation

In order to investigate how payment methods and respectively BNPL are affecting PRR this chapter intends to introduce the theoretical foundations of returns management and put them into context for this investigation. First, an overview of research streams on return management is given followed by a description of the most relevant works for this thesis. Second, return policy leniency and behavioral perspectives are

discussed. Lastly, with respect to previous research and existing research gaps, the hypotheses are developed.

2.1 Returns Management

Similar to the rise of e-commerce and subsequent returns, a growing interest in this field has been observed since 2007 and systematically analyzed by Ahsan and Rahman (2022). The existing body of knowledge contains studies from different academic disciplines ranging from operations and logistics to marketing and behavioral sciences. Synthesizing this multidisciplinary nature, this thesis utilizes Röllecke's (2017) definition of returns management:

"*Returns management involves measures, policies, and processes designed to increase sales or lower the cost or quantity of product returns at all stages of the customer-firm exchange process: prior to purchase, at purchase and order fulfillment, and after the purchase*" *(Röllecke et al., 2017).*

The review of relevant previous literature revealed two main schools of thought either understanding returns management as a concept to improve company performance (e.g. customer repurchase intention, profitability) or as an influence on customer behavior (e.g. lenient return policy design, opportunistic return behavior). Since this thesis focuses on the impact payment methods have on return behavior it is situated in the latter field and followingly the key concepts of this stream are elaborated.

Previous research in this area is investigating drivers of product returns from two intertwined perspectives: return policy design and behavioral responses. Return policy design encompasses monetary aspects (e.g. full-refund, free shipping, free return shipping) or convenience aspects (e.g. ease of returning order, accepted time-frame of returns, no questions asked policies) (Ahsan & Rahman, 2022; Janakiraman & Syrdal, 2015; Lantz & Hjort, 2013; Li et al., 2022; Martínez-López et al., 2022; Rintamäki et al., 2021; Shang et al., 2019; Xu & Jackson, 2019). Alternatively, the behavioral perspective explains how individuals respond to certain return policy designs but also expands the view by including studies on malicious returner types (Chang & Yang, 2022; Harris, 2010; Pei & Paswan, 2018; Piron & Young, 2001; Powers & Jack, 2013; Serravalle et al., 2022; Wachter et al., 2012). The authors of this thesis incorporate both perspectives to ensure a holistic view of the phenomena.

2.1.1 Return Policy Design

Research on the influence of monetary bearings on return behavior is novel. Lantz and Hjort (2013) used a controlled experiment in cooperation with a Nordic e-commerce retailer to investigate how the introduction of fees for returns or initial shipping impacts return and purchasing behavior. Lantz and Hjort (2013) include behavioral concepts when discussing how impulsive buying can be facilitated by such lenient return or delivery policies. Impulsive buying occurs when individuals conduct “unplanned purchase decisions that are made immediately prior to a purchase” (Lantz & Hjort, 2013). They revealed that both a free delivery policy and a free return policy are increasing the probability of returns. Another investigation of financial levers in returns management by Martínez-López et al (2022) relied on an experiment using return credits for online shoppers. Return credits are introduced with a maximum number of purchases on which consumers have free returns and intend to enable “satisfaction”-related returns (e.g. product fit, color) for free, but punish consumers who routinely order more than they intend to keep. With each return, their return credits are reduced ultimately constraining the number of free returns. Imposing such a limit significantly deters return intention and mitigates costs for e-commerce retailers. Additionally, Martínez-López et al (2022) found that any quantity of return credits (enabling more or fewer free returns) decreases returns but implementing a more lenient approach such as offering a higher number of return credits reduces side effects such as a loss of customers or a decrease in sales. Their research highlights the dyadic field of tension of decreasing returns while remaining attractive to consumers (Martínez-López et al., 2022).

In addition to monetary aspects, previous research investigated how different degrees of leniency in return policy design enable retailers to influence the returns of customers. Janakiraman and Syrdal (2015) performed a meta-analytical review to classify return policy leniency into five dimensions: time-, monetary-, effort-, scope-, and exchange leniency. Their analysis identified time-, exchange- and scope-leniency as influencing returns. Time leniency refers to the acceptable return window (e.g. 30 days vs 90 days), exchange leniency refers to the type of refund (e.g. cash, store credit for the next purchase, substitute product) and scope leniency refers to the number of return eligible items (Janakiraman & Syrdal, 2015). They conclude that time and exchange

leniency reduce returns while scope leniency increases them. In relation to Janakiraman and Syrdal's (2015) leniency dimensions, Shang et al. (2019) used a data set from a major US retailer to provide recommendations to practitioners on how to reduce product returns. They highlight two main areas of interest. First, the benefits of creating a less lenient return time window for product categories with the highest return rates. Second, they recommend buyer assistance programs to reduce the risk and uncertainty in the prepurchase stage in physical retail stores. Within these two areas, additional factors impacting return behavior are introduced. The more mature a product (the life cycle of a product) and the fewer the alternatives of a product available (product variety) the less likely a customer will return the product. Additionally, the more experience a customer has in returning a product (previous return activity), the more likely a customer is to return a product (Shang et al., 2019).

2.1.2 Behavioral Science

In addition to research on return policy design, concepts of behavioral science provide a more holistic perspective. The inclusion of behavioral sciences in these investigations cannot only better explain consumers' responses to return policies but also highlight the exploitative and malicious behavior of shoppers. Powers and Jack (2013) investigate the relationship between lenient return policies, customer opportunism, and switching barriers with two forms of cognitive dissonance, emotional and product dissonance, on product returns. Their model featured sociodemographic moderators and relied on a survey conducted with customers of two major US-American retailers. They highlight how lenient return policies (in their investigation policies with which customers are satisfied with and consider superior to the ones of competitors) reduce both forms of cognitive dissonance. However, customer opportunism, the customer leveraging their position at the expense of the seller (e.g. unwarranted returns) and switching barriers increased dissonance in both dimensions (Powers & Jack, 2013). Notably, they also point out the significant moderating role of store brand and gender in their framework. The influence of cognitive responses in understanding product returns was researched by Bechwati and Siegal's (2005) investigation on disconfirming information in different purchase phases. The impact of disconfirming information on return behavior and the influence varies depending on the timing of the disconfirming information or the availability of alternative choices

(Bechwati & Siegal, 2005). Serravalle et al. (2022) expanded research on the impact sociodemographic factors have on return behavior. Their comparison of Italian and Chinese consumers emphasized the importance of age by focusing on younger study participants, revealing how different cultural backgrounds affect return intentions and behavior at different stages in the purchasing process. Further, it uncovers how individualistic and collectivist societies differ in their perceived importance of return policies and subsequent return behavior (Serravalle et al., 2022). Another stream of research concerned with investigating sociodemographic factors and their influence on return behavior was conducted by Makkonen et al. (2021). Their study of Finnish consumers also marks one of the first approaches investigating the impact of chosen payment methods in e-commerce has on product returns. While female shoppers displayed a higher product return rate overall, increasing age across all genders shows a decrease in overall product returns. Makkonen et al. (2021) further point out that consumers buying on an invoice in comparison to the ones paying directly are returning products more frequently.

Two particularly focused contributions to returns management research are by Zhou and Gelbrich (Gelbrich et al., 2017; Zhou et al., 2018). Zhou et al. (2018) conducted an experiment revealing the importance of the visual appearance of the packaging and complimenting materials in the delivery package to reduce return intention. By having a visually more appealing package and by adding extra gift cards or coupons in the delivery package the return intention can be significantly lowered. Gelbrich et al.'s (2017) niche focus connects the previously identified important influence of monetary aspects in return behavior with behavioral sciences and keep rewards to decrease product returns and increase repurchase intention. Overall, shoppers are less likely to return products if they are offered keep rewards such as free shipping on their next order, especially if they are frequent shoppers (Gelbrich et al., 2017).

Another stream of research including a behavioral science perspective on returns is concerned with creating taxonomies for consumers based on their experience or frequency of shopping or returning (Chang & Yang, 2022; Foscht et al., 2013; Pei & Paswan, 2018; Piron & Young, 2001; Wachter et al., 2012). While research introducing shopper types focuses on frequency (e.g. frequent vs. occasional), investigations into different returner types include a rationalization dimension, why returns are performed

(e.g. planned returners vs unplanned returners, legitimate vs. opportunistic returners) (Harris, 2010; Makkonen et al., 2021; Pei & Paswan, 2018; Powers & Jack, 2013; Rintamäki et al., 2021; Serravalle et al., 2022).

Already in (2001), Piron and Young investigated ethically questionable behavioral patterns of shoppers in fashion retailing. Their study on American students revealed that 20% of consumers admitted purchasing clothes with the intention to wear them for a single use and return them afterward. This “retail borrowing” phenomenon is particularly present in e-commerce. While the share of female “retail borrowers” was nearly threefold the male counterpart, the main motives for this malicious behavior were social acceptance or economic constraints preventing actual possession of these items (Piron & Young, 2001).

Moreover, Harris (2010) expanded research on malicious return behavior by investigating fraudulent returns in a qualitative study of a UK retailer’s employees and customers. Defining fraudulent returns as the return of products broken by the customers or products already used by the customer, their study also highlights a significantly higher share of women performing this act. Overall, 91% of consumers admitted to fraudulent returning indicating that lenient return policies by retailers are vulnerable to such a behavior (Harris, 2010).

Furthermore, Pei and Paswan (2018) conducted a study of motives for e-commerce returns. Their taxonomy of returns by motives consisted of legitimate ones due to defectiveness, misfit of the products, or change of mind for cheaper alternatives and opportunistic ones when consumers perform fraudulent behavior previously discussed as “retail borrowing” or deceiving stores by returning discounted items at full price. They identify impulsiveness, desire for uniqueness, product compatibility, and perceived risk to contribute to legitimate return behavior, while factors such as immorality, self-monitoring, and social influence result in opportunistic return behavior. These findings are confirming previously highlighted aspects driving return behavior. Chang and Yang (2022) included a moral reasoning model to explain consumers' return behavior facing various levels of lenient return policies. Their study of Taiwanese consumers revealed the influence social norms and moral expectations have on legitimate and fraudulent return behavior.

2.1.3 Hypothesis Development

Previous investigations have explored the connections between psychology and the selected payment methods, establishing a stronger understanding by considering the emotional behaviors of consumers (Makkonen et al., 2021; Shah et al., 2016; Zellermayer, 1996). The use of payment methods has a direct impact on the emotional sense of instant gratification. Instant gratification is the “desire to experience pleasure […] without delay” (John & Bhasharan, 2021), which can also be rooted in the emotional pride of ownership of a product. The technological developments enhancing e-commerce contribute to more seamless shopping experiences through various tactics. For example, Amazon has instituted recommendation algorithms for products that the customer might be interested in, which in essence becomes a personalized online store (Linden et al., 2003). To inspire customers to make larger orders more easily, online retailers offered a virtual shopping cart as a location to store or hold the intended purchases while continuing to shop for more products (Close & Kukar-Kinney, 2010). Lastly, companies began to offer BNPL as a payment option to help motivate purchases for those with limited means (Alcazar & Bradford, 2021). This fast-paced world, enhanced through technological tactics, has built a foundation on impulsive buying. Already in 1998, research confirmed that after the payment transaction has been completed, there is an immediate feeling of pain from paying, which negatively affects the pleasure of the purchase (Prelec & Loewenstein, 1998). The feeling of gratification arising after purchasing a product along with the pride of ownership conflicts with Prelec and Loewenstein’s (1998) identified pain from paying. However, BNPL solutions are enabling e-commerce retailers to improve the customer experience at this intersection. Ashby et al. (2020), suggest that the subjective perception of the price of a product is influenced by installment payments. They determined that smaller installments equivalent to the total price are perceived as cheaper and more attractive by buyers. For example, four installments of $40 are perceived as less expensive than a single payment of $160.This opportunity to pay in deferred installments has been employed by retailers to alter customer behavior and increase spending (Ashby et al., 2020). These behavioral responses are one key benefit of offering BNPL solutions.

These behavioral responses can be partially attributed to previously identified cognitive biases (Kahneman et al., 2011). When perceiving multiple installment payments as

cheaper than a single payment, the customer indulges in an overconfidence bias. The overconfidence bias is a bias of self-confidence in one's ability, skills, or intellect (Proeger & Meub, 2014; West & Stanovich, 1997). Hence, the customer overestimates their ability to afford the product over the course of the installments, underestimating the price and actual impact on their personal finances. In the e-commerce setting, this ultimately lowers the mental barrier to making a purchase and contributes to impulsive buying. This can also coexist with an anchoring bias when an individual's judgment is manipulated by irrelevant or pre-existing information (Lieder et al., 2018). Through this bias, the price point of the installments influences the customer's decision after comprehending the total price as the reference point or anchor, and a delayed payment or installment price becomes more attractive. Thus, BNPL payment methods appeal to the psychology and behavior of the customers' rather than to benefit the financial logic.

Researchers have investigated the post-purchase connection between the payment method and the product, discovering that "increasing the psychological pain of paying appears to have beneficial consequences with respect to increasing downstream product and brand connection" (Shah et al., 2016). Accordingly, the greater the pain of payment (e.g. direct payment of the full price), the greater the emotional attachment and commitment to the product. This enhanced attachment and commitment can be inferred as a higher percentage of keeping the product. Consequently, the detachment and lack of commitment can be inferred as a higher percentage to return the product.

While a comprehensive overview of relevant previous research on return management within return policy leniency and behavioral science introduces a variety of potential research gaps, this thesis particularly aims to improve the understanding of the influence BNPL has on product returns. Overall, the discussed psychological appeal during the purchase and post-purchase stages is increasing accessibility and desirability for using BNPL (Alcazar & Bradford, 2021; Kahneman et al., 1991, 2011). Since BNPL reduces the pain of payment, attachment to, and commitment to ownership of the product, the authors hypothesize that:

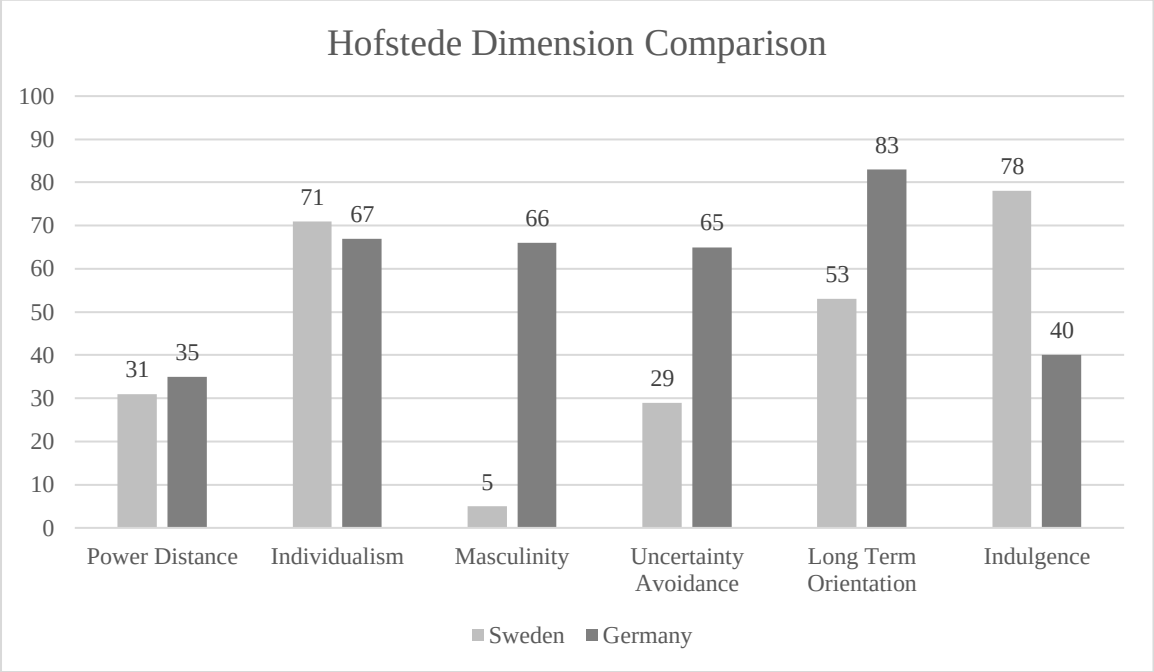
> ***H1: Orders in e-commerce using BNPL payment methods have higher product return rates than conventional payment methods.***

Different studies have investigated and discussed differences in shopping behavior and behavioral responses connected to cultural differences (Gilboa & Mitchell, 2020; Kumar, 2019; Liu & McClure, 2001). Building upon this, Serravalle (2022) revealed crucial differences in return interests and behavior between Chinese and Italian Gen-Z shoppers. Even though using culture as a possible explanation for differences in studies on market structure and behavior has been debated and criticized, Serravalle (2022) proved the importance of this additional perspective in return behavior research. Therefore, the authors decided to contribute to this understanding and built up their decision on Soares et al.'s (2007) argumentation to employ Hofstede's cultural dimensions. Hofstede's framework is the most widely used framework for understanding cultural dimensions, particularly in a marketing and behavioral context (Soares et al., 2007; Steenkamp, 2001). Originally, there were four dimensions used to help represent the culture: power distance, individualism, masculinity, and uncertainty avoidance (Hofstede, 1980). In the 1980s, in collaboration with Canadian psychologist Michael Harris Bond, a fifth dimension with a focus on long-term versus short-term orientation was introduced (Hofstede & Bond, 1988). In the early 2000s, Michael Minkov redesigned the fifth dimension of orientation and introduced the sixth dimension of indulgence (Hofstede et al., 2010). To have a greater and more holistic understanding, the authors rely on this most recent version of Hofstede's dimensions. Thus, the framework encompasses six dimensions presented in Table 1:

Table 1: Hofstede Dimensions.

Dimension	Definition
Power Distance	Small vs Large "The extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally." (Hofstede, 2011)
Individualism	Individualism vs Collectivism "The degree to which people of a society are integrated into groups." (Hofstede, 2011)
Masculinity	Masculinity vs Femininity "As a societal, not an individual characteristic, refers to the distribution of values between the genders." (Hofstede, 2011)
Uncertainty Avoidance	Weak vs Strong "It deals with a society's tolerance for ambiguity and indicates to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations." (Hofstede, 2011)
Orientation	Short Term vs Long Term "Short-term values highlight reciprocating social obligations, respect for tradition, protecting one's 'face', and personal steadiness and stability; Long term values highlight perseverance, thrift, ordering relationships by status, and having a sense of shame." (Hofstede, 2011)
Indulgence	Indulgence vs Restrained "Indulgence stands for a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun. Restraint stands for a society that controls gratification of needs and regulates it by means of strict social norms." (Hofstede, 2011)

Table 2: Hofstede Dimension Comparison



Note. Adapted from https://exhibition.geerthofstede.com/hofstedes-globe/

Hofstede's framework assesses key differences between Sweden and Germany from a cultural perspective. Overall, Germany scores higher on four dimensions: power distance, masculinity, uncertainty avoidance, and long-term orientation while Sweden scores higher in individualism and indulgence (See Table 2). The dimension of uncertainty avoidance is argued to be the most relevant in the context of e-commerce and return behavior as presented in previous research (Serravalle et al., 2022; Wakefield & Whitten, 2006). Additionally, the dimension of masculinity displays the highest difference, indicating a possible explanation for differing behavior. Hence, the authors decided to include both dimensions and discuss them in the context of this product return behavior.

While Hofstede's (2011) masculinity dimension spans from gender roles, workplace dynamics, and motivating factors (e.g. admiration, achievement, and success) the authors infer an influence on shopping and return behavior. Germany scores high in this dimension, being labeled as a masculine society where performance is extremely valued, and status can be shown by materialistic items. On the contrary, Sweden scores low in this dimension, being labeled as a feminine society with a stronger focus on collaboration and equality (Hofstede, 2022). They practice a lagom culture, in that the nature of oneself and possessions are not too much, not too little, but everything

in moderation (Hofstede Insights, 2022). This dimension is put into focus as there can be a connection between this societal behavior and product return intention. As Germany is more situated on fashion and status, this could lead to a higher level of expectations from the products, and less willingness to compromise on these expectations resulting in a lower reluctance to return. As for Sweden, Hofstede's (2011) assessment indicates an opposing philosophy on returns where willingness to compromise and reluctance to return are higher. This is also in line with previous research acknowledging the influence social and moral expectations have on product return behavior (Chang & Yang, 2022).

The most relevant of Hofstede's dimensions in the context of shopping is the dimension of uncertainty avoidance. Uncertainty avoidance is examined by the "extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these" (Hofstede Insights, 2022). Germany scores high in this dimension meaning there is a strong inclination of reasoning of self-experience to deal with uncertainty, which is understood to be something negative, ideally reduced (Hofstede, 2022, 2011). In the context of online shopping, this implies that German consumers value lenient return policies and are more prone to use them since their risk adversity increases expectations towards a product. While Sweden scores lower in this dimension, their consumers subsequently rather accept uncertainty and are more comfortable with ambiguity (Hofstede, 2022, 2011).

In relation to Hofstede's dimension, risk aversion and risk seeking constitute their own field of research in psychology (Kahneman & Tversky, 1984). Risk aversion is seen as the preference for a sure outcome over a venture that has a higher or equal expectation. Risk Seeking is the rejection of a sure payoff in favor of a chance of a higher or equal expectation. Kahneman and Tversky (1984) state that the concepts of utility and value are predominantly placed in two distinct senses: experience value and decision value. The experience value is the perceived value of the utility one has experienced by doing something, for example by using a product. It is thus the value of one's actual experience. Whereas, decision value is the presumed value of a future experience, for example, whether one should pay a certain price for a product or not (Kahneman & Tversky, 1984). These psychological findings in combination with

Hofstede's (2011) observations underline the importance of investigating differences in return behavior between countries and cultures. Overall, the cultural differences between Sweden and Germany documented in Hofstede's dimension can influence shopping and return behavior. Connecting the psychological influence of Kahneman to these evident differences, the authors hypothesize that:

> ***H2: Orders in e-commerce using BNPL payment methods have higher product return rates in Germany than in Sweden.***

As previously introduced, payment methods have made a direct impact on shopping behavior and returns. In a survey conducted by Statista featuring 2,000 respondents in the United States, young adults aged 18 to 24 exerted the largest percentage increase, of roughly 60%, from the year 2020 to 2022 in BNPL usage (Statista, 2022e). In a study conducted by CR Research (2021), the majority of surveyed participants were determined to have a stronger preference for the use of BNPL compared to conventional payment solutions. This can be motivated by a multitude of reasons. According to the study, participants perceive it is easier to make payments using BNPL simultaneously allowing a greater degree of financial flexibility (CR Research, 2021). When comparing BNPL with credit card solutions, they are often seen to have lower interest rates, to have seamless signup, and to have more lenient approval processes. In addition, a credit card could potentially be maxed out, or financially restricted customers, who are often younger, may have an insufficient credit limit (CR Research, 2021). All these reasons leverage factors particularly important to a younger age group, presenting the BNPL option as a more appealing payment method to younger consumers.

The relationship between age and purchase behavior was investigated by Hervé and Mullet (2009) as they expanded on previous research by Troutman and Shanteau (1976). The results of Troutman and Shantaeu's study presented three major factors known to influence the customer's purchase behavior. These factors were identified as price, suitability, and durability. Among them, low prices and high suitability were determined as the most important (Troutman & Shanteau, 1976). Hervé and Mullet (2009) then investigated the impact age had on those findings on three levels. Using the same three influential factors in the study of 1976, they first examined the level of importance given to each factor for each age group. Second, they examined the

relationship of the stated importance level of each age group to the actual utilization of information. Lastly, they examined the influence age had on the algebraic structure of the information provided (Hervé & Mullet, 2009). Their findings showed that each influential factor was weighted as the most important for a different age group. The younger participants (18-25) gave the strongest weight of importance to price. The middle-aged participants (35-50) put the greatest importance on suitability, while the elderly participants (65-90) placed the greatest importance on durability (Hervé & Mullet, 2009). In general, this proves different levels of importance and motives for purchase for different age groups. Correspondingly one can infer an impact of this on the return behavior. In the context of the previously described benefits of BNPL payment methods, the increased price sensitivity presented in this study confirms that particularly young and financially constrained users can benefit from using BNPL solutions.

Building up on these acknowledged differences in behavior depending on age, existing research has explored this in the context of return behavior (Makkonen et al., 2021; Özkan & Solmaz, 2017; Pei & Paswan, 2018). In addition to investigating the influence payment methods have on returns, Makkonen (2021) uncovered a correlation between age and return behavior. Older customers tend to purchase items that are typically less returned. Additionally, they might not be as experienced in navigating e-commerce platforms and their return policies in comparison to younger customers, resulting in a more conservative return behavior. Özkan and Solmaz's (2017) study on Gen Z customers revealed that this young age group is very selective in terms of purchasing items online. This is caused by their lack of financial independence, respectively, their dependence on their parents. The BNPL payment method may mitigate this behavior by artificially increasing the purchasing power and confidence of the individual in question. This work is in conjunction with the previously mentioned psychological influence of cognitive biases impacting a consumer's behavior (Kahneman et al., 2011). Overconfidence bias in combination with anchoring bias can presumably have a stronger impact in younger customers with respect to their financial situations.

Hence, the authors infer that particularly young customers are more prone to the psychological risk associated with BNPL subsequently incurring higher PRR. Furthermore, older customers, who are less familiar with return policies and potentially

are more reluctant in returning products, incur lower PRR despite the psychological appeals of BNPL affecting purchase behavior. Thus, the authors hypothesize that:

H3a: Orders in e-commerce using BNPL payment methods by the youngest customers have the highest product return rates.

H3b: Orders in e-commerce using BNPL payment methods by the oldest customers have the lowest product return rates.

3 Methodology

The purpose of this thesis is to investigate how different payment methods are affecting return behavior in e-commerce. After consideration of the methodological fit, a quantitative study was considered more suitable than a qualitative study. The reasons are that the study is concerned with customer behavior and actions of returning items purchased online. This is addressed by using a real customer data sample provided by a Scandinavian fashion retailer with a global presence. Before the findings of the analysis are discussed, this chapter sheds light on the methodological approach and procedure of the analysis.

3.1 Research Approach

In accordance with Saunders (2019), the research approach must begin with an understanding of the research philosophy. To completely comprehend which philosophy to follow, the authors investigated three types of research assumptions: ontology, epistemology, and axiology. Ontology refers to assumptions about the nature of reality. Epistemology refers to the assumptions about knowledge and axiology refers to the position values and ethics have on the research process. With these three assumptions in mind, the authors decided that a positivist philosophy will best fit this thesis. In a positivism philosophy, the nature of reality is real, ordered, and granular in manner. The constitution of acceptable knowledge is based on observable and measurable facts. The role of values is free, and the authors are detached and neutral. This path ultimately leads the authors to a deductive and highly structured quantitative method of analysis. The quantitative data used in this study perfectly resembles the positivist philosophy and the three assumptions. First, the data sample is real and comprises actual order information and corresponding return rates for two markets.

Second, the data is measurable facts and can be used to create law-like generalizations. Third, the authors are neutral to the data in the sense that they were detached from the data collection and had no influence on customer behavior.

Once the philosophy is determined, the next factor is to decide on the approach to theory development. Due to the novelty of research in this field and the fragmented nature of previous studies on various influences and moderators of return behavior, the authors initially expected to assume an inductive approach; the aim is to collect the empirical data and construct a theory. However, the literature review revealed a study investigating PRR in the light of payment methods (Makkonen et al., 2021). Hence, this thesis follows a deductive research approach, in that the hypotheses are generated based on existing theory (Saunders et al., 2019). The study demonstrates exploratory research in nature. As previously mentioned, the field of returns in e-commerce is nuanced in that it is under-researched. As the e-commerce industry continues to grow rapidly and the rate of returns follows this pattern, the authors aim to explore the main aspects that can help clarify and confirm a better understanding of this phenomenon.

3.2 Research Design

A mono-method quantitative study was determined as the logical choice for the design since the nature of return behavior is best represented by customer actions. The primary goal of the authors was to partner with a retailer willing to provide a data extract from their online store. To compare and contrast the return behavior of different cultures, this data should feature information on different markets. Further, the authors planned to focus on a single product category acknowledging different return behavior across products hence minimizing the distorting influences of orders consisting of multiple categories (Makkonen et al., 2021; Statista, 2022c, 2022b). This represents a stronger source to guide the author's analytical investigation of this phenomenon than conducting a scenario-based survey by mitigating any type of real-time biases from surveyed participants by using actual purchased and returned orders. Following Saunders's (2019) notion of setting boundaries, the time horizon planned is classified as a cross-sectional study. A snapshot of a shortened period of two months is deemed an appropriate representation for an investigation of this manner both in terms of the expected size of the data set and to mitigate any external factors.

3.3 Study

For this thesis, the authors reached out to different retailers and made initial contact with a Scandinavian fashion retailer with a global presence. After initial discussions, a formal meeting was scheduled with relevant stakeholders in attendance. The authors presented a research proposal explaining the thesis topic, the desired metrics to measure, the partnership details, and the timeline. In the next phase, discussions and iterative refining of the data request led to a formalized research agreement. During this discussion, a data sample matching the research design was created. It contained order data over the period of two months across two different markets. Thus, data from its online stores in Sweden and Germany for April and May 2022 were obtained. Sweden and Germany were selected as the two markets due to their maturity, geographical proximity, and cultural familiarity of the authors. Acknowledging the continued impact of the global pandemic in the year 2021, and the impact of seasonal discount campaigns and holiday sales have on PRR, the authors considered these two months in 2022 most suitable, mitigating any external motivators and promotions (Shehu et al., 2020). Additionally, discussions with the retailer revealed the lowest share of promotional campaigns during this period.

3.3.1 Data Sample

In Sweden, the return policy for the partnered retailer constitutes a 30-day window with free returns for members while non-members must pay 36.90 SEK. Similarly in Germany, the return policy constitutes a 30-day window with free returns for members while non-members must pay 1.99 EUR. The obtained sample featured a total number of 6,073,213 unique orders from members, with 1,096,459 (18.1%) from Sweden and 4,976,754 (81.9%) from Germany. Further, it featured the following information presented in Table 3.

Table 3: Overview of Metrics in Data Sample

Metric	Input
Market	Sweden, Germany
Anonymized Order ID	1 - 6,073,213
Order date	1/4/2022 - 31/5/2022

Index Group	Ladieswear, Divided, Menswear, Baby/Children, Cosmetic, Home, Sport, Unknown
Garment Group	Accessories, Blouses, Cosmetic, Dressed, Dresses Ladies, Dresses/Skirts Girls, External Items, Furniture, Home, Hard Goods, Jersey Basic, Jersey Fancy, Knitwear, Lamps, Outdoor, Shirts, Shoes, Shorts, Skirts, Socks and Tights, Special Offers, Swimwear, Textile, Trousers, Under-, Nightwear, Unknown, Woven/Jersey/Knitted Mix Baby
Total Items Sold	1 - x
Total Order Value in SEK	SEK
Total Items Returned	0 - x
Payment Method	Apple Pay, Adyen Card, Gift Card, PayPal, Klarna BNPL & Slice it, Sofort Bank Transfer
Age	1 - 121
Delivery Method	*Germany*; CNC Standard Green, Home Delivery NDD, Home Delivery NDD Green, Home Delivery Standard, Home Delivery Standard Green, Pup Locker NDD Green, Pup Locker Standard Green, Pup NDD, Pup Standard *Sweden*; CNC Standard, Home Delivery Express, Home Delivery Standard, Home Delivery Standard 3, Home Delivery Standard 4, Home Delivery Standard Green, Pup Express, Pup Locker Standard Green, Pup Locker Standard Green 2, Pup Standard

3.3.2 Procedure

As introduced in the research design and due to the nature of this thesis the authors placed a focus on the garment group with the highest return rate. Of the 6,073,213 total unique orders, trousers and jerseys were identified as the items with the highest return rate. This followed similar return behavior patterns of previous studies, suggesting clothing items as the most returned product category (KPMG, 2021; Statista, 2022d). In line with the research design, minimizing interferences, the authors analyzed the data set to identify the most relevant garment group. In Sweden, 18% of returns were from trousers and 21.9% were from jerseys. In Germany, 15.8% of returns were from trousers and 28.1% were from jerseys. Jerseys are a type of baby clothing. The fluctuating size of infants combined with the purchasing decisions made by the parents, or different individuals make this a special product category. Potentially displaying misleading return behavior and are not representative products in e-commerce. Therefore, the authors decided to only investigate orders consisting solely of one garment group, the second-highest returned item: trousers. Thus, the data sample decreased to 241,958.

The final step of narrowing down the relevant data sample concerned the relation to the selected payment method. To fully understand the payment strategies offered, it is essential to distinguish between Conventional payment methods and Buy-Now-Pay-Later (BNPL) payment methods. The authors classify Conventional payment methods as card payments such as a debit and credit card or a direct bank transfer. During these transactions, the payment is subsequently impacting a customer's account. Subsequently, the authors classify BNPL methods as a delay in the transaction (e.g. installment payments). Initially, the data sample featured orders with the following payment methods:

- Apple Pay
- Adyen Card
- Gift Card
- PayPal
- Klarna (BNPL/Slice it)
- Sofort Bank Transfer

Apple Pay was only used by customers in Germany and hence was excluded to ensure the comparability and reliability of the findings. PayPal is offering various payment options integrated into their systems (e.g. PayPal credits, Debit and Credit Cards, and PayPal Later which is BNPL (PayPal, 2023a, 2023b). The data sample in this investigation did not contain information enabling a distinction, therefore orders using PayPal were excluded as well. The retail partner classifies their gift cards as a prepaid debit card which is categorized as a conventional payment method. This means the money is already paid for which can influence the recipient of the card's buyer behavior. Reinholtz (2015) demonstrated that this action stimulates a mental account, suggesting that preferences can be altered. Therefore, orders paid for using Gift Cards were also excluded to enable a consistent comparison between relevant behavior and payment methods. Thus, the payment methods used in the final data sample were Adyen Card, Sofort Bank Transfer, and Klarna. Adyen Card and Sofort Bank Transfer are representing Conventional payment methods while Klarna represents BNPL. The two conventional methods are kept separate throughout the testing due to significant differences. Sofort Bank Transfer is a digital solution offering instant transfers directly from a customer's bank account. Adyen Card is a payment solution provider enabling the usage of common debit and credit cards. Klarna is the leading European BNPL provider offering two forms of delayed payments. Throughout the thesis Adyen Card is represented as Card Payment, Sofort Bank Transfer is represented as Direct Bank Transfer, and Klarna is represented as BNPL. In addition to considerations of *Hypothesis 3a* and *Hypothesis 3b* investigating the effect of age, orders not featuring information about age and orders featuring consumers above the age of 100 years were excluded. Since users can state their age during membership signups, the latter exclusion was based on the assumption that some age inputs (e.g. 100 to 121 years old) were not truthful. Thus, the remaining data sample contained a total of 129,304 unique orders, of which 42,348 or 32.8% were from Sweden and 86,956 or 67.2% from Germany. This data sample of 129,394 orders was used for testing *Hypothesis 1*. Accordingly, for the testing of *Hypothesis 2*, *Hypothesis 3a,* and *Hypothesis 3b* the authors use a subset of the data sample of those unique orders only using BNPL. This results in a total of 106,237 orders, of which 24,279 or 22.9% were from Sweden and 81,958 or 77.1% from Germany.

3.3.3 Age Grouping

In line with previous research and to ensure comprehensiveness the authors divided the unique orders into age groups visualized in Table 4 (Hervé & Mullet, 2009; Makkonen et al., 2021). Makkonen (2021) received a total number of 302 survey respondents, grouping the participants into three age categories: under 30 years old, between 30 and 49 years old, and 50 years or older. Hervé and Mullet's (2009) study included a total of 160 participants, grouping them into four age categories of 40 participants: young adults 18 to 25 years old, middle-aged adults 35 to 50 years old, young elderly adults 65 to 74 years old, and elderly adults 75 years and older. The size of the data sample (129,304) enables a more granular division providing deeper insights. Therefore, the orders are split into seven total groups by the age of the customer: 19 years old and younger, 20 to 29 years old, 30 to 39 years old, 40 to 49 years old, 50 to 59 years old, 60 to 69 years old, and 70 years old and older.

Table 4: Overview Age Groups in Data Sample

Group Name	Age Range	Number of Unique Orders	Number of Unique BNPL Orders
Age Group 1	19 and younger	4,425	1,554
Age Group 2	20 to 29	35,380	29,626
Age Group 3	30 to 39	33,993	29,259
Age Group 4	40 to 49	29,408	24,515
Age Group 5	50 to 59	19,056	15,711
Age Group 6	60 to 69	5,462	4,389
Age Group 7	70 and older	1,580	1,183

3.3.4 Product Return Rate

Previous research has identified different areas of focus in terms of PRR, depending on the stakeholders of the investigation. El Kihal et al.'s (2021) study revealed that comparisons of PRR can be challenging since three different major calculation methods are currently used by researchers and companies. These methods are classified based on the number of returned items or share of the order basket, the returned items' total revenue, and the returned items' profit contribution (El Kihal et al.,

2021). All three calculation methods indicate promising developments and implications. A stronger focus on an organizational and financial perspective is set by profit- and revenue-based return rates putting less focus on quantities and pure physical volume. Considering the focus on the behavior on a customer level and the problematic role of product returns for society, the authors decided to follow a modified item-based approach.

To begin, revenue-based and profit-based return methods are valuable insights to uncover return behavior towards expensive and budget-priced items. The financial implications can benefits companies and assist as to why this behavior occurs. However, more data must be received, specifically including individual prices of the items. The data set used for this thesis only included the total price of the order. Without sufficient knowledge of the price of the item purchased and returned, it was not possible to leverage these return rate calculations. In addition, the previously described economic and environmental impact caused by reverse logistics is already present with a single item being returned and the impact is rather marginally decreasing if more items of one order are added since logistics and transportation costs are reduced. With this in mind, the data sample used by the authors contained a magnitude of orders with various basket sizes (1-31). In relation to the basket size, the corresponding returned items were quite similar (0-30). Considering the wide variety of return quantity, the authors argue this may lead to a potential skewness in using a standard item-based calculation described by El Kihal et al. (2021). To illustrate this, the data set revealed an order for a 29-year-old who ordered 31 items and returned 30 items. Another order showed a 22-year-old who ordered 3 items and returned 2 of them. Without a complete investigation of the reasons for the size of the purchase, a skewness in percentages would potentially be present. These cases are valid and important to examine further, but for this thesis and to prevent any flawed data, the authors implemented a binary coding system for the return behavior. Thus, the calculation of returns was classified as an order which returns one or more items, yes (1) or no (0). As such, the orders that kept all items are identified as a “0” and the orders that returned one or more items are identified as a “1”. The product return rate is then calculated as:

$$Product\ Return\ Rate = \frac{Orders\ with\ Returns}{Total\ number\ of\ Orders}$$

3.3.5 Reliability

In terms of the reliability of secondary data, one must assess the source of the data and the method of how it was obtained (Saunders et al., 2019). As discussed in section 3.3 Study, an agreement with a Scandinavian fashion retailer with a global presence was established. Hence the data obtained represents is considered direct and unmanipulated. Confirmation of the credibility of the obtained data set is presented through the signed nondisclosure agreement from both parties. In addition, Saunders et al. (2019) state that the size of the company, including the authority and reputation, prove that the source is to be considered “reliable and trustworthy” (Saunders et al., 2019). In terms of how the extract was conducted, reliability is determined due to the internal procedures set in place by the company. In a professional manner, the primary contact point of the authors facilitated the necessary internal discussions with the data science team to properly manage the specific data demands. Initially, a preview was shared, presenting the authors with an example of how the data will be formatted. Once approved by both parties, the full extract was administered and shared in the form of a CSV file.

3.3.6 Validity

Following Saunders et al. (2019), validity is constituted as the appropriateness of the measures conducted and the accuracy of the analysis of the results and findings. This thesis constitutes validity through secondary data, acquired from a Scandinavian fashion retailer. More specifically, the authors received what Saunders et al. consider secondary data in the form of “big data”. This “big data” included true details and information from customer transactions of members. An internal data scientist formulated this dataset using their business intelligence platform to select the proper metrics agreed upon, creating an extract in the form of a CSV file. In order to properly measure the validity of secondary data, overall suitability must be reached. First, the authors investigate the coverage of the data. As previously discussed, the dataset consisted of two countries over the span of two months, resulting in over six million unique orders. This coverage proved to be strong, allowing the authors to filter the data as described in section 3.3.2 Procedure, excluding irrelevant data points resulting in sufficient data for analysis of the research question. To earn the label of precise suitability, the quality of the data points was examined. As introduced in section 3.3.1

Data Sample, the file received by the authors contained eleven metrics for each unique order. All of which provided value that helped facilitate the investigation. These eleven metrics, adhering to standard GDPR policies, indicate there is no sign of measurement bias or distortion of the secondary data. Therefore, by establishing suitability along with receiving permission to use, the authors ensure the validity of this dataset.

4 Results

This chapter presents the results of the analysis of the data sample. The sample contains the previously mentioned 129,304 unique orders. Within all orders, there was a minimum of 1 item and a maximum of 31 items ordered. The mean number of items ordered is M = 1.95 with a standard deviation SD = 1.522. Additionally, the number of items returned has a minimum of 0 items and a maximum of 30 items. The mean number of items returned is M = 1.1 with a standard deviation SD = 1.532. Further, the age of the customers placing the order was between the range of 16 and 95. The mean age of customers is M = 37.99 with a standard deviation SD = 12.755. Prior to the hypothesis testing, a brief overview of payment method usage will be presented.

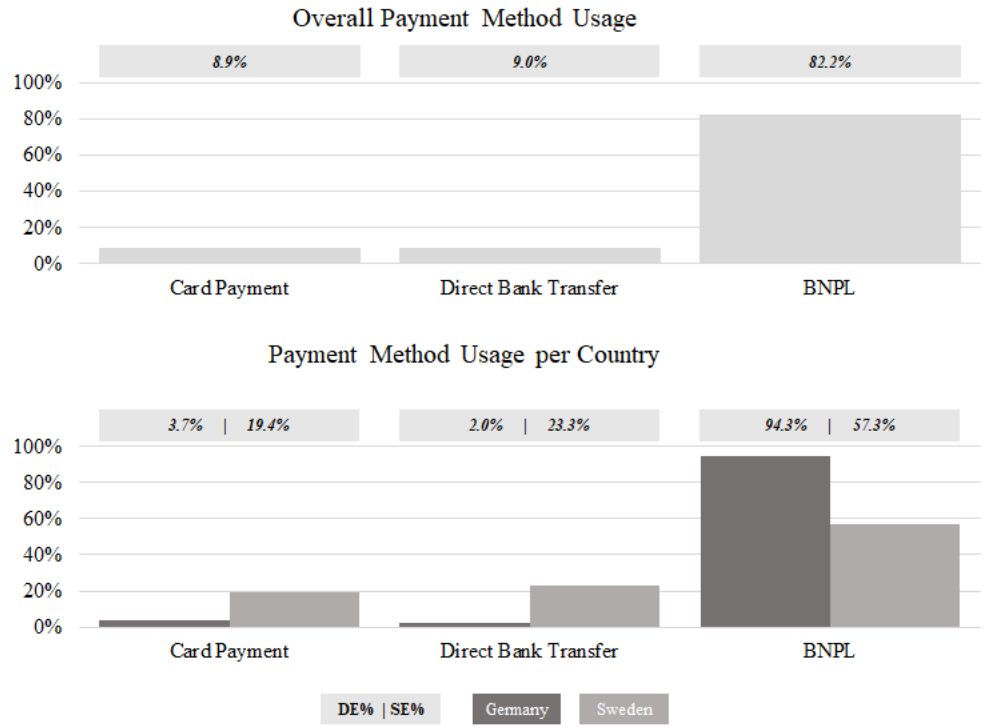
With the provided sample, it was determined that Crosstabulations with Chi-Square Tests were appropriate (Harley et al., 2019). In order to conduct a Chi-Square Test, four assumptions must be checked. First, the variables used must be nominal. This is fulfilled since Payment Method (Card Payment, Direct Bank Transfer, BNPL), Market (Germany, Sweden), Age Group (1-7), and Return (Yes ‘1’, No ‘0’) are all nominal variables. Second, all observations must be independent. The data meets this requirement since each order is unique and has no effect on another order. Third, cells in the table are mutually exclusive. Similar to the second assumption, this is fulfilled since each order is unique. Lastly, the expected value of the cells should be 5 or greater in at least 80% of cells and none less than 1. The data satisfies this final assumption allowing the use of a Chi-Square Test (Tables 5 to 12 are extracts of the conducted SPSS analysis).

4.1 Initial Observations

Before presenting the results it is vital to have a holistic view of the usage of payment methods. Overall, the analysis displays the major role BNPL plays in today’s e-commerce. Card Payment was the selected payment method in 11,458 orders or 8.9%

of total orders and Direct Bank Transfer respectively accounted for 11,609 orders or 9.0%. Accumulated, these conventional payment methods were selected in 23,067 orders reaching a share of 17.9% of all orders. However, the dominance of BNPL materialized in 106,237 orders using the novel payment method or 82.2% of total orders. (see Figure 1). Comparing the usage patterns between countries the strong preference for BNPL remains visible but the two markets differ substantially. Usage rates for Card Payment were 3.7% in Germany and 19.4% in Sweden. For Direct Bank Transfer share of usage in Germany reached 2.0% and 23.3% in Sweden. BNPL represented the most used payment method in both markets, dominating in Germany with 94.3% and leading in Sweden at 57.3.% (see Figure 1). These observations on general usage and market-specific usage support this thesis's research focus on BNPL and highlight the importance of understanding the corresponding PRR.

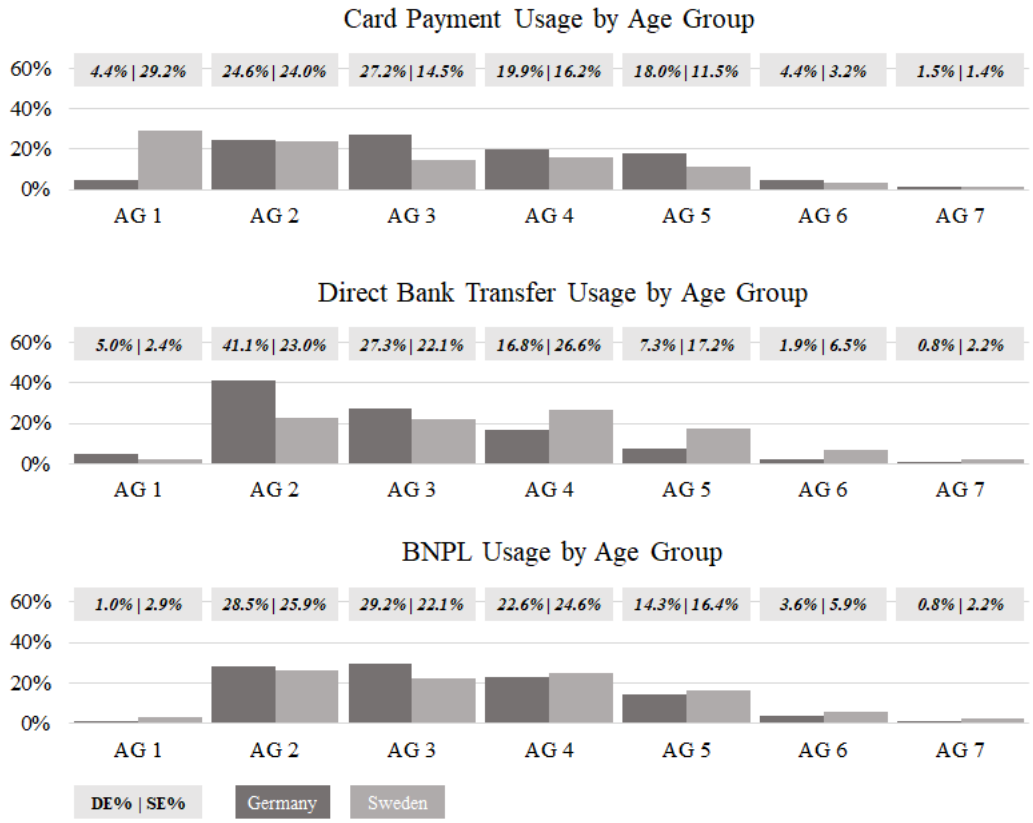
Figure 1: Payment Method Usage



Analyzing usage patterns on a more granular demographic using the previously defined Age Groups further enhances the understanding of the research. Overall, the usage of all these three payment methods is driven by users from Age Groups 2 through 5. For Card Payment, these age groups accumulate 89.6% of German and 66.3% of Swedish orders paid for using said method. For Direct Bank Transfer these

Age Groups accumulate 92.3%of German and 88.9% of Swedish orders paid for using said method. For BNPL these Age Groups accumulate 94.6%of German and 88.9% of Swedish orders. The anomaly in this homogenous picture of Card Payment's 66.3% share in Sweden can be explained by the exceptionally high share (29.2%) of orders using this conventional payment method by users 19 years old and younger (Age Group 1). When looking at the highest concentration of users of a certain Age Group, Germany with Age Group 2 reaching 41.1% in Direct Bank Transfer represents the biggest share of a single demographic in the dataset. Acknowledging different payment method usage can, therefore, underline the importance of testing *Hypothesis 3a* and *Hypothesis 3b*.

Figure 2: Payment Method Usage by Age Group and Market



4.2 The Impact of BNPL on Product Return Rates

In order to test H1, "Orders in e-commerce using BNPL payment methods have higher product return rates than conventional payment methods" and in consideration of the data assumptions a Crosstabulation with a Chi-Square Test was employed. The

Pearson Chi-Square value of 6374.949 and a p-value of <.001 make the result highly significant. The groups in the test consisted of “Card Payment” and “Direct Bank” Transfer, both representing Conventional Payment Methods and “BNPL”. The results revealed a product return rate of 61.8% for the entire sample and PRR on payment method level for “Card Payment” of 38.8% and “Direct Bank Transfer” of 38.6% while “BNPL” displayed PRR of 66.9% (see Table 5). The results show a significantly higher product return rate for orders using BNPL methods than for both Conventional Payment Methods (see Tables 5 and 6). Therefore, **H1 is supported**.

Table 5: Cross Tabulation H1

Return * Payment Method Crosstabulation

			Payment Method			
			Card Payment	*BNPL*	*Direct Bank Transfer*	Total
Return	Yes	Count	4,443	71,032	4,481	79,956
		% within Payment Method	**38.8%**	**66.9%**	**38.6%**	**61.8%**
		% of Total Orders	3.4%	54.9%	3.5%	61.8%
	No	Count	7,015	35,205	7,128	49,348
		% within Payment Method	61.2%	33.1%	61.4%	38.2%
		% of Total Orders	5.4%	27.2%	5.5%	38.2%
Total		Count	11,458	106,237	11,609	129,304
		% within Payment Method	100.0%	100.0%	100.0%	100.0%
		% of Total Orders	8.9%	82.2%	9.0%	100.0%

Table 6: Chi-Square Test H1

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6374.949[a]	2	<.001
N of Valid Cases	129,304		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 4372.87.

4.3 The Impact of Culture on Product Return Rates

In order to test H2, “Orders in e-commerce using BNPL payment methods have higher product return rates in Germany than in Sweden” and in consideration of the data

assumptions a Crosstabulation with a Chi-Square Test was employed. The Pearson Chi-Square value of 1613.126 and a p-value of <.001 make the result highly significant. The groups in the test consisted of the two markets, Germany and Sweden, and were performed on the BNPL subset totaling 106,237 unique orders. The results revealed a product return rate of 66.9% of the whole subset and PRR on the market level for Germany of 70.0% and Sweden of 56.2%. (see Tables 7 and 8). The results show a striking difference in PRR on the market level for orders paid for using BNPL. Therefore, **H2 is supported**.

Table 7: Cross Tabulation H2

Return * Market Crosstabulation

			Market		
			Germany	*Sweden*	Total
Return	Yes	Count	57,386	13,646	71,032
		% within Market	**70.0%**	**56.2%**	**66.9%**
		% of Total BNPL Orders	54.0%	12.8%	66.9%
	No	Count	24,572	10,633	35,205
		% within Market	30.0%	43.8%	33.1%
		% of Total BNPL Orders	23.1%	10.0%	33.1%
Total		Count	81,958	24,279	106,237
		% within Market	100.0%	100.0%	100.0%
		% of Total BNPL Orders	77.1%	22.9%	100.0%

Table 8: Chi-Square Test H2

Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1613.126[a]	1	<.001
N of Valid Cases	106,237		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8045.62.

4.4 The Impact of Age on Product Return Rates

In order to test both H3a, “Orders in e-commerce using BNPL payment methods by the youngest customers have the highest product return rates” and H3b, “Orders in e-commerce using BNPL payment methods by the oldest customers have the lowest product return rates”, and in consideration of the data assumptions a Crosstabulations

with a Chi-Square Test was employed. The Pearson Chi-Square value of 472.245 and a p-value of <.001 make the result highly significant. The groups in the test consisted of the Age Groups described in methodology Section 3.3.3 Age Grouping and are:

Age Group 1	19 years and younger
Age Group 2	20 to 29 years
Age Group 3	30 to 39 years
Age Group 4	40 to 49 years
Age Group 5	50 to 59 years
Age Group 6	60 to 69 years
Age Group 7	70 years and older

The tested subset consisted of orders paid for using BNPL and totaled 106,237. The corresponding return rates are 55.3% for Age Group 1, 67.4% for Age Group 2, 70.4% for Age Group 3, 66.2% for Age Group 4, 64.1% for Age Group 5, 61.1% for Age Group 6, and 54.2% for Age Group 7. (see Tables 9 and 10). The results show that PRR are the lowest for Age Group 7 and the highest for Age Group 3. Therefore, **H3a is rejected**. Initially, H3b appears to be favorable. However, the margin of 1.1 percentage points between Age Group 1 and Age Group 7 is far too minute to confidently declare support. Thus, requiring further testing between the two. Again, in consideration of the data assumptions a Crosstabulations with a Chi-Square Test was employed. The Pearson Chi-Square value of .324 and a p-value of .569 make the result not significant (see Tables 11 and 12). Therefore, **H3b is rejected.**

Table 9: Cross Tabulation H3a

Return * Age Group Crosstabulation

			Age Group							
			1	*2*	*3*	*4*	*5*	*6*	*7*	Total
Return	Yes	Count	859	19,957	20,597	16,220	10,077	2,681	641	71,302
		% within Age Group	**55.3%**	**67.4%**	**70.4%**	**66.2%**	**64.1%**	**61.1%**	**54.2%**	**66.9%**
		% of Total BNPL Orders	0.8%	18.8%	19.4%	15.3%	9.5%	2.5%	0.6%	66.9%
	No	Count	695	9,669	8,662	8,295	5,634	1,708	542	35,205
		% within Age Group	44.7%	32.6%	29.6%	33.8%	35.9%	38.9%	45.8%	33.1%
		% of Total BNPL Orders	0.7%	9.1%	8.2%	7.8%	5.3%	1.6%	0.5%	33.1%
Total		Count	1,554	29,626	29,259	24,515	15,711	4,389	1,183	106,237
		% within Age Group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100%
		% of Total BNPL Orders	1.5%	27.9%	27.5%	23.1%	14.8%	4.1%	1.1%	100%

Table 10: Chi-Square Test H3a

Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	472.245[a]	6	<.001
N of Valid Cases	106,237		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 392.02.

Table 11: Cross Tabulation H3b

Return * Age Group Crosstabulation

			Age Group		
			1	*7*	Total
Return	Yes	Count	859	641	1,500
		% within Age Group	**55.3%**	**54.2%**	**54.8%**
		% of Total	31.4%	23.4%	54.8%
	No	Count	695	542	1,237
		% within Age Group	44.7%	45.8%	45.2%
		% of Total	25.4%	19.8%	45.2%
Total		Count	1,554	1,183	2,737
		% within Age Group	100.0%	100.0%	100.0%
		% of Total	56.8%	43.2%	100.0%

Table 12: Chi-Square Test H3b

Chi-Square Test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.324[a]	1	.569
N of Valid Cases	2,737		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 534.66.

4.5 Summary of Hypothesis Testing

In summary, the authors found support for H1 and H2 while H3a and H3b were not supported and hence rejected. Table 13 below provides an overview of the hypothesis testing.

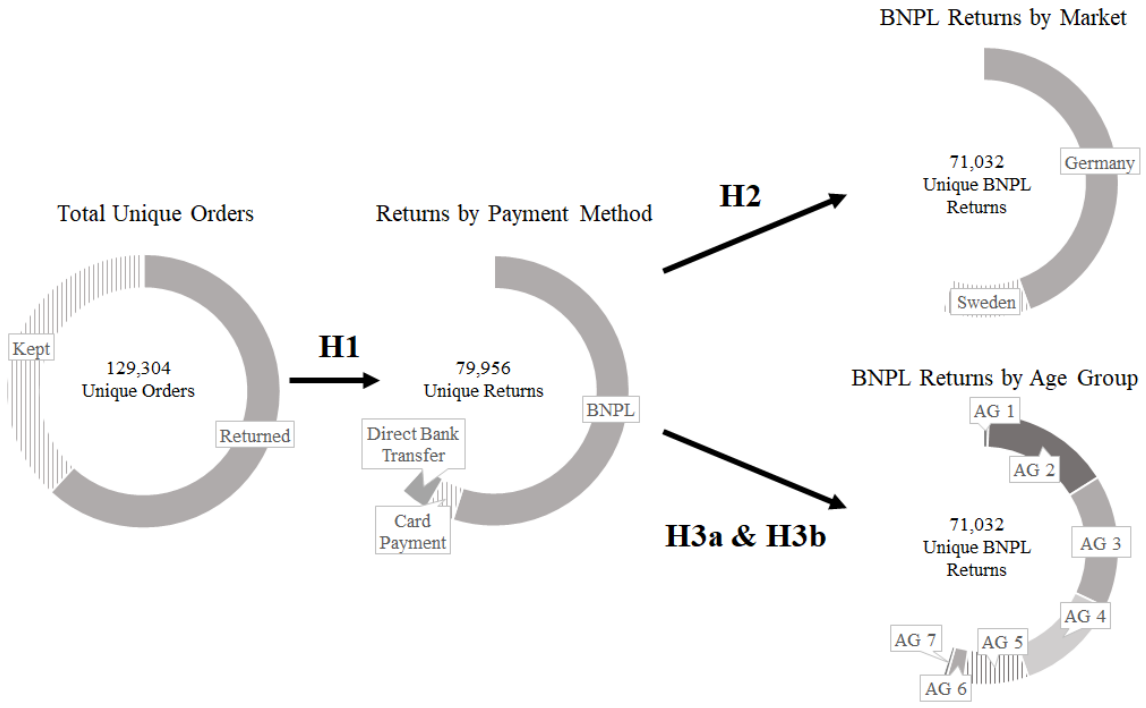
Table 13: Summary of Hypothesis Testing

Hypotheses		Result
H1	Orders in e-commerce using BNPL payment methods have higher product return rates than conventional payment methods	*Supported* *(p < .001)*
H2	Orders in e-commerce using BNPL payment methods have higher product return rates in Germany than in Sweden	*Supported* *(p < .001)*
H3a	Orders in e-commerce using BNPL payment methods by the youngest customers have the highest product return rates	*Rejected* *(p < .001)*
H3b	Orders in e-commerce using BNPL payment methods by the oldest customers have the lowest product return rates	*Rejected* *(p = .569)*

5 Discussion and Theoretical Implications

In the subsequent section, the results are discussed, put into the context of previous research, and theoretical implications are provided. First, the customer preference for payment methods is presented and potential explanations are given. Second, the findings of *Hypothesis 1* are examined in connection to existing theories highlighting two types of product returners. Third, the discussion of the impact of different cultures on PRR is rooted in theories in sociology and behavioral sciences from *Hypothesis 2*. Fourth, differences in product return behavior in different age groups are specified by discussing *Hypothesis 3a* and *Hypothesis 3b*. Fifth, additional findings related to return patterns not directly related to the hypothesis testing are presented (see Figure 3).

Figure 3: Hypothesis Tree



5.1 Payment Method Preference

In general, the popularity of BNPL across both markets can be attributed to the aforementioned benefits to consumers appealing to psychological levels in terms of reduced pain of payment and perceived affordability. Previous studies also identified the convenience of payment when using BNPL, increased flexibility, and low or lower interest rates in comparison to conventional payment methods as drivers for consumers to choose BNPL (CR Research, 2021; Pratt, 2022). This shift in consumer preference and in particular the financial benefits of delayed payments and spread-out installments has been reinforced by the ongoing cost of living crisis covering the time period of the data sample (Pratt, 2022). However, publicly available data on payment method usage in e-commerce indicates a market share of BNPL of 24% in Sweden and 23% in Germany (Statista, 2023c). While reports argue clothing is one of the leading categories of BNPL usage in e-commerce, the difference in the stated market share in comparison to 82.2% usage overall and 94.3% in Germany and 57.3% in Sweden shows an exceptionally high share of usage (CR Research, 2021; Pratt, 2022; Statista, 2023c). Potential reasons for this exceptionally high share in this analysis might be related to the retailer from which the data sample was obtained. The partner is positioned as a medium to low-price fashion retailer potentially attracting more price-

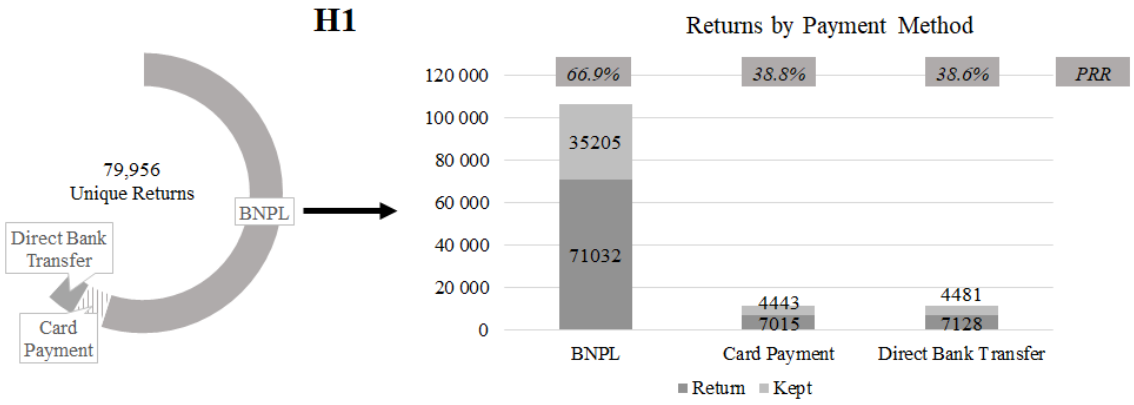
sensitive customers more prone to use BNPL. Additionally, the garment group “trousers” with generally elevated PRR as discussed in Section 3 Methodology also influences the choice of payment method. Consumers ordering a product with which they either previously experienced problems in fit or expect potential issues in fit are incentivized to resort to BNPL. The payment modalities are minimized and address the arising uncertainty. Even though the usage split between payment methods in Sweden is more balanced than in Germany the exact reasons for this difference in preference cannot be inferred from previous literature. One potential reason for the dominance of BNPL as preferred payment method could be inferred from Hofstede’s cultural dimensions (Hofstede, 2022, 2011). The payment modalities of BNPL offer consumers full financial protection at no additional cost. Hence, the more risk-averse and uncertainty-avoidant customers in Germany leverage this opportunity even though they might not be financially constrained. In terms of age distribution per payment method, differences between the two markets are visible yet they are substantially smaller than the overall usage rates and also PRRs. This could be related to the customer profile the partnered company primarily attracts and requires further investigation. In relation to usage and preference, further research building upon Prelec and Loewenstein’s (1998) pain of payment can contribute to a better understanding of customer preferences. While the role of the pain of payment has been established as a factor in purchase behavior, this thesis highlights its importance and influence on selected payment methods.

5.2 Increased Product Return Rates Related to BNPL

The previous description reveals the prevalent position of BNPL. Looking at the corresponding return rates per payment method and testing of *Hypothesis 1* a highly problematic dynamic is uncovered. The 66.9% PRR of orders using BNPL is impacting the economic and environmental performance of the retailer and subsequently, society as a whole. While a definitive determination of the environmental impact of a single return is challenging estimations indicating the impact of an order with a subsequent return can triple (Collini & Hausemer, 2022). This is relevant for all returns regardless of their payment method. However, PRR of orders using conventional payment methods are substantially lower and less used by customers in general, hence less problematic. The homogenous picture of PRR in the conventional category builds a

stark contrast to BNPL's 66.9% rate with Card Payment representing 38.8% and Direct Bank Transfer representing 38.6% (see Figure 4). Considering the high share of usage of BNPL and corresponding PRR, the payment method is certainly contributing negatively to the environmental impact. The return rates of Conventional Payments are showing greater resemblance to general PRR in e-commerce ranging between 20 and 30% (Rich Panel, 2023).

Figure 4: Product Return Rates by Payment Method



The quantitative analysis only reveals differences in PRR but cannot fully determine the causes for them. However, previous research in returns management and behavioral sciences is portrayed in these numbers. The synthesized and validated influences on return behavior cannot quantify the impact of BNPL but offer potential explanations. As such, these elevated PRR can be discussed using the taxonomy of returner types: legitimate returners and opportunistic returners (see Figure 5).

5.2.1 Legitimate Returns

In Pei and Paswan's study, legitimate return behavior is defined, as a return that was made "due to product defects, sellers' fault, buyers' remorse, or a change in external markets" (Pei & Paswan, 2018). The authors of this thesis argue that the use of a BNPL payment method enhances this type of behavior resulting in an increase in the number of returns. Since the previously discussed psychological appeal of BNPL solutions is shown to ease the pain of payment, evoking both overconfidence and anchoring biases within consumers (Kahneman et al., 2011; Prelec & Loewenstein, 1998). Problematic behavior such as impulsive buying is therefore increased for BNPL users. Further, the delayed or deferred installment payments empower temptations for consumers to

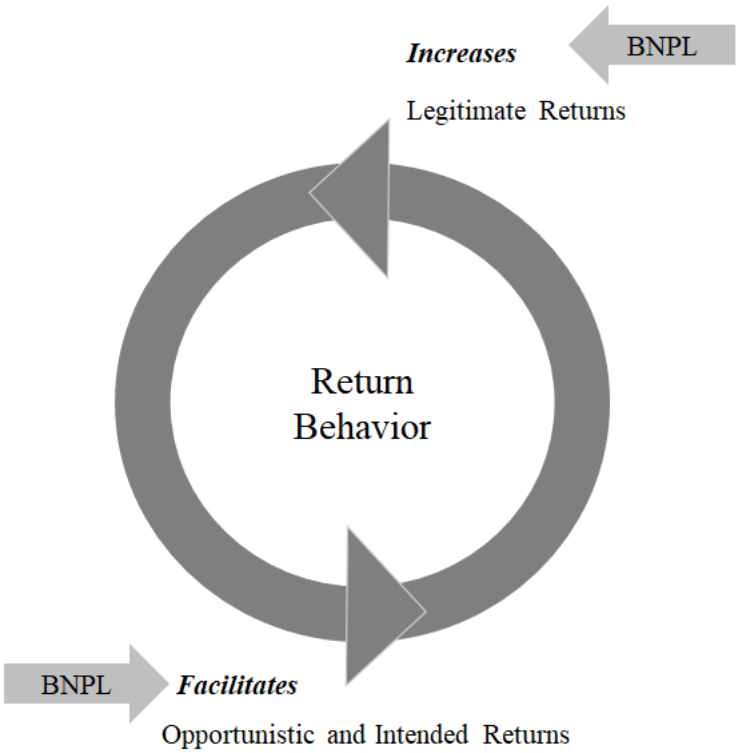
either purchase products they cannot afford or momentarily increase their acceptance of products that might not fully meet their expectations. The subsequently artificially increased purchase confidence reveals a behavioral pattern that leads to a substantially higher PRR of BNPL in comparison to conventional payment methods. This is confirming Ashby's (2020) investigation of subjective price perception through installments. While future qualitative research will need to determine the interplay of factors leading to higher PRR of BNPL users, Ashby's (2020) findings appear to be confirmed by this analysis. Additionally, the return policy of the partnered retailer can be understood as rather lenient and certainly not strict (e.g. no return credits, free returns for members). The combination of purchase-stimulating aspects of BNPL and return policy leniency as explained by Janakiraman and Syrdal (2015), represent key drivers of the observed high PRR of the analyzed orders. Hence, this thesis validates previous findings on return behavior.

5.2.2 Opportunistic and Intended Returns

Aside from legitimate returns, a share of consumers displays unethical and malicious behavior which can be summarized under opportunistic return behavior (Harris, 2010; Pei & Paswan, 2018; Piron & Young, 2001). During this type of return, a consumer who is familiar with the return policy and processes of a retailer will leverage these procedures to their own advantage at the expense of the retailer. As discussed in Section 2 Theoretical Foundation, existing research has identified two main phenomena: retail borrowing (Piron & Young, 2001) and fraudulent advantageous efforts (Harris, 2010; Pei & Paswan, 2018). At the core of these phenomena lies the notion that consumers want to experience a product and gain benefits as if they rightfully owned it, without making a true purchase. The characteristics of BNPL are unfortunately facilitating such behaviors. In the case of retail borrowing (Piron & Young, 2001), the delayed payment structure decreases the pain of payment, hence further increasing the unethical benefit from returning products bought with the intention of returning them within the appropriate return time window. Consumers can order products, use the products, and return them while the deferred BNPL payment has not yet been initiated. It was already discovered in Piron & Young's (2001) study that 20% of respondents admitted to this malicious retail borrowing behavior, highlighting the importance for retailers to carefully observe the behavioral patterns of consumers.

Moreover, another phenomenon in e-commerce purchase behavior is the notion of intended returns. This action is set on the basis that a customer may purchase more than one item with the intent to return a share of the ordered items. For example, a customer may not be completely sure of the size they need for a particular garment item and purchase different sizes (e.g. M, L, XL). After they determine the appropriate size, they will return the other items. Trousers represent a garment group particularly challenging for customers to determine the suitable fit and are affected by these intended returns. Rintamäki (2021) classifies this behavior as planned returners. These customers utilize the lenient return policies such as free returns and full refunds, for their own advantage. This problem exists across different garment categories but varies in its extent. However, revisiting the stark contrasts in PRR it is apparent that BNPL is facilitating such a behavior. While this problematic behavior is often intended to reduce risk, other even more unethical behaviors are abusing retailers for their personal gain.

Figure 5: Impact of BNPL on Return Behavior



Some of the benefits of BNPL also facilitate this behavior through its accessibility and seamless sign-up processes. First, approval ratings and credit checks are notoriously lenient with BNPL payment providers (Di Maggio et al., 2022; Layne, 2022). This lowers the barrier for and facilitates setting up profiles with BNPL providers for malicious returners. Second, similar to the case of retail borrowing the delayed payment structure can be leveraged to minimize the financial risk. If the money transaction has not been withdrawn from the customer's account before the product is returned, the liability of potential loss is non-existent, favoring this fraudulent behavior. Although this thesis indicates that several of these previously identified concepts are affecting PRR in BNPL orders, further research is required to fully determine the interplay of the factors at hand.

5.3 Higher Product Return Rates for BNPL Orders in Germany

To develop a stronger and more holistic understanding of the influences on PRR, the authors introduced a cultural perspective to the analysis of PRR of BNPL. The next and more granular step of the data analysis was performed on the subset of 106,237 orders paid for by BNPL. Germany accounts for 81,958 orders or 77.1% and Sweden is represented with 24,279 orders, respectively 22.9%. The hypothesis testing and confirmation of *Hypothesis 2* revealed interesting differences on the country level. 70.0% of German orders using BNPL were returned while the share in Sweden with 56.2% was significantly lower. Comparing these numbers, with the previously mentioned benchmark of 20-30% for e-commerce returns (Rich Panel, 2023), it becomes evident that additionally to the elevated return rates of orders using BNPL German consumers are returning at an exceptionally high rate. Even though Swedish BNPL PRR are lower in the market comparison they are still implying that over half of all orders incur a return. In consideration of the environmental impact, this creates a problematic situation in Sweden and a dramatic one in Germany (see Table 7). The behavior displayed in both countries is arguably problematic in the wake of the climate crisis. Notably, it is also in contrast to surveys indicating actions taken by individuals in both markets and the overall awareness of climate change as a major challenge (European Commission, 2021). A more detailed discussion of this dichotomy between action and belief will be conducted in Section 6.2. Societal and Individual Implications.

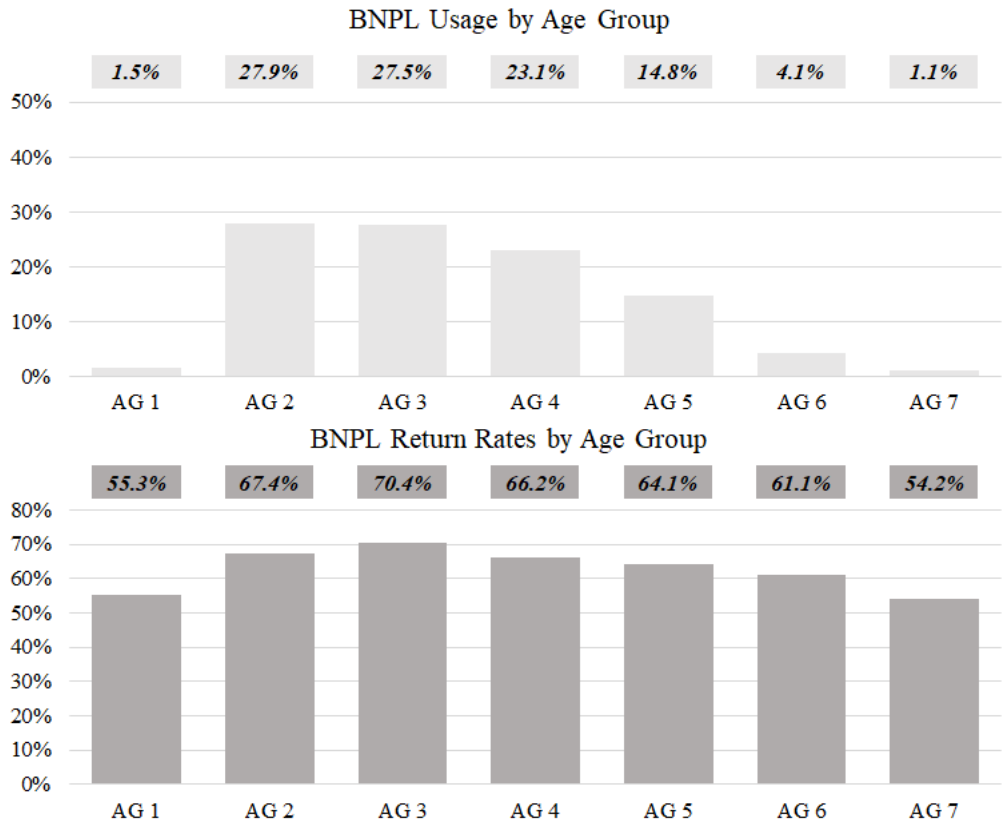
The difference in PRR between Germany and Sweden reaffirms the importance of the consideration of culture in understanding behavioral patterns. It can be viewed as an argument in favor of including cultural aspects in explaining behavioral patterns in future research. Further, it confirms previous investigations discussing differences in shopping and return behavior of different cultures (Gilboa & Mitchell, 2020; Kumar, 2019; Liu & McClure, 2001; Serravalle et al., 2022). In addition to Serravalle's (2022) findings focusing on the comparison of younger consumers in the geographically and culturally distant markets of Italy and China, this thesis reveals different return behavior of consumers in markets in direct proximity. Furthermore, the data sample is also spanning across different demographic groups and is not focused on a single age group.

While the cultural differences between European and Asian countries or individualist and collectivist societies intuitively appear more substantial, the testing of *Hypothesis 2* revealed significant differences in the two Western European markets. The inclusion of Hofstede's (2010) framework for cultural dimensions enabled a pre-validated distinction between the two analyzed cultures. A definitive explanation of the exact cultural influences on return behavior is not possible using this quantitative analysis. However, it is possible to recognize and connect acknowledged differences. The aforementioned facilitated purchasing process by BNPL appears to be a particularly strong catalyst for German consumers. The German dislike of uncertainty is addressed by the deferred installments and subsequently reduced the pain of payment. This creates a more pleasant and facilitated purchase experience using BNPL, appealing to risk adversity, but conflicting with comparatively high expectations towards a product when receiving it. This complex and multi-sided dynamic is one potential motivator for higher PRR in Germany than in Sweden.

5.4 Product Returns Rates of Age Groups Using BNPL

The testing of *Hypothesis 3a* and *Hypothesis 3b* provided another demographic perspective on the product return behavior of BNPL users. Out of the 106,237 BNPL orders, Figure 6 visualizes both usage and PRR on the Age Group level.

Figure 6: BNPL and Age Groups



The previous description of usage per age group provided additional insights. 93.3% of all BNPL orders were placed by customers of Age Groups 2 through 5 (aged 20 to 59) with 55.4% attributed to Age Groups 2 and 3. In the case of orders by the youngest customers (Age Group 1) or orders by older customers (Age Group 6 and 7), the share of users in BNPL is lower, reaching a combined 6.7% (see Figure 6). Across all age groups of BNPL users, PRR were higher than 50% peaking at 70.4% (Age Group 3) and being the lowest at 54.2% (Age Group 7). This indicates that problematic return behavior is prevalent across all age groups. It appears that PRR are increasing until Age Group 3 and subsequently decrease (see Figure 6). This provides sufficient evidence to reject *Hypothesis 3a* and *Hypothesis 3b*. The previously described high usage pattern of Age Groups 2 to 5 corresponds to elevated levels of PRR. In total orders by consumers aged between 20 and 59 accounted for 94.1% of all returns for BNPL orders (66,851 out of 71,032 BNPL returns). Revisiting benchmarks in e-commerce, all age groups of BNPL users display significantly higher PRR.

Putting these insights into the context of previous research both supporting evidence, but also conflicting implications become evident. According to Makkonen's (2021)

investigation, younger consumers are more prone to purchase product categories with overall higher PRR in comparison to older consumers. This cannot be rejected or confirmed since the analysis is based on a single product category respectively garment group. However, the analysis reveals that within this same category, very young (19 years and younger) and very old (70 years and older) consumers show similar PRR of 55.3% and 54.2%. The PRR in the adjacent Age Groups 2 and 6 are 67.4% and 61.1% (see Figure 6).

The PRR for consumers above the age of 50 (Age Group 5 to 7) are in line with Makkonen's (2021) findings of lower return rates for older consumers. Even though, the analysis of this thesis cannot confirm Makkonen's (2021) explanation for this as provided by their relative inexperience with return policies it is notable that the previously mentioned return rates for the youngest Age Group 1 (19 years and younger) are the second lowest of the sample. Potentially, this inexperience of return policies is affecting inexperienced consumers on both ends of the demographic spectrum. The hypothesized connection between a stronger impact of Kahneman's (2011) biases on younger consumers using BNPL and their return behavior, could not be supported. Despite the weaker financial abilities of younger consumers in comparison to more mature shoppers, it cannot be inferred that this demographic subsequently returns more products due to their inability to afford them. It is to be noted that there are difficulties in assessing the true purchasing power of this younger consumer segment since sometimes parents or guardians fund their purchasing behavior. However, it is remarkable that consumers of Age Group 2 to 5, who are considered more financially potent are returning at significantly higher rates than Age Group 1. Subsequently, the initially inferred stronger impact of overconfidence and anchoring biases on the return behavior of younger consumers is not visible in the data sample.

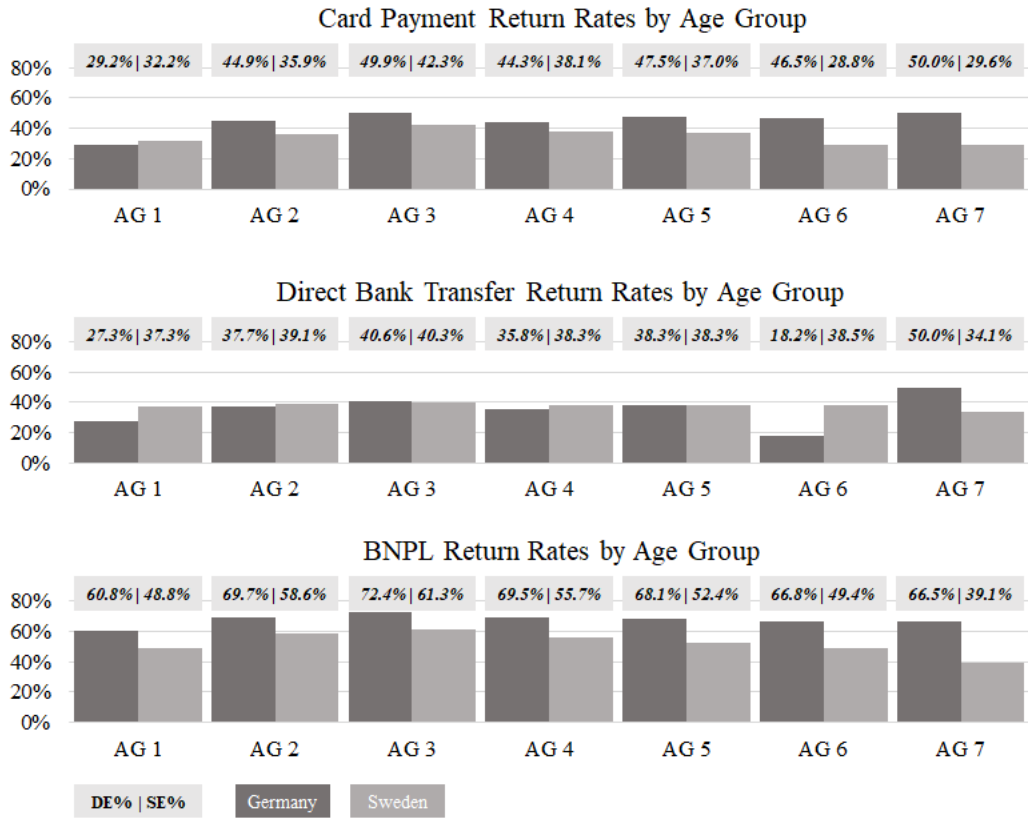
5.5 Additional Findings on Product Return Rates

The depth of the data sample offers a multitude of interesting angles for research. Building upon the analysis and hypothesis testing several notable aspects and relations within the dataset were revealed and will be discussed subsequently. Synthesizing the perspectives of *Hypothesis 1*, return rates per payment method, *Hypothesis 2*, return rates of BNPL users in Germany and Sweden, and *Hypothesis*

3a and *Hypothesis 3b*, return rates of BNPL users per age group, reveals additional findings on PRR (see Figure 7). As previously analyzed and discussed, the PRR per payment method across both markets are Card Payment 38.8%, BNPL 66.9%, and Direct Bank Transfer 38.6%. Introducing a cultural lens highlights key differences in return behavior. While the PRR for orders paid for by BNPL of 70.0% in Germany is substantially higher than the corresponding Swedish PRR of 56.2%, the PRR for Conventional Payment Methods differ on a smaller scale. Product returns for orders paid for by Card Payment are 46.1% in Germany and 35.9% in Sweden and Direct Bank Transfer are 37.4% in Germany and 38.8% in Sweden. This also highlights the elevated rate of product returns from a Germany-only standpoint Further, expanding the view on PRR of payment methods per market a descriptive analysis on the Age Group level was performed (see Figure 7). In line with previous assumptions, the highest PRR per market were both displayed by users from Age Group 3 using BNPL. In Sweden, this rate was 61.3% while the German subgroup accounted for 72.4%. The subsequent highest return rates per payment method and age group in Germany were interestingly situated in the same and oldest Age Group 7 (70 years and older). The peak in PRR for both Card Payment and Direct Bank Transfer of German users was at 50.0% which is still drastically lower than comparable BNPL numbers. The subsequent highest return rates per payment method in Sweden were 42.3% of Card Payment users and for Direct Bank Transfer 40.3% both in Age Group 3. In summary, in Sweden consumers aged 30 to 39 show the highest return rates throughout all payment methods, while the situation in Germany is split between the same age group and consumers of Age Group 7. Only in Direct Bank Transfer a continuous section of users displayed similar return patterns across countries. Direct Bank Transfer users in Sweden and Germany of Age Groups 2 through 5 (aged 20 to 59 years) displayed maximum differences of 2.5 percentage points in PRR within the respective age groups. Looking at the PRR of the BNPL payment method, German users of all age groups displayed consistently higher PRR compared to Swedish users. The difference per age group was at least 11.1 percentage points and peaked at 27.4 percentage points. This granular analysis reinforces the previously highlighted problematic PRR attributed to BNPL in general and in particular for German customers. Notably, there is an interesting contrast comparing Age Group 1 across all payment methods and both markets. The BNPL users of Age Group 1 (19 years and younger) in Germany

displayed a 60.8% PRR which are considerably higher than the respective Swedish group at 48.8%. Ultimately, the Conventional payment methods represent a different pattern within this Age Group having higher PRR in Sweden than in Germany. Orders paid for by Card Payment showed PRR of 29.2% in Germany and 32.2% in Sweden, respectively ones using Direct Bank Transfer reached 27.3% and 37.3%. The extended analysis also revealed notable outliers on the lower end of the return spectrum. In contrast to the aggregated higher PRR in Germany, throughout all age groups and payment methods, German Direct Bank Transfer users in Age Group 6 (60 to 69) showed the lowest product return rate of the sample with only 18.2%. The lowest return rate in Sweden was from those using Card Payment representing 28.8% also found in Age Group 6. These findings highlight the vast potential and necessity for future research in better understanding the interplay of demographic factors on PRR.

Figure 7: Product Returns Rates per Payment Method by Age Group and Market



6 Practical Implications

The analysis of the data sample illustrates a prevalent problem. While fashion e-commerce in general is resource-intensive a corresponding large share of product returns further expands its carbon footprint. This is affecting several stakeholders, while in the context of this thesis, three are particularly relevant: corporations, societies, and individuals. Implications for all of them are subsequently discussed. Due to the geographic focus of this thesis and the affiliation of authors, the discussed implications are based on a European perspective. Part of this perspective is the European Green Deal which acknowledges the important role e-commerce is having in reducing emissions. "[…] e-commerce has the potential to facilitate more sustainable production processes and consumption patterns and ensure more circularity" (Collini & Hausemer, 2022).

6.1 Managerial Implications

This thesis and previous research underline the important role retailers have when reducing PRR and implementing more sustainable return policies. Currently, retailers are constrained in a dyadic field of tension. On one side, they are organizations committed to financial targets, their shareholders, and other stakeholders. A vital part of fulfilling these responsibilities is to ensure a loyal and satisfied customer base. On the other side, they are actors contributing to carbon emissions and massive resource consumption through their operations. These emissions occur throughout the entire value chain while this thesis focused on the reverse logistics and the very end of the value chain. Subsequently, stakeholders in this dimension are societies and individuals directly affected by their emissions. Aligning these commercial interests, adhering to regulations, and fulfilling societal expectations is challenging. However, the climate crisis requires every actor to adopt more sustainable ways of operating and this analysis highlights returns management as one spectrum in which improvements are needed and feasible. Hence, the given implications are provided around return management processes. The discussion of previous research in Section 2 Theoretical Foundation highlighted the potentially occurring trade-off between increasing sales numbers and decreasing product returns. Following, the focus is set on the latter.

The analysis has shown that BNPL users are more likely to return products and represent a large share of overall e-commerce shoppers. Subsequently, retailers have

two main levers to influence the corresponding high PRR. They can aim to influence either the customer's chosen payment method or return behavior. However, this already highlights a key challenge for retailers since BNPL users can only be identified at the very end of the purchase or check-out process. Previously collected data on payment method usage of customers can indicate their potential choice but these predictive processes are challenging, and subsequent results only provide indications but are not exact. Therefore, one approach can be to influence directly during their checkout process.

Previous research provides retailers with various approaches to alter the customers' preferred payment method. A common practice to influence customer behavior in e-commerce is the use of choice architecture. According to Thaler & Sunstein (2008), choice architecture is the act of designing choices in a way to indirectly influence the choice an individual makes. Defaults are the foundation of this architecture and are shown to have strong effects (Goldstein et al., 2008; Johnson et al., 2012). Mass defaults for customers represent a preselected choice for all customers regardless of their preferences and are usually most convenient for the retailer (e.g. standard delivery option) (Goldstein et al., 2008). Retailers could set Conventional Payment Methods as the default option for all users during the checkout process to reduce the number of BNPL users. Personalized defaults are designed to better reflect individual preferences (Goldstein et al., 2008). Retailers can utilize these personalized defaults if information on the previous payment method usage of customers is available. In this way, they can identify heavy BNPL users and excessive returners. Subsequently, these users would also be presented with a default choice of a Conventional Payment Method. It is important to note that this personal default would utilize consumer preferences against the consumer. Defaults are powerful in a way that they nudge customers to accept what the retailer has determined as the best option. The freedom of choice is still present since the customer has the ability to opt out of the default and choose a different option. The results of this thesis indicate a lower probability of returns for orders paid for by Conventional Payment Methods, and therefore companies may have the desire to nudge this as primary payment methods. Those customers who still prefer to use BNPL will have to manually select and switch to a different option. However, the use of choice architecture to reduce PRR is not

considered the most promising approach by the authors for two reasons. First, there is no research documenting a change in return behavior by consumers after switching their payment method. Potentially, this will lead to an increase in PRR in the nudged Conventional Payment Methods. Secondly, the preference of consumers to use BNPL is an integral part of e-commerce today and the effectiveness of mass or personalized defaults in this setting is questionable. Therefore, one possibility could be that consumers simply ignore the nudge and select the preferred BNPL options regardless of the nudge. A more negative possibility for the retailer would be irritated customers abandoning shopping carts or switching to more convenient competitors not trying to influence their selected payment method. While experiments using these nudges potentially yield beneficial results for the environment and retailers, future experiments should be prioritized before large-scale implementation. Therefore, the authors deem the second lever, directly influencing the return behavior more promising for practitioners. Existing research on return policy design and behavioral responses offers a variety of potential drivers.

For example, orders paid for by BNPL should be subject to two of Janakiraman & Syrdal's (2015) identified factors to decrease return behavior: a reduced time window for returns and a more restrictive return policy. These two approaches have been proven to reduce return rates. In its current setup, the partnered retailer offered a 30-day return policy. Other companies may offer 60-day or even 90-day return windows. This extended time frame allows customers to second guess the purchase decision or as discussed in Section 5.2.2 Opportunistic Returns, provides time for malicious or unethical actions. A shortened time frame adhering to regulations can limit the thought process on returns that a customer may consider, increasing the likelihood of keeping the product. While shortened time windows for all orders can be beneficial, in particular orders paid for by BNPL should be subject to this measure. However, it is important to ensure that this does not create the dynamic of shifting returns from one payment method with a stricter return policy to another but decreasing them across all payment methods. In consideration of competitive dynamics and the potential of retailers aggressively targeting customers with more lenient return time windows, this adaption requires support from regulators. It is necessary to ensure a level playing field for all actors and to prevent competitors from exploiting the sustainability efforts of others

(e.g. maximum return time windows for certain products or payment methods). In general, retailers can adopt more restrictive return policies (e.g. lower acceptance rates for products already used or damaged by customers, reducing the number of items eligible for returns). These policies are also addressing Piron and Young's (2001) findings on retail borrowing and similar fraudulent behavior. This approach will decrease PRR overall, however may also impact revenue numbers. The authors argue that these more restrictive return policies should be applied across all payment methods, to maximize their impact.

More experimental approaches would build up on Gelbrich's (2017) research on keep rewards and Martínez-López's (2022) research on return credits. Gelbrich's (2017) keep rewards yield the potential of reducing product returns through positive incentives. A keep reward is defined as a "promotional strategy relying on a lenient handling of returns and offers an incentive for each time a customer keeps the ordered product" (Gelbrich et al., 2017). These incentives can be free shipping or a discount on the next order, or even a specialized gift included in the parcel. There has been a strong and favorable outcome for customers as represented by loyalty management programs (Gelbrich et al., 2017). These practices aim to reinforce keep intention thus limiting the negative economic and environmental factors arising from returns. Despite limited research on this topic, it offers a promising approach of reducing PRR through positive reinforcement, without reducing the convenience for consumers. In comparison, Martínez-López et al.'s (2022) reduction efforts are developed by limiting free returns through a predefined credit system. Introducing any limit of return credits counteracts the overall increased number of returns in particular the ones from BNPL users. In the setting of e-commerce, members often have a profile including purchase and return history. Thus, tracking the number of returns per individual in combination with optimizing return credits, keeps the customers accountable for their actions and imposes financial bearings (e.g. restocking or shipping and handling fees) if they return in an excessive manner (Martínez-López et al., 2022). This represents the most drastic approach, financially penalizing frequent returners, yet can also cause unintended side effects such as customer churn or a decrease in sales.

The comparison of the Swedish and German markets highlights different return behavior in different cultures. These differences rooted in cultural identity cannot be

resolved or easily altered by a company. However, the awareness of this enables retailers to adjust their positioning and prioritize their efforts. For example, the same set of return policies can lead to different return behavior in different markets. This indicates that retailers potentially need to impose stricter return policies in selected markets. However, while this will lead to a reduction in returns the negative perception of such discrimination entails a lot of reputational risk.

Practical implications regarding age prove to be challenging due to anti-discrimination, falsified customer information, and data protection regulations. For example, while members of the retailers may indicate their age, it is not required for customers who continue as a guest during the checkout process. However, the results show a significantly higher PRR for Age Group 3 (30-39 years old). Therefore, efforts to reduce PRR should specifically feature this demographic. Age-based discrimination in return policies will conflict with legal standards. Retailers should rather focus the previously described experimental and nudging efforts first in markets with substantially higher PRR such as Germany. Indirectly, retailers could alter return time windows for products particularly popular within certain demographics or overall higher PRR.

6.2 Societal and Individual Implications

In addition to the important role retailers possess, societies and individuals must work in tandem to address excessive return behavior that negatively impacts the environment. “The climate crisis can only be overcome through cooperation – between peoples, cultures, nations, generations” (Guterres, 2023). Product returns in e-commerce are an issue for countries and societies all around the globe. With raising awareness of and concern for climate change initiatives to reduce carbon emissions and excessive resource consumption are being introduced in various industries. E-commerce has been identified as a promising industry with the potential to inspire change. Consumers are already enabled to become actors in a circular economy through refurbished items of the so-called “re-commerce” (Collini & Hausemer, 2022). This development is also driven by raised awareness of consumers on the high environmental cost of e-commerce. Awareness of climate change in Sweden and Germany is relatively high. According to recent studies, 43% of Swedes and 28% of Germans consider climate change the most serious problem facing the world today, and 70% of Germans and 74% of Swedes state that they have taken personal action

to fight climate change (European Commission, 2021). These numbers are above the European average and indicate climate-conscious behavior. However, when comparing these findings with PRR and overall development of GHG emissions in these countries a gap between intended or propagated behavior and action becomes visible. This paradox can be classified as the “intention-behavior gap”. According to Sheeran and Webb (2016), this is the gap between stated intentions and the actual measures that they take. For example, the desire for a more sustainable society and actions displayed in return behavior is contradictory. However, governments can leverage this public support by implementing new regulations reducing emissions. Especially in e-commerce, regulations which support retailers to enforce stricter return policies, but also to adapt their overall offering to reduce overconsumption and impulsive buying. Policymakers are already acknowledging this notion and are working on ways to balance consumer protection standards, the environmental impacts of e-commerce, and the EU Green Deal (Collini & Hausemer, 2022). For example, if e-commerce retailers are protected by regulators to reduce incentives for customers to order products excessively both production costs (financial and environmental) and PRR are reduced.

Revisiting the PRR of BNPL users of 70.0% in Germany and 56.2% in Sweden highlights how excessive consumption can cause product returns. The three actors of this discussion, corporations, societies, and individuals need to critically reflect on this pattern. One can argue that BNPL is further contributing to the already existing problem of product returns because the economic constraints of consumers are artificially lifted, and more product returns occur. Even though consumers are benefiting from this financially and companies are becoming more attractive to customers, the environmental impact of BNPL is made evident in this thesis. The three actors will need to engage in critical discussions about whether this development can be aligned with goals to reduce carbon emissions or how consumption-stimulating solutions such as BNPL should be altered. Governments need to regulate the artificially gained purchasing power by restricting environmentally detrimental behavior without punishing financially weaker parts of society. In particular governments and legislative bodies in Europe need to adopt a multinational lens. From a European perspective, the interconnectedness of e-commerce requires efforts to reduce emissions across

borders. It is not uncommon that a customer is a resident in one country, the retailer is based in another, and the fulfillment or logistics center is in a third country. This additional complexity makes cohesive agreements and standards on a European level even more important. In consideration of the previously described differences in return behavior in different cultures which retailers are facing, an alliance between Europe's leading fashion retailers and the governments could be leading a transition towards more sustainable consumption and reduced PRR. This can be in the form of strengthening existing laws or enabling retailers to impose stricter return policies, punishing retail borrowing or fraudulent returns. Retailers should be enabled to enforce legal standards and should not be concerned with customers choosing competitors for more lenient policies.

Finally, on an individual level, the responsibility of each customer needs to be honed. The high awareness and willingness to adjust one's individual behavior cannot be limited to convenient measures but require a substantial change of perspective. Since societal awareness of this notion is already present, it can be expected that this way of thinking will materialize in social norms and expectations. Similarly, to the way "flygskam" or "flight shame" led to a debate of individual responsibility and caused social pressure to reduce and reflect on air travel (Quick, 2019), "return shame" could cause similar responses for product returns. Individuals all over the world acknowledge the need for change. Global surveys indicate that 86% "want the world to change significantly and to become more sustainable and equitable" (World Economic Forum, 2020). Building upon this strong basis of belief, strong social norms influencing individual behavior are likely to arise in the near future. Trudel (2019) classifies social norms as "unwritten rules developed through shared interactions of a social group that governs social behavior". Self-governing behavior can represent approval and disapproval of peers which can lead to social sanctions (Cialdini, 2008). Thus, developing social norms to influence the behavior by highlighting the social preference of returning less will have a stronger effect than simply highlighting the importance of sustainability. In addition to the external societal impact on the individual, the heightened climate awareness also affects internal motivation.

"People are often motivated to behave consistently with their own environmental beliefs and to present a positive image of themselves to others for self-signaling

benefits, self-identification benefits, status benefits, or reputational benefits" (Trudel, 2019)

Self-signaling embraces the need to feel good for oneself, while self-identification is facilitated by individuals seeking to showcase this sustainable behavior to others. For example, a customer bringing their own reusable bag to the store is engaging in self-signaling knowing they are reducing resource consumption. Continuing, this consumer will engage in self-identification by presenting their sustainable behavior amongst fellow customers at the store. In relation to previously mentioned initiatives on keep rewards or incentives, these items, credits, or other forms of display can appeal to the need for self-signal and identification. Behind every analyzed order of this thesis lies an individual purchase and return decision. While it has been shown that individuals and societies are aware and willing to adjust their behavior, the conducted analysis displays a pessimistic picture of reality. At the moment, climate change is the single biggest challenge, and it is in the best interest and also the ability of each individual to be a part of the solution. One step toward a more sustainable future is reducing excessive behavior as an individual, corporation, or regulator.

7 Contribution

In summary, this thesis contributes to the intersection of returns management research and behavioral sciences. It addresses the research gap introduced in Section 1.2 providing insights into this phenomenon. Building upon previous literature on payment methods, the authors' work contributes to a completely new perspective of BNPL and its influence on PRR. The support for *Hypothesis 1* confirms initial suspicions connected to the use of BNPL resulting in an increased PRR. Therefore, the inclusion of payment method in frameworks investigating drivers of return behavior such as Janakiraman and Syrdal (2015), should incorporate the selected payment method. Additionally, cultural differences and their effects on return behavior are revealed. Similar to shopping behavior, return behavior is impacted by cultural influences. Notably, differences in behavior were observed in countries that can be considered geographically and culturally related. Confirming Serravalle's (2022) investigation, the authors also argue that culture should be acknowledged as an influencing factor in product return behavior. Their comparison of Italian vs Chinese return intention and

this analysis of German vs Swedish PRR prove an influence is present. The findings in the age groups reveal a more complex situation than anticipated. The comparison of existing research and the testing conducted in this thesis produced contradicting results, highlighting the need for further research in this particular demographic. Differences in return behavior in Age Groups, as found in previous research by Makkonen (2021) and inferred from differences in shopping behavior highlighted by Özkan and Solmaz (2017), were confirmed. However, the direct impact of different shopping behavior (e.g. more informed decisions, more selective) and the direct impact on return behavior requires further quantitative and qualitative investigations. In comparison to previous research in this field, the obtained data sample of actual transactions proved to be remarkably diverse and representative of European shopping behavior.

8 Limitations and Future Research

This thesis is subject to several limitations. First, the dataset was obtained from a budget-friendly retailer, potentially resulting in higher order numbers due to more affordable items. In comparison to luxurious or premium retailers, PRR might differ significantly posing a field for future research, on how product prices are impacting PRR. In relation to research on the pain of payment, overconfidence bias, and deferred installments the appeal of BNPL on high-priced products could be even stronger. The influence of BNPL on the PRR of high-priced products poses another direction for future research. Further, the study conducted was based on a sample that only consisted of members of the partnered retailer. As discussed, the return policy for members comprised of free returns within a 30-day time window while non-members would bear a financial cost of 36.90 SEK in Sweden and 1.99 EUR in Germany. Thus, this financial cost may uncover different PRR as the inconvenience to return is slightly increased. This limitation provides direction for future research in uncovering differences in behavior between members and non-members and directly comparing different return policies. Another limitation concerns the time period for the selected study. As previously mentioned, the two months selected were determined as the most suitable to mitigate any external motivators and promotional campaigns impacting the study. Two months was also deemed the most appropriate due to the number of orders and size of the sample, which became apparent when challenges arose from using

common IT equipment (e.g. personal laptops). Ideally, researchers would benefit by having access to the complete data set covering orders of a longer time period and more powerful analysis tools. Therefore, two months can be considered a corner piece of the entire picture. Future research may also benefit from the consideration of holiday months and those consisting of seasonal promotion campaigns. These months may result in both a higher number of orders and returns. It will benefit by comparing the return rates to the findings of this thesis. Depending on the holiday return rates, companies can potentially adopt their return policies during those seasons. Similarly, another limitation is found in the choice of markets. In this thesis, the focus was set on Germany and Sweden. As it proved to support *Hypothesis 2* for the authors, differences in customer behavior patterns may also be present in other countries across the world. Since the partnered retailer is well represented by a global presence, future research may also benefit from comparing more countries. Further, the focus on fashion and only one garment group represents another form of limitation. In general, different product categories display different PRR and while fashion e-commerce is leading return rates, the impact of payment methods on other product categories could be the subject of future research. Moreover, the focus on one garment group to reduce interferences provides inspiration for more complex future studies evaluating in more depth how order composition or mix of products are affecting PRR. Lastly, the thesis is limited by the methodological approach chosen. Employing a quantitative method uncovered significant findings as it pertains to PRR and the use of BNPL, a qualitative method is believed to strengthen the understanding of this phenomenon. First, future research should aim to improve the understanding of why consumers choose BNPL. While the overall benefits are discussed in this thesis, a deeper understanding from an academic perspective is required. Second, research on reasons for product returns is existent, however only on a general level. Future efforts should try to investigate why payment methods, cultures, or age are affecting product returns. Finally, the inclusion of behavioral sciences and a holistic approach to returns management has proven to be highly beneficial. Hence, future research should aspire to follow this holistic approach to improve understanding. Building upon the findings of this thesis, the authors believe that vast opportunities for qualitative and quantitative research are present.

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