

WHO GETS WHAT? HOW ONLINE COMPANIES CAN APPEASE THEIR COMPLAINING CUSTOMERS

Research paper

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Abstract

The rise of e-commerce poses new challenges for companies' complaint management. As online transactions are characterized by a limited degree of interpersonal interaction, traditional recovery mechanisms that take advantage of the employee-customer relationship become less important. Consequently, it needs to be understood how e-commerce companies can best compensate their customers after a complaint. Our research addresses this gap by assessing the impact of discounts versus vouchers on post-complaint consumer purchase behavior. Leveraging the advances in information systems, we base our analysis on an extensive data set that is provided by a leading fashion online retailer and includes more than 24,000 complaints and 450,000 orders. The results show that discounts are more effective in encouraging sales after a complaint. We further examine how customer characteristics moderate this relationship and find that the effect is stronger for price-conscious customers and less strong for frequent customers. Our research contributes to the service marketing literature by transferring existing theoretical foundations to the online retailing environment. We further provide practical guidance to managers how to utilize the extensive amount of data available to identify the most suitable compensation for individual customers.

Keywords: Service recovery, online complaint management, present bias, e-commerce.

1 INTRODUCTION

Over the past years, e-commerce business has seen a constant growth. Online retail sales in the U.S. grew by 14% between 2014 and 2015 while offline sales only increased by 1.9% (U.S. Department of Commerce, 2017). Despite the increasing share of online sales, service marketing research has only started to explore the area of service recovery management for online companies (Holloway, Wang and Parish, 2005). This is surprising since complaint management is key for a company's success (Sabharwal, Soch and Kaur, 2010) and has been identified as a core topic on the agenda of service marketing (Bolton, Grewal and Levy, 2007; Grewal and Levy, 2007).

Already in 2003, Holloway and Beatty (2003) called for an extension of existing service failure and recovery research to the online world. Related research focuses on defining and measuring e-service quality (Rust and Lemon, 2001; Cristobal, Flavián and Guinalíu, 2007) and understanding the drivers of satisfaction and loyalty in an online context (Shankar, Smith and Rangaswamy, 2003; Koufteros *et al.*, 2014). However, only limited insights exist regarding the service recovery mechanisms available to online companies. This question requires special attention since some of the most well-proven service recovery mechanisms in the offline world are simply not available or at least hard to implement for online companies. Research has long emphasized the importance of personal interaction in the service delivery process (Parasuraman, Zeithaml and Berry, 1985) and has shown that it becomes even more relevant when service failures occur (Tax, Brown and Chandrashekar, 1998). Accordingly, service recovery mechanisms that aim at restoring customers' perceived interactional justice or fairness have been confirmed to be of significant importance (Maxham and Netemeyer, 2002b). Examples

include employee courtesy (Hocutt, Bowers and Donavan, 2006), empathy (Sparks and McColl-Kennedy, 2001), or honesty (Tax, Brown and Chandrashekar, 1998). Many e-commerce business models, however, do not offer direct employee-customer communication and even in a service recovery process there are very limited options for personal interaction (Massad, Heckman and Crowston, 2006). Thus, Bitner, Brown, and Meuter (2000) call for research that investigates the “implication of distancing a customer from the close interpersonal interactions traditionally associated with a service encounter” (Bitner, Brown and Meuter, 2000, p. 147). With interpersonal recovery mechanisms becoming less important, it can be expected that monetary compensation will play a primary role in online recovery management. So far, however, only few researchers have investigated how online companies can retain their customers after a service failure (e.g., Lii and Lee, 2012) and how online customers’ reactions, in turn, differ compared to an offline environment (e.g., Harris *et al.*, 2006; Lin, Wang and Chang, 2011).

The existing research in this field is limited to assessing the impact of different compensation types on attitude as well as behavioral intentions such as customers’ post-recovery satisfaction (Harris *et al.*, 2006; Lii and Lee, 2012), trust (Lii and Lee, 2012), electronic word-of-mouth intentions (Lii and Lee, 2012), and postpurchase intentions (Harris *et al.*, 2006). This observation is in line with Parasuraman (2006) who states that “virtually all of the academic studies in this area are based on survey-based or experimental data and focus on customer evaluations of service failure and recovery experiences” (Parasuraman, 2006, p. 590). This is especially surprising because research finds a weak link between customers’ stated intentions and actual behavior (Chandon, Morwitz and Reinartz, 2005). In 2014, Knox and van Oest (2014) are the first to address this shortcoming. They take the company’s view and assess the effectiveness of service recovery based on actual customer sales data. They find that recovery can only partly offset the complaint consequences. In their research, however, they only include recovery as a binary yes-no variable and do not differentiate between different types of compensation. Thus, the question which compensation type is most effective for companies to stimulate customer purchase behavior remains open.

Another gap in the existing literature is that the extensive amount of customer data available to online companies has not yet been leveraged. As a customer’s browsing, complaint, and purchase behavior is observable for any online retailer with a state-of-the-art IT system, a broad amount of data exists that allows for customization of offerings (Chong, Chan and Ooi, 2012). This data can also be utilized in service recovery management by tailoring monetary compensation to individual customer preferences. Lii and Lee (2012) assess how different framing affects online customers’ compensation preferences. They find that online customers prefer compensation framed in dollar terms versus percentage terms depending on the price of the product they had bought. This research should be extended as the question how to allocate resources in the service recovery process in a way that financial performance is optimized becomes more pressing for managers (Cambra-Fierro, Melero and Sese, 2015).

With our research, we aim to address these gaps in existing research thereby answering two research questions: (1) Is monetary compensation in form of a discount or in form of a voucher more effective in encouraging online customer sales after a complaint? (2) How do customers’ price orientation and purchase frequency affect their reactions to the two compensation types? We base our analyses on an extensive secondary data set obtained in cooperation with one of Europe’s leading fashion online retailers. The data set includes information about more than 24,000 complaint cases and related recovery actions, 450,000 orders, and customer-specific data.

By leveraging this unique data set we contribute to the service marketing literature in three ways. First, we extend the existing knowledge about the effectiveness of monetary compensation to an online retailing context by investigating how discount and voucher affect online customers’ post-recovery behavior. This way, we verify if the underlying present bias is also applicable in an e-commerce setting. Second, we utilize actual customer sales data to measure service recovery effectiveness. We analyze how customers’ purchase behavior differs after a complaint depending on the compensation type which goes beyond the often survey-based construct of customer retention. Therefore, we can test the validity of the underlying present bias for real consumer purchase behavior and provide practical implications for managers as we bridge the gap between intentions and behavior. Third, we help to un-

derstand why the same service recovery mechanism sometimes evokes heterogeneous customer reactions (Cambra-Fierro, Melero and Sese, 2015). By exploiting the depth of data that is available to companies in the digital era, we investigate how different customer characteristics influence the effectiveness of discounts versus vouchers. In the remainder of this paper, we first elaborate on the theoretical foundation and hypothesis development of this study, followed by a section that summarizes our data, methodology, and results. We end with a discussion of our results including implications for theory and practice and point to avenues for further research.

2 CONCEPTUAL FRAMEWORK

2.1 The effect of compensation on post-complaint consumer behavior

The importance of service recovery mechanisms has broadly been emphasized as they allow companies to offset failures and restore the relationships to their customers (Maxham and Netemeyer, 2002a; Cambra-Fierro, Melero and Sese, 2015). Previous research uses multiple approaches to cluster and categorize service recovery mechanisms. Davidow (2003) distinguishes between six types of organizational responses to service failures (timeliness, facilitation, redress, apology, credibility, and attentiveness). Following this work, Gelbrich and Roschk (2011) refer in their meta-analysis to compensation, favorable employee behavior, and organizational responses. Lately, Cambra-Fierro, Melero, and Sese (2015) have adopted this approach and cluster service recovery activities along the three dimensions compensation, communications, and timeliness. Of these different recovery options, we focus our research on compensation due to its expected increased relevance in online retailing.

Compensation can be defined as a monetary or cash-equivalent benefit that is provided to customers after a complaint and that usually takes the form of a discount, a replacement, or a repair (Estelami, 2000). Many researchers have demonstrated its effectiveness as a service recovery mechanism (Davidow, 2003; Cambra-Fierro, Melero and Sese, 2015). Grewal, Roggeveen, and Tsiros (2008) find that compensation is an effective mean to restore customers' repurchase intention though only needed if the company is perceived as responsible for the service failure and the failure occurs frequently. Cambra-Fierro, Melero, and Sese (2015) develop a guiding framework for managers that helps to select the right service recovery mechanism in order to increase customer profitability. They find that compensation can raise customer profitability after a service failure if the customer had a weak relationship with the company and suffered an economic failure (Cambra-Fierro, Melero and Sese, 2015). In contrast, however, compensation can be ineffective if the customer had a strong relationship with the company and had experienced a non-economic failure (Cambra-Fierro, Melero and Sese, 2015). The effectiveness of compensation has further been confirmed in a meta-analysis by Roschk and Gelbrich (2014). Their research shows that compensation has a strong positive effect on recovery if the type of compensation is matched to the type of service failure. They further emphasize the importance of monetary compensation as it cannot only offset service failures of the same kind but is also an effective recovery mechanism for other service failures (Roschk and Gelbrich, 2014). In an online context, Kim and Lennon (2011) find that financial compensation is most effective when trying to mitigate customers' negative reactions to stock outs. Harris et al. (2006) also conduct their study in an e-commerce context and show that service recovery is positively related to satisfaction and post-purchase intent and that online customers generally expect lower levels of compensation than offline customers. It can thus be summarized that compensation and especially monetary compensation is an effective recovery mechanism offline as well as online.

It is, however, not yet fully understood how monetary compensation that varies with regard to the timing of remuneration influences subsequent customer behavior (Roschk and Gelbrich, 2014). Researchers distinguish between immediate and delayed compensation. Immediate compensation is tied to the complaint-related purchase, such as a discount on the dinner bill after complaining to the restaurant (Grewal, Roggeveen and Tsiros, 2008). Delayed compensation, in contrast, is tied to a future purchase, such as a voucher that can be redeemed for the next purchase (Goudarzi, Borges and Chebat, 2013). When it comes to immediate versus delayed compensation, companies and customers have different

interests. As Kim and Ulgado (2012) elaborate, companies usually prefer delayed compensation as it postpones the cost of the compensation to the future. Furthermore, customers may be more likely to repatronage the retailer if they have received delayed compensation in form of a voucher that they want to redeem (Kim and Ulgado, 2012). Previous research has also shown that voucher redemption rates vary significantly (Danaher *et al.*, 2015). Consequently, some companies may hope for customers to forget the voucher which will save them the compensation cost entirely.

In contrast, customers generally prefer immediate compensation over delayed compensation (Roschk and Gelbrich, 2014). This preference is founded in standard discounted utility theory and intertemporal choice literature and is commonly referred to as present bias (Roschk and Gelbrich, 2014). According to discounted utility theory people apply discount rates to determine the value of future consumption (Samuelson, 1937). As these discount rates are generally positive, the value of future consumption decreases (Chan and Mukhopadhyay, 2010) which makes rewards linked to future consumption less attractive and leads to a bias for present consumption (Ainslie, 1975; Zauberman, 2003; Pyone and Isen, 2011). In addition, delayed rewards are linked to greater uncertainty which consumers generally try to avoid, again strengthening the preference for immediate rewards (Kim and Ulgado, 2012; Roschk and Gelbrich, 2014). For example, Mischel, Grusec, and Masters (1969) show that immediately available rewards are preferred by people of all age and that the perceived value of a reward diminishes as the delay for attainment increases. Similarly, Kim and Ulgado (2012) conclude that immediate compensation leads to higher satisfaction and repatronage intentions when the experienced service failure is severe. Still, the recommendation for immediate compensation is not as straightforward since researchers have identified various exceptions (Frederick, Loewenstein and O'Donoghue, 2002). Roschk and Gelbrich (2014) find that immediate monetary compensation is more effective when companies aim at restoring customer satisfaction. If, in contrast, customer loyalty is the overall objective, then companies may consider delayed compensation in situations where the customer needs to be compensated for a flawed service or good (Roschk and Gelbrich, 2014). Chan and Mukhopadhyay (2010) assess customers' preferences for immediate versus delayed compensation. They find that consumers value delayed consumption higher if they can make their own choices. Similarly, Loewenstein (1987) shows that consumers prefer delayed consumption if the outcome is pleasant or desirable, as in his study a kiss from a movie star. This conclusion is also supported by Nowlis, Mandel, and McCabe (2004) who find that a delay can increase consumption enjoyment for pleasurable products. These findings already underline that there are certain situations in which immediate compensation is not necessarily the best recovery mechanism as suggested by traditional theoretical foundations.

To the best of our knowledge, there have not been any attempts to further investigate the effect of present bias on actual customer purchase behavior following a service failure. Further none of the studies have been conducted in an online retailing context. Only recently, researchers have begun to utilize real sales data to derive outcome variables in service literature (Goudarzi, Borges and Chebat, 2013; Knox and van Oest, 2014). We apply this new methodological approach to the research questions in this paper. From past research we know that satisfaction is positively associated with both loyalty (Shankar, Smith and Rangaswamy, 2003) and customer retention (Rust and Zahorik, 1993). This emphasizes the implicit conflict that exists when delayed compensation, on the one hand, has been found to be negatively linked to satisfaction (Roschk and Gelbrich, 2014), while, on the other hand, it is potentially positively associated with customer retention (Kim and Ulgado, 2012). We will address this gap by analyzing the effect of immediate versus delayed compensation on actual post-complaint consumer purchase behavior. Though previous research findings are mixed, we follow standard discounted utility theory and hypothesize:

H1: Following a complaint, immediate compensation has a stronger positive effect on customer purchase behavior than has delayed compensation.

2.2 Customer characteristics and the effect of compensation

Early on, researchers have identified the substantial impact of customer characteristics (Fry, 1971; Horton, 1979) on consumer purchase behavior and decision making. In recent years, this work has been extended to consumer behavior in a more technology-oriented and online-focused environment (Dabholkar and Bagozzi, 2002; Bosnjak, Galesic and Tuten, 2007; Ranaweera, Bansal and McDougall, 2008). Still, only limited insights exist regarding the role of customer characteristics in service recovery. While past research has investigated the role of service failure characteristics (Kim and Ulgado, 2012; Roschk and Gelbrich, 2014), consumer choice (Chan and Mukhopadhyay, 2010), and company complaint handling (Goudarzi, Borges and Chebat, 2013) in the context of compensation, to the best of our knowledge, no research has assessed the role of customer characteristics. Given that new information systems provide companies with an increasing breadth of customer data it is, however, relevant for researchers and practitioners to understand how firms can leverage this information to their advantage and how to identify the best compensation type for each customer.

2.2.1 Purchase frequency

Researchers have broadly acknowledged that consumer behavior is significantly driven by past behaviors and habits (Ouellette and Wood, 1998; Jolley, Mizerski and Olaru, 2006) though some opposing views exist (e.g., Ajzen, 2002). Ouellette and Wood (1998) conduct a meta-analysis and identify past behavior as a main predictor of future behavior. In 2006, Jolley, Mizerski, and Olaru (2006) find that habit, measured as the frequency of past behavior, has a stronger effect on customer retention in an online gambling context than has satisfaction. Further, Limayem, Hirt, and Cheung (2007) support the hypothesis that habit positively moderates the relationship between intention and behavior in an information science context and that habit, again, is formed based on frequency of past behavior. Recently, Arce-Urriza, Cebollada, and Tarira (2017) attempt to investigate the interplay of past consumer purchase behavior and a company's marketing activities. They investigate the moderating effect of purchase frequency, measured as the number of purchases within a certain period, on customer reactions to promotions offline and online. They find that high-frequency shoppers react more positively to promotions even though the effect was only significant for offline shoppers (Arce-Urriza, Cebollada and Tarira, 2017).

In the service failure compensation literature, however, research considering consumers' past behavior is rather scarce even though researchers have called for investigations in this area (Kim and Ulgado, 2012). This is especially surprising since purchase frequency has been confirmed to be positively related to revenues (Hwang and Park, 2016) and firm profitability (Borle *et al.*, 2005). Consequently, companies should have a high interest in understanding and keeping these customers after a service failure. Kim and Ulgado (2012) suggest that consumers who frequently patronize a certain service provider may perceive delayed compensation as more attractive since they will have more future options to redeem the voucher. This argumentation is in line with research on loyalty and reward programs. Hartmann and Viard (2008) state that frequent customers who receive a reward in form of a voucher for a next purchase will perceive the option value of the reward as greater because they will be able to use it more quickly. We address this research gap and include purchase frequency in our analysis. Adopting the view by previous researchers that customers with higher previous purchase frequency obtain greater value from delayed compensation, we hypothesize:

H2: The positive effect of immediate compensation on change in customer purchase behavior is negatively moderated (attenuated) by purchase frequency.

2.2.2 Price orientation

Price orientation, also referred to as price consciousness or price sensitivity, can be defined as the "degree to which consumers focus exclusively on paying low prices" (Lichtenstein, Ridgway and Netemeyer, 1993, p. 235). Price-oriented customers are mainly interested in finding the lowest possible price and price is their main purchase heuristic that helps to decide between different product alternatives (Ofir, 2004; Koschate-Fischer, Cramer and Hoyer, 2014). To get a bargain, price-oriented

customers are willing to invest time and effort in price comparisons and to forego convenience (Brown, Pope and Voges, 2003). Based on this definition, researchers have inferred that the price-oriented consumer focuses on the negative element of price and perceives a high price rather as a sacrifice to be made (Lichtenstein, Bloch and Black, 1988) than as a signal for quality (Rao and Monroe, 1989; Völckner and Hofmann, 2007) or prestige (Lichtenstein, Ridgway and Netemeyer, 1993). Consequently, price orientation is negatively related to price acceptability (Lichtenstein, Bloch and Black, 1988; Ofir, 2004) which is defined as the range of prices that customers consider acceptable (Rao and Sieben, 1992). While some researchers have found that online shoppers are generally less price-sensitive (Chu, Chintagunta and Cebollada, 2008; Chu *et al.*, 2010), other research shows that online shoppers can well be price-conscious (Chevalier and Goolsbee, 2003; Shi and Zhang, 2014). In order to avoid paying high prices, price-oriented customers have been found to be more likely to use coupons (Narasimhan, 1984; Babakus, Tat and Cunningham, 1988; Tat, 1994). Following these findings, Tat and Schwepker (1998) hypothesize a positive relationship between customers' price orientation and rebate redemption. Their survey outcomes directionally support this relationship though the results are not significant. In addition, they find that price-conscious consumers are more satisfied when redeeming rebates.

We want to apply the existing knowledge to the service recovery context and consumers' preference for different compensation types. Following the findings by previous researchers, price-oriented consumers may perceive higher levels of satisfaction when they receive a voucher as compensation because a voucher already promises them a bargain for their next purchase with the retailer. In addition, price-oriented consumers are more likely to redeem coupons which underlines that vouchers not only stimulate their satisfaction but also affect their actual purchase behavior. Based on this argumentation we hypothesize:

H3: The positive effect of immediate compensation on change in customer purchase behavior is negatively moderated (attenuated) by price orientation.

3 RESEARCH METHOD

3.1 Data

Our data set contains field data that was obtained in cooperation with a leading European e-commerce retailer selling shoes and apparel in its own online shop. The data set covers 14 different European markets and combines three data blocks. First, complaint and compensation information for complaints that have been filed between January and May 2016. Second, transactional data covering one year before and after the complaint to assess a customer's change in purchase behavior. Third, historical data on a customer's sales and complaint history.

The retailer's customer care management system allows for a very granular level of information. Once a customer contacts the retailer the customer care agent takes on the case. In the complaint handling process the agent not only interacts with the customer to resolve the problem but also categorizes the case in the retailer's system into one of over 250 different complaint reasons. Further, the agent notes if and what kind of compensation has been provided to the customer. Every complaint case is linked to a specific customer profile and order number which facilitates a detailed analysis on who has complained when in what regard and which action has been taken by the customer care team to compensate the customer.

When a customer complains to the retailer the customer care agent can offer a compensation to offset for the failure. Two types of compensation exist. First, the agent can offer the customer an immediate discount on the order value. For example, if a customer has complained because a clothing item is somewhat defective, the agent can provide immediate compensation by reimbursing the customer for a part of the item value. Second, the agent can offer the customer a coupon or voucher valid for the next purchase. In this case, the customer does not receive a discount on the order that triggered the complaint but rather receives a coupon for any subsequent purchase with the retailer. For our research, we

included eight complaint reasons for which both compensation types occurred. We further limited the complaint period and included all complaints that had been filed between January and May 2016 as this is the most recent data set that still allows us to include one year of customers' post-complaint shopping behavior. Based on these restrictions we end up with a total of 24,781 unique complaint and recovery cases filed by distinct customers.

3.2 Measures

We define our variables following previous literature in the field. Our outcome variable *change in consumer purchase behavior* goes beyond the often used customer retention variable that purely measures if customers return after the failure (e.g., Hoffman, Kelley and Rotalsky, 1995; Siu, Zhang and Yau, 2013). Recent literature has extended this view and considers also the resulting sales which allows to draw more meaningful conclusions for managers regarding the financial implications (Hansen and Singh, 2008; Goudarzi, Borges and Chebat, 2013). We combine customers' return behavior with their spending behavior during these return visits and define the outcome variable as percentage change in customer expenditures after the complaint (Hansen and Singh, 2008; Goudarzi, Borges and Chebat, 2013). We take the deviation between a customer's total shopping expenditure with the retailer within one year after the complaint compared to one year before the complaint. We then divide this deviation by the expenditure before the complaint. This way, we are able to assess the change in consumer purchase behavior. We choose a time frame of one year before and after the complaint to account for potential seasonality cycles that may affect customer shopping behavior. In total, we include 452,338 orders of 24,781 customers. For our predictor variable *compensation type*, we distinguish between immediate compensation (discount) and delayed compensation (voucher). We code the compensation cases 0 for delayed compensation and 1 for immediate compensation with 22,586 being coded as delayed compensation and 2,195 cases being coded as immediate compensation. Even though the sample size for each compensation type differs the samples are still sufficiently large for our analyses. Our first moderator *purchase frequency* is defined as a customer's number of orders within one year before the complaint (Chu *et al.*, 2010). We limit our data set to one year before the complaint to assess a customer's most recent interactions with the retailer that have highest relevance for current customer preferences. Our second moderator *price orientation* we define as the inversion of a customer's category-weighted average price paid per category divided by the average price all customers paid in this category (Koschate-Fischer, Cramer and Hoyer, 2014). For this measure we include the customer's entire shopping history with the retailer up to the month of the complaint as price orientation is a quite stable consumer characteristic (Juhl, Fenger and Thøgersen, 2017). We define product category as all product items that share a common functionality such as women boots, women jeans, women skirts, or women dresses.

We include multiple covariates in our research model to control for complaint characteristics and a customer's prior relationship with the retailer. Since our predictor variable is a dummy-coded binary variable, we need to control for the *compensation value* which has been found to affect customer responses to service failures (Roschk and Gelbrich, 2014; Gelbrich, Gäthke and Grégoire, 2016). To make compensation values comparable, we measure both compensation types in percent. We define immediate compensation as discount over total order value and delayed compensation as percentage voucher given to the customer. Further, research has shown that *failure severity* has a significant impact on customer reactions to service failures as well as recovery efforts (Hess, 2008; de Matos *et al.*, 2009; Sarkar Sengupta, Balaji and Krishnan, 2015; Basso and Pizzutti, 2016). We conducted a pre-test on a 7-point Likert scale following the measures developed by Hess, Ganesan, and Klein (2003). The scores are included as covariates to control for severity differences between the eight different complaint reasons (Roschk and Gelbrich, 2014). Research shows that it is important to account for a customer's prior experience with the retailer (Smith, Bolton and Wagner, 1999; Grégoire and Fisher, 2006). As a customer's tolerance for failures may decline with the number of experienced failures and thus, compensation may become less effective, we include the covariate *complaint history* which is measured as the absolute number of customer care contacts within one year before the complaint.

Lastly, we include a customer's *average basket size* in the year before the complaint as a control because prior research has emphasized that purchase volume is associated with store retention (Knox and Denison, 2000; Mägi, 2003). Table 1 illustrates the descriptive statistics for our variables.

Variables	M	SD
PurchaseChange	0.32	2.26
PriceOrientation	1.29	34.18
PurchaseFrequency	8.60	13.18
CompensationValue	0.16	0.08
FailureSeverity	4.58	0.46
ComplaintHistory	1.04	3.02
AvgBasketSize	89.22	114.38

Total number of observations 24,781; M=Mean, SD=Standard deviation

Table 1. Descriptive statistics for all continuous variables.

3.3 Regression procedure

We investigate the hypothesized relationships applying an ordinary least square log-log regression thereby following related research in the field (Roggeveen *et al.*, 2015). This approach also allows for easier interpretation of results as all coefficients represent elasticities that can be interpreted in line with standard economic theory (Granados, Gupta and Kauffman, 2012). We standardize all continuous predictor variables. We first test our main model which assesses the underlying relationship of compensation type on change in consumer purchase behavior.

$$\begin{aligned} \text{Log(PurchaseChange)}_i = & \beta_0 + \beta_1 \cdot \text{CompensationType}_i + \beta_2 \cdot \log(\text{CompensationValue})_i \\ & + \beta_3 \cdot \log(\text{FailureSeverity})_i + \beta_4 \cdot \log(\text{ComplaintHistory})_i \\ & + \beta_5 \cdot \log(\text{AvgBasketSize})_i + \beta_6 \cdot \log(\text{PriceOrientation})_i \\ & + \beta_7 \cdot \log(\text{PurchaseFrequency})_i + \varepsilon_i \end{aligned}$$

where $i (=1, \dots, 24,781)$ represents the individual customer that has filed a complaint with the retailer and received a compensation in return. *PurchaseChange* stands for the customer's change in purchase behavior after the complaint in percent. *CompensationType* is a dummy variable with 0 for voucher and 1 for discount. *CompensationValue* stands for the percentage value of the compensation received. *FailureSeverity* describes the severity of the complaint reason. *ComplaintHistory* represents the number of complaints the customer had filed in the preceding year. *AvgBasketSize* is the customer's average basket size in the year before the complaint. *PurchaseFrequency* and *PriceOrientation* are the moderators in hypotheses 2 and 3 that are added as covariates in the main model.

In model 2 we assess the moderating effect of purchase frequency on the relationship between compensation type and change in customer purchase behavior. All other variables in the model remain the same.

$$\begin{aligned} \text{Log(PurchaseChange)}_i = & \beta_0 + \beta_1 \cdot \text{CompensationType}_i + \beta_2 \cdot \log(\text{CompensationValue})_i \\ & + \beta_3 \cdot \log(\text{FailureSeverity})_i + \beta_4 \cdot \log(\text{ComplaintHistory})_i \\ & + \beta_5 \cdot \log(\text{AvgBasketSize})_i + \beta_6 \cdot \log(\text{PriceOrientation})_i \\ & + \beta_7 \cdot \log(\text{PurchaseFrequency})_i \\ & + \beta_8 \cdot \text{CompensationType}_i \cdot \log(\text{PurchaseFrequency})_i + \varepsilon_i \end{aligned}$$

In model 3, we replace purchase frequency by price orientation to analyze the interaction effect.

$$\begin{aligned} \text{Log(PurchaseChange)}_i = & \beta_0 + \beta_1 \cdot \text{CompensationType}_i + \beta_2 \cdot \log(\text{CompensationValue})_i \\ & + \beta_3 \cdot \log(\text{FailureSeverity})_i + \beta_4 \cdot \log(\text{ComplaintHistory})_i \\ & + \beta_5 \cdot \log(\text{AvgBasketSize})_i + \beta_6 \cdot \log(\text{PriceOrientation})_i \\ & + \beta_7 \cdot \log(\text{PurchaseFrequency})_i \\ & + \beta_9 \cdot \text{CompensationType}_i \cdot \log(\text{PriceOrientation})_i + \varepsilon_i \end{aligned}$$

Using the Durbin-Watson test we see that the test statistic for all models is between 1.5 and 2.5. Thus, we can confirm that the residuals are independent and that we do not have an issue with autocorrelation in the data set (Field, 2009). For each predictor variable, we determine the variance inflation fac-

tor (VIF) for the main model. All VIFs are between 1.0 and 1.5 and thus well below the recommended threshold of 10 which confirms that we do not have multicollinearity in the data set (Hair *et al.*, 2009). We also check for outliers and influential cases in the data set. In all three models, less than 5% of all observations have standardized residuals larger than the absolute value of 1.96 (Field, 2009). Cook’s distance further confirms that there are no influential cases (Cook and Weisberg, 1982). Further, all correlation coefficients are substantially below the threshold of 0.8 (Kennedy, 2008). In total, we conclude that our models fit the observed data well. To ensure that we do not have heteroscedasticity in our models, we use the studentized Breusch-Pagan-test (Breusch and Pagan, 1979; Koenker, 1981). We need to reject the null hypothesis of homoscedasticity as the test is significant ($p < .001$). We therefore apply Huber-White robust standard errors to account for heteroscedasticity as has been done by other researchers (Clemons, Gao and Hitt, 2006; Gruschow, Kemper and Brettel, 2015; Pick *et al.*, 2016). The significance levels of our analyses remain the same except for the interaction effect of price orientation which is reduced from $p < .01$ to $p < .05$.

3.4 Results

We use R-Studio version 1.0.143 to investigate the hypothesized relationships. Table 2 displays the regression results. The results of our first model support H1. We find that immediate compensation is associated with a positive change in consumer purchase behavior (.25, $p < .001$). Keeping all other variables constant, we can infer that switching from delayed to immediate compensation increases the expected percentage change in geometric mean by 27.86%.

Investigating the interaction effect of purchase frequency, the results show that purchase frequency has a negative moderating effect (-.06, $p < .001$) on the relationship between compensation and change in consumer purchase behavior. Therefore, the positive effect of discount over vouchers becomes weaker as a customer’s purchase frequency increases. This result supports H2. To understand the effect in more detail we plot the interaction effect following an approach used by previous leading publications (Cohen and Cohen, 1983; Grégoire and Fisher, 2006). Figure 1 depicts the interaction. We assess purchase frequency at the values of “- 1 SD” and “+1 SD” where SD stands for standard deviation. For compensation type we work with a binary coding as before. Figure 1 shows that frequent customers react more positively to vouchers than less frequent customers. This relationship is the opposite for discounts to which less frequent customers react more positively than frequent customers. Overall, we find that discounts have a more positive effect on customer purchase behavior than vouchers independently of the customer’s purchase frequency. We conduct a simple slope test which confirms that

Variable	Model 1: Main effect		Model 2: Interaction effect purchase frequency		Model 3: Interaction effect price orientation	
	β		β		β	
Intercept (β_0)	.64 ***	(.00)	.64 ***	(.00)	.64 ***	(.00)
CompensationType (β_1)	.25 ***	(.01)	.26 ***	(.01)	.25 ***	(.01)
LogCompensationValue (β_2)	.00	(.00)	.00	(.00)	.00	(.00)
LogFailureSeverity (β_3)	-.01 **	(.00)	-.01 **	(.00)	-.01 **	(.00)
LogComplaintHistory (β_4)	.01 ***	(.00)	.01 ***	(.00)	.01 ***	(.00)
LogAvgBasketSize (β_5)	-.35 ***	(.00)	-.35 ***	(.00)	-.35 ***	(.00)
LogPriceOrientation (β_6)	-.11 ***	(.00)	-.11 ***	(.00)	-.11 ***	(.00)
LogPurchaseFrequency (β_7)	.01 ***	(.00)	.02 ***	(.00)	.01 ***	(.00)
CompensationType · LogPurchaseFrequency (β_8)			-.06 ***	(.01)		
CompensationType · LogPriceOrientation (β_9)					.03 *	(.02)

. = $p < .1$; * = $p < .05$; ** = $p < .01$; *** = $p < .001$. Notes: For *CompensationType*, ‘Voucher’ is selected as reference category. Huber-White robust standard errors in parentheses.

Table 2. Regression results.

the compensation type significantly affects post-complaint customer behavior (.32, $p < .001$ for low purchase frequency and .20, $p < .001$ for high purchase frequency).

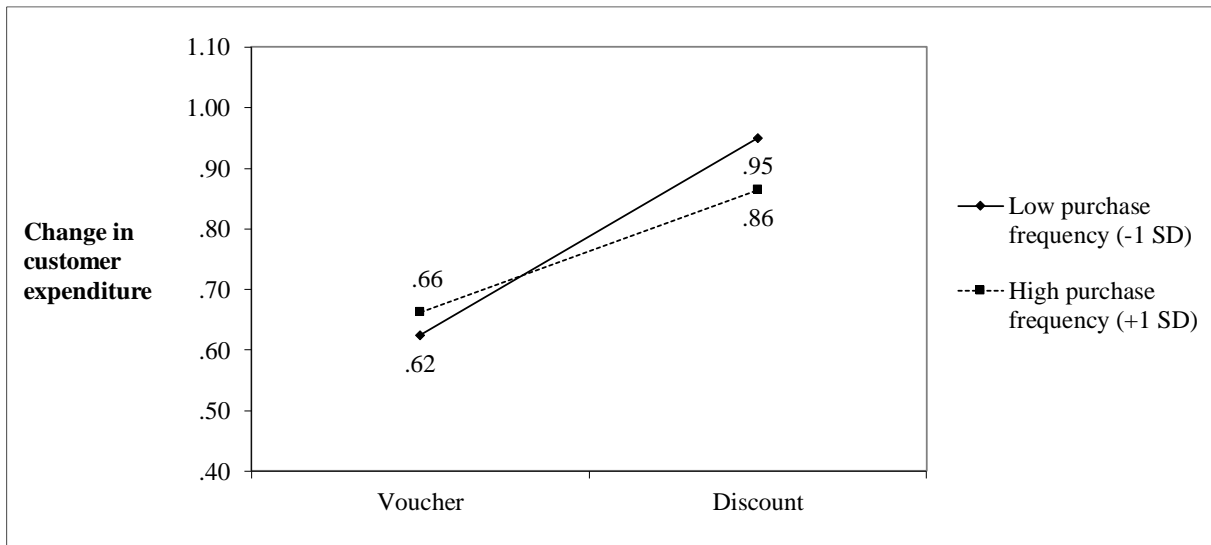


Figure 1. Interaction effect of purchase frequency and compensation type.

The results for model 3 are again summarized in table 2. We find that price orientation has a positive moderating effect (.03, $p < .05$) which implies that the positive effect of discount over voucher is even stronger for highly price-oriented customers. This result contradicts H3. We again plot the interaction effect (figure 2). The graph illustrates that price-oriented customers react more negatively to vouchers than customers with a low level of price orientation. The same effect is found for discounts. Consequently, both compensation types are less effective for price-conscious customers. We conduct a simple slope test to assess if compensation type significantly affects change in customer expenditure. The results confirm that the effect is significant for both, low price orientation (.21, $p < .001$) and high price orientation (.28, $p < .001$).

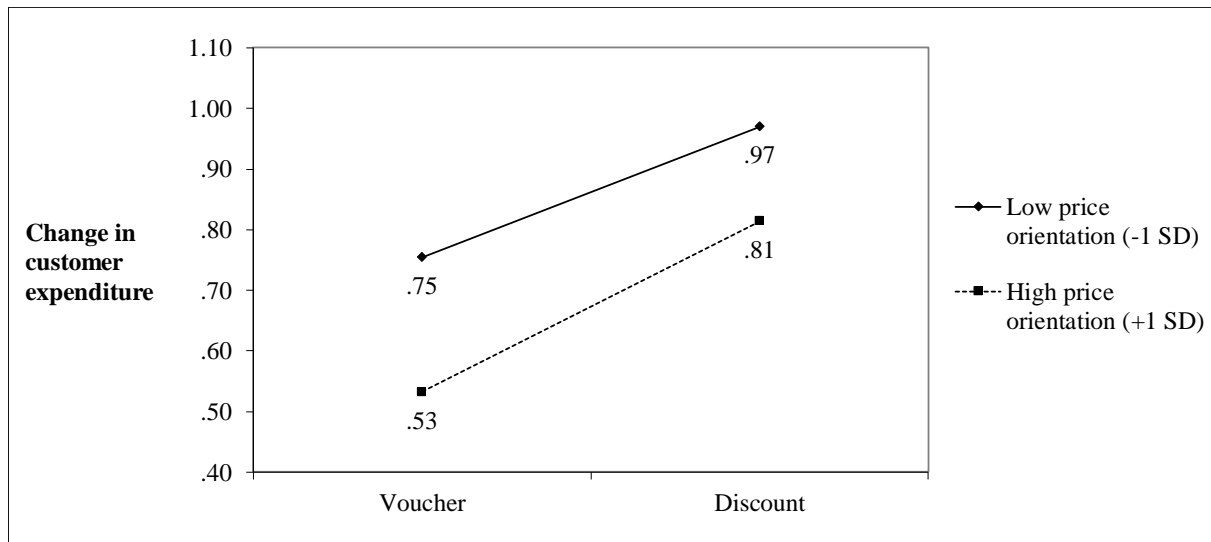


Figure 2. Interaction effect of price orientation and compensation type.

We are aware that there is a potential risk of endogeneity in the data set since customer characteristics may influence the compensation choice. We already try to control for the most important factors in our model by including customers' prior complaint and shopping behavior in our models. An additional robustness check on a reduced data set of 16,820 customers for which customer age and gender is

available shows that these variables do not impact the results and the significance levels for all hypothesized relationships remain the same.

4 DISCUSSION

Our research investigates the effect of immediate versus delayed compensation on actual consumer purchase behavior after a complaint in an e-commerce context. We further assess the impact of different customer characteristics that moderate the relationship. We find that immediate compensation in form of a discount on the order value has a stronger positive effect on customer purchase behavior than has delayed compensation in form of a voucher that can be redeemed for a future purchase. Moreover, the results show that customers' purchase frequency attenuates the effect while price orientation reinforces the relationship.

4.1 Theoretical implications

By testing the effect of compensation types that differ with regard to the time of remuneration on actual post-complaint consumer purchase behavior we advance the existing present bias literature. Researchers so far have found that immediate compensation has a stronger positive effect on customers' emotions and behavioral intentions (Kim and Ulgado, 2012; Roschk and Gelbrich, 2014) while delayed compensation is positively related to customer loyalty (Roschk and Gelbrich, 2014). However, it remained unclear if the present bias holds for actual consumer purchase behavior. We address this gap and report a positive effect of immediate compensation which provides strong support that the present bias affects actual consumer behavior. Moreover, the results are based on an extensive secondary data set which further underlines the relevance of present bias theory as its effect has now been proven with diverse methodological approaches.

Our research further transfers the existing knowledge to the less investigated e-commerce environment. In online retailing, interpersonal interaction can only play a secondary role in recovery management due to the limited personal contact between retailer and customer. Thus, monetary compensation becomes more important and it is highly relevant to understand if the traditional theoretical concepts hold true in an online context. Our results imply that customers' preferences for immediate compensation remain stable in an e-commerce environment. Potentially, customers' present bias is even stronger in online than offline settings as online retailing is still perceived as riskier in certain regards (Biswas and Biswas, 2004) and customers might therefore prefer a safe immediate discount over a voucher. In this situation, online companies can leverage immediate compensation as a signal of good customer service thereby building trust and loyalty. Furthermore, e-commerce companies benefit from the advances in information systems and maintain completely digital customer profiles that track all actions including, but by far not limited to, purchases and complaints. Our research takes advantage of these new data opportunities and combines them with marketing research questions thereby bringing the two disciplines closer together. With information systems becoming a vital and integral part of every function within a company (Baars and Kemper, 2008), we believe that it is relevant for researchers to reflect this development and focus more on cross-discipline work.

In addition, the findings of this study shed light on the role of customer characteristics in service recovery management, a topic that has received limited attention in literature so far. Past research has investigated the role of service failure characteristics (Kim and Ulgado, 2012; Roschk and Gelbrich, 2014), consumer choice (Chan and Mukhopadhyay, 2010), and company complaint handling (Goudarzi, Borges and Chebat, 2013) but has not focused on customer characteristics as a driver of compensation effectiveness. We show that purchase frequency attenuates the positive effect of immediate compensation on consumer purchase behavior. In line with our hypothesis, frequent customers react more positively to coupons which is potentially because they have a higher likelihood of redeeming the coupon as they visit the store more often. Our study further assesses the role of customer price orientation. We find that price orientation reinforces the positive effect of immediate compensation which contradicts our hypothesis. In H2, we argue that price-conscious consumers value vouchers higher because previous research has demonstrated that they are more likely to redeem vouchers and

receive higher satisfaction from the redemption. Our results, however, indicate that a post-complaint price reduction in form of a discount increases their positive attitude towards the retailer despite the preceding failure resulting in higher post-recovery purchase volume. This may be because price-oriented customers use price as their main purchase decision criterion (Koschate-Fischer, Cramer and Hoyer, 2014) and are thus delighted by the suddenly lower price. The findings help researchers to better understand the role of price orientation in service recovery management and provide insights for further research.

4.2 Managerial implications

Previous research has shown that service failures and resulting complaints negatively affect company performance (Zeelenberg and Pieters, 2004; Surachartkumtonkun, Patterson and McColl-Kennedy, 2013). Consequently, it is relevant for managers to understand how they can mitigate the negative effects and restore the customer relationship. One challenge for managers in this context is how to best and most effectively invest the available service recovery resources (Cambra-Fierro, Melero and Sese, 2015). By assessing the sales impact of different compensation types, our research provides valuable guidance for managers in online retailing.

Our findings indicate that immediate compensation leads on average to higher customer expenditure after a complaint than delayed compensation. Consequently, e-commerce managers should select discounts as their compensation of choice when they aim at increasing purchase volume. Nonetheless, it needs to be considered that discounts cause higher costs for firms as they are directly subtracted from revenues. Vouchers, in contrast, are related to future cost (Kim and Ulgado, 2012) and not always redeemed by customers (Danaher *et al.*, 2015) leading to lower total costs. From a profitability point of view, it may thus make sense for managers to balance the use of discounts and vouchers. By including customer characteristics in our research, we intended to offer guidance to managers regarding the optimal target customer group for vouchers. We find that less price-oriented and frequent customers react more positively to vouchers than price-oriented and non-frequent customers which serves as a first indication. This paper further provides a solid methodology for e-commerce managers how to assess the effectiveness of compensation for different customer segments. We strongly encourage managers to replicate our approach and apply our methodology to their customer base as the results may differ significantly depending on industry, nationality, or consumption situation. Depending on the outcome, managers might be able to identify customer segments that react more positively to vouchers. They could further enrich the analysis by adding a company's estimated cost per compensation type and optimizing the calculation for profit.

To utilize the information in the best possible way, the resulting customer segmentation and the recovery implications must be made available to the customer care agents who are in contact with the customers. To this end, companies should establish a comprehensive customer data warehouse that includes all relevant customer information and is at the core of any customer relationship management (CRM) system (Baars and Kemper, 2008). Researchers have identified excellent CRM systems as a competitive advantage as they allow firms to customize their responses to individual customers (Alferoff and Knights, 2008), to offer better customer service (Karimi, Somers and Gupta, 2001), and to ultimately drive revenues (Kim and Mukhopadhyay, 2011). A high-quality and well-implemented CRM system provides customer care agents with a digital overview of all necessary information including specific instructions that enable them to answer customer requests fast and accurately (Choi, 2018). Thus, when customer care agents need to handle a complaint, the CRM system can recommend them the adequate compensation type depending on the respective customer profile thereby directly helping to improve customer service and maintain revenues after a service failure. The implementation of an excellent CRM system, however, is a long-term project for any company and needs sufficient resources and commitment from all parties. From a technological point of view, companies need to make sure that the new system is compatible with the existing IT infrastructure (Chuang and Lin, 2013), that it is configured in close alignment with the customer care agents (Gefen and Ridings, 2002), and that the data base is constantly updated (Karimi, Somers and Gupta, 2001). Moreover, re-

search has shown that substantial management commitment (Karimi, Somers and Gupta, 2001) and a common understanding by managers and customer care employees is required (Choi, 2018). Despite the complexity of implementing a CRM system, our research illustrates yet another use case where its benefits are enormous.

4.3 Limitations and avenues for further research

While our work contributes significantly to the current literature there are also some limitations to it that call for further research. First, our methodological approach to use secondary transactional data offers us the opportunity to draw relevant conclusions for theory and practice and it allows managers to easily apply our approach to their daily work. At the same time, it does not allow us to understand customers' underlying motivations. To fully comprehend customers' reactions to compensation it is relevant to capture their emotions caused by the failure because feelings such as anger, disappointment, or perceived betrayal significantly affect service recovery (Grégoire and Fisher, 2008; Grégoire, Tripp and Legoux, 2009). Moreover, these emotions do not only influence customers' reactions but are likely to also influence customer care agents' behavior during the complaint handling process. If a customer calls and is furious about the occurred failure the customer care agent may react differently than if the customer calls and is understanding and calm. While we try to control for as many influencing factors in our models as possible, we cannot fully rule out that there are additional aspects that influence customer care agents' behavior. Therefore, we highly encourage research that combines secondary sales data with survey results from either customers or customer care agents and that addresses these open points. Second, our study is conducted in a single industry, the fashion industry. While this is a valuable extension of existing research that mainly covers the hotel and restaurant industry, it still does not allow us to generalize our findings for all industries. We, therefore, encourage research in settings characterized by different product involvement or purchase involvement as these factors are expected to influence customers' reactions to failures and recovery. Third, our study is among the first to assess the effectiveness of different compensation types from a company's point of view, i.e., by using change in customer expenditure as outcome variable. As already discussed, there is potential to further refine this approach by also including a company's cost associated with the different compensation types. This would allow managers to take even better-informed decisions and to better assess the profitability implications of their work. Lastly, our research has demonstrated that price-oriented and non-frequency customers react less positively to compensation. Further research should, thus, explore which compensation types are optimal to retain these customer groups.

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