

The Consumer in Product-Crisis Management

The Impact of Different Dimensions of Product Recall Strategies on Consumer Brand Loyalty and the Moderating Role of Risk Aversion

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| Title | The Consumer in Product-Crisis Management |
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| Author | Rosanne Kuiper |
| Student number | S4329643 |
| Supervisor | Prof. Dr. A.C.R. van Riel |
| Second Examiner | Dr. C. Essers |
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Radboud University



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Chapter 1: Introduction

1.1 Product-Harm Crises

“No one is so brave that he is not disturbed by something unexpected” (Lewis, 2013). In literature and management practice, topics like growth through acquisition, innovation and mergers receive much attention (Campbell, Alexander, & Whitehead, 2014). Although the main concern in literature and management practice seems to be about growing, flourishing and prospering, there is another side to the coin as well. What if something unexpected happens? Product-harm crises are good examples of unforeseen events. They are defined as well-publicized incidents of defective or dangerous products (Dawar & Pillutla, 2000; Siomkos & Kurzbard, 1994). How to act in order to limit damage when facing a product-harm crisis might not be the priority of any manager or entrepreneur, but it is clearly relevant for long-term organizational survival.

Firms confronted with a product-harm crisis have to prepare for a challenge, since crises often bring negative publicity with them (Griffin, Babin, & Jill, 1991). They do not only take up many firm resources but can also cause reputational damage. Recent well-known examples are the Japanese air bag maker Takata Corporation and discount store retailer Target. Takata Corporation went bankrupt in June 2017 after facing high costs due to the recall of 100 million inflators. The inflators were used to fill up air bags but could explode. They caused the death of at least 17 people worldwide and many injuries (Yoshida & Murai, 2017). Target, in turn, had to recall 560,000 water-absorbing toys for small children. When swallowed, the toys could expand and cause obstructions. No actual injuries or accidents were reported (Gatewood, 2017). Target is still operating in the market. These two examples are only a fraction of worldwide product-harm crises.

Causes for a crisis are diverse. Firms can for instance fail to meet mandatory safety standards, experience difficulties to show compliance with voluntary standards adopted by the industry or products contain defects which bear unreasonable consumer risks of serious injuries, or even death (Chen, Ganesan, & Liu, 2009). A product-harm crisis inevitably calls for a company response, which is often a product recall. Recalls are not as rare as one might think. The Organization for Economic Co-operation and Development (OECD) manages a database with information on product recalls being issued around the world. The platform includes information on mandatory and voluntary consumer product recalls which were issued by a governmental body and were made publicly available. In 2017 alone, 3,344 registrations were counted (OECD, 2018).

Although research has shown that product-harm crises and recalls can negatively influence performance measures like firm reputation, sales levels or financial value for shareholders (Siomkos & Kurzbard, 1994), how a product recall is conducted can influence the eventual outcome of a product-harm crisis. A recall can, for instance, be initiated voluntarily by an organization or more mandatory by safety commissions. The organization can take full responsibility or try to put blame on another party.

In the past, attention for different types of recall strategies has been limited and findings differ. Dawar and Pillutla (2000) argue that a more proactive, responsive recall strategy has the ability to attenuate the negative effects of a product-harm crisis on brand equity and consumer perceptions. Chen et al. (2009) found in turn that a proactive response results in negative signaling towards investors and can have a negative influence on firm value. Since there has been little attention for the effects of product recall management on consumer perceptions (Dawar & Pillutla, 2000), this study takes a consumer perspective and investigates the influence of different product recall strategies on consumer loyalty.

Different product recall strategies might not be the only factor influencing the outcomes of a product-harm crisis. Different consumer characteristics such as brand commitment (Ahluwalia, Burnkrant, & Unnava, 2000) have been found to moderate the relationship between a recall and recall outcomes. Not all consumer characteristics have, of course, been studied yet. In this study, the influence of risk aversion is taken into account. Risk aversion is a personality trait that has been found to affect consumer behavior under specific circumstances, for instance in the case of online shopping (Forsythe & Shi, 2003) or bargaining (Murnighan, Roth, & Schoumaker, 1988). It is therefore considered interesting to examine whether risk aversion also plays a role in product-harm crises.

1.1.1 Research Question and Aim of the Study

Resulting from the above the aim of this research is to investigate how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the individual consumer. An answer to the research question will be provided by developing a framework based on an extensive literature review which will then be tested in an experimental survey design.

1.2 Research Motivation

1.2.1 Business Economic Motivation

Research in the field of product-harm crises and specifically research on product recalls is of considerable importance for management practice for a variety of reasons. First of all, Berman forecasted already in 1999 that product recalls would occur more often in the future. The amount of recalls increases because of more globalization of production, greater complexity of products, greater consumer demand for product quality and safety and because of closer monitoring by both firms and government agencies (Berman, 1999). In 2017, the OECD reported more registrations (3,344) of product recalls than ever before (OECD, 2018). Such a widespread phenomenon requires attention from both scholars and managers.

Secondly, during a product-harm crisis, managers find themselves under intense pressure to come up with solutions. According to Siomkos & Kurzbard (1994), that is because the assumption is that “quick deployment of countervailing forces tends to curtail significant losses” (p. 30). Despite the

potentially destroying effects of crises, firms fail to prepare for them (Pearson & Clair, 1998). Their responses are at best ambivalent (Mitroff & Pauchant, 1990). Research examining the best way to respond to a product-harm crisis is therefore essential, since the corporate response appears to be critical for variables such as sales levels and brand loyalty (Dawar, 1998).

Thirdly, the mentioned increased globalization results in products which are sold all over the world in different cultural contexts. Just like individual firms adapt their global product lines to local uses and cultural differences, the same might work for a product recall strategy. There is evidence supporting the assumption that consumer decision-making styles differ across nations (Durvasula, Andrews, Lysonski, & Netemeyer, 1993). Specific consumer characteristics could therefore influence the outcomes of a recall: do consumers attribute responsibility for the recall to the organization and forgive them or not? By investigating risk aversion as a moderating variable, one of these consumer characteristics is taken into account. This might provide fruitful insights for managers.

1.2.2 Academic Motivation

Existing literature on product-harm crises can be divided into three streams of research (Van Heerde, Helsen, & Dekimpe, 2007). The first stream discusses pre- and post-crisis management (Haas-Kotzegger & Schlegelmilch, 2013). Pre-crisis management assesses how to prepare for a product-harm crisis (Mitroff, 2004). This suggests a product-harm crisis is not always unforeseen or unexpected and might be prevented. Post-crisis management focuses on how to handle a crisis and comes up with different approaches for overcoming one. Mitroff (2004) identified factors which need to be taken into account when implementing an effective crisis handling strategy. This stream also looks into the question how different departments such as legal, manufacturing and finance can cooperate to limit possible damage (Haas-Kotzegger & Schlegelmilch, 2013).

The second stream of research focuses on the effect of product-harm crises on several performance measures. Van Heerde et al. (2007) investigated the effect on brand sales, Chu, Lin and Prather (2005) on stock prices, and Chen et al. (2009) discussed consequences of different response strategies. This research helps to quantify the impact of a product-harm crisis, but does not explain specific consumer behavior (Haas-Kotzegger & Schlegelmilch, 2013).

The third research stream jumps into this gap and investigates consumer reactions to product-harm crises (Van Heerde et al., 2007). It is characterized by the use of lab experiments with fictional brands to assess crisis impact and consumer responses (Haas-Kotzegger & Schlegelmilch, 2013). Various moderating variables have been found to influence the relationship between a product recall and the consumer reaction (measured by for example brand evaluations and purchase intentions). Brand commitment (Ahluwalia, Burnkrant, & Unnava, 2000), consumer expectations (Dawar & Pillutla, 2000) and gender (Laufer & Gillespie, 2004) belong to the group of investigated moderating variables which have been found to influence this relationship.

Research streams within product-crisis management (Van Heerde, Helsen, & Dekimpe, 2007)

| | |
|----|---|
| 1. | <i>Pre- and post-crisis management</i> |
| 2. | <i>Effects of product-harm crises on different performance measures</i> |
| 3. | <i>Consumer reactions to product-harm crises</i> |

The current study adds to existing research in several ways. First, it combines elements of the second and third research stream in an survey experiment design approach. On the one hand, different response strategies and their influence on consumer loyalty are investigated. On the other hand, the level of risk aversion as a moderating effect is incorporated to measure differences in consumer responses.

Secondly, most studies do not analyze the role that alternative product-recall strategies play in the outcomes of a product-harm crisis (Chen et al., 2009). Results of existing studies on the impact of product recalls on consumer and firm related variables are ambiguous (e.g., Hoffer, Pruitt, & Reilly, 1988; Thomsen & McKenzie, 2001). While Dawar and Pillutla (2000) conclude that a more proactive, responsive recall strategy has the ability to attenuate the negative effects of a product-harm crisis on brand equity and consumer perceptions, Chen et al. (2009) draw different conclusions. They investigated firm value as the outcome of a product-harm crisis and argued that investors differ in their view of a proactive recall strategy from consumers. Investors interpret a proactive response as a signal of product hazard and financial damage (Chen et al., 2009). This study takes a consumer perspective. The assumption is that negative effects on brand loyalty and consumer perceptions can be diminished when firms take responsibility for the product-harm crises (Dawar & Pillutla, 2000; Siomkos & Kurtz, 1994). By using a more proactive strategy, organizations show responsibility. A proactive strategy might be characterized by an easy recall process, with refunds or replacement products and open communication about the defective or dangerous product.

Finally, this study adds to existing literature by taking risk aversion into account as a moderating variable in the relationship between product recall strategies and consumer loyalty. Risk aversion refers to domain-specific behavior and has to the best knowledge of the author not been studied in relation to different response strategies before.

1.3 Problem Statement

Currently, product recall strategies are surrounded by ambiguity and characterized by broad and vague definitions. No clear theoretical framework distinguishing dimensions on which a product recall strategy might differ exists, although there has been research on the topic of recall strategies. Once the framework has been established, it would also be useful to investigate whether one or more of these dimensions have stronger effects on product recall outcomes than others. Although research has shown that the relationship between a product recall and the outcome of a product recall (measured by different variables such as brand trust, reputation or firm value) can be moderated by certain consumer

characteristics, this field of research has not been fully developed yet (Dawar & Pillutla, 2000; Laufer & Gillespie, 2004). The central question guiding this research is therefore how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the consumer.

1.4 Contribution

This study contributes to both management practice and academic research as explained in Paragraph 1.2. Due to the growing number of product-harm crises, their potential devastating effects and increased globalization, research on the type of recall strategies and the role of consumer characteristics in the recall-outcome interplay is very relevant. The practical aim of this study is therefore to provide managers with tools to prevent any further corporate damage when they find themselves confronted with a product-harm crisis.

From an academic perspective, several gaps in literature can be found. What first remains unclear is on what dimensions product recall strategies can differ and *how* different types of recall strategies influence variables such as consumer loyalty and brand trust. Although it has been demonstrated that product recall strategies differ in their influence on consumer and firm-related variables (e.g., Chen et al., 2009), the answer to the question *why* this is the case remains mostly unanswered in existing research. In this study it is proposed that situational crisis communication theory and attribution theory provide important explanatory mechanisms for the relationship between product recall strategies and consumer loyalty. Weiner (2000) has written much about attribution theory and proposes that unexpected events cause people to look for a causal explanation. A product-harm crisis is an example of such an event. People establish a causal explanation for this by the attribution of both blame and responsibility (Weiner, 1986). The assumption is that the higher the amount of attributed responsibility, the more severe the organizational consequences. In this study it is assumed that organizations can influence the level of attributed responsibility by different recall strategies.

Secondly, despite the fact that there has been some academic focus on different product recall strategies in the past, there is no clear theoretical framework to distinguish different product recall strategies. On which specific aspects does one product recall strategy depart from another? In this study, clarification is provided by distinguishing three dimensions on which a product recall strategy can vary based on existing literature: the speed of response, the willingness to take responsibility and the proactiveness of response. The speed of response refers to how fast or how slow an organization does respond to their consumers after facing a product-harm crisis. The willingness to take responsibility refers to the extent to which an organization is perceived to accept responsibility for the crisis (Coombs, 2007) and the proactiveness of response refers to the extent to which an organization undertakes concrete action to compensate consumers for the product-harm crisis.

1.5 Approach

To provide an answer to the research question first an extensive literature review has been conducted. With help of existing research on product recall strategies, three dimensions on which product recall strategies differ were distinguished and defined. The first dimension has one level and the other two dimensions have three levels, so this resulted in a total of 18 possible recall strategies (2x3x3). The three underlying dimensions that vary between product recall strategies were then manipulated in an survey experiment design to test with the help of six different scenarios the differential responses of consumers to this negative form of publicity. Participants were all confronted with one or two different product-harm crises in a randomized order. One of the recalls concerns a defective laptop and the other one involves a bottle of mineral water enriched with vitamins causing severe health problems. Afterwards, the participants were asked questions about how they perceived the recall and the recall process.

The paper will now proceed as follows: first an extensive review of existing literature on product-harm crises, response strategies and outcome measurements such as consumer loyalty will be provided in Chapter 2. Thereafter, the research methods and research execution will be discussed in Chapter 3. This is followed by an analysis of the results (Chapter 4) a discussion (Chapter 5) and a conclusion including limitations of this study and suggestions for further research (Chapter 6).

Chapter 2: Literature Review

2.1 Conceptual Part

In this paragraph, a synthesis of existing literature about product-harm crises and product recalls will be provided. First, the product-harm crisis is defined (2.1.1). Thereafter, there is attention for situational crisis communication theory and attribution theory as explanatory mechanisms for the effects of product recalls on several outcomes (2.1.2), followed by an overview of different product recall response strategies (2.1.3). After establishing a framework consisting of three dimensions on which product recall strategies might differ, there is attention for the consequences of both product-harm crises in general and different product recall strategies in 2.1.4. The focus will be on the effects of a product recall on brand trust and brand loyalty. Finally, domain-specific risk aversion is introduced as a possible moderating variable (2.1.5).

2.1.1 Product-Harm Crises

Most entrepreneurs and managers can confirm that unexpected incidents happen when doing business. Although unexpected events can lead to positive outcomes (like a breakthrough innovation), the opposite can occur as well. A firm can for instance fail to meet a mandatory safety standard, a product might contain a defect which can cause substantial harm to consumers or a company fails to comply with voluntarily standards adopted by specific industries (Chen et al., 2009). These examples can lead to marketplace incidents which often coincide with negative publicity (Dawar & Pillutla, 2004). They form a threat to a company's reputation (Berman, 1999). It seems clear that incidents can have significant influence on variables such as firm performance and consumer trust. More importantly, consumers can be confronted with unreasonable risks of serious injuries or even death (Mullan, 2004). These incidents are referred to as 'product-harm crises' (Dawar & Pillutla, 2000). Reasons for a product-harm crisis are diverse: manufacturer's negligence, product misuse or even sabotage belong to the options (Siomkos & Malliaris, 1992).

In the past, research has been conducted on different types of product-harm crises (Lai, Yang, & Wu, 2015; Shrivastava & Mitroff, 1987; Mitroff & McWhinney, 1990). Shrivastava and Mitroff (1987) investigated the broader concept of organizational crises. They concluded that organizational crises are the result from interaction between the organization and the environment and classified crises as internal versus external and technical versus social. A few years later, Mitroff and McWhinney (1990) took a slightly different approach and divided crises along the axis of internal/external and personal/impersonal, which was later also referred to by Lai et al. (2015) in their research. Internal crises are caused by factors that can be found within the power of the organization, such as insufficient quality controls. External crises are caused by factors beyond organizational control, like unfair negative reviews written by competitors. While personal crises concern the individual organization, impersonal crises concern the whole industry or a part of the industry. This results in a four-category

distinction. Although an organizational crisis is a broader concept than a product-harm crisis, the principles can be applied to this study. The first category distinguished consists of internal personal crises such as food poisoning, defective quality controls or internal organizational conflicts. The second category involves external personal crises, which are characterized by the fact that they are beyond the direct reach of a firm. One can think of terrorist attacks, counterfeit and the unfortunate spread of rumors. The third category, internal impersonal conflicts, consists of incidents with a scope wider than the individual organization: industrial disasters and accidents. The fourth category involves external impersonal crises: examples are natural disasters and financial crises (Mitroff & McWhinney, 1990). In Figure 1, a structured overview is provided.

Figure 1 Categorization of Product-Harm Crises. Derived from Mitroff & McWhinney, 1990.

| | Internal | External |
|-------------------|--|---|
| Personal | <i>Poisoning, defective quality control, organizational conflicts.</i> | <i>Terrorist attacks, counterfeit and spread of rumors.</i> |
| Impersonal | <i>Industrial disaster / accidents.</i> | <i>Natural disaster / Financial crisis.</i> |

In this research, the point of departure is the internal personal product-harm crisis. Since different types of product-harm crises might have different effects on the investigated variables, this condition will be kept equal in all experiment designs. Furthermore, external crises are mostly beyond the control of organizations, which might influence attribution of blame and responsibility by consumers. The less influence an organization has on the product-harm crisis in the perception of the consumer, the less blame and responsibility will be attributed to the organization and the lower the call for a company response. For the purpose of this study, a more internal approach seems most logic. This is because an internal crisis lies more within the power of the organization, so attributed blame and responsibility will be higher and the call for a response will be stronger. The assumption is therefore that effects of different product recall strategies will be stronger in internal crisis situations.

2.1.2 Situational Crisis Communication Theory & Attribution Theory

Both for managerial practice and academic reasons it is important to know how to act when facing a product crisis in order to prevent or to overcome damage to the organization. Tough times ask for a response and so does a product-harm crisis. In general, crisis response strategies have three objectives: the first is to attribute responsibility for the crisis, the second is to change consumer perceptions of the organization in crisis and the third is to reduce negative effects caused by the crisis (Coombs, 1995). A question that precedes all others is why any response is considered necessary in the first place. An answer can be found in the field of communication studies.

Coombs describes situational crisis communication theory (SCCT) as one of the dominating theories in crisis communication research (Coombs, 2007; Avery, Lariscy, Kim, & Hocke, 2010). Coombs (2007) explains SCCT as the assumption that communication has the ability to affect people's perceptions in a crisis. Words used and actions undertaken by the organization influence the consumers perception of the organization. These perceptions result in evaluations of organizational reputation and influence the emotional response of stakeholders towards the organization (Nerb & Spada, 1997). By understanding the crisis situation, managers can determine which kind of response will result in maximum reputational protection (Coombs, 2007). SCCT originates from and is informed by attribution theory.

The central concept behind attribution theory is that people aim to find causes for events, especially for unexpected and negative ones (Weiner, 1985; Weiner, 1986; Weiner, 2010). In this way, consumers attribute responsibility for unexpected and negative events such as a product-harm crisis (Folkes & Kotsos, 1986). This attribution is connected to behavior. Behavioral responses are negative when organizations or people are perceived to be responsible for a problem and when anger is evoked. Positive behavioral responses are evoked when an organization is not held responsible and sympathy is evoked (Weiner, 2006). When a product-harm crisis is seen as internal, stable and controllable, responsibility is attributed to the organization. When the product-harm crisis in contrast is seen as more external, temporary and non-controllable, responsibility is attributed externally (Folkes, 1984). The amount of responsibility that is attributed to the organization is of importance, since the level of blame that is attributed to the organization by consumers can impact future purchase intentions (Lai et al., 2015). When a consumer is convinced that the responsibility for a product-harm crisis lies with the organization, they might switch brands or avoid repurchasing.

Coombs (2007) explains the occurrence of this phenomenon as the relationship between organizational reputation and behavioral intentions. He argues that the more negative the reputation of an organization is (which can be caused by the attribution of responsibility during a crisis), the less likely stakeholders are to show behavioral intentions that are supportive of the organization (Coombs, 2007). In other words, consumers can change their purchase behavior based on corporate reputation.

2.1.3 Product Recall Response Strategies

The attributed responsibility for a product-harm crisis asks for accountability and requires an organizational response for the actions which led to the dangerous or defective product (Weiner, 2006). In the past, authors have distinguished different company response categorizations (E.g., Siomkos & Kurzbard, 1994; Dawar & Pillutla, 2000; Coombs, 2006; Chen et al., 2009). First, a theoretical analysis of these different approaches is conducted. Secondly, for the purpose of the underlying study, I distinguish and illustrate three different dimensions on which product recall response strategies differ.

2.1.3.1 Theory on Different Product-Harm Crisis Response Strategies

The simplest distinction which can be found is the one that takes firm responsiveness to the recall as point of departure. Chen et al. (2009) distinguish proactive and passive recall strategies. When a firm adopts a passive recall strategy there is no eagerness to respond at all. The organization tries to deny or shift any responsibility for the defective product and is likely to cause delays in the recall process (Chen et al., 2009). Action is instead triggered by controlling authorities who force an organization to recall. In Europe, for example, every member state and EFTA/EEA country has appointed an authority in charge of receiving and treating notifications sent by producers and distributors of dangerous non-food consumer products. This obligation exists because of article 5(3) of the General Product Safety Directive (2001/95/EC). A passive strategy is often used after accidents have been reported or when inspections by controlling authorities have been conducted (Chen et al., 2009). An organization adopting a proactive strategy, in contrast, is willing to take responsibility and communicates clearly and openly about the incident. Recalls are fast and voluntary. A proactive strategy is seen when organizations become aware of potentially harmful products through internal inspections and before actual incidents (Chen et al., 2009).

Siomkos and Kurzbard (1994) proposed in turn a framework in their leading research on product-crises, which includes four types of company responses: denial, involuntary product recall, voluntary product recall and super-effort. It is referred to as the company response continuum (Chen et al., 2009). A denial refers to the simple ignorance of any responsibility for the defective product or not reacting at all. An involuntary recall contains a recall only after a government or other institution orders a company to act, based on laws and regulations. A voluntary recall differs from an involuntary in timing: a voluntary recall is made before any institution intervenes (Siomkos & Kurzbard, 1994). A recall in the super-effort category provides a firm with the opportunity to act socially responsible and show their care about consumers (Siomkos, 1989). A recall is made as easy as possible for consumers by explicit advertising, free samples and offering discount coupons (Siomkos 1989; Siomkos & Kurzbard 1992; Shrivastava and Siomkos 1989).

Coombs (2007) also described a hierarchy of response strategies influenced by SCCT based on the perceived acceptance of responsibility for the crisis by the organization. In the perception of stakeholders, organization take greater responsibility for the crisis when they show more concern for victims and become more accommodative (Coombs & Holladay, 2004). Three primary strategies to repair reputation are therefore: denial; diminish; and rebuild (Coombs, 2006). Organizations following a denial strategy try to disconnect the crisis from the organization. The underlying assumption is that when there is no responsibility for the crisis, the organization will not be harmed (Benoit, 1995). A diminishing response entails framing the crisis in such a way that consumers think the crisis is not that bad or that the organization at least lacked control over it (Coombs, 2007). This approach should lead to less attribution of responsibility (Coombs, 2007). A rebuilding strategy is more proactive and

consists of compensation and publicly apologies (Coombs, 2006). Full responsibility is taken in order to show social responsible behavior. Finally, a secondary strategy that can be used in combination with the other three is bolstering. Bolstering focuses on the past and can involve the praising of stakeholders or story-telling about past good work of the organization (Coombs 2006; Benoit, 1995).

A final typology has been defined by Dawar and Pillutla (2000). They argue that any firm response can be found somewhere along the continuum from unambiguous stonewalling until unambiguous support. Unambiguous stonewalling is comparable to the denial response of Siomkos and Kurzbard and consists of the complete absence of an answer to the product-harm crisis and no communication at all (Dawar and Pillutla, 2000). Unambiguous support, on the other hand, brings an assumption of responsibility with it and extensive communication. Also, some sort of cure should be provided, think at least of a recall or free replacement of the defect product (Hearit, 1994). Everything in between is called an ambiguous response (Dawar & Pillutla, 2000). This means some aspects of the company's response imply support and some do not. Think of a company which takes full responsibility for a defective product in their advertisements (unambiguous support) but is not well enough prepared to provide consumers with another product or to return their money (unambiguous stonewalling).

An overview of these past different product-harm crises response categorizations is provided in Table 1. What currently remains unclear is on which specific dimensions these response strategies actually differ.

Table 1 Product-Harm Crises Response Categorizations

| Authors | Framework |
|-----------------------------|---|
| Siomkos & Kurzbard (1994) | <i>Company response continuum</i> <ul style="list-style-type: none"> • Denial • Involuntary response • Voluntary response • Super-effort |
| Dawar & Pillutla (2000) | <i>Stonewalling versus support</i> <ul style="list-style-type: none"> • Unambiguous stonewalling • Ambiguous support • Unambiguous support |
| Coombs (2007) | <i>SCCT Crisis-response strategies</i> <ul style="list-style-type: none"> • Denial • Diminish • Rebuild • Bolstering |
| Chen, Ganesan, & Liu (2009) | <i>Firm responsiveness</i> <ul style="list-style-type: none"> • Passive • Proactive |

2.1.3.2 Product Recall Strategies: Three Dimensions

When analyzing the product-harm crises response categorizations, it is clear that current definitions are often broad (for example the distinction between passive and proactive). In the current literature, different dimensions on which product recall strategies vary remain implicit. Therefore three different dimensions on which product recall strategies may vary are distinguished.

Speed of Response

The first dimension I distinguish is the *speed of response*. How fast or how slow does an organization respond to their consumers after they face a product-harm crisis? In this study it is assumed that the speed of response can be characterized as either high or low. An organization which issues a recall only after it is ordered by controlling authorities or governmental institutions to do so shows a low *speed of response*. On the other hand, an organization which orders a recall before any institution intervenes is considered to have a high *speed of response*. In this way, *speed of response* is strongly linked to the level of voluntariness referred to by Siomkos and Kurzbard (1994). Although the author recognizes that more ambiguous situations are possible (i.e., when the timing of a voluntary recall and a mandatory recall overlap), this clear distinction provides a helpful framework in research.

Willingness to Take Responsibility

The second dimension mainly derives from SCCT and is the *willingness to take responsibility* (Avery et al., 2010; Coombs, 2007). This dimension refers to the extent to which an organization is perceived to accept responsibility for the crisis (Coombs, 2007). *Willingness to take responsibility* can be either high, moderate or low. When *willingness to take responsibility* is low, the organization either denies responsibility or tries to disconnect the crisis from the organization by for instance framing the crisis on a supplier or other partner within the industry. A moderate *willingness to take responsibility* does not involve a complete denial of responsibility, but the organization tries to play down their role in the product-harm crisis. This can be done in a variety of ways. An organization can for example show consumers that the actual product-harm crisis is not that dangerous or harmful, it can try to convince people that the organization lacked control over the crisis or it can try to shift partial responsibility to other stakeholders. The purpose of this approach, conscious or not, is to diminish the attribution of responsibility by consumers (Coombs, 2007). A high *willingness to take responsibility* is shown by companies who take full responsibility for the crisis. It at least includes public apologies (Coombs, 2006). Transparent and open communication about the product-harm crisis are also signs of high *willingness to take responsibility*. It is often perceived as social responsible behavior (Weiner, 2006).

Proactiveness of Response

Where *speed of response* and *willingness to take responsibility* are possibly of considerable importance for the outcomes of a product recall, they do not tell much about the concrete actions undertaken by an organization confronted with a product-harm crisis. The third and final dimension is therefore *proactiveness of response*, which can be either low, moderate or high. It refers to the extent to which an organization undertakes concrete actions to compensate consumers for the product-harm

crisis. Although this dimension shows similarities and is inspired by the proactive response mentioned by Chen et al. (2009) and the unambiguous support of Dawar and Pillutla (2000), it must be stated that their concepts are defined broader and vaguer. Their definitions not only involve concrete actions, but also the willingness to take responsibility. I argue that a separation between taking responsibility and taking concrete actions can be made. A low *proactiveness of response*, or a defensive response, is characterized by little effort to offer compensation or information. There might be an announcement of the defective or dangerous product on the website of the organization or in a newspaper, but consumers will not directly receive an option to return their product or get a refund. A moderate *proactiveness of response* refers to situations in which more effort is visible. The organization not only informs consumers about the dangerous or defective product, but also offers a solution. This can be a product recall combined with a refund. Information on how the return process works is however limited and no extras or special treatments are offered. A high *proactiveness of response* can be characterized as the equivalent of a corporate social responsible response. The organization does not only announce a recall; they really show care about their consumers by providing them with extensive information about the return process. It is made as easy as possible to return defective goods and money is returned fast. Also, discounts on new purchases can be offered or free samples can be provided. This approach is comparable to the super-effort described by Siomkos and Kurzbard (1994). When these three dimensions are combined, 18 different response strategies can be distinguished (Table 2).

Table 2 Response Categorizations Based on Three Dimensions and Three Levels

| Speed of response | Willingness to take responsibility | Proactiveness of response |
|-------------------|------------------------------------|---------------------------|
| Low | Low | Low |
| Low | Low | Moderate |
| Low | Low | High |
| Low | Moderate | Low |
| Low | Moderate | Moderate |
| Low | Moderate | High |
| Low | High | Low |
| Low | High | Moderate |
| Low | High | High |
| High | Low | Low |
| High | Low | Moderate |
| High | Low | High |
| High | Moderate | Low |
| High | Moderate | Moderate |
| High | Moderate | High |
| High | High | Low |
| High | High | Moderate |
| High | High | High |

Some of them are logical, some of them are less likely to occur in practice. It is, for instance, unlikely that an organization that is not willing to take any responsibility does undertake many concrete actions

to compensate consumers. Since it is beyond the scope of this research to investigate all possible response strategies, the researcher has chosen to investigate six combinations (highlighted in Table 2) in the experiment.

2.1.4 The Effects of Product-Harm Crises & Recall Strategies on Different Variables

In the past, there has been considerable attention for the effects of product-harm crises on several firm- and consumer-related variables. The same goes for the effects of different product-recall strategies on a diversity of outcomes. Firstly, the consequences of product-harm crises in general are analyzed (2.1.4.1). Secondly, the consequences of different product recall strategies are illustrated (2.1.4.2). Thirdly, there is specific attention for the effects of product-harm crises on brand trust and consumer loyalty (2.1.4.3).

2.1.4.1 Consequences of Product-Harm Crises

What is important from a firm perspective is, of course, what the effects of a product-harm crisis are on a wide range of variables such as firm performance, brand trust or corporate reputation. Several researchers have investigated the short- and long-term effects of product-harm crises. Klein & Dawar (2004) found for example that product-harm crises undermine consumers' favorable assessment of the brand and Davies, Chun, da Silva and Roper (2003) concluded that product-harm crises and product recalls form a threat to a company's reputation. Although reputation is an intangible asset, implications of a damaged reputations can be financial (Laufer & Coombs, 2006). Corporate reputation also influences the attraction of new consumers, investors and talented employees (Davies & Chun, 2002). Even when it eventually turns out that the organization was not responsible for the product-harm crisis, early attributions of blame can lead to negative word-of-mouth (Folkes, 1988) and lead to spillover effects (Lei, Dawar, & Gürhan-Canli, 2008). Spillover effects refer to the situation where consumers not only decide to no longer purchase the defective product, but they exclude the company's entire portfolio (Lei et al., 2008; Siomkos & Kurzbard, 1994). Even though these other products are not involved in the crisis, the future willingness to purchase them decreases (Siomkos & Kurzbard, 1994).

It should be mentioned, however, that results differ for different product categories. Recalls in the car or drug industry result for instance in abnormal negative stock returns (Jarrell & Peltzman, 1985). The same goes for publicly traded food companies involved in serious recalls. Thomsen and McKenzie (2001) also found that shareholder losses are significant in this industry.

2.1.4.2 Consequences of Different Product Recall Strategies

A corporate response is necessary to prevent further damage of the company's reputation. It is widely acknowledged that different types of responses can lead to different outcomes (e.g., Chen et al., 2009;

Dawar and Pillutla, 2000; Siomkos & Kurzbard, 1994). Dawar & Pillutla (2000) propose that an organization which is more responsive to the recall, might diminish negative effects on brand equity, future purchase intentions and consumer perceptions. The assumption is that by openly accepting responsibility for the recall, negative effects can be reduced (Dawar & Pillutla, 2000; Siomkos & Kurzbard, 1994). Also, a proactive strategy is associated with acting in line with social corporate responsibility. Since consumers view organizations that act in a social responsible way as being of higher quality, they are more likely to perceive them as trustworthy (Siegel & Vitaliano, 2007). Chen et al. (2009) also propose that proactive strategies are perceived as an indication that the organization cares about their customers. Proactive strategies therefore fulfill a signaling function: they imply a high level of service quality and high trustworthiness (Chen et al., 2009).

However, not all research concludes that proactive strategies lead to superior performance in all cases. Chen et al. (2009) investigated the effects of proactive and passive strategies on firm value (stock prices) and found surprisingly that proactive strategies had more negative effects on firm value than passive strategies. The rationale behind this finding is that the stock market does not only pay attention to publicly available information, but also to the actions of the firm (Ross, 1977). A proactive strategy can function as a signal to investors and shareholders that financial losses are inevitably close (Chen et al., 2009).

In this study there is deliberately chosen to analyze the effects of different product recall strategies on brand trust and consumer brand loyalty (both purchase intention and attitudinal loyalty) as consumer-related outcomes. Since consumer loyalty plays an important role in today's highly competitive environment and organizations can gain competitive advantages when their customers are loyal, this factor is very relevant. Higher loyalty can lead to competitive advantages. One can think of entry barriers for competitors, higher sales levels and an improved ability to respond to competitive threats (Delgado-Ballester & Munuera-Alemán, 1999).

2.1.4.3 Effects on Brand Trust & Brand Loyalty

Trust is an ambiguous concept, but in this study, it is defined as "the willingness of the average consumer to rely on the ability of the brand to perform its stated function" (Morgan & Hunt, 1994, p. 23). People operationalize trust by using calculative processes, according to Doney & Cannon (1997). They decide on the basis of the ability of a brand to continue to meet its obligations and on an estimation of the costs and potential rewards of staying in the relationship to trust or not to trust (Chaudhuri & Holbrook, 2001). Since aspects such as beliefs about reliability, safety and honesty are all important facets of trust, a product-harm crisis breaches with the belief that a brand is able to perform its stated functions. A product-harm crisis in general results in a decrease of brand trust and brand loyalty (Siomkos & Kurzbard, 1994). However, consumers might become convinced that the product-harm crisis is a one-time mistake when the organization provides enough service and open and honest communication during the phase of crisis management.

Brand trust has furthermore been found to positively influence consumer brand loyalty (Matzler, Grabner-Kraütner, & Bidmon, 2008). Consumer brand loyalty implies a certain commitment towards a brand (Jacoby & Chestnut, 1978). A more specific definition of consumer brand loyalty is provided by Oliver (1999, p. 34): “a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior”.

In line with Chaudhuri & Holbrook (2001) this study views consumer brand loyalty as existing of two different aspects: purchase/behaviorial and attitudinal. Purchase (or behavioral) loyalty refers to repeated purchases of the brand. In the case of a product-harm crisis, the expected amount of repeated purchases will lower. Attitudinal loyalty refers to the level of commitment experienced by the consumer (Chaudhuri & Holbrook, 2001).

2.1.5 Moderating Effect of Risk Aversion

A variable considered to be related to brand trust and consumer brand loyalty is risk aversion (Matzler et al., 2008). Becoming loyal to a brand is one way by which consumers try to reduce perceived risk (Sheth & Parvatiyar, 1995). Knox, Walker and Marshall (1993) concluded that there is a positive causal link between risk aversion and consumer brand loyalty.

Risk in itself consists of two components: the uncertainty of an outcome and the importance of negative consequences associated with the outcome of a choice (Rousseau, Sitkin, Butt, & Camerer, 1998). The risk attitude of a consumer refers to the extent to which he or she is willing to take a risk in a given situation (Mandrik & Bao, 2005). Although the level of risk aversion has often been described as a personality trait (e.g., Weber & Milliman, 1997; Hofstede, 1991), the problem with this approach is that the concept of a trait implies a stable situation (Blais & Weber, 2006). The assumption that risk aversion indeed is a cross-situational variable is controversial (Weber & Milliman, 1997; Mandrik & Bao, 2005). Kahneman and Tversky added to the debate by relating the concept of risk aversion to prospect theory (1992). They proposed that risk taking is asymmetric: people are, for instance, much more risk averse when they find themselves in the domain of profits, but less when they are in the domain of losses. An important premise of the theory is that individuals are not consistent regarding their level of risk taking across situations. Depending on different circumstances they will take more or less risk. In this study, risk attitude is considered domain-specific. The level of risk aversion experienced by the individual consumer might differ given the set of circumstances in a specific situation.

When relating the above to product-harm crises, one could argue that consumers in general try to reduce risk by becoming loyal to a brand (Sheth & Parvatiyar, 1998). However, a product-harm crisis is a very uncertain and unstable situation. This influences the level of perceived risk positively and the level of experienced brand trust negatively (Dawar & Pillutla, 2000). More risk averse consumers

might be more willing to establish loyalty when the situation in which they find themselves is less ambiguous and less uncertain. It can be therefore argued that the negative effects of a product-harm crisis are stronger for more risk averse consumers. In line with this, it is argued and examined in this study that the assumed effects of the different dimensions of product recall strategies on the level of brand trust are less strong for more risk averse consumers.

2.2 Hypotheses

In line with existing literature seven hypotheses were formulated. It is assumed that a product-harm crisis in general results in a decrease of brand trust and brand loyalty (Siomkos & Kurzbard, 1994). In the case of a product-harm crisis, the organization is no longer able to respond to the consumers' needs and the implicit promise of future performance can become harmed (Deighton, 1992). A company response can however result in an attenuation of the negative effects of product-harm crises. Research has even demonstrated that a voluntary fast recall can positively influence a manufacturer's image (Souiden & Pons, 2009). The *speed of response* is the first dimension on which product recall strategies can vary. When an organization voluntarily issues a recall this acts as a signal that the organization cares about the well-being of the consumer instead of their own (Siomkos & Kurzbard, 1994). Souiden and Pons (2009) argue that organizations show their intention to deliver products of superior quality by issuing voluntary recalls. This "creates an image of a reliable brand" (Souiden & Pons, 2009, p. 108). Despite the relative vulnerable position of the consumer, the organization decided not to take advantage of their position and to inform the consumer on beforehand. This strengthens the consumer belief that the organization is able to fulfill its stated function. The first hypothesis is therefore:

Hypothesis 1

The perceived speed of response has a positive influence on brand trust.

The second dimension that is hypothesized to influence the level of brand trust is the *willingness to take responsibility*. When facing a product-harm crisis, consumers will attribute responsibility and blame the organization (e.g., Weiner, 1986). An organization acknowledging their responsibility signals towards consumers that the organization is willing to act open, honest and responsible. It is a signal of social responsible behavior (Weiner, 2006), which creates a perception of reliability. It is therefore assumed that this attitude has a positive influence on the long-term relationship between the consumer and the organization, build on mutual trust.

Hypothesis 2

The perceived willingness to take responsibility has a positive influence on brand trust.

The third dimension distinguished is the *proactiveness of the response*. It is hypothesized that a more proactive response results in increased brand trust. Concrete actions can lead to affective consumer responses. By making it as easy as possible to return goods (Siomkos & Kurzbard, 1994), consumers

will become more convinced that the company is both able and willing to deliver good quality services and goods. Despite making a mistake, the organization shows that it is capable of dealing with the crisis in an effective way. The more an organization shows in both words and actions that they care about the consumer, the stronger the affective relationship between the organization and the consumer.

Hypothesis 3

The perceived proactiveness of the response has a positive influence on brand trust.

Chaudhuri and Holbrook (2001) demonstrated that brand trust is an important determinant of consumer brand loyalty. The argumentation used originates from Morgan and Hunt (1994) who consider trust as a key factor of any long-term relationship. Trust is associated with behavioral intentions and creates relationships that are highly valued. Commitment, the attitudinal aspect of loyalty, has been defined as the “enduring desire to maintain a valued relationship” (Moorman, Zaltman, & Deshpande, 1992, p. 316). Therefore, Chaudhuri and Holbrook (2001, p. 83) propose that “loyalty or commitment underlies the ongoing process of continuing and maintaining a valued and important relationship that has been created by trust”. Also, more trusted brands are purchased more often (Chaudhuri & Holbrook, 2001).

Hypothesis 4

Brand trust is positively related to purchase and attitudinal loyalty.

The effect of risk aversion on the relationship between the different dimensions of recall strategies and brand trust is also hypothesized. It is proposed that risk aversion moderates this relationship for all three dimensions. Becoming loyal to a brand is one way by which consumers try to reduce perceived risk (Sheth & Parvatiyar, 1995). Building trust is another. In the situation of a product-harm crisis, trust will be reduced since there is an inconsistency between what consumers consider to be normal behavior of the organization and what is the actual behavior. I argue this is especially the case for risk averse consumers. They experience, more than not risk averse consumers, uncertain and unstable situations as something to avoid. It will therefore also be harder to come up with a response that repairs reputational damage and recreates trust. How fast a company reacts still influences the decrease in brand trust, but when a consumer is more risk averse the effect might be less strong.

Hypothesis 5

Risk aversion moderates the relationship between the perceived speed of response and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.

The same moderating effect is hypothesized for the perceived willingness to take responsibility. Although a company might show a social responsible approach by taking full responsibility for the defective product, risk averse consumers still experience an uncertain and unstable set of circumstances in the shape of the product-harm crisis.

Hypothesis 6

Risk aversion moderates the relationship between the perceived willingness to take responsibility and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.

A proactive response involves the undertaking of concrete actions to compensate consumers. I propose in line with hypothesis 5 and 6 that the effect of a proactive response on brand trust is weaker for risk averse consumers. Concrete actions only partially enable the organization to rebuild brand trust. The underlying assumption is that more risk averse consumers experience a higher loss of brand trust, which is more difficult to re-establish for the organization.

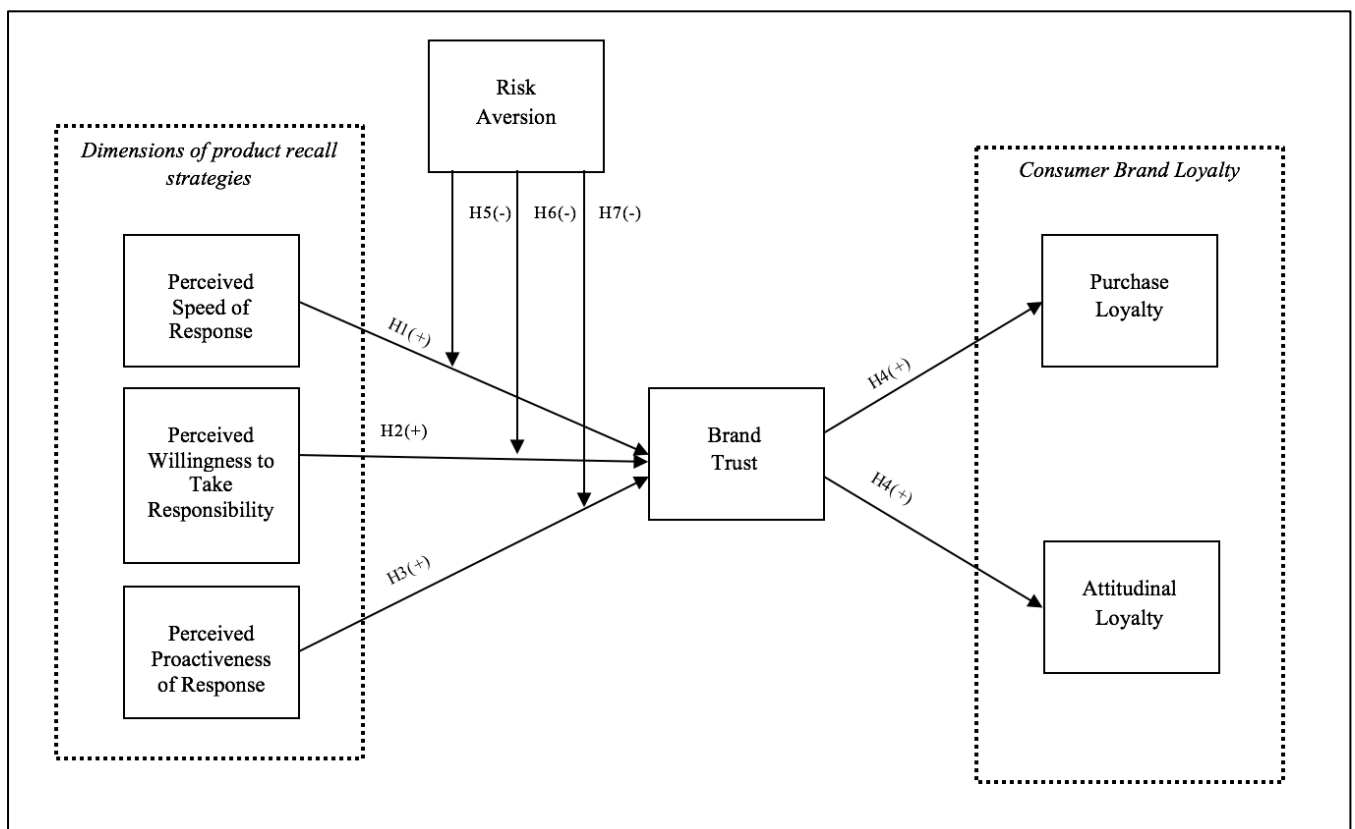
Hypothesis 7

Risk aversion moderates the relationship between the perceived proactiveness of response and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.

2.3 Conceptual Model

The conceptual framework in Figure 2 provides an overview of the assumed relations between the three different dimensions of product recall strategies, brand trust and brand loyalty. The model will be tested with the help of an survey experiment design in order to provide an answer to the research question: how do different product recall strategies influence consumer brand loyalty and how is this relationship moderated by the level of risk aversion of the individual consumer?

Figure 2 Conceptual Framework



Chapter 3: Research Design

The purpose of this study is to investigate how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the individual consumer. To provide an answer to the research question and test the hypotheses a quantitative approach is used. Since product-harm crises, product recalls and the effects of a recall on consumer and firm related variables have already been the topic of several studies, a more exploratory or qualitative approach (for example a case study) is considered less appropriate. By doing quantitative research it is possible to conduct a statistical analysis to measure relationships between different variables. It also provides the researcher with the opportunity to gain data from a larger group of respondents (Vennix, 2013). This is useful to be able to generalize results about the phenomenon under study towards a broader population (Babbie, 2010). Furthermore, by the application of established research standards it becomes possible to replicate the research and analyze and compare results with similar studies (Singh, 2007). A last advantage is that the researcher is able to keep a distance from the respondents (and avoid personal bias) in the study by the use of statistical techniques (McNabb, 2015). There are, of course, also limitations to the use of a more quantitative approach, which will be discussed in detail in Chapter 6.

In this study the researcher has more specifically chosen for a survey experiment design to investigate the effects and relationships between variables (Rockinson-Szapkiw, 2012). In an experiment setting one or more variables can be manipulated by the researcher. This is useful since it is hard to use real product recall statements which are similar in length, tone and type and only differ on the three distinguished dimensions of product recall strategies. By using similar scenarios the reliability of the study increases. An advantage of an experiment is furthermore that it diminishes threats to internal validity (Campbell & Stanley, 1963). It is also possible to assign participants random to one of the conditions. This means every participant has an equal chance to be confronted with one of the six scenarios (Rockinson-Szapkiw, 2012). By conducting the experiment in the form of an online survey more participants can be reached and a larger sample size can result in a higher external validity.

3.1 Sample Choice

The data gained for this research has been retrieved by asking 164 respondents to participate in an online survey experiment of approximately 10-15 minutes in which they were asked several questions concerning one or two different product recalls, depending on their own preferences. After having finished the first scenario, respondents were free to choose whether they would continue for a second scenario or whether they would stop the survey. Every scenario was then presented to at least 20 respondents in order to have an adequate sample (Hair, 2014). The respondents answered a total amount of 273 scenarios, which means that 109 respondents chose to read and answer both scenarios.

There were 29 respondents who answered a scenario about AquaVita only and 26 respondents chose to stop after having answered a scenario about the CooperGo.

Table 3 Frequencies of Scenarios (N=273)

| | AquaVita Frequency | CooperGo Frequency | Total |
|-------------------|-------------------------------|-------------------------------|--------------|
| Scenario 1 | 22 | 23 | 45 |
| Scenario 2 | 23 | 25 | 48 |
| Scenario 3 | 23 | 19 | 42 |
| Scenario 4 | 22 | 24 | 46 |
| Scenario 5 | 23 | 25 | 48 |
| Scenario 6 | 25 | 19 | 44 |
| | <i>138</i> | <i>135</i> | <i>273</i> |

The data collection took place in a three-week period in May 2018. Participants were randomly selected people that were approached both off- and online. Those who were approached online received an invitation via e-mail or social media (Facebook) with help of the existing network of the researcher. Since the experiment was accessible online, participants were able to take part in the experiment at the location of their preference as long as they had access to a computer or a laptop. Participants were also approached more directly by the researcher on and around the campus of Radboud University Nijmegen. As an incentive for participation all respondents could voluntarily leave their mailadress in order to make a chance to win a voucher for a Dutch online store (bol.com). The fact that many participants were students themselves has some implications for the external validity of the study, which will be discussed in more detail in Paragraph 3.3 (Measurements).

3.2 Methods

In this paragraph the research methods will be discussed. In Paragraph 3.2.1. the survey design shall be elaborated on and in Paragraph 3.2.2 the focus will be on the data cleaning and the data-analysis with the help of variance-based structural equation modeling.

3.2.1 Survey Design

Participants took part in an online survey experiment consisting of three parts. Before participating, they all signed a letter of consent to make sure they understood the purpose of the research and the fact that they voluntarily participated (Appendix A). After having answered some general questions about their age, gender and level of education in the first part, every participant was asked to read an article about a fictitious product recall in the second part (Case A or Case B was randomly assigned). All scenarios were kept similar here (except for the two different products) and described an internal personal product-harm crisis (2.1.1). Afterwards, participants read the recall statement of the organization, which was manipulated for the three mentioned dimensions of product recalls. Hereafter, participants were asked about how they experienced the recall with the help of several multi-item scale

measurements. Multi-item measurement is helpful to increase the reliability of the measured constructs (Hari, 2014). The whole process was then repeated for the other case in the third part (Case B or Case A), but only if the respondent wished to continue.

The reason for involving two different products in the experiment is twofold. First, since the risk attitude of consumers is assumed domain-specific, it might not be the same under different circumstances. People might not be willing to take risks when it comes to the food they eat, but much more easy-going when it concerns their willingness to take risks in technology or vice versa. Therefore, it is useful to involve two different industries in the experiment. Second, although the brands and recall narratives used are fictional, participants might have pre-existing associations with a product or a story. To minimize any potential bias two different narratives were used. Additionally, it was emphasized multiple times that any resemblance with real brands or past recalls was coincidental. The two industries chosen are food/beverages on the one hand and technology on the other. Most consumers use products produced by this industry on a daily basis, but the two specific products chosen also clearly differ. The product descriptions were kept as simple as possible in order to minimize doubts and ambiguity about the function or the use of the products. Furthermore, in both cases the defective product caused real physical injuries for some customers but none of them lead to deathly incidents. This approach was chosen so that participants became convinced of the seriousness of the product recall. Case A concerns the recall of a laptop because of overheating danger and in Case B mineral water with added vitamins had to be returned because of severe health issues due to a too high level of concentrated vitamins. The order in which participants reviewed the cases was randomly assigned. They first read a general introduction about the defective product. The introductions are as follows:

Case A

“Cooper” is a Dutch brand selling laptops and computers to consumers. In January 2017, a new product was released: the CooperGo. The CooperGo is a light-weight laptop covered in an industrial design full of the newest technologies. After a few months, it appears there are troubles with the batteries of the CooperGo. The laptops get overheated easily, because of the lack of ventilation space in the housing of the laptop. Several accidents have been reported: some customers suffer from severe skin damage due to burns. They needed to go to a hospital for treatment. In two cases, customers were even confronted with a complete explosion of their laptop which resulted in permanent facial scars.

In a public statement, Cooper reacts as follows:

Case B

“AquaVita” is a Dutch brand selling mineral water to consumers. In January 2017, a new product was released: AquaVitamin. AquaVitamin is mineral water available with different

flavors and added vitamins. It is developed especially for consumers who prefer mineral water with a taste and care about their well-being in general. After a few months, it appears that a small group of customers suffers from health issues after drinking AquaVitamin, because the level of added vitamins is too concentrated. These customers experienced symptoms like headaches, stomach pain and diarrhea combined with fever. Some consumers needed to receive a treatment in hospital. In two cases, customers had even to be induced into coma in order to fully recover.

In a public statement, AquaVita reacts as follows:

After the introduction, participants read the recall statement of the organization. In the recall statement the three different dimensions on which product recall strategies can vary were manipulated (Appendix B). As visible in Table 2 there were 18 possible scenarios, which is beyond the scope of this study. Therefore, only six of them were involved. The chosen scenarios contrast so that they can be compared and the possible options for all three dimensions are equally represented (Table 4). The scenarios were written by the researcher and based on real product recall announcements. All scenarios were reviewed by at least three others (who did not participate in the final study) and then improved by the researcher to reduce inconsistencies or potential ambiguity. This also provided the opportunity to check whether the manipulations of the cases were perceived as expected by the participants to improve the internal validity of the study. While taking into consideration the feedback provided by the pre-testers, the scenarios were adapted and finalized. Every scenario was then presented to at least 20 respondents in order to have an adequate sample (Hair, 2014). Scenarios were randomly assigned and could differ between Case A and Case B.

Table 4 Six Different Scenarios Used in the Survey Experiment

| | Speed of response | Willingness to take responsibility | Proactiveness of response |
|-------------------|--------------------------|---|----------------------------------|
| Scenario 1 | Low | Low | Low |
| Scenario 2 | Low | Moderate | Moderate |
| Scenario 3 | Low | High | High |
| Scenario 4 | High | Low | Low |
| Scenario 5 | High | Moderate | Moderate |
| Scenario 6 | High | High | High |

3.2.2 Variance-Based Structural Equation Modeling (SEM) and PLS Modeling

After having collected all the surveys with the use of Qualtrics, the data was exported to IBM SPSS Statistics for Macintosh, Version 25.0. Here the data was checked for missing values, which were not reported. In order to increase the answer validity and prevent participant boredom (Krosnick & Presser, 2010) some questions in the survey had been reversed. Therefore some items needed to be reversed coded (more information can be found in Paragraph 3.3 Measurements).

To test the entire conceptual model (Figure 2) a variance-based structural equation modeling (SEM) approach has been used. The advantage of SEM is that it enables the researcher to estimate multiple and interrelated dependence relationships at the same time (Hair, 2014). Structural equation models can be defined as two sets of linear equations. The first one is the measurement model or outer model and the second one the structural model or inner model. Whereas the measurement model specifies the relations between a construct and its observed indicators, the structural model specifies the relationships between constructs (Henseler, Hubona, & Ash Ray, 2016). Several SEM-methods can be distinguished, but according to McDonald (1996, p. 420) partial least squares (PLS) modeling is the “most fully developed and general system” and also considered a good statistical tool for success factor studies (Albers, 2010). It was therefore used in this study with the help of ADANCO 2.0.1.

Two models were analyzed and both were adapted. The first model contains the perceived speed of response, the perceived willingness to take responsibility, the perceived proactiveness of response and risk aversion as exogenous constructs and brand trust, purchase loyalty and attitudinal loyalty as endogenous constructs. Since a two-step approach is needed to model interaction effects (Henseler & Dijkstra, 2015), in Model 2 three interaction terms were included (as described in Paragraph 4.3). After having checked the assumptions regarding validity, reliability and model fit, both models were adapted to improve the model fit. The results for both models were reported in accordance with the recommendations of Chin (2010) on reporting PLS analyses.

3.3 Measurements

In this section it is explained how the variables of the conceptual model have been measured in the survey experiment. First the demographic variables (gender, level of education and age) will be analyzed.

Descriptive characteristics of the sample

Although respondents were randomly selected and also randomly assigned to one of the experiment scenarios, a large amount of the participants consists of female university students. They therefore share similar characteristics like their gender, highest level of completed education and age. This can form a threat to the external validity of the study, since results might not be applicable to all other contexts. However, since this is the first time the current framework for distinguishing different dimensions of product recall strategies is used, the current sample can function as an explorative one.

As mentioned, the sample is predominantly female (62,2%). The variable gender has been measured by two categories (1=male, 2=female). Respondents were also asked about the highest degree or level of school they had completed. As visible in Table 5, most of the respondents (54,9%) have completed a bachelor degree or are still in their bachelor's and have received a high school degree or equivalent (23,8%). This is consistent with the average age of the respondents. Almost all respondents (146, so 89%) can be found in the first category between 18 and 29 years old (Table 6).

Table 5 Highest Level of Completed Education (N=164)

| | Frequency | Percentage |
|----------------------------------|------------------|------------|
| Less than a high school diploma | 2 | 1,2% |
| High school degree or equivalent | 39 | 23,8% |
| College, no degree | 14 | 8,5% |
| Bachelor's degree | 90 | 54,9% |
| Master's degree | 15 | 9,1% |
| Doctorate | 3 | 1,8% |
| Other, namely | 1 (Propaedeutic) | 0,6% |
| | 164 | 100% |

Table 6 Age of Respondents (N=164)

| | Frequency | Percentage |
|-------|-----------|------------|
| 18-29 | 146 | 89,00% |
| 30-39 | 5 | 3,00% |
| 40-49 | 4 | 2,40% |
| 50-59 | 4 | 2,40% |
| 60-69 | 3 | 1,80% |
| 70-99 | 2 | 1,20% |
| | 164 | 100% |

Independent variables

The perceived *speed of response* was measured by using a three-item scale which consisted of the following items: “AquaVita/Cooper announced the recall soon after the incident occurred” (*Perceived Speed of Response 1*) “AquaVita/Cooper acted voluntarily after the incident occurred” (*Perceived Speed of Response 2*) and “AquaVita/Cooper was forced by authorities to make an announcement” (*Perceived Speed of Response 3*). The perceived *willingness to take responsibility* was measured by using a six-item scale. Participants rated the following statements (1= very strongly disagree, 7= very strongly agree): “AquaVita/Cooper took responsibility for the incident” (*Perceived Willingness to Take Responsibility 1*), “AquaVita/Cooper tried to disconnect the incident from the company” (*Perceived Willingness to Take Responsibility 2*), “AquaVita/Cooper tried to blame someone else for the defective product” (*Perceived Willingness to Take Responsibility 3*), “AquaVita tried to play down their role in the incident” (*Perceived Willingness to Take Responsibility 4*), “AquaVita/Cooper informed their customers transparent” (*Perceived Willingness to Take Responsibility 5*) and “AquaVita/Cooper offered their honest apologies” (*Perceived Willingness to Take Responsibility 6*). Hereafter, the perceived *proactiveness of response* was measured by the use of a four-item scale consisting of four statements: “It is clear to me what concrete actions I can expect from AquaVita/Cooper” (*Perceived Proactiveness of Response 1*), “I understand how I can return my purchased product” (*Perceived Proactiveness of Response 2*), “I feel like I have been offered something extra next to the option to return” (*Perceived Proactiveness of Response 3*) and “The information about the recall process is limited” (*Perceived Proactiveness of Response 4*). Participants could rate all the items on a 7-point Likert scale (1= very strongly disagree, 7= very strongly agree).

Perceived Speed of Response 1, *Perceived Willingness to Take Responsibility 2, 3 and 4* and *Perceived Proactiveness of Response 4* were reverse coded. In order to define the underlying structure among the items in the analyses an exploratory factor analysis was conducted (Hair, 2014). As expected three factors emerged, although the researcher decided to remove “AquaVita/Cooper informed their customers transparent” (*Perceived Willingness to Take Responsibility 5*) out of the set of items, since the reported factor loadings were rather low. Also, “I feel like I have been offered something extra next to the option to return” (*Perceived Proactiveness of Response 3*) reported cross loadings and was therefore removed from the dataset. The reduced set of variables is reported in Table 7 and the full set of variables can be found in Appendix D.

Risk aversion was measured by using Raju’s risk taking scale (1980) which was adapted to the current study and based on earlier studies (Matzler et al., 2008). Three items were included which participants could rate on a 5-point Likert scale (1=strongly disagree, 5 = strongly agree): “When I buy a laptop/beverages enriched with vitamins, I feel it is safer to buy a brand I am familiar with” (*Risk Aversion 1*), “I would rather stick with a brand I usually buy than try something I am not very sure of” (*Risk Aversion 2*) and “If I buy a laptop/enriched beverage, I will buy only well-established brands” (*Risk Aversion 3*).

Dependent variables

The dependent variables in this study (brand trust and brand loyalty) were measured by using previously developed instruments. In order to measure brand trust the four-item index developed by Chaudhuri and Holbrook (2001) was used and adapted to the fictitious recall. Participants could rate four statements on a seven-point scale (1 = very strongly disagree, 7 = very strongly agree). The four items were “I would trust this brand” (*Brand Trust 1*), “I would rely on this brand” (*Brand Trust 2*), “This is an honest brand” (*Brand Trust 3*) and “This brand seems safe” (*Brand Trust 4*). Brand loyalty is captured by two types of brand-specific measures: purchase loyalty and attitudinal loyalty (Rundle-Thiele & Bennett, 2001). Purchase loyalty was measured by the following two items: “I would intend to continue to be customer of Cooper/AquaVita” (*Purchase Loyalty 1*) and “Next time I would need a laptop/drink I would consider buying a CooperGo/AquaVitamin” intend to keep purchasing the brand” (*Purchase Loyalty 2*). Attitudinal loyalty was also measured by two items: “I would be committed to Cooper/AquaVita (*Attitudinal Loyalty 1*) and “I would be willing to pay a higher price for this brand over other brands” (*Attitudinal Loyalty 2*).

Table 7: OBLIMIN-Rotated Principal Component Analysis: Reduced Set of Variables (Pattern Matrix)

| Reduced Set of 11 variables | Factor ^a | | | Communality ^b |
|---|---------------------|--------|-------|--------------------------|
| | 1 | 2 | 3 | |
| Perc. Willingness to Take Responsibility 3 (Reversed) | .974 | | | .824 |
| Perc. Willingness to Take Responsibility 2 (Reversed) | .960 | | | .853 |
| Perc. Willingness to Take Responsibility 4 (Reversed) | .869 | | | .744 |
| Perc. Willingness to Take Responsibility 1 | .678 | | | .715 |
| Perc. Willingness to Take Responsibility 6 | .596 | | | .625 |
| Perc. Speed of Response 2 | | .897 | | .811 |
| Perc. Speed of Response 3 | | .809 | | .631 |
| Perc. Speed of Response 1 (Reversed) | | .758 | | .585 |
| Perc. Proactiveness of Response 2 | | | .955 | .821 |
| Perc. Proactiveness of Response 1 | | | .851 | .740 |
| Perc. Proactiveness of Response 4 (Reversed) | | | .637 | .594 |
| | | | | Total |
| Sum Squared Loadings (Eigenvalue) | 5.731 | 1.781 | 1.011 | |
| Percentage of Trace | 47.757 | 14.840 | 8.425 | 71.021 |

a: Factor loadings less than .50 have been hidden and variables have been sorted by loadings on each factor.

b: Communality values are not equal to the sum of the squared loadings due to the correlation of the factors.

3.4 Research Ethics

In every scientific project the researcher needs to be aware of ethical principles. This is especially the case in social research, since human interaction is almost always involved. In this section there is special attention for a couple of ethical issues regarding this study with the help of three principles derived from Barrow and Gossman (2017).

1. The right of autonomy and self-determination of the participant

To make sure participants did not feel forced to take part in the experiment and were free to quit at any time they signed a letter of consent (by ticking a checkbox before the survey actually started). This letter of consent (Appendix A) clearly states the purpose of the research and the fact that all participants voluntarily took part in it and could stop any time without consequences.

2. Respect for privacy and confidentiality

In the same letter all participants were informed about the objectives of the study. They also were reassured that their answers would be treated confidentially and anonymously. Finally, they were informed about the fact that the results would be publicly available and could be used for further academic purposes. At the beginning of the survey, participants could leave their mailaddress if they wanted to win one of the bol.com vouchers. They were clearly informed that their mailaddress would not be used for any other aims.

3. Evaluation of potential harm

Although the product recall cases were made up, they were based on real life situations. There is a chance that participants would link the cases to existing brands or past recalls. In order to prevent any harm to organizations or brands it was emphasized multiple times that all the narratives and brands used are fictitious and any resemblance with real situations is coincidental.

Finally, the role of the researcher in this project should not be left unmentioned. Although quantitative research might seem more ‘objective’ than qualitative research, the researcher still plays an important role by choosing questions, items and –in this case- scenarios. In this study the scenarios were written by the researcher. The language, sentences and tone used in this scenarios might be different than when someone else would have written them due to background of the researcher. To make sure the scenarios were clear to all participants they have been compared, contrasted and improved by at least three others until agreement was reached.

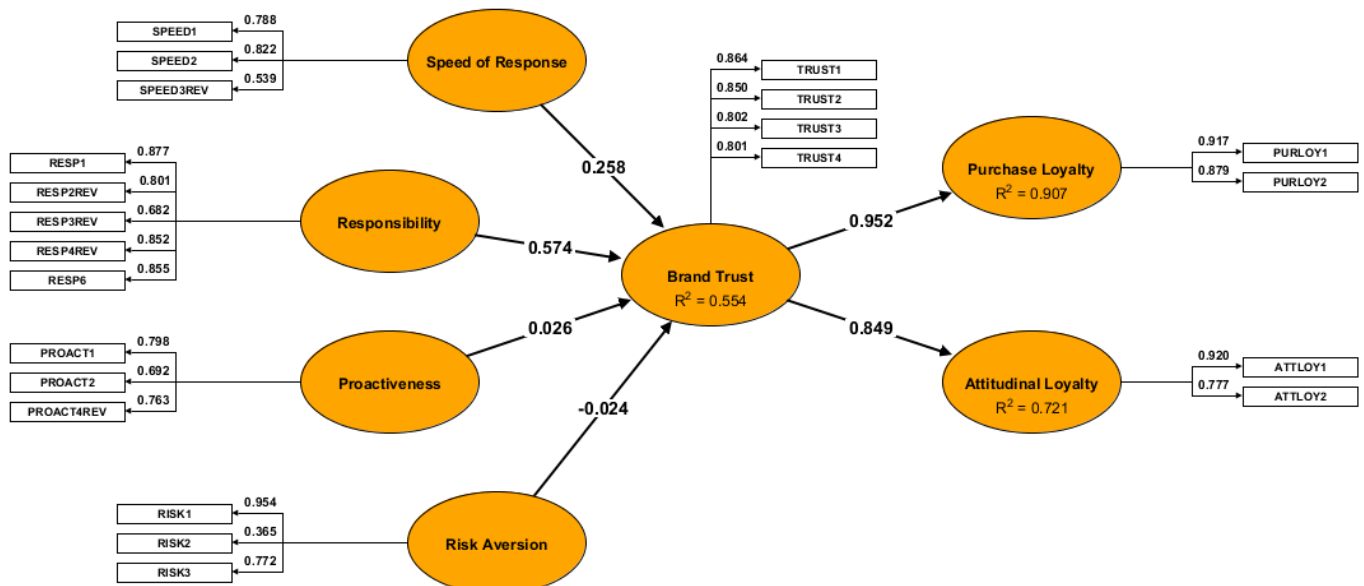
Chapter 4: Results

In Chapter 4 the results of the study are reported. To test the conceptual model (Figure 2) a variance-based structural equation modeling (SEM) approach has been used. In Paragraph 4.1 Model 1 shall be discussed, followed by the adapted Model 1A in Paragraph 4.2. Finally, in Paragraph 4.3 the results of the adapted Model 2A including interaction effects are reported.

4.1 Model 1

In Model 1, the perceived speed of response, the perceived willingness to take responsibility, the perceived proactiveness of response and risk aversion are the exogenous constructs and brand trust, purchase loyalty and attitudinal loyalty are the endogenous constructs (Figure 3).

Figure 3 – Model 1



4.1.1 Reliability and Validity of the Measurement Model

First, it was checked whether the level of random error in the construct scores could be accepted, so if the reliability of the construct scores was sufficient. Dijkstra-Henselers rho was interpreted, since this is the only reliable measure for PLS construct scores (Henseler et al., 2016). Nunnally and Bernstein (1994) recommend a reliability of at least 0.7. This applies to all the construct scores (Appendix E). Furthermore, the measurement of factors should not show any systematic measurement error. In order to analyze this, ADANCO provides several measures. The convergent validity was assessed by analyzing the average variance extracted (AVE) (Fornell and Larcker, 1981). An AVE of at least 0.5 is accepted. In that case there cannot be an equally important factor, since the first extracted factor explains more than half of the variance amongst the set of indicators (Henseler et al., 2016). All

construct scores show a sufficient AVE (Appendix E). Secondly, every indicator should be related to the construct it attempts to reflect, but not stronger to another construct (Chin, 2010). Discriminant validity can be checked in multiple ways. The researcher looked at the Fornell-Larcker criterion, which implies that a construct's AVE should be higher than the squared correlations with all other constructs in the model (Henseler & Dijkstra, 2015). Some problems are visible in Table E-1 (Appendix E). The constructs of purchase loyalty, attitudinal loyalty and brand trust show deviating scores, which means that the conceptually different concepts do not show sufficient statistical differences. The same goes for the perceived proactiveness and perceived willingness to take responsibility. Another measure for discriminant validity is the heterotrait-monotrait ratio of correlations (HTMT), which should be below 0.9 (Henseler & Dijkstra, 2015, p. 26). These scores show similar problems with the discriminant validity of purchase loyalty, attitudinal loyalty and brand trust (Table E-1, Appendix E). Thirdly, the cross loadings were assessed to see whether any indicators were assigned to wrong constructs. Although the only indicator which scores higher on another construct than expected is TRUST4, several indicators report double loadings (Appendix E). This is mainly the case for indicators related to the constructs of purchase loyalty, attitudinal loyalty and brand trust.

4.1.2 Validity and Results of the Structural Model

When looking at the direct effects of Model 1, the path coefficients (beta values) explain the increase in the dependent variable when the independent variable is increased by one standard deviation (Henseler & Dijkstra, 2015). The size of the effect can be interpreted by looking at Cohen's f^2 (Table 8).

Table 8 How to Interpret f^2 Values (Cohen, 1988)

| Effect Size | Interpretation |
|------------------------|----------------------|
| $f^2 \geq 0.35$ | strong effect |
| $0.15 \leq f^2 < 0.35$ | moderate effect |
| $0.02 \leq f^2 < 0.15$ | weak effect |
| $f^2 < 0.02$ | unsubstantial effect |

As reported in Table 9, the positive effects of brand trust on both purchase loyalty ($\beta .9525, f^2 9.7760$) and attitudinal loyalty ($\beta .8492, f^2 2.5851$) are strong. The same goes for the effect of the perceived willingness to take responsibility on brand trust ($\beta .6332, f^2 0.3583$). The perceived speed of response shows a weak positive effect on brand trust ($\beta .2519, f^2 0.1223$). The other effects are unsubstantial ($f^2 < 0.02$).

The predictive power of the model can be assessed by looking at the R^2 values of the endogenous constructs (Chin, 2010). It is preferred to look at the adjusted R^2 , since it compensates for the sample size and added exogenous constructs (Henseler & Dijkstra, 2015). The perceived speed of response, the perceived willingness to take responsibility, the perceived proactiveness of response and risk

aversion together explain 54.7% of the variance of brand trust. Brand trust on its turn explains the variance in purchase loyalty for 90.1% and the variance in attitudinal loyalty for 72% (Table 9).

Table 9 Overview Total Effects Structural Model 1

| Direct Total Effects | Beta | Cohen's F ² |
|--|----------------|------------------------|
| Speed of Response -> Brand Trust | 0.2519 | 0.1223 |
| Responsibility -> Brand Trust | 0.6332 | 0.3583 |
| Proactiveness -> Brand Trust | -0.0253 | 0.0006 |
| Brand Trust -> Purchase Loyalty | 0.9525 | 9.7760 |
| Brand Trust -> Attitudinal Loyalty | 0.8492 | 2.5851 |
| Risk Aversion -> Brand Trust | -0.0293 | 0.0020 |
| Indirect Total Effects | Beta | |
| Speed of Response -> Purchase Loyalty | 0.2453 | |
| Speed of Response -> Attitudinal Loyalty | 0.2187 | |
| Responsibility -> Purchase Loyalty | 0.5471 | |
| Responsibility -> Attitudinal Loyalty | 0.4878 | |
| Proactiveness -> Purchase Loyalty | 0.0243 | |
| Proactiveness -> Attitudinal Loyalty | 0.0217 | |
| Risk Aversion -> Purchase Loyalty | -0.0227 | |
| Risk Aversion -> Attitudinal Loyalty | -0.0202 | |
| Construct | R ² | Adj. R ² |
| Brand Trust | 0.5538 | 0.5471 |
| Purchase Loyalty | 0.9072 | 0.9068 |
| Attitudinal Loyalty | 0.7210 | 0.7200 |

Table 10 Goodness of Model Fit Model 1

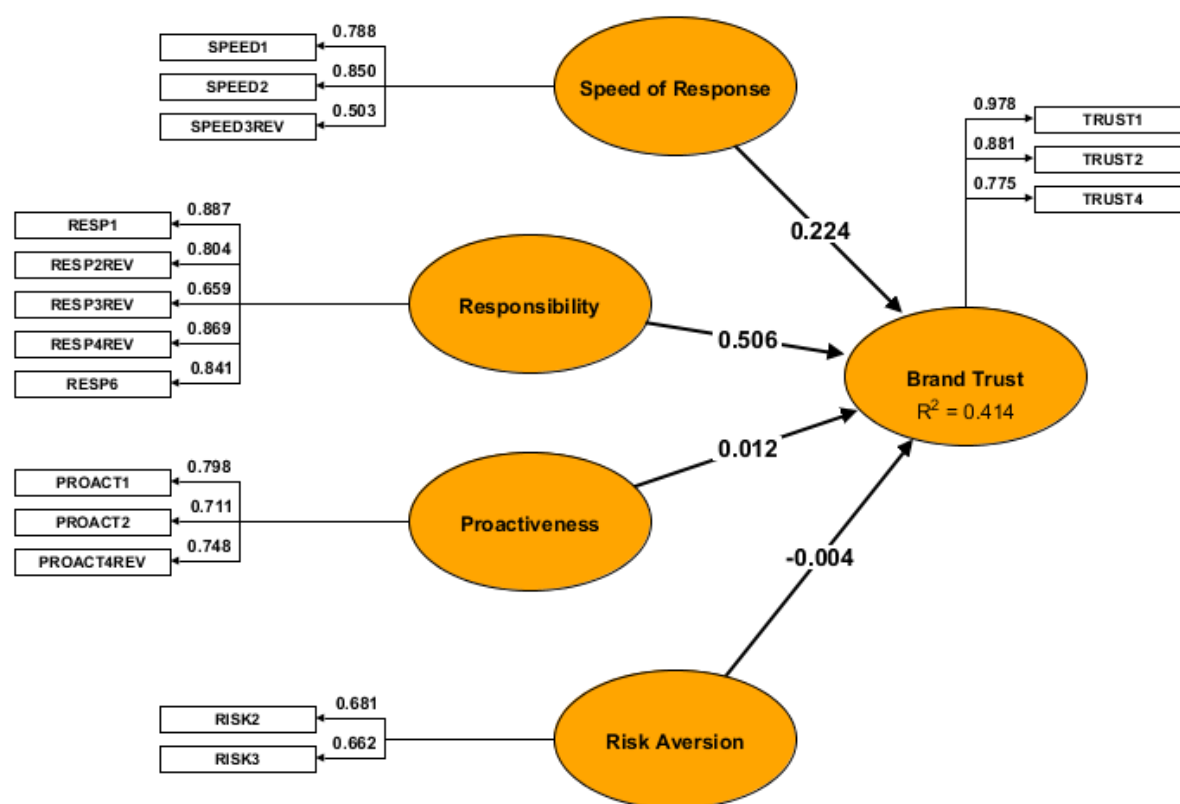
| Goodness of Model Fit (Saturated Model) | | | |
|---|-----------------------|----------------|----------------|
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0612 | 0.0642 | 0.0691 |
| dULS | 0.9471 | 1.0440 | 1.2093 |
| dG | 0.6340 | 0.4407 | 0.5019 |
| Goodness of Model Fit (Estimated Model) | | | |
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0682 | 0.0644 | 0.0701 |
| dULS | 1.1776 | 1.0506 | 1.2428 |
| dG | 0.6679 | 0.4352 | 0.5044 |

Finally, the appropriateness of the model has been analyzed by looking at the standardized root mean squared residual (SRMR), the unweighted least squares discrepancy (*d*ULS) and the geodesic discrepancy (*d*G). Almost all scores (except for the SRMR and *d*ULS of the saturated model) show a poor model fit (Table 10). This could be because of the earlier reported cross loadings and the problems with discriminant validity of the construct scores.

4.2 Model 1A

In order to improve the model fit and solve problems concerning the discriminant validity, the researcher adapted Model 1. The constructs of purchase loyalty and attitudinal loyalty were taken out of the first model, because of the relatively high cross loadings and their statistical interrelatedness with brand trust. Figure 4 shows model 1A. It was again tested in ADANCO 2.0.1. While calculating the model, two Heywood cases were reported. This means that the estimates would indicate a negative variance of the measurement error. The model was therefore modified by taking out the following items: 'TRUST3' and 'RISK1'.

Figure 4 – Model 1A



4.2.1 Reliability and Validity of the Measurement Model

The reliability scores are all above 0.7 as required by Nunnally and Bernstein (1994). Only the reliability of risk aversion decreased to a Dijkstra-Henselers rho of 0.6216 after deleting one indicator, which can be considered low (Appendix F). The convergent validity measured by the AVE (Fornell and Larcker, 1981) is sufficient for all constructs, again except for risk aversion (0.4508, Appendix F). This means there could be another factor which is equally important for explaining the variance of the indicators. As expected the issues regarding the discriminant validity are reduced, since the Fornell-Larcker criterion, the HTMT and the cross loadings show no longer deviating scores (Appendix F).

4.2.2 Validity and Results of the Structural Model

The direct effects of Model 1A are in general less strong, but still significant (Table 11). There is a moderate positive effect of the perceived willingness to take responsibility on brand trust ($\beta.5056$, f^2 0.1211) and there is a weak positive effect of the perceived speed of response on brand trust ($\beta.2237$, f^2 0.0691). The effects of the perceived proactiveness of response on brand trust and of risk aversion on brand trust are both unsubstantial ($f^2 < 0.02$). The predictive power of the model has also decreased, since the perceived speed of response, the perceived willingness to take responsibility, the perceived proactiveness of response and risk aversion now explain 40.5% in the variance of brand trust (Table 11).

Finally, Model 1A reports a better model fit for both the saturated and the estimated model, but only for the 99%-percentiles (Table 12). The SRMR shows how strongly the empirical correlation matrix differs from the model-implied correlation matrix (Henseler & Dijkstra, 2015). According to Byrne (2013) SRMR values less than 0.05 indicate an acceptable fit, although authors of other studies conclude that a value below 0.08 fits variance-based SEM better (Hu & Bentler, 1999). The values in Table 12 do exceed 0.05, but are below 0.08. The d ULS and d G values do not exceed the values of the 99%-percentiles.

Table 11 Overview Total Effects Structural Model 1A

| Direct Total Effects | Beta | Cohen's F^2 |
|----------------------------------|---------|---------------|
| Speed of Response -> Brand Trust | 0.2237 | 0.0691 |
| Responsibility -> Brand Trust | 0.5056 | 0.1711 |
| Proactiveness -> Brand Trust | 0.0117 | 0.0001 |
| Risk Aversion -> Brand Trust | -0.0042 | 0.0000 |
| Construct | R^2 | Adj. R^2 |
| Brand Trust | 0.4137 | 0.4050 |

Table 12 Goodness of Model Fit Model 1A

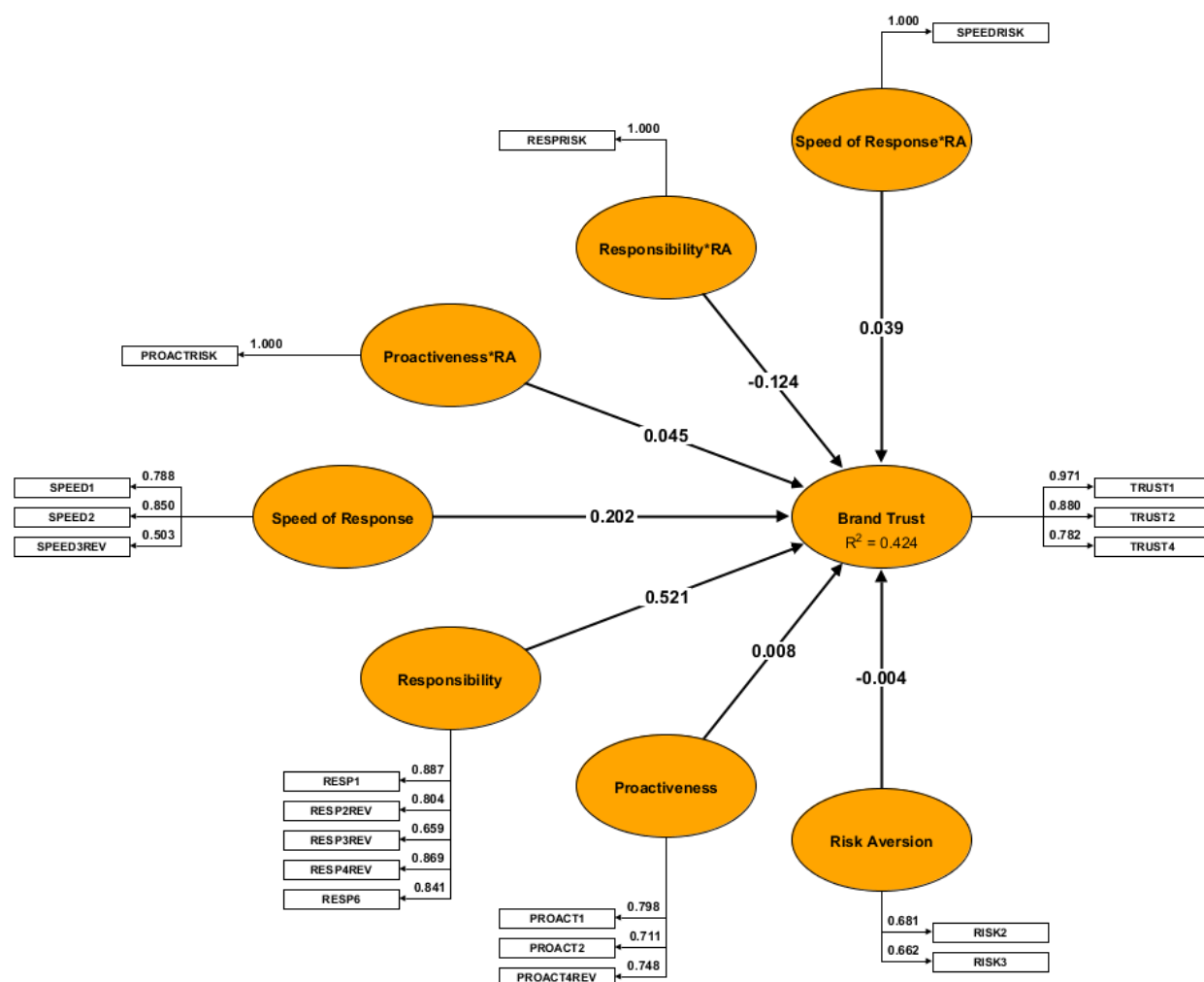
| Goodness of Model Fit (Saturated Model) | | | |
|---|-----------------------|----------------|----------------|
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0583 | 0.0564 | 0.0806 |
| d ULS | 0.4630 | 0.4328 | 0.8832 |
| d G | 0.3777 | 0.2281 | 0.4428 |
| Goodness of Model Fit (Estimated Model) | | | |
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0583 | 0.0564 | 0.0806 |
| d ULS | 0.4630 | 0.4328 | 0.8832 |
| d G | 0.3777 | 0.2281 | 0.4428 |

4.3 Model 2 and Model 2A

Since a two-step approach is needed to model interaction effects (Henseler & Dijkstra, 2015), in Model 2 three interaction terms were included. First, for all constructs (risk aversion, speed of response, responsibility and proactiveness) a scale was computed by calculating the mean score for every respondent. Hereafter, three linear regression analyses of the individual scales on the product of them was conducted in SPSS. (For example the speed of response and risk aversion on speed of response*risk aversion). The standardized residuals were then saved as new variables which were used as indicators in the final model. Since Model 2 reported similar problems concerning the model fit and discriminant validity, the researcher has chosen to report the results of the adapted Model 2A (without the constructs of purchase loyalty and attitudinal loyalty). The results of Model 2 can be found in Appendix G.

While calculating the model, the same two Heywood cases were found as in Model 1A. Model 2A was therefore also modified by taking out the following items: 'TRUST3' and 'RISK1'. The model is shown in Figure 5.

Figure 5 - Model 2A



4.3.1 Reliability and Validity of the Measurement Model

The reliability of the construct scores and the inter-construct correlations can be found in Appendix H. All Dijkstra-Henseler rho scores are above the recommended 0.7, except for risk aversion (0.6216). The convergent validity measured by the AVE shows a deviating score (0.4508) for risk aversion. The other scores are all above 0.5. The discriminant validity scores report no deviating scores when looking at the Fornell-Larcker criterion, the HTMT and the cross loadings.

4.3.2 Validity and Results of the Structural Model

Table 13 shows the effects of Model 2A. None of the interaction effects reports a substantial effect ($f^2 < 0.02$). The same goes for the effect of risk aversion on brand trust and the effect of the perceived proactiveness of response on brand trust. There is a small positive effect of the perceived speed of response on brand trust (β .2018, f^2 0.0548) and a moderate positive effect of the perceived willingness to take responsibility on brand trust (β .5214, f^2 0.1813). The variance of brand trust is explained for 40.8% by the other constructs, so there is no significant increase of the predictive power of the model compared to Model 1A.

Table 13 Overview Total Effects Structural Model 2A

| Direct Total Effects | Beta | Cohen's F^2 |
|-------------------------------------|---------|---------------|
| Speed of Response -> Brand Trust | 0.2018 | 0.0548 |
| Responsibility -> Brand Trust | 0.5214 | 0.1813 |
| Proactiveness -> Brand Trust | 0.0084 | 0.0001 |
| Risk Aversion -> Brand Trust | -0.0037 | 0.0000 |
| Speed of Response*RA -> Brand Trust | 0.0395 | 0.0026 |
| Responsibility*RA -> Brand Trust | -0.1243 | 0.0109 |
| Proactiveness*RA -> Brand Trust | 0.0454 | 0.0015 |
| Construct | R^2 | Adj. R^2 |
| Brand Trust | 0.4235 | 0.4083 |

Table 14 Goodness of Model Fit Model 2A

| Goodness of Model Fit (Saturated Model) | | | |
|---|-----------------------|----------------|----------------|
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0512 | 0.0500 | 0.0673 |
| | 0.4983 | 0.4746 | 0.8595 |
| | 0.3943 | 0.2601 | 0.4334 |
| Goodness of Model Fit (Estimated Model) | | | |
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0512 | 0.0500 | 0.0673 |
| | 0.4983 | 0.4746 | 0.8595 |
| | 0.3943 | 0.2601 | 0.4334 |

Finally, the model fit of Model 2A was assessed (Table 14). It reports a better model fit for both the saturated and the estimated model, but only for the 99%-percentiles. The SRMR values in Table 14 slightly exceed 0.05, but are below 0.08. The d ULS and d G values do not exceed the values of the 99%-percentiles.

4.5 Test of Hypotheses

The data show a small positive relationship between the perceived speed of response and brand trust in Model 1 (β .2519, f^2 0.1223), Model 1A (β .2237, f^2 0.0691) and Model 2A (β .2018, f^2 0.0548). Hypothesis 1 is therefore supported.

H1: *The perceived speed of response is positively related to brand trust.*

There is a moderate positive relationship between the perceived willingness to take responsibility and brand trust in all three models. Model 1 (β .6332, f^2 0.3583), Model 1A (β .5056, f^2 0.1211) and Model 2A (β .5214, f^2 0.1813). This implies support for the second hypothesis.

H2: *The perceived willingness to take responsibility is positively related to brand trust.*

No significant relationships were found between the perceived proactiveness of response and brand trust ($f^2 < 0.02$). The beta values in all three models were even negative, although not significant. This means Hypothesis 3 is not supported by the results.

H3: *The perceived proactiveness of response is positively related to brand trust.*

As expected Model 1 reports a strong positive relationship between brand trust and both purchase loyalty (β .9525, f^2 9.7760) and attitudinal loyalty (β .8492, f^2 2.5851). Hypothesis 4 is therefore supported by the data.

H4: *Brand trust is positively related to purchase and attitudinal loyalty.*

Finally, none of the interaction terms showed a significant effect ($f^2 < 0.02$). This means Hypotheses 5, 6 and 7 are not supported by the data.

H5: *Risk aversion moderates the relationship between the perceived speed of response and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.*

H6: *Risk aversion moderates the relationship between the perceived willingness to take responsibility and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.*

H7: *Risk aversion moderates the relationship between the perceived willingness to take responsibility and brand trust in such a way that the effect becomes weaker when domain-specific risk aversion is higher.*

Chapter 5: Discussion

The aim of this research is to provide an answer to the question how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the individual consumer. In this chapter the results provided in Chapter 4 will be discussed in a structured way. First, the three different dimensions on which product recall strategies may vary and their influence on brand trust and consumer loyalty will be discussed (5.1). Hereafter, the relationship between brand trust and purchase and attitudinal loyalty will be analyzed (5.2) and finally the moderating role of risk aversion (5.3) shall be assessed. All findings will be accompanied by some critical remarks and when findings differ from what was expected, alternative explanation will be provided.

5.1 Three Dimensions of Product Recall Strategies

In this research three dimensions on which product recall strategies can vary were distinguished: the perceived speed of response, the perceived willingness to take responsibility and the perceived proactiveness of the response. The assumption is that an organization can influence consumer perceptions (and the consumer behavior related to these perceptions) by acting fast, by showing consumers that the organization is willing to take responsibility for the product-harm crisis and by conducting the recall in a proactive way.

5.1.1 The Perceived Speed of Response

The speed of response is characterized by the level of voluntariness referred to by Siomkos and Kurzbard (1994). An organization can issue a recall either before or after it is ordered by controlling authorities or governmental institutions to do so. As hypothesized the results support the idea that the perceived speed of response has a positive influence on brand trust, although the effects reported are small (Tables 9, 11 and 13). This means that an organization is able to increase the level of brand trust experienced by the consumer when the recall is issued voluntarily.

A few important remarks should be taken into consideration. First of all, the manipulations used in the scenarios were not only based on the level of voluntariness of the recall, but also carried a timing aspect with them. When the speed of response was manipulated as low (and involuntary), the recall statement mentioned a four month period between the product-harm crisis and the corporate response. When the speed of response was high (and voluntary), the response came immediately after the discovery of the product-harm crisis (Appendix B). Therefore the perceived speed of response consists in this study in fact of two aspects: the level of voluntariness and the exact timing of the recall. For now, it remains unclear which one of these factors has the largest influence on brand trust. The researcher considers it likely that both aspects are equally important and influence each other. When a

recall is conducted voluntarily, it is probably also relatively early in timing. Further research could support these assumptions by, for instance, examining both aspects as separate dimensions.

A second remark regarding the current findings is that reality might be more ambiguous than the experiment in this study. An organization can for instance be condemned by controlling authorities to issue a recall, but issue the recall immediately after the request. How consumers perceive the speed of response in such a case might depend strongly on the way the recall is communicated. Jolly and Mowen (1985) found for example that consumers perceive a company making a product recall with help of printed media more trustworthy than those who use sound media (e.g., radio, podcast). Not only the organization itself, but also news media, other consumers and competitors might play an important role in the recall process and how it is perceived by consumers. It would be interesting to see how the increased use of social media influences consumer perceptions related to a product recall.

A third and last critical note can be placed from a managerial perspective. There might be occasions when it is difficult to influence the perceived speed of response actively as an organization. When a product initially causes no troubles or complaints, but a defect is reported during a standard check by controlling authorities, it will no longer be possible to issue a voluntary recall in the strict definition used in this research. In other words: the speed of response does not always lie within the power of the organization.

In conclusion, it can be argued that the results show that a high speed of response is important and positively influences brand trust. This implies that it is worth the effort to act fast. However, the researcher also realizes that reality might be more complex than the experimental setting in this study. The way the recall is communicated might influence consumer perceptions as well and organizations might not always be able to actively influence the speed of response.

5.1.2 The Perceived Willingness to Take Responsibility

What seems even more important is the perceived willingness to take responsibility. This dimension of a product recall strategy refers to the extent to which an organization is perceived to accept responsibility for the crisis (Coombs, 2007). When the perceived willingness to take responsibility is low, the organization is perceived to deny or shift their responsibility. A moderate perceived willingness to take responsibility refers to the situation in which an organization tries to play down their role in the product-harm crisis by for instance blaming other stakeholders for the crisis, whereas a high perceived willingness to take responsibility is characterized by an organization that takes full responsibility for the crisis. The results show indeed a strong (Model 1) or moderate positive effect (Models 1A, 2A) of the perceived willingness to take responsibility on brand trust. The higher the perceived willingness to take responsibility, the higher the reported brand trust.

These findings highlight once more the importance of social responsible behavior and are in line with the conclusions of others who wrote about how openly accepting responsibility can lead to a reduction of the negative effects related to a product recall (e.g., Chen et al, 2009; Dawar & Pillutla, 2000;

Siomkos & Kurtz, 1994). SCCT and attribution theory provide the theoretical mechanisms for this relationship. By taking full responsibility, consumers attribute less blame to the organization (Coombs, 2007).

Again, a few critical remarks are appropriate. First of all, the results show that it is important to show responsibility, although in practice responsibility can be shown in multiple ways. An organization can release a single press-statement, but also inform all their customers personally through mail. The specific tone, text and order of the manipulations used in the scenarios might differ from reality. The importance of further investigation on how a recall and the responsibility for it is communicated should again be emphasized here, since the way of communication might influence the eventual consumer and firm related outcomes of a product-harm crisis.

A second point of attention could be that a denial or a partial shift of responsibility might actually work better under specific circumstances. One can think of situations where it is very unclear for society who caused the crucial mistake that led to the product-harm crisis. If an organization is able to convince consumers of the fact that other stakeholders are responsible, damage to the organization might be stronger reduced than when the organization would have taken full responsibility. Consumers simply attribute the total amount of responsibility and blame to someone else than the organization, instead of only attributing less responsibility to the firm. The way an organization communicates plays again an important role here.

The results of this study encourage organizations to take full responsibility in order to increase the brand trust experienced by consumers. Taking full responsibility is characterized by at least a public apology and open and transparent communication. It should although not be left unmentioned that every specific product-harm crisis might require a different way of communicating.

5.1.3 The Perceived Proactiveness of Response

The final dimension distinguished is the perceived proactiveness of the response, which concerns the concrete actions undertaken by the organization. The assumption was that the higher the proactiveness of the response, the higher the brand trust would be. A proactive response can be characterized as the equivalent of a corporate social responsible response. Not only is an announcement made by the organization, but consumers are also informed very clear about the recall process and they are offered something extra in the form of for instance a free sample or a discount on a next purchase. It is comparable to the super-effort (Siomkos & Kurtz, 1994) or the unambiguous support (Chen et al., 2009). The results reported in Chapter 4 do surprisingly not support the hypothesis. None of the models shows a significant effect of the perceived proactiveness of the response on brand trust. The beta values are even negative, which would indicate a negative effect of the proactiveness of the response on brand trust.

An explanation for this could lie in the way the proactiveness of the response has been measured. Although the reliability of the scale seems sufficient (Dijkstra-Henselers ρ Model 1 0.7991, Model 1A

0.7989, Model 2A 0.7989) and the convergent validity is in all cases above 0.5, it could still be the case that the scale items do not measure the construct adequately. Another possibility is that despite the pre-testing of the manipulations in the different scenarios the final respondents did not perceive the distinctions made in the scenarios in the way the researcher expected. Additional research on this should be necessary, especially since others report clear positive relationships when it comes to the relation between a proactive response and several consumer-related outcomes (e.g., Dawar & Pillutla, 2000; Siomkos & Kurzbard, 1994).

Besides these possible methodological issues, a more theoretical explanation might be conceivable as well. Not all research concludes that a proactive product recall strategy leads to superior performance. The argumentation Chen et al. (2009) use is for instance that a proactive response might act as a signal towards investors and shareholders that financial losses are severe and close. In this way, a proactive response can result in negative effects on firm value. Although consumer loyalty is not the same as firm value, a similar effect could be possible. A very proactive response including all kinds of extras (for example discounts on repurchases) might not be perceived as very common in a society where product recalls take place on a regular basis (OECD, 2018). Consumers might feel as if there must be something wrong that goes beyond the individual product recall and the trustworthiness of the organization might become at stake. Consumers might also perceive a difference between a 'normal' proactive response and a response that they consider exorbitant. A normal proactive response could for example be characterized by simple and clear return instructions, whereas a proactive response that is perceived exorbitant would show too many extras to be plausible for the consumer. In order to provide more insights regarding the appropriate level of proactiveness of the response, further research would be recommendable.

5.1.4 The Predictive Power of the Model

The results show that the variance in brand trust experienced by consumers during a product recall is explained for 40% percent by the developed framework existing of three dimensions of product recall strategies (Model 1A, 2A). Two of these dimensions (the perceived speed of response and the perceived willingness to take responsibility) report positive effects on brand trust and should be taken into consideration in both management practice and the academic environment. The third dimension (proactiveness of response) does not report significant effects, which could be caused by measurement or theoretical issues.

It is known that brand trust can also be explained by other factors such as brand personality (Sung & Kim, 2010) and satisfaction (Ha & Perks, 2005). However, it would also be interesting to see if the underlying study missed important dimensions of product recall strategies which would increase the predictive power of the current framework. Further research could develop the proposed framework further.

5.2 The Relationships between Brand Trust and Purchase and Attitudinal Loyalty

Previous research has already shown positive relationships between brand trust and consumer brand loyalty (e.g. Chaudhuri & Holbrook, 2001; Matzler et al., 2008). Brand trust is considered an important determinant of behavioral intentions and of consumer brand loyalty. It is therefore not surprising that the effects in Model 1 indicate very strong positive relationships between brand trust and attitudinal loyalty and brand trust and purchase loyalty. What stands out are the issues regarding the discriminant validity of the three constructs. Although in this study existing scales (with items adapted to the fictitious recall) were used, the scales do not statistically measure completely different constructs when looking at the Fornell-Larcker criterion, HTMT and cross loadings (Appendix E). When taking out the concepts of purchase loyalty and attitudinal loyalty the model fit improves, but the predictive power of the model decreases with 14%. It would therefore be useful to conduct additional research in order to improve the existing scales. Despite the poor model fit, the data seem to provide support for the assumption that brand trust is an important determinant of both attitudinal and purchase loyalty. The poor model fit might also be explained by the fact that brand trust and purchase and attitudinal loyalty have more determinants than the three distinguished dimensions of product recalls strategies.

5.3 The Moderating Role of Risk Aversion

Furthermore, it was theorized that a product-harm crisis might have stronger negative effects on more risk averse consumers. Risk aversion in this study is defined as domain-specific, instead of the often used cultural trait approach (Weber & Milliman, 1997). The different dimensions of product recall strategies were hypothesized to have less strong effects when a consumer was more risk averse (Hypotheses 5, 6 and 7). The results do not support any of these assumptions. No significant moderating effects were found.

A first problem that was encountered concerns the measurement of risk aversion. Raju's risk taking scale (1980) consisting of three items was adapted and used in the underlying study. One of the scale-items had to be taken out of the adapted Model 2A in order to be able to calculate results. This resulted in a two-item scale for risk aversion with a poor reliability score (Dijkstra-Henselers ρ 0.6216) and also a non-sufficient AVE (<0.5). This implies that the results can unfortunately be considered as unreliable and invalid. The use of another scale or multi-item measurement could provide a solution in the future.

The fact that findings differ from what was expected could also be theoretically substantiated. The argumentation used in this study starts with the assumption that consumers try to reduce perceived risk by becoming loyal to a brand (Sheth & Parvatiyar, 1995). A product-harm crisis influences the level of perceived risk positively, because a crisis is an example of an unstable and uncertain situation. More risk averse consumers were assumed to react stronger to a product-harm crisis in such a way that their

brand trust would decrease more and product recall strategies would have a less strong effect on them. However, one can also argue otherwise. Once trust and loyalty have been established, risk averse consumers will not easily switch brands or avoid repurchases (Matzler et al., 2008). Their level of brand trust could therefore well stay the same despite a product-harm crisis. Different product recall strategies would therefore not strongly influence their level of brand trust, since there was no a significant decrease of brand trust in the first place. The researcher realizes this argumentation is rather speculative and should be tested in the future. Further research could provide new insights regarding the influence of domain-specific traits such as risk aversion on brand trust and how it affects consumer behavior during product-harm crises. It is at least recommendable to use other measurement methods for risk aversion in the future.

Chapter 6: Conclusion

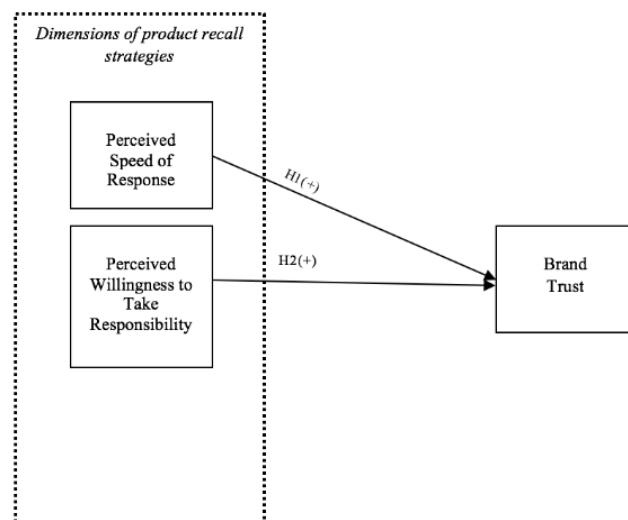
In this final chapter a short summary and conclusion of the full study will be provided, followed by the theoretical implications of the study. There will also be attention for the managerial implications of this study. The chapter ends with a discussion of the limitations of the study and suggestions for further research.

6.1 Short Summary of the Full Study

The purpose of this study is to provide an answer to the question how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the individual consumer. In order to answer this question a theoretical framework distinguishing three dimensions of product recall strategies has been developed based on an extensive literature review.

Figure 6 Validated Framework

The three distinguished dimensions are the perceived speed of response, the perceived willingness to take responsibility and the perceived proactiveness of response. These constructs were added to the conceptual model of this research (Figure 2). In a survey experiment 164 respondents were confronted with one or two fictitious product recalls about either a defective laptop or poisonous vitamin water,



followed by a recall statement. Before reading the scenarios their level of domain-specific risk aversion was measured. In the recall statement the three mentioned dimensions of product recall strategies were manipulated. After having read the statement, the respondents answered several question about how they perceived the recall and they were asked to answer statements about brand trust, attitudinal loyalty and purchase loyalty. In total, 273 scenarios were answered.

The results were then analyzed with the help of variance-based structural equation modeling in ADANCO 2.0.1. Although not all hypotheses were supported, some interesting findings emerged. The validated framework can be found in Figure 6. The perceived speed of response has a small positive influence on brand trust and the perceived willingness to take responsibility has a moderate to strong positive effect on brand trust. Furthermore, in the original Models 1 and 2 it was reported in line with existing theory that brand trust is an important determinant of both attitudinal and purchase loyalty. The focus in this research was although on the dimensions that influence brand trust in a recall

situation. In contrast to the expectations, the perceived proactiveness of the response did not show any significant effects on brand trust. Also no moderating effects related to risk aversion were found. An explanation for these last findings could lie in the measurement methods used (the scale for risk aversion reported a poor reliability and a poor convergent validity) or there could be an alternative theoretical explanation (Chapter 5).

Although the newly developed framework should be elaborated on and adapted in the future, it provides an important first step in the clarification of how different product recall strategies play out in reality.

6.2 Theoretical Implications of This Study

There has been an extensive amount of research on the topic of product-harm crises and product recall strategies. This research contributes to existing theory in several ways and provides some important theoretical implications. The study especially adds to the research stream focusing on the effects of product-harm crises on different performance measures and on the research stream focusing on consumer reactions to product-harm crises (Van Heerde et al., 2007).

By the development of a theoretical framework distinguishing different product recall strategies more clarity is provided on the question which specific dimensions of product recall strategies depart from another. Although Siomkos and Kurzbard (1994) and Dawar and Pillutla (2000) recognized amongst others the fact that different types of product recall strategies existed, it remained unclear on which specific aspects they varied. The framework developed in this study implies that at least two different dimensions can be distinguished: the speed of response and the willingness to take responsibility. Since this study only proposed and investigated a first framework, further research should focus on the question whether there are more or different dimensions.

Until now it also remained unclear *how* different types of product recall strategies influence variables such as brand trust and consumer loyalty. This study shows that SCCT and attribution theory can provide important explanatory mechanisms for the relationship between product recall strategies and consumer-related outcomes. When consumers are confronted with unexpected events such as a product-harm crisis, they will seek for a causal explanation and attribute blame and responsibility (Weiner, 1986). This study shows that this attribution of responsibility by consumers can be actively influenced by the organization by adapting their product recall strategies.

Finally, the underlying research stresses the importance of communication in the relationship between an organization and its customers. To influence consumer perceptions and the behavior related to these perceptions, organizations can use many different sources of communication. Additional research on communication in this digital era characterized by the increasing relevance of the internet and social media would be recommendable. The underlying study shows that a written recall statement can influence consumer perceptions of the brand and increase the experienced brand trust.

6.3 Managerial Implications of This Study: Recommendations

This study provides fruitful insights for managerial practice as well. Despite the potentially destroying effects of a product-harm crisis, firms do often fail to prepare for them (Pearson & Clair, 1998). This was no problem, if a product-harm crisis would be a rare phenomenon. However it is not, since the OECD reports more product recalls every year (OECD, 2018). Increased globalization also leads to more challenges for organizations, since they are confronted with more divergent laws and regulations and different controlling authorities.

By distinguishing three dimensions on which product recall strategies vary, the start of a helpful framework has been developed. The framework can function as a tool for managers to answer the question *how* they should respond during a product-harm crisis and especially on what aspects they should focus. The results of this study strongly suggest that managers first pay attention to the moral part of a product recall: taking and showing responsibility. It is important to admit the fact that a mistake has been made by the organization and to explain how this could have happened. When an organization communicates in a transparent way to their customers and shows that full responsibility is taken, they show off social responsible behavior which can lead to increased brand trust. Brand trust on its turn leads to increased consumer loyalty.

Another recommendation for managers is to focus on the speed of their response, since a voluntary and fast recall has a positive effect on the level of brand trust. If the possibility is there, which might not always be the case, it would be advisable to stay ahead of controlling authorities and issue the recall before the organization is forced to do so. Once forced, it is important to come up with a fast response, instead of waiting months before undertaking actions.

Of course it is preferred to focus on both the speed of response and on showing that the organization takes responsibility. Although if a choice between the two has to be made, the emphasis should be put on the latter, since this dimension has the strongest effect on brand trust. Taking into account that communication plays a very important role in the recall process, it is furthermore recommendable to attract experts or consultants in the field of crisis communication when confronted with a product-harm crisis.

6.4 Limitations

As in every research project, this study comes with several limitations. First of all, experiments in consumer research often raise discussions about the generalizability of results (Lynch, 1982). In this study, the sample existed mainly of Dutch female university students. The external validity of this study is therefore limited to this specific group of consumers. They might react in another way to different product recall strategies than for instance male retired Asians. In order to see if the developed conceptual framework can be used in other contexts, it would be useful to conduct research amongst

different groups of consumers. The group of consumers approached in this study can although provide useful first insights on the newly developed framework.

Another limitation to the external validity of this study is the fact that the product-harm crises used in the scenarios concerned two specific industries: food/beverages and technology. By the involvement of two different industries the researcher tried to increase the generalizability of the study, but results might not be applicable to all other industries. It would be interesting to investigate how different recall strategies play out in for instance the pharmaceutical industry or in beauty and cosmetics. A product-harm crisis in the healthcare sector might for example form a bigger threat to the long-term organizational survival of the organization. Issues related to public health may have stronger negative effects on brand trust experienced by the society. Also, there might be more media attention for such a product-harm crisis, which influences the eventual outcomes and the attribution of responsibility.

A third limitation is the conceptual replicability of the study. The scenarios used are inevitably influenced by the researcher. The tone, length and type of the recall statements are different than when someone else would have written them. In order to reduce reliability and validity risks related to this, the scenarios were based on real product recall statements and reviewed by at least three others before they were used in the experiment. Additional research with different methods (or scenarios) could strengthen the current findings.

A fourth issue is the level of realism of the experiment. In order to prevent any potential harm to existing brands it was emphasized multiple times that the scenarios and brands used were fictitious. In this way respondents became aware of the fact that the recalls were made up. They might have responded in a different way than when they would have faced a real product recall. Although it would be interesting to test the developed theory in a real-life situation, this would also bring several challenges. Contextual factors would for instance be beyond the control of the researcher and when one investigates an individual product-harm crisis it might be hard to generalize results.

A more general and final fifth limitation is the use of quantitative research. Although a quantitative approach has several advantages (Chapter 3), several limitations are associated with the single use of quantitative methods in social sciences. Contextual details might for example be missed (Babbie, 2010). Since all answer categories in the experiment were closed, participants could not provide alternative answers. By for instance asking respondents open questions about how they perceived the recall statements, the researcher might have gathered richer and more context-related information which could have revealed more or different dimensions. Another disadvantage associated with quantitative research is that it is often conducted in an artificial environment and therefore not representative for reality. Although the conducted study indeed made use of fictitious recalls, there was put a lot of effort in creating realistic statements and all scenarios were pre-tested.

6.5 Suggestions for Further Research

Although this study has provided new academic and managerial insights on product-harm crisis management, there remain many opportunities for additional research. Some of these possibilities have already been mentioned. Not only can the current study and theoretical framework be explored further in other contexts (e.g., other industries, other countries, different sample choices), it would also be interesting to examine whether more or different dimensions of product recall strategies can be distinguished.

Secondly, in this study the main focus was on the impact of different product recall strategies on consumer-related outcomes such as brand trust and consumer loyalty. It would be interesting to examine whether the benefits of adapting a speedy response and taking full responsibility also apply to firm-related outcomes (for example stock market value) on the long term. Dependent on the outcomes of this research, organizations can improve their decision-making during a product-harm crisis.

A third suggestion would be to join forces with communication studies. In order to show responsibility, a clear and open way of communication is required from the organization. Concepts such as ‘clear’ and ‘open’ remain however vague and organizations do have many different means of communication at their disposal anno 2018. To provide managers with more precise tools on *how* to show that they take their responsibility during a product-harm crisis, additional research could provide useful insights. Closely connected to this is the increased use of (social) media by organizations to reach consumers. It would be useful to examine the specific role that media play in product-crisis management and how media can possibly be used to the advantage of the organization when executing product recall strategies.

A fourth and final suggestion is to examine whether current findings, which fit in with a marketing logic that has a goods-dominant view, can also be applied in a service-context. In marketing research, the paradigm slightly shifts towards a more service-dominant view. The central purpose of economic exchange is value creation. Whereas a goods-dominant view focuses on output and price (Vargio, Maglio, & Akaka, 2008), a service-dominant logic focuses on the application of competences such as knowledge and skills by one party to benefit another (Vargo & Lusch, 2004). If a provided service is experienced as insufficient, it cannot as easily be returned as goods. Although a bad service experience can lead to unsatisfied customers and a decrease in brand trust. It would therefore be interesting to examine if an organization can apply the same principles (speed of response and taking responsibility) when exchanging services.

In conclusion, additional research is not only important from an academic perspective, but at least of equal importance for practitioners. Because, although no one might be so brave that (s)he is not disturbed by something unexpected, it is still better to be prepared.

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Appendices

Appendix A) Letter of Consent Participants

Appendix B) Scenarios

Appendix C) Measurements

Appendix D) Results Exploratory Factor Analysis – Full Set of Variables

Appendix E) Results Model 1

Appendix F) Results Model 1A

Appendix G) Results Model 2

Appendix H) Results Model 2A

Appendix A) Letter of Consent Participants

“My name is Rosanne Kuiper and I am currently working on my Master Thesis Business Administration (Innovation & Entrepreneurship) at Radboud University, Nijmegen.

Thank you for your willingness to participate in this survey experiment. The purpose of the research is to investigate how the recall of a product by a company affects consumer perceptions of the brand. In this experiment, there are no wrong or right answers.

The online questionnaire consists of two or three parts. In part A, some general questions will be asked. In Part B, you will read a short article about a product recall by a fictitious brand. Afterwards, you will be asked a couple of questions about how you experienced the recall. If you wish, you can either continue and read a second scenario or stop the survey. Again; there are no wrong or right answers. The entire experiment will take approximately 10-15 minutes.

Any resemblance with existing brands or recalls is coincidental. The results of this experiment will be used for the purpose of this Master Thesis, shall be publicly accessible and might be used for further academic purposes. All data will be treated confidential and anonymous. If you wish to withdraw from the experiment, you may do so at any time.

If you wish to receive an update about the results of the research, you may leave your e-mail at the end of the experiment. This is not obligatory. It will only be used to inform you and for no other purposes.

For any questions or remarks please feel free to contact me via 0620590496 or Rosanne.kuiper@student.ru.nl. Thank you.”

☐ I do understand this survey experiment is voluntary and that I may withdraw from the experiment at any time.

Appendix B) Scenarios

Case A: CooperGo – Technology Industry

General information (provided to all participants).

“Cooper” is a Dutch brand selling laptops and computers to consumers. In January 2017, a new product was released: the CooperGo. The CooperGo is a light-weight laptop covered in an industrial design full of the newest technologies. It is developed especially for people who need to travel a lot for their work or study and prefer to limit the weight they take with them. After a few months, it appears there are troubles with the batteries of the CooperGo. The laptops get overheated easily, because of the lack of ventilation space in the housing of the laptop. Several accidents have been reported: some customers suffer from severe skin damage due to burns. They needed to go to a hospital for treatment. In two cases, customers were even confronted with a complete explosion of their laptop which resulted in permanent facial scars.

In a public statement, Cooper reacts as follows:

Scenario options

Speed of response **Low**

After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, four months ago Cooper has been condemned by public authorities to recall the CooperGo to make sure no further incidents occur.

Speed of Response **High**

After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, Cooper immediately decided to make the precautionary decision to voluntarily recall the CooperGo in order to prevent any potential further incidents.

Willingness to take responsibility **Low**

At Cooper we work hard to create products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the CooperGo could get overheated is a construction fault made by one of our suppliers. It is hard to believe they are responsible for the recent events and they took such a misstep. We therefore ended our relationship with the supplier to make sure this will not happen again. At Cooper, we only want to work with truly capable partners.

Willingness to take responsibility **Moderate**

At Cooper we work hard to create products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry full of technology mistakes cannot entirely be ruled

out. Due to a construction fault in the housing of the CooperGo, produced by one of our suppliers, the CooperGo could get overheated easily. We do therefore take our joint responsibility. In close cooperation with the supplier we work on a sustainable solution in order to prevent future problems.

Willingness to take responsibility

High

At Cooper we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. Of course we take full responsibility for the incidents and we will do everything within our power to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

Proactiveness of response

Low

Through this statement we would like to inform you about the recall by Cooper of all CooperGo laptops purchased in the Netherlands. All CooperGo laptops purchased in January, February and March 2017 can be returned. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. If you want to be eligible for the refund, return your purchase before the end of this month.

For any questions or remarks about this recall, please do not hesitate to contact the supplier of the laptop housing (www.techparts.com). We trust similar events will not happen again in the future.

Proactiveness of response

Moderate

We hereby inform you about the recall by Cooper of all CooperGo laptops purchased in the Netherlands. Customers who purchased a CooperGo within the Netherlands may either send it to us or return it to their local Cooper store. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. The serial number can be found at the bottom of your laptop and can be checked at our website. Customers will receive the refund within three weeks after they returned their purchase. For any questions or remarks please do not hesitate to contact our customer service.

Proactiveness of response

High

If you bought a CooperGo, you may either send your purchase to us or return it at your local Cooper store. We will make sure you will receive the refund within five days. If you send it to us, please use the online form on our website and add it to your package. Any additional shipping costs will be compensated.

Customers who are affected by this may also choose to receive the CooperPlus instead of a refund (against no additional costs) or a discount of 20% on one of our other laptops.

Questions? We are here 24/7 to help you out. We do our very best to not let you down again.

Scenario 1

Low speed of response, low willingness to take responsibility, low proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, four months ago Cooper has been condemned by public authorities to recall the CooperGo to make sure no further incidents occur.

At Cooper we work hard to create products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the CooperGo could get overheated is a construction fault made by one of our suppliers. It is hard to believe they are responsible for the recent events and they took such a misstep. We therefore ended our relationship with the supplier to make sure this will not happen again. At Cooper, we only want to work with truly capable partners.

All CooperGo laptops purchased in January, February and March 2017 can be returned. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. If you want to be eligible for the refund, return your purchase before the end of this month.

For any questions or remarks about this recall, please do not hesitate to contact the supplier of the laptop housing (www.techparts.com). We trust similar events will not happen again in the future.”

Scenario 2

Low speed of response, moderate willingness to take responsibility, moderate proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, four months ago Cooper has been condemned by public authorities to recall the CooperGo to make sure no further incidents occur.

At Cooper we work hard to create products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry full of technology mistakes cannot entirely be ruled out. Due to a construction fault in the housing of the CooperGo, produced by one of our suppliers, the CooperGo could get overheated easily. We do therefore take our joint responsibility. In close cooperation with the supplier we work on a sustainable solution in order to prevent future problems.

Customers who purchased a CooperGo within the Netherlands may either send it to us or return it to their local Cooper store. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. The serial number can be found at the bottom of your laptop and can be checked at our website. Customers will receive the refund within three weeks after they returned their purchase. For any questions or remarks please do not hesitate to contact our customer service.”

Scenario 3

Low speed of response, high willingness to take responsibility, high proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, four months ago Cooper has been condemned by public authorities to recall the CooperGo to make sure no further incidents occur.

At Cooper we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. Of course we take full responsibility for the incidents and we will do everything within our power to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

If you bought a CooperGo, you may either send your purchase to us or return it at your local Cooper store. We will make sure you will receive the refund within five days. If you send it to us, please use the online form on our website and add it to your package. Any additional shipping costs will be compensated.

Customers who are affected by this may also choose to receive the CooperPlus instead of a refund (against no additional costs) or a discount of 20% on one of our other laptops.

Questions? We are here 24/7 to help you out. We do our very best to not let you down again.”

Scenario 4

High speed of response, low willingness to take responsibility, low proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, Cooper immediately decided to make the precautionary decision to voluntarily recall the CooperGo in order to prevent any potential further incidents.

At Cooper we work hard to create products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the CooperGo could get overheated is a construction fault made by one of our suppliers. It is hard to believe they are responsible for the recent events and they took such a misstep. We therefore ended our relationship with the supplier to make sure this will not happen again. At Cooper, we only want to work with truly capable partners.

Through this statement we would like to inform you about the recall by Cooper of all CooperGo laptops purchased in the Netherlands. All CooperGo laptops purchased in January, February and March 2017 can be returned. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. If you want to be eligible for the refund, return your purchase before the end of this month.

For any questions or remarks about this recall, please do not hesitate to contact the supplier of the laptop housing (www.techparts.com). We trust similar events will not happen again in the future.”

Scenario 5

High speed of response, moderate willingness to take responsibility, moderate proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, Cooper immediately decided to make the precautionary decision to voluntarily recall the CooperGo in order to prevent any potential further incidents.

At Cooper we work hard to create products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry full of technology mistakes cannot entirely be ruled out. Due to a construction fault in the housing of the CooperGo, produced by one of our suppliers, the CooperGo could get overheated easily. We do therefore take our joint responsibility. In close cooperation with the supplier we work on a sustainable solution in order to prevent future problems.

Customers who purchased a CooperGo within the Netherlands may either send it to us or return it to their local Cooper store. Do check the serial number of your CooperGo to see whether your laptop falls under the arrangement. The serial number can be found at the bottom of your laptop and can be checked at our website. Customers will receive the refund within three weeks after they returned their purchase. For any questions or remarks please do not hesitate to contact our customer service.”

Scenario 6

High speed of response, high willingness to take responsibility, high proactiveness of response.

“After some unfortunate incidents were reported concerning the CooperGo purchased in the Netherlands, Cooper immediately decided to make the precautionary decision to voluntarily recall the CooperGo in order to prevent any potential further incidents.

At Cooper we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. Of course we take full responsibility for the incidents and we will do everything within our power to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

If you bought a CooperGo, you may either send your purchase to us or return it at your local Cooper store. We will make sure you will receive the refund within five days. If you send it to us, please use the online form on our website and add it to your package. Any additional shipping costs will be compensated.

Customers who are affected by this may also choose to receive the CooperPlus instead of a refund (against no additional costs) or a discount of 20% on one of our other laptops.

Questions? We are here 24/7 to help you out. We do our very best to not let you down again.”

Case B: AquaVitamin – Beverages Industry

General information (provided to all participants).

“AquaVita” is a Dutch brand selling mineral water to consumers. In January 2017, a new product was released: AquaVitamin. AquaVitamin is mineral water available with different flavors and added vitamins. It is developed especially for consumers who prefer mineral water with a taste and care about their well-being in general. After a few months, it appears that a small group of customers suffers from health issues after drinking AquaVitamin, because the level of added vitamins is too concentrated. These customers experience headaches, stomach pain and diarrhea. Some of them needed to receive a treatment in hospital. In two cases, customers had even to be induced into coma for full recovery.

In a public statement, AquaVita reacts as follows:

Scenario options

Speed of response

Low

AquaVita has been condemned by the public authorities to recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the events reported four months ago which possibly led to temporarily health issues for a minority of customers.

Speed of Response

High

AquaVita has made the precautionary decision to voluntarily recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the recently reported events which possibly led to temporarily health issues for a minority of customers.

Willingness to take responsibility

Low

At AquaVita we work hard to produce products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the AquaVitamin could cause health troubles in exceptional cases is that our vitamin supplier made mistakes in the level of concentration they delivered. It is hard to believe they took such a misstep. We therefore ended our relationship with them to make sure this will not happen again. At AquaVita, we only want to work with truly capable partners who care about your health as much as we do.

Willingness to take responsibility

Moderate

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry where humans work mistakes cannot entirely be ruled out. Due to a too high level of concentrated vitamins delivered by one of our suppliers, AquaVitamin could cause health troubles like headaches and diarrhea in exceptional cases.

In close cooperation with the supplier we work on a sustainable solution in order to prevent this to happen again.

Willingness to take responsibility

High

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. We of course take responsibility for the incidents and we will do everything within our power to take measures to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

Proactiveness of response

Low

Through this statement we would like to inform you about the recall by AquaVita of all AquaVitamin products purchased in the Netherlands. For any questions or remarks about this recall, please do not hesitate to contact the vitamin supplier (www.vitaminsforyou.com).

Proactiveness of response

Moderate

We hereby inform you about the recall by AquaVita of all AquaVitamin beverages purchased in the Netherlands. Customers who purchased a bottle of AquaVitamin within the Netherlands may either send it to us or return it at their vendor. Although the change at infections or health issues is very low, we advise you not to drink recently purchased AquaVitamin. Customers will receive a refund within three weeks after they returned their purchase. For any questions or remarks you may contact our customer service.

Proactiveness of response

High

We hereby inform you about the recall of all AquaVitamin beverages purchased in the Netherlands. Please follow our step-by-step guide to see how we are going to help you.

Step-by-step Guide:

1. Is your beverage called AquaVitamin?
2. If yes, did you purchase your bottle within the Netherlands?
3. If yes, please contact our Customer Service by visiting www.aquavitamin.com or contact us via phone, Facebook or Twitter.
4. You may either send your purchase to us or return it at your local vendor.

We will make sure you will receive a refund as soon as possible. Also any additional shipping costs will be compensated. All customer who are affected by this will be offered a free package of our other products to make up for all the inconvenience caused. Also, they will receive a discount coupon of 20% to use for their next purchase.

If there are any questions: we are here 24/7 to help you out.

We do our very best to not let you down again.

Scenario 1

Low speed of response, low willingness to take responsibility, low proactiveness of response.

“AquaVita has been condemned by the public authorities to recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the events reported two months ago which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the AquaVitamin could cause health troubles in exceptional cases is that our vitamin supplier made mistakes in the level of concentration they delivered. It is hard to believe they took such a misstep. We therefore ended our relationship with them to make sure this will not happen again. At AquaVita, we only want to work with truly capable partners who care about your health as much as we do.

Through this statement we would like to inform you about the recall by AquaVita of all AquaVitamin products purchased in the Netherlands. For any questions or remarks about this recall, please do not hesitate to contact the vitamin supplier (www.vitaminsforyou.com).”

Scenario 2

Low speed of response, moderate willingness to take responsibility, moderate proactiveness of response.

“AquaVita has been condemned by the public authorities to recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the events reported two months ago which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry where humans work mistakes cannot entirely be ruled out. Due to a too high level of concentrated vitamins delivered by one of our suppliers, AquaVitamin could cause health troubles like headaches and diarrhea in exceptional cases. In close cooperation with the supplier we work on a sustainable solution in order to prevent this to happen again.

We hereby inform you about the recall by AquaVita of all AquaVitamin beverages purchased in the Netherlands. Customers who purchased a bottle of AquaVitamin within the Netherlands may either send it to us or return it at their vendor. Although the change at infections or health issues is very low, we advise you not to drink recently purchased AquaVitamin. Customers will receive a refund within three weeks after they returned their purchase. For any questions or remarks you may contact our customer service.”

Scenario 3

Low speed of response, high willingness to take responsibility, high proactiveness of response.

“AquaVita has been condemned by the public authorities to recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the events reported two months ago which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. We of course take responsibility for the incidents and we will do everything within our power to take measures to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

We hereby inform you about the recall of all AquaVitamin beverages purchased in the Netherlands. Please follow our step-by-step guide to see how we are going to help you.

Step-by-step Guide:

1. Is your beverage called AquaVitamin?
2. If yes, did you purchase your bottle within the Netherlands?
3. If yes, please contact our Customer Service by visiting www.aquavitamin.com or contact us via phone, Facebook or Twitter.
4. You may either send your purchase to us or return it at your local vendor.

We will make sure you will receive a refund as soon as possible. Also any additional shipping costs will be compensated. All customer who are affected by this will be offered a free package of our other products to make up for all the inconvenience caused. Also, they will receive a discount coupon of 20% to use for their next purchase.

If there are any questions: we are here 24/7 to help you out.

We do our very best to not let you down again.”

Scenario 4

High speed of response, low willingness to take responsibility, low proactiveness of response.

“AquaVita has made the precautionary decision to voluntarily recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the recently reported events which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we are deeply disappointed that recent events happened. The reason for the fact that the AquaVitamin could cause health troubles in exceptional cases is that our vitamin supplier made mistakes in the level of concentration they delivered. It is hard to believe they took such a misstep. We therefore ended our relationship with them to make sure this will not happen again. At AquaVita, we only want to work with truly capable partners who care about your health as much as we do.

Through this statement we would like to inform you about the recall by AquaVita of all AquaVitamin products purchased in the Netherlands. For any questions or remarks about this recall, please do not hesitate to contact the vitamin supplier (www.vitaminsforyou.com).”

Scenario 5

High speed of response, moderate willingness to take responsibility, moderate proactiveness of response.

“AquaVita has made the precautionary decision to voluntarily recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the recently reported events which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we regret the recent events. We emphasize that in an industry where humans work mistakes cannot entirely be ruled out. Due to a too high level of concentrated vitamins delivered by one of our suppliers, AquaVitamin could cause health troubles like headaches and diarrhea in exceptional cases. In close cooperation with the supplier we work on a sustainable solution in order to prevent this to happen again.

We hereby inform you about the recall by AquaVita of all AquaVitamin beverages purchased in the Netherlands. Customers who purchased a bottle of AquaVitamin within the Netherlands may either send it to us or return it at their vendor. Although the change at infections or health issues is very low, we advise you not to drink recently purchased AquaVitamin. Customers will receive a refund within three weeks after they returned their purchase. For any questions or remarks you may contact our customer service.”

Scenario 6

“High speed of response, high willingness to take responsibility, high proactiveness of response.

AquaVita has made the precautionary decision to voluntarily recall all AquaVitamin products purchased within the Netherlands. The reason for this recall are the recently reported events which possibly led to temporarily health issues for a minority of customers.

At AquaVita we work extremely hard to produce products that our customers will love. Therefore, we are more than sorry about the recent events. We started an internal investigation to see how this could happen and fully cooperate with the authorities. Once the final reports are ready, they will be published on our website. We of course take responsibility for the incidents and we will do everything within our power to take measures to make sure this will not happen again. To everyone (in)directly affected we offer our sincere apologies.

We hereby inform you about the recall of all AquaVitamin beverages purchased in the Netherlands. Please follow our step-by-step guide to see how we are going to help you.

Step-by-step Guide:

1. Is your beverage called AquaVitamin?
2. If yes, did you purchase your bottle within the Netherlands?
3. If yes, please contact our Customer Service by visiting www.aquavitamin.com or contact us via phone, Facebook or Twitter.
4. You may either send your purchase to us or return it at your local vendor.

We will make sure you will receive a refund as soon as possible. Also any additional shipping costs will be compensated. All customer who are affected by this will be offered a free package of our other products to make up for all the inconvenience caused. Also, they will receive a discount coupon of 20% to use for their next purchase.

If there are any questions: we are here 24/7 to help you out.

We do our very best to not let you down again.”

Appendix C) Measurements

| Variables | Answer categories |
|--------------------|---|
| Gender | <i>What is your gender?</i> <ul style="list-style-type: none"> ○ Male ○ Female |
| Level of education | <i>What is the highest degree or level of school you have completed? (If you are currently enrolled, please indicate the highest degree you have received).</i> <ul style="list-style-type: none"> ○ Less than a high school diploma ○ High school degree or equivalent ○ College, no degree ○ Bachelor's degree ○ Master's degree ○ Doctorate ○ Other, namely.... |
| Age | <i>How old are you?</i> <ul style="list-style-type: none"> ○ 18-29 ○ 30-49 ○ 50-65 ○ 65+ |

| Scale | Scale items |
|--|---|
| Risk aversion | <p>When I buy a laptop, I feel it is safer to buy a brand I am familiar with</p> <p>I would rather stick with a brand I usually buy than try something I am not very sure of</p> <p>If I buy a laptop, I will buy only well-established brands</p> <p>OR</p> <p>When I buy drinks enriched with vitamins, I feel it is safer to buy a brand I am familiar with</p> <p>I would rather stick with a brand I usually buy than try something I am not very sure of</p> <p>If I buy a drink enriched with vitamins, I will buy only well-established brands</p> |
| Perceived speed of response | <p>AquaVita/Cooper announced the recall soon after the incident occurred.</p> <p>AquaVita/Cooper acted voluntarily after the incident occurred.</p> <p>AquaVita/Cooper was forced by authorities to make an announcement.*</p> |
| Perceived willingness to take responsibility | <p>AquaVita/Cooper took responsibility for the incident.</p> <p>AquaVita/Cooper tried to disconnect the incident from the company.*</p> <p>AquaVita/Cooper tried to blame someone else for the defective product.*</p> |

| | |
|-------------------------------------|--|
| | <p>AquaVita/Cooper tried to play down their role in the incident.*</p> <p>AquaVita/Cooper informed their customers in a transparent way.</p> <p>AquaVita//Cooper offered their honest apologies.</p> |
| Perceived proactiveness of response | <p>It is clear to me what concrete actions I can expect from Cooper/AquaVita.</p> <p>I understand how I can return my purchased product.</p> <p>I feel like I have been offered something extra (next to the option to return).</p> <p>The information about the recall process is limited.*</p> |
| Brand trust | <p>I would trust this brand.</p> <p>I would rely on this brand.</p> <p>This is an honest brand.</p> <p>This brand seems safe.</p> |
| Purchase loyalty | <p>I would intend to continue to be a customer of AquaVita/Cooper.</p> <p>Next time I would need products of AquaVita/Cooper I would buy it from them.</p> |
| Attitudinal loyalty | <p>I would be committed to Cooper/AquaVita.</p> <p>I would be willing to pay a higher price for this brand over other brands.</p> |

*Items were reversed

Appendix D) Results Exploratory Factor Analysis – Full Set of Variables

Table D-1 OBLIMIN-Rotated Principal Component Analysis: Full Set of Variables (Pattern Matrix)

| Full set of 13 variables | Factor ^a | | | Communality ^b |
|---|---------------------|--------|-------|--------------------------|
| | 1 | 2 | 3 | |
| Perc. Willingness to Take Responsibility 3 (Reversed) | .993 | | | .834 |
| Perc. Willingness to Take Responsibility 2 (Reversed) | .966 | | | .856 |
| Perc. Willingness to Take Responsibility 4 (Reversed) | .856 | | | .747 |
| Perc. Proactiveness of Response 3 | .669 | | | .572 |
| Perc. Willingness to Take Responsibility 1 | .647 | | | .717 |
| Perc. Willingness to Take Responsibility 6 | .523 | | | .645 |
| Perc. Willingness to Take Responsibility 5 | | | | .472 |
| Perc. Speed of Response 2 | | .904 | | .807 |
| Perc. Speed of Response 3 | | .800 | | .606 |
| Perc. Speed of Response 1 (Reversed) | | .760 | | .580 |
| Perc. Proactiveness of Response 2 | | | .944 | .784 |
| Perc. Proactiveness of Response 1 | | | .869 | .735 |
| Perc. Proactiveness of Response 4 (Reversed) | | | .629 | .571 |
| | | | | Total |
| Sum Squared Loadings (Eigenvalue) | 6.112 | 1.788 | 1.024 | |
| Percentage of Trace | 47.016 | 13.756 | 7.877 | 68.649 |

a: Factor loadings less than .50 have been hidden and variables have been sorted by loadings on each factor.

b: Communality values are not equal to the sum of the squared loadings due to the correlation of the factors.

Appendix E) Results Model 1

Table E-1 Inter-Construct Correlations and Reliability Measures Model 1

| Table 2-1 Inter-Construct Correlations and Reliability Measures Model 1 | | | Inter-Construct Correlations | | | | | | |
|---|----------------------------------|---------------------|------------------------------|-------------------|----------------|---------------|------------------|---------------------|---------------|
| Dijkstra-Henselers rho (ρ_A) | Average Variance Extracted (AVE) | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion |
| 0.8994 | 0.6888 | Brand Trust | 1.000 | | | | | | |
| 0.7924 | 0.5291 | Speed of Response | 0.5129 | 1.0000 | | | | | |
| 0.9135 | 0.6665 | Responsibility | 0.7069 | 0.4309 | 1.0000 | | | | |
| 0.7991 | 0.5657 | Proactiveness | 0.5358 | 0.3077 | 0.7481 | 1.0000 | | | |
| 0.8942 | 0.8074 | Purchase Loyalty | 0.9525 | 0.4303 | 0.5830 | 0.4066 | 1.0000 | | |
| 0.8508 | 0.7254 | Attitudinal Loyalty | 0.8491 | 0.3358 | 0.5009 | 0.3581 | 0.9069 | 1.0000 | |
| 0.8602 | 0.5469 | Risk Aversion | -0.0821 | 0.0040 | -0.1008 | -0.0542 | -0.1526 | 0.0162 | 1.0000 |
| Discriminant Validity: Fornell-Larcker Criterion | | | | | | | | | |
| Number of Items | | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion |
| 4 | | Brand Trust | 0.6888 | | | | | | |
| 3 | | Speed of Response | 0.2630 | 0.5291 | | | | | |
| 5 | | Responsibility | 0.4997 | 0.1857 | 0.6665 | | | | |
| 3 | | Proactiveness | 0.2871 | 0.0947 | 0.5596 | 0.5657 | | | |
| 2 | | Purchase Loyalty | 0.9072 | 0.1852 | 0.3399 | 0.1654 | 0.8074 | | |
| 2 | | Attitudinal Loyalty | 0.7210 | 0.1128 | 0.2509 | 0.1282 | 0.8224 | 0.7254 | |
| 3 | | Risk Aversion | 0.0067 | 0.0000 | 0.0102 | 0.0029 | 0.0233 | 0.0003 | 0.5469 |
| Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations | | | | | | | | | |
| Number of Items | | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion |
| 4 | | Brand Trust | | | | | | | |
| 3 | | Speed of Response | 0.5120 | | | | | | |
| 5 | | Responsibility | 0.7046 | 0.4242 | | | | | |
| 3 | | Proactiveness | 0.5361 | 0.3098 | 0.7454 | | | | |
| 2 | | Purchase Loyalty | 0.9535 | 0.4272 | 0.5777 | 0.4057 | | | |
| 2 | | Attitudinal Loyalty | 0.8525 | 0.3236 | 0.4963 | 0.3581 | 0.9122 | | |
| 3 | | Risk Aversion | 0.0805 | 0.0113 | 0.1043 | 0.0694 | 0.1533 | 0.0128 | |

Table E-2 Outer Model Loadings and Cross Loadings Model 1

Loadings and Cross Loadings for the Measurement Model

| | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion |
|------------|-------------|-------------------|----------------|---------------|------------------|---------------------|---------------|
| RISK1 | -0.0783 | -0.0147 | -0.0653 | -0.0401 | -0.1345 | 0.0278 | 0.9543 |
| RISK2 | -0.0300 | 0.0002 | -0.0519 | -0.0822 | -0.0689 | -0.0116 | 0.3650 |
| RISK3 | -0.0634 | 0.0265 | -0.1090 | -0.0267 | -0.1254 | 0.0056 | 0.7724 |
| SPEED1 | 0.4041 | 0.7880 | 0.3096 | 0.2381 | 0.3242 | 0.2997 | 0.0448 |
| SPEED2 | 0.4218 | 0.8224 | 0.3644 | 0.2283 | 0.3718 | 0.2725 | 0.0328 |
| SPEED3REV | 0.2762 | 0.5386 | 0.2605 | 0.2100 | 0.2261 | 0.1351 | -0.1039 |
| RESP1 | 0.6199 | 0.4719 | 0.8769 | 0.6379 | 0.5287 | 0.3757 | -0.0886 |
| RESP2REV | 0.5661 | 0.2931 | 0.8009 | 0.6239 | 0.4705 | 0.4103 | -0.0883 |
| RESP3REV | 0.4819 | 0.2123 | 0.6817 | 0.5917 | 0.3855 | 0.3052 | -0.0700 |
| RESP4REV | 0.6024 | 0.3003 | 0.8522 | 0.6112 | 0.4959 | 0.4797 | -0.0743 |
| RESP6 | 0.6044 | 0.4523 | 0.8551 | 0.5960 | 0.4876 | 0.4613 | -0.0894 |
| PROACT1 | 0.4275 | 0.2395 | 0.5678 | 0.7979 | 0.3431 | 0.2807 | 0.0040 |
| PROACT2 | 0.3708 | 0.1460 | 0.5302 | 0.6920 | 0.3088 | 0.2576 | -0.0167 |
| PROACT4REV | 0.4086 | 0.3017 | 0.5896 | 0.7626 | 0.2657 | 0.2694 | -0.1096 |
| TRUST1 | 0.8644 | 0.4470 | 0.5828 | 0.4602 | 0.8474 | 0.7314 | -0.0616 |
| TRUST2 | 0.8502 | 0.3917 | 0.5411 | 0.3996 | 0.8399 | 0.8004 | -0.0463 |
| TRUST3 | 0.8019 | 0.5348 | 0.7402 | 0.5780 | 0.6118 | 0.5461 | -0.0826 |
| TRUST4 | 0.8013 | 0.3304 | 0.4870 | 0.3433 | 0.8574 | 0.7348 | -0.0840 |
| PURLOY1 | 0.8737 | 0.3878 | 0.5437 | 0.3894 | 0.9173 | 0.7969 | -0.1140 |
| PURLOY2 | 0.8377 | 0.3857 | 0.5034 | 0.3406 | 0.8795 | 0.8340 | -0.1613 |
| ATTLOY1 | 0.7813 | 0.3513 | 0.4736 | 0.3340 | 0.8248 | 0.9201 | -0.0135 |
| ATTLOY2 | 0.6600 | 0.2109 | 0.3743 | 0.2729 | 0.7162 | 0.7773 | 0.0462 |

Appendix F) Results Model 1A

Table F-1 Inter-Construct Correlations and Reliability Measures Model 1A

| Dijkstra-Henselers rho (ρ_A) | Average Variance Extracted (AVE) | | Inter-Construct Correlations | | | | |
|-------------------------------------|----------------------------------|-------------------|------------------------------|-------------------|----------------|---------------|---------------|
| | | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Risk Aversion |
| 0.9227 | 0.7775 | Brand Trust | 1.0000 | | | | |
| 0.8030 | 0.5321 | Speed of Response | 0.4441 | 1.0000 | | | |
| 0.9147 | 0.6660 | Responsibility | 0.6108 | 0.4292 | 1.0000 | | |
| 0.7989 | 0.5669 | Proactiveness | 0.4575 | 0.3036 | 0.7468 | 1.0000 | |
| 0.6216 | 0.4508 | Risk Aversion | -0.0604 | 0.0224 | -0.1191 | -0.0808 | 1.0000 |

| Discriminant Validity: Fornell-Larcker Criterion | | | | | | | |
|--|--|-------------------|-------------|-------------------|----------------|---------------|---------------|
| Number of Items | | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Risk Aversion |
| 3 | | Brand Trust | 0.7775 | | | | |
| 3 | | Speed of Response | 0.1972 | 0.5321 | | | |
| 5 | | Responsibility | 0.3731 | 0.1842 | 0.6660 | | |
| 3 | | Proactiveness | 0.2093 | 0.0922 | 0.5577 | 0.5669 | |
| 2 | | Risk Aversion | 0.0036 | 0.0005 | 0.0142 | 0.0065 | 0.4508 |

| Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations | | | | | | | |
|--|--|-------------------|-------------|-------------------|----------------|---------------|---------------|
| Number of Items | | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Risk Aversion |
| 3 | | Brand Trust | | | | | |
| 3 | | Speed of Response | 0.4389 | | | | |
| 5 | | Responsibility | 0.6066 | 0.4242 | | | |
| 3 | | Proactiveness | 0.4559 | 0.3098 | 0.7454 | | |
| 2 | | Risk Aversion | 0.0623 | 0.0024 | 0.1195 | 0.0816 | |

Table F-2 Outer Model Loadings and Cross Loadings Model 1A

| Loadings and Cross Loadings for the Measurement Model | | | | | |
|---|-------------|-------------------|----------------|---------------|---------------|
| | Brand Trust | Speed of Response | Responsibility | Proactiveness | Risk Aversion |
| RISK2 | -0.0411 | 0.0018 | -0.0517 | -0.0818 | 0.6807 |
| RISK3 | -0.0400 | 0.0286 | -0.1091 | -0.0259 | 0.6621 |
| SPEED1 | 0.3499 | 0.7878 | 0.3099 | 0.2366 | 0.0773 |
| SPEED2 | 0.3774 | 0.8498 | 0.3645 | 0.2268 | 0.0327 |
| SPEED3REV | 0.2235 | 0.5034 | 0.2606 | 0.2096 | -0.1053 |
| RESP1 | 0.5419 | 0.4695 | 0.8872 | 0.6375 | -0.1042 |
| RESP2REV | 0.4911 | 0.2914 | 0.8041 | 0.6230 | -0.1063 |
| RESP3REV | 0.4027 | 0.2106 | 0.6593 | 0.5912 | -0.0899 |
| RESP4REV | 0.5307 | 0.2989 | 0.8688 | 0.6101 | -0.0937 |
| RESP6 | 0.5135 | 0.4516 | 0.8407 | 0.5952 | -0.0929 |
| PROACT1 | 0.3650 | 0.2379 | 0.5674 | 0.7979 | -0.0053 |
| PROACT2 | 0.3250 | 0.1436 | 0.5299 | 0.7105 | -0.0453 |
| PROACT4REV | 0.3421 | 0.3002 | 0.5894 | 0.7478 | -0.1350 |
| TRUST1 | 0.9778 | 0.4454 | 0.5829 | 0.4600 | -0.0431 |
| TRUST2 | 0.8807 | 0.3905 | 0.5414 | 0.3988 | -0.0473 |
| TRUST4 | 0.7750 | 0.3308 | 0.4875 | 0.3433 | -0.0736 |

Appendix G) Results Model 2

Figure 6 Model 2

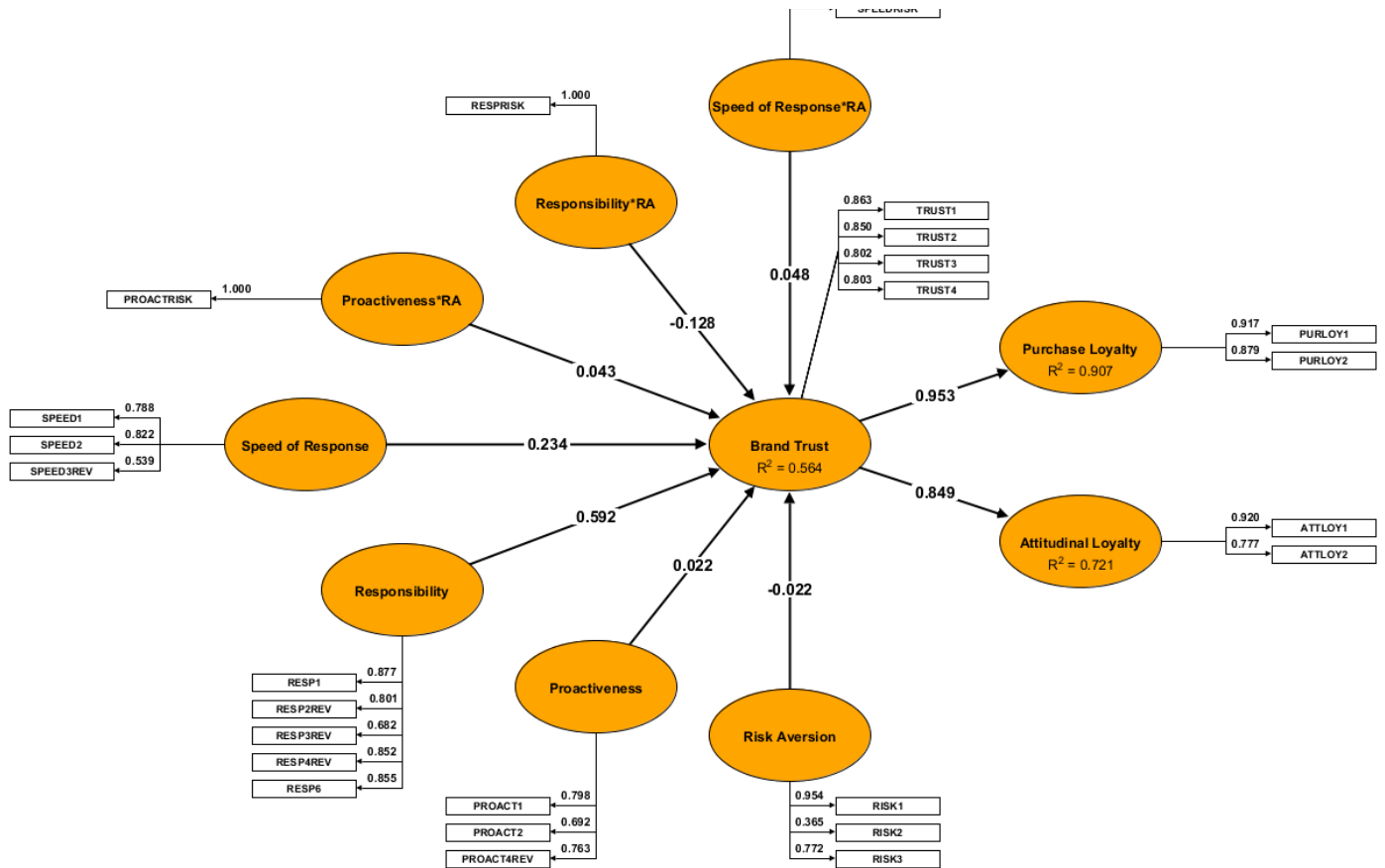


Table G-1 Inter-Construct Correlations and Reliability Measures Model 2

| | | | Inter-Construct Correlations | | | | | | | | | |
|-------------------------------------|----------------------------------|-------------------|------------------------------|-------------------|----------------|---------------|------------------|---------------------|---------------|----------|-----------|-----------|
| Dijkstra-Henselers rho (ρ_A) | Average Variance Extracted (AVE) | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion | Speed*RA | Respon*RA | Proact*RA |
| 0.8993 | 0.6887 | Brand Trust | 1.000 | | | | | | | | | |
| 0.7924 | 0.5291 | Speed of Response | 0.5128 | 1.0000 | | | | | | | | |
| 0.9135 | 0.6665 | Responsibility | 0.7069 | 0.4309 | 1.0000 | | | | | | | |
| 0.7991 | 0.5657 | Proactiveness | 0.5358 | 0.3077 | 0.7481 | 1.0000 | | | | | | |
| 0.8942 | 0.8075 | Pur. Loyalty | 0.9526 | 0.4303 | 0.5830 | 0.4066 | 1.0000 | | | | | |
| 0.8508 | 0.7254 | Att. Loyalty | 0.8492 | 0.3358 | 0.5009 | 0.3581 | 0.9069 | 1.0000 | | | | |
| 0.8602 | 0.5469 | Risk Aversion | -0.0821 | 0.0040 | -0.1008 | -0.0542 | -0.1526 | 0.0162 | 1.0000 | | | |
| 1.0000 | 1.0000 | Speed *RA | -0.0226 | -0.0053 | -0.0979 | -0.0322 | -0.0228 | -0.0447 | 0.0050 | 1.0000 | | |
| 1.0000 | 1.0000 | Respon*RA | -0.1205 | -0.1502 | 0.0041 | 0.0036 | -0.1277 | -0.1805 | 0.0023 | 0.1460 | 1.0000 | |
| 1.0000 | 1.0000 | Proact*RA | -0.0457 | -0.0457 | 0.0189 | 0.0017 | -0.0238 | -0.0917 | -0.0018 | 0.1901 | 0.7598 | 1.0000 |

Table G-2 Discriminant Validity Model 2

| Discriminant Validity: Fornell-Larcker Criterion | | | | | | | | | | | |
|--|---------------------|---------------|-------------------|----------------|---------------|------------------|---------------------|---------------|-----------|------------|------------|
| Number of Items | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| 4 | Brand Trust | 0.6887 | | | | | | | | | |
| 3 | Speed of Response | 0.2630 | 0.5291 | | | | | | | | |
| 5 | Responsibility | 0.4998 | 0.1857 | 0.6665 | | | | | | | |
| 3 | Proactiveness | 0.2871 | 0.0947 | 0.5596 | 0.5657 | | | | | | |
| 2 | Purchase Loyalty | 0.9074 | 0.1852 | 0.3399 | 0.1654 | 0.8075 | | | | | |
| 2 | Attitudinal Loyalty | 0.7212 | 0.1128 | 0.2509 | 0.1282 | 0.8224 | 0.7254 | | | | |
| 3 | Risk Aversion | 0.0067 | 0.0000 | 0.0102 | 0.0029 | 0.0233 | 0.0003 | 0.5469 | | | |
| 1 | Speed *RA | 0.0005 | 0.0000 | 0.0096 | 0.0010 | 0.0005 | 0.0020 | 0.0000 | 1.0000 | | |
| 1 | Respon*RA | 0.0145 | 0.0226 | 0.0000 | 0.0000 | 0.0163 | 0.0326 | 0.0000 | 0.0213 | 1.0000 | |
| 1 | Proact*RA | 0.0019 | 0.0021 | 0.0004 | 0.0000 | 0.0006 | 0.0084 | 0.0000 | 0.0361 | 0.5773 | 1.0000 |

| Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations | | | | | | | | | | | |
|--|---------------------|---------------|-------------------|-----------------|----------------|------------------|---------------------|---------------|-----------|------------|------------|
| Number of Items | | Brand Trust | Speed of Response | Respons-ibility | Proac-tiveness | Purchase Loyalty | Attitudinal Loyalty | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| 4 | Brand Trust | | | | | | | | | | |
| 3 | Speed of Response | 0.5120 | | | | | | | | | |
| 5 | Responsibility | 0.7046 | 0.4242 | | | | | | | | |
| 3 | Proactiveness | 0.5361 | 0.3098 | 0.7454 | | | | | | | |
| 2 | Purchase Loyalty | 0.9535 | 0.4272 | 0.5777 | 0.4057 | | | | | | |
| 2 | Attitudinal Loyalty | 0.8525 | 0.3236 | 0.4963 | 0.3581 | 0.9122 | | | | | |
| 3 | Risk Aversion | 0.0805 | 0.0113 | 0.1043 | 0.0694 | 0.1533 | 0.0128 | | | | |
| 1 | Speed*RA | 0.0231 | 0.000 | 0.0972 | 0.0309 | 0.0227 | 0.0488 | 0.0021 | | | |
| 1 | Respon*RA | 0.121 | 0.1531 | 0.0058 | 0.0041 | 0.1280 | 0.1824 | 0.0003 | 0.1460 | | |
| 1 | Proact*RA | 0.0447 | 0.0500 | 0.0188 | 0.008 | 0.0240 | 0.0941 | 0.0013 | 0.1901 | 0.7598 | |

Table G-3 Outer Model Loadings and Cross Loadings Model 2

Loadings and Cross Loadings for the Measurement Model

| | Brand Trust | Speed of Response | Responsibility | Proactiveness | Pur. Loyalty | Att. Loyalty | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
|------------|-------------|-------------------|----------------|---------------|--------------|--------------|---------------|-----------|------------|------------|
| RISK1 | -0.0784 | -0.0147 | -0.0653 | -0.0401 | -0.1344 | 0.0278 | 0.9543 | -0.0179 | 0.0022 | -0.0267 |
| RISK2 | -0.0300 | 0.0002 | -0.0519 | -0.0822 | -0.0689 | -0.0116 | 0.3650 | -0.0366 | -0.0095 | -0.0100 |
| RISK3 | -0.0634 | 0.0265 | -0.1090 | -0.0267 | -0.1254 | 0.0056 | 0.7724 | 0.0500 | 0.0067 | 0.0338 |
| SPEED1 | 0.4041 | 0.7880 | 0.3096 | 0.2381 | 0.3242 | 0.2997 | 0.0448 | -0.0552 | -0.1521 | -0.0693 |
| SPEED2 | 0.4218 | 0.8224 | 0.3644 | 0.2283 | 0.3718 | 0.2725 | 0.0328 | 0.0190 | -0.0786 | 0.0102 |
| SPEED3REV | 0.2762 | 0.5385 | 0.2605 | 0.2100 | 0.2261 | 0.1351 | -0.1039 | 0.0363 | -0.1000 | -0.0489 |
| RESP1 | 0.6199 | 0.4719 | 0.8769 | 0.6379 | 0.5287 | 0.3757 | -0.0886 | -0.0585 | -0.0260 | 0.0054 |
| RESP2REV | 0.5662 | 0.2931 | 0.8009 | 0.6239 | 0.4705 | 0.4103 | -0.0883 | -0.1122 | 0.0321 | 0.0247 |
| RESP3REV | 0.4819 | 0.2123 | 0.6817 | 0.5917 | 0.3855 | 0.3052 | -0.0700 | -0.0536 | 0.0257 | 0.0105 |
| RESP4REV | 0.6025 | 0.3003 | 0.8523 | 0.6112 | 0.4959 | 0.4797 | -0.0743 | -0.0874 | 0.0324 | 0.0202 |
| RESP6 | 0.6044 | 0.4523 | 0.8550 | 0.5960 | 0.4876 | 0.4613 | -0.0894 | -0.0867 | -0.0404 | 0.0164 |
| PROACT1 | 0.4275 | 0.2395 | 0.5678 | 0.7979 | 0.3431 | 0.2807 | 0.0040 | -0.0719 | -0.0097 | -0.0013 |
| PROACT2 | 0.3708 | 0.1460 | 0.5302 | 0.6920 | 0.3088 | 0.2576 | -0.0167 | -0.0167 | 0.0086 | -0.0229 |
| PROACT4REV | 0.4086 | 0.3017 | 0.5896 | 0.7626 | 0.2657 | 0.2694 | -0.1096 | 0.0187 | 0.0102 | 0.0260 |
| TRUST1 | 0.8627 | 0.4470 | 0.5828 | 0.4602 | 0.8474 | 0.7314 | -0.0616 | 0.0039 | -0.0843 | -0.0193 |
| TRUST2 | 0.8499 | 0.3917 | 0.5411 | 0.3996 | 0.8399 | 0.8004 | -0.0463 | -0.0187 | -0.1023 | -0.0239 |
| TRUST3 | 0.8020 | 0.5348 | 0.7402 | 0.5780 | 0.6118 | 0.5461 | -0.0826 | -0.0107 | -0.1014 | -0.0346 |
| TRUST4 | 0.8030 | 0.3304 | 0.4870 | 0.3433 | 0.8574 | 0.7348 | -0.0840 | -0.0511 | -0.1131 | -0.0702 |
| PURLOY1 | 0.8738 | 0.3878 | 0.5437 | 0.3894 | 0.9173 | 0.7969 | -0.1140 | -0.0284 | -0.1088 | -0.0158 |
| PURLOY2 | 0.8378 | 0.3857 | 0.5034 | 0.3406 | 0.8795 | 0.8340 | -0.1613 | -0.0123 | -0.1211 | -0.0273 |
| ATTLOY1 | 0.7814 | 0.3513 | 0.4736 | 0.3340 | 0.8248 | 0.9201 | -0.0135 | -0.0048 | -0.1542 | -0.0654 |
| ATTLOY2 | 0.6600 | 0.2109 | 0.3743 | 0.2729 | 0.7162 | 0.7773 | 0.0462 | -0.0777 | -0.1543 | -0.0937 |
| SPEEDRISK | -0.0226 | -0.0053 | -0.0979 | -0.0322 | -0.0228 | -0.0447 | 0.0050 | 1.0000 | 0.1460 | 0.1901 |
| RESRISK | -0.1205 | -0.1502 | 0.0041 | 0.0036 | -0.1277 | -0.1805 | 0.0023 | 0.1460 | 1.0000 | 0.7598 |
| PROACTRISK | -0.0440 | -0.0457 | 0.0189 | 0.0017 | -0.0238 | -0.0917 | -0.0018 | 0.1901 | 0.7598 | 1.0000 |

Table G-4 Overview Total Effects Structural Model 2

| Direct Total Effects | Beta | Cohen's F ² |
|---|----------------|------------------------|
| Speed of Response -> Brand Trust | 0.234 | 0.0979 |
| Responsibility -> Brand Trust | 0.5921 | 0.3088 |
| Proactiveness -> Brand Trust | -0.0215 | 0.0005 |
| Brand Trust -> Purchase Loyalty | 0.9526 | 9.7965 |
| Brand Trust -> Attitudinal Loyalty | 0.8492 | 2.5862 |
| Risk Aversion -> Brand Trust | -0.0221 | 0.0011 |
| Speed of Response*RA -> Brand Trust | 0.0478 | 0.0050 |
| Responsibility*RA -> Brand Trust | -0.1277 | 0.0152 |
| Proactiveness*RA -> Brand Trust | 0.0434 | 0.0018 |
| <hr/> | | |
| Indirect Total Effects | Beta | |
| Speed of Response -> Purchase Loyalty | 0.2231 | |
| Speed of Response -> Attitudinal Loyalty | 0.1989 | |
| Responsibility -> Purchase Loyalty | 0.5640 | |
| Responsibility -> Attitudinal Loyalty | 0.5028 | |
| Proactiveness -> Purchase Loyalty | 0.0205 | |
| Proactiveness -> Attitudinal Loyalty | 0.0183 | |
| Risk Aversion -> Purchase Loyalty | -0.0210 | |
| Risk Aversion -> Attitudinal Loyalty | -0.0187 | |
| Speed of Response*RA -> Purchase Loyalty | 0.0456 | |
| Responsibility*RA -> Purchase Loyalty | -0.1216 | |
| Proactiveness*RA -> Purchase Loyalty | 0.0413 | |
| Speed of Response*RA -> Attitudinal Loyalty | 0.0406 | |
| Responsibility*RA -> Attitudinal Loyalty | -0.1084 | |
| Proactiveness*RA -> Attitudinal Loyalty | 0.0369 | |
| <hr/> | | |
| Construct | R ² | Adj. R ² |
| Brand Trust | 0.5644 | 0.5529 |
| Purchase Loyalty | 0.9074 | 0.9070 |
| Attitudinal Loyalty | 0.7212 | 0.7201 |

Table G-5 Goodness of Model Fit Model 2

| Goodness of Model Fit (Saturated Model) | | | |
|---|-----------------------|----------------|----------------|
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0551 | 0.0591 | 0.0629 |
| | 0.9877 | 1.1335 | 1.2867 |
| | 0.6645 | 0.4844 | 0.5508 |
| <hr/> | | | |
| Goodness of Model Fit (Estimated Model) | | | |
| | Goodness of Model Fit | 95%-percentile | 99%-percentile |
| SRMR | 0.0616 | 0.0598 | 0.0641 |
| | 1.2333 | 1.1613 | 1.3337 |
| | 0.7022 | 0.4824 | 0.5505 |

Appendix H) Results Model 2A

Table H-1 Inter-Construct Correlations and Reliability Measures Model 2A

| Dijkstra-Henselers rho (ρ_A) | Average Variance Extracted (AVE) | Inter-Construct Correlations | | | | | | | |
|-------------------------------------|----------------------------------|------------------------------|-------------------|----------------|---------------|---------------|-----------|------------|------------|
| | | Brand Trust | Speed of Response | Responsibility | Proactiveness | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| 0.9211 | 0.7767 | Brand Trust | 1.000 | | | | | | |
| 0.8031 | 0.5321 | Speed of Response | 0.4442 | 1.0000 | | | | | |
| 0.9147 | 0.6660 | Responsibility | 0.6112 | 0.4291 | 1.0000 | | | | |
| 0.7989 | 0.5669 | Proactiveness | 0.4576 | 0.3036 | 0.7468 | 1.0000 | | | |
| 0.6216 | 0.4508 | Risk Aversion | -0.0605 | 0.0224 | -0.1191 | -0.0808 | 1.0000 | | |
| 1.0000 | 1.0000 | Speed *RA | -0.0226 | -0.0057 | -0.0980 | -0.0325 | 0.0091 | 1.0000 | |
| 1.0000 | 1.0000 | Respon*RA | -0.1118 | -0.1485 | 0.0042 | 0.0036 | -0.0023 | 0.1460 | 1.0000 |
| 1.0000 | 1.0000 | Proact*RA | -0.0406 | -0.0442 | 0.0189 | 0.0012 | 0.0173 | 0.1901 | 0.7598 |

Table H-2 Discriminant Validity Model 2A

| Discriminant Validity: Fornell-Larcker Criterion | | | | | | | | | |
|--|-------------------|-------------|-------------------|------------------|-----------------|---------------|-----------|------------|------------|
| Number of Items | | Brand Trust | Speed of Response | Respons- ibility | Proac- tiveness | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| 3 | Brand Trust | 0.7767 | | | | | | | |
| 3 | Speed of Response | 0.1973 | 0.5321 | | | | | | |
| 5 | Responsibility | 0.3735 | 0.1842 | 0.6660 | | | | | |
| 3 | Proactiveness | 0.2094 | 0.0911 | 0.5577 | 0.5669 | | | | |
| 2 | Risk Aversion | 0.0037 | 0.0005 | 0.0142 | 0.0065 | 0.4508 | | | |
| 1 | Speed *RA | 0.0005 | 0.0000 | 0.0096 | 0.0011 | 0.0001 | 1.0000 | | |
| 1 | Respon*RA | 0.0125 | 0.0220 | 0.0000 | 0.0000 | 0.0000 | 0.0213 | 1.0000 | |
| 1 | Proact*RA | 0.0017 | 0.0020 | 0.0004 | 0.0000 | 0.0003 | 0.0361 | 0.5773 | 1.0000 |

| Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations | | | | | | | | | |
|--|-------------------|-------------|-------------------|------------------|-----------------|---------------|-----------|------------|------------|
| Number of Items | | Brand Trust | Speed of Response | Respons- ibility | Proac- tiveness | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| 3 | Brand Trust | | | | | | | | |
| 3 | Speed of Response | 0.4389 | | | | | | | |
| 5 | Responsibility | 0.6066 | 0.4242 | | | | | | |
| 3 | Proactiveness | 0.4559 | 0.3098 | 0.7454 | | | | | |
| 2 | Risk Aversion | 0.0623 | 0.0024 | 0.1195 | 0.0816 | | | | |
| 1 | Speed*RA | 0.0250 | 0.0000 | 0.0972 | 0.0309 | 0.0100 | | | |
| 1 | Respon*RA | 0.1139 | 0.1531 | 0.0058 | 0.0041 | 0.0021 | 0.1460 | | |
| 1 | Proact*RA | 0.0431 | 0.0500 | 0.0188 | 0.0008 | 0.0177 | 0.1901 | 0.7598 | |

Table H-3 Outer Model Loadings and Cross Loadings Model 2A

| Loadings and Cross Loadings for the Measurement Model | | | | | | | | |
|---|-------------|-------------------|------------------|-----------------|---------------|-----------|------------|------------|
| | Brand Trust | Speed of Response | Respons- ibility | Proac- tiveness | Risk Aversion | Speed* RA | Respon* RA | Proact* RA |
| RISK2 | -0.0412 | 0.0018 | -0.0517 | -0.0818 | 0.6808 | -0.0366 | -0.0095 | -0.0100 |
| RISK3 | -0.0401 | 0.0287 | -0.1091 | -0.0259 | 0.6620 | 0.0500 | 0.0067 | 0.0338 |
| SPEED1 | 0.3501 | 0.7881 | 0.3099 | 0.2366 | 0.0773 | -0.0552 | -0.1521 | -0.0693 |
| SPEED2 | 0.3775 | 0.8498 | 0.3645 | 0.2268 | 0.0327 | 0.0190 | -0.0786 | 0.0102 |
| SPEED3REV | 0.2234 | 0.5028 | 0.2606 | 0.2096 | -0.1053 | 0.0363 | -0.1000 | -0.0489 |
| RESP1 | 0.5422 | 0.4695 | 0.8872 | 0.6375 | -0.1042 | -0.0585 | -0.0260 | 0.0054 |
| RESP2REV | 0.4915 | 0.2914 | 0.8042 | 0.6230 | -0.1063 | -0.1122 | 0.0321 | 0.0247 |
| RESP3REV | 0.4029 | 0.2105 | 0.6592 | 0.5912 | -0.0899 | -0.0536 | 0.0257 | 0.0105 |
| RESP4REV | 0.5311 | 0.2989 | 0.8690 | 0.6101 | -0.0936 | -0.0874 | 0.0324 | 0.0202 |
| RESP6 | 0.5137 | 0.4516 | 0.8405 | 0.5952 | -0.0929 | -0.0867 | -0.0404 | 0.0164 |
| PROACT1 | 0.3651 | 0.2379 | 0.5674 | 0.7979 | -0.0053 | -0.0719 | -0.0097 | -0.0013 |
| PROACT2 | 0.3252 | 0.1436 | 0.5299 | 0.7106 | -0.0454 | -0.0167 | 0.0086 | -0.0229 |
| PROACT4REV | 0.3422 | 0.3002 | 0.5894 | 0.7477 | -0.1350 | 0.0187 | 0.0102 | 0.0260 |
| TRUST1 | 0.9712 | 0.4454 | 0.5829 | 0.4600 | -0.0431 | 0.0039 | -0.0843 | -0.0193 |
| TRUST2 | 0.8802 | 0.3905 | 0.5414 | 0.3988 | -0.0473 | -0.0187 | -0.1023 | -0.0239 |
| TRUST4 | 0.7824 | 0.3308 | 0.4875 | 0.3433 | -0.0736 | -0.0511 | -0.1131 | -0.0702 |
| SPEEDRISK | -0.0226 | -0.0057 | -0.0980 | -0.0325 | 0.0091 | 1.0000 | 0.1460 | 0.1901 |
| RESRISK | -0.1118 | -0.1485 | 0.0042 | 0.0036 | -0.0023 | 0.1460 | 1.0000 | 0.7598 |
| PROACTRISK | -0.0406 | -0.0442 | 0.0189 | 0.0012 | 0.0173 | 0.1901 | 0.7598 | 1.0000 |

Executive Summary

The purpose of this study was to provide an answer to the question how different dimensions of product recall strategies influence consumer brand loyalty and how this relationship is moderated by the level of risk aversion of the individual consumer. In order to answer this question a theoretical framework distinguishing three dimensions of product recall strategies has been developed based on an extensive literature review. The three distinguished dimensions were the speed of response, the willingness to take responsibility and the proactiveness of response. In a survey experiment, 164 respondents were confronted with one or two fictitious product recalls followed by a recall statement in which the three dimensions were manipulated. They then answered questions about how they perceived the recall and about brand trust, attitudinal loyalty and purchase loyalty. In total, 273 scenarios were answered.

The results were analyzed with the help of variance-based structural equation modeling in ADANCO 2.0.1. Although not all hypotheses were supported, some interesting findings emerged. The perceived speed of response has a small positive influence on brand trust and the perceived willingness to take responsibility has a moderate to strong positive effect on brand trust. Furthermore, brand trust was in the original models an important determinant of both attitudinal and purchase loyalty. The perceived proactiveness of response did not show any significant effects on brand trust. Also no moderating effects related to risk aversion were found. An explanation for these last findings could lie in the measurement methods used or there could be an alternative theoretical explanation.

Although the newly developed framework should be elaborated on and adapted in the future, it provides an important first step in the clarification of how different product recall strategies play out in reality.