Perceived Risk and Severity after Product-harm Crises: The role of Product Involvement, Product Type and Crisis Response Strategies

Abstract

A growing body of studies have focused on consumers’ reactions after product-harm crises. However, the differential effect of product characteristics such as product involvement and product type has attracted little attention. In this study, we investigate the influence of product involvement, product type (hedonic vs. utilitarian) and crisis response strategies on risk attitude and risk perception and perceived severity. The results of an experiment indicate that after product-harm crises, consumers have higher risk perception for high involvement products. Moreover, consumers have higher risk perception and higher perceived severity after product-harm crises involving utilitarian products than those regarding hedonic ones. However, a boundary condition was found for the effects of product involvement and product type on the perceived severity, which is higher for high involvement hedonic products (perfume). Moreover, our research suggests that the worst crisis response strategy is involuntary recall, since it leads to higher risk perception and enhances consumers’ risk aversion. Finally, the findings reveal that purchase intention of hedonic products facing a crisis is explained by risk attitude and risk perception, while that of utilitarian products is explained by risk perception and the perceived severity. Our findings contribute to a better understanding of consumers’ reaction after product-harm crises.

Keywords: Risk, Severity, Product Type, Crisis Response Strategies

Track: Consumer Behaviour
1. Introduction

Product-harm crises can be defined as discrete, well-publicized occurrences wherein products are found to be defective or dangerous (Siomkos & Kurzbard, 1994). A crisis, by definition, generates substantial risk and this is why academic research has emphasized and has empirically supported the idea that product-harm crises can seriously harm a firm’s performance. As far as consumers are concerned, we know that they have a tendency to reduce the risks during the decision process (Mitchell, 1992), while they are perceived as higher ones after a crisis situation. As it has been suggested, involvement can affect consumer behaviour (Ray, 1973; Peter & Olsen, 1987) and influencing consumers’ perceived risk is one way to do that (Pennings et al., 2002). In addition, if we examine the relationship between risk and involvement, we can understand the specific roles played by each construct in influencing different consumer behaviours (Dholakia, 2001). Therefore, the aim of this study is to provide a better understanding of why consumers behave as they do after a product harm crisis by examining the impact of product involvement, product type (hedonic – utilitarian) and crisis response strategies on risk perception and risk attitude.

2. Conceptual Framework & Hypotheses

2.1 Product involvement

Most researchers agree that the level of involvement can be understood by the degree of personal relevance or importance or interest (e.g. Zaichkowsky, 1985; Laurent & Kapferer, 1985; Mittal, 1995). Thus, involvement can be defined as “a person's perceived relevance of the object based on inherent needs, values, and interests” (Zaichkowsky, 1985). After reviewing literature, it has been revealed that involvement, in the context of crisis situations, has attracted surprisingly poor attention, although, according to some authors, involvement can be a key factor for the outcome of a crisis (McDonald & Hartel, 2000; Coombs & Holladay, 2005). Yet, only few researchers have examined how consumer’s involvement influences consumers’ perceptions of organizational reputation (Choi & Lin, 2009), credibility of the organization (Arpan & Roskos-Ewoldsen, 2005), attribution of blame (McDonald & Hartel, 2000, Choi & Lin, 2009), consumers’ perceived risk (Pennings et al., 2002), emotions (McDonald & Hartel, 2000, Choi & Lin, 2009) and purchase intentions (McDonald & Hartel, 2000; Arpan & Roskos-Ewoldsen, 2005).

2.2 Risk

The two-dimensional model of risk, proposes that risk is the resultant of the perceived importance of avoiding negative purchase consequences and consumer’s subjective feeling of uncertainty about purchase consequences (Cox, 1967 c.f Venkatraman, 1989). Research has addressed the level of risk as a critical factor in consumer behaviour (Dowling and Staelin, 1994). As already mentioned, a crisis undoubtedly engenders considerable risk and this is why researchers have stressed that the effective and proactive crisis management should include risk analysis (Pearson and Clair, 1998). In this paper, instead of the concept of perceived risk, the concept of risk perception was used, in an attempt to disaggregate risk into its two different components, risk perception and risk attitude. Risk perception reflects consumers’ interpretation of the probability to be exposed to the content of the risk and it can be defined as consumer’s assessment of the uncertainty of the risk content inherent in a particular situation (Pennings et al., 2002). Risk attitudes are a person’s overriding tendencies toward risk, in various risky situations and they refer to how willing a person is to accept that risk (Schroeder et al., 2007).

2.3 Risk and involvement

While there is no doubt that involvement and risk are closely related, there is some ambiguity regarding how these constructs influence one another. Bloch and Richins (1983) regard involvement as a variable of the internal state and they have developed the core concept in terms of importance and perceived risk. Although both constructs, risk and
involvement, incorporate the notion of a product category being important to consumers (Bloch and Richins, 1983), it appears that involvement cannot simply be equated with perceived risk (Laurent and Kapferer, 1985; Chaffee and McLeod's, 1973). Additionally, one broad conceptual distinction arises, given that the perceived risk considers only the negative consequences resulting from the purchase and use of the product, while the level of product involvement is affected to a great extent by the positive consequences as well (Dholakia, 2001).

The consensus seems to be that risk influences involvement (Chaffee & McLeod, 1973; Laurent & Kapferer, 1985; Rothschild, 1979). Extensive research on consumer involvement has identified the product characteristics as one of the three factors determining consumers’ level of involvement (Engel, Blackwell & Miniard, 1993) and the existence of some perceived risk renders products more involving (Jacoby & Kaplan 1972 c.f. Craig-Lees, Joy & Browne, 1995). As Sirgy (1982) points out, consumers’ product involvement is a consequence of multiple factors, like the importance of the product to the consumer and risk perception. Similarly, Laurent and Kapferer (1985) propose the perceived risk associated with product purchase (which in turn has two sub facets: the perceived importance of negative consequences in case of a poor choice and the perceived probability of making such a mistake) as one of four facets/ antecedents of involvement, with the other three being the importance, the hedonic (pleasure) and sign (symbolic) value of a product. Mittal and Lee (1989) argue that the risk facet in the Laurent and Kapferer scale is not proper for the conceptualization of involvement; it is one of its antecedents. In line with Laurent and Kapferer (1985), who showed that risk importance and risk probability are two facets of the involvement construct, are the findings of the survey of Pennings et al. (2002); according to them, involvement [measured by a proxy question (Sudman & Wansink, 2002)] is negatively related to consumer risk aversion and consumer risk perception in a significant way, indicating that the higher the involvement, the lower the risk aversion and risk perception when it comes to eating beef. Furthermore, based on Jones and Davis (1965, c.f Lee, 2004), it could be argued that the more severe the crisis, the more personal involvement/ relevance is aroused in the public. Consequently, we hypothesize that:

**H1:** The higher levels of product involvement will lead to (H1a) lower risk aversion (higher risk attitude), (H1b) lower risk perceptions regarding using the product in crisis and (H1c) higher perceived crisis severity.

### 2.4 Risk and Product Type

Quester and Lim (2003) suggest that consumers’ perceptions can differ with respect to different products. Research shows that we can classify the products into two product types, hedonic and utilitarian, implying that involvement can vary depending on the characteristics of each product (Laurent and Kapferer, 1985; Vaughn, 1986). Hedonism and utilitarianism are not the two ends of a one-dimensional scale (Okada, 2005) but products vary in their perceived level of hedonic and utilitarian attributes (Batra & Ahtola, 1990). Hedonic goods differ substantially from utilitarian goods. The latter are easy to compare prior to consumption (Addis & Holbrook, 2001), since the attributes of utilitarian goods are more functional and tangible, in contrast to hedonic products’ attributes which are more intangible and symbolic (Kahnx et al., 1997). If consumers are more uncertain of the precise value of hedonic goods than of utilitarian ones, the decision may be seen as a choice between a certain (utilitarian) and an uncertain (hedonic) outcome (Dhar and Wertenbroch, 2000). This indicates that hedonic goods are highly risky for consumers (Clement, Fabel & Schmidt-Stolting, 2006). If a product is highly considered as luxury, then the perception of handled risk in terms of choosing brands in that product class will be higher as well (Chaudhuri, 1998). Hedonic and utilitarian categories are considered, in general, as quintessential product types, akin to the notions of luxuries and necessities (Bearden and Etzel, 1982 c.f Chaudhuri, 2001). In
addition, it has been shown that the higher the perceived risk, the insecurity, or the uncertainty regarding a product, service, or tourist destination, the lower its demand. More specifically, tourism demand presents a higher elasticity index per level of perceived risk than any other industry because of the intrinsic hedonistic (pleasure-giving) or eudaimonistic (happiness-generating) benefits that consumers ascribe to its products and services (Gonzalez- Herrero and Pratt, 1998). We therefore assume that hedonic and utilitarian products function quite differently with regard to the perceived risk.

**H2:** A product which is seen as superior on a hedonic dimension will have a more positive effect on (H2a) risk aversion (negative risk attitude), (H2b) risk perceptions and (H2c) perceived severity than a product which is seen as superior on a utilitarian dimension.

### 2.5 Risk and Crisis Response Strategies

Several studies have focused on crisis response strategies and have revealed their importance to controlling and minimizing consumer’s negative reactions. Overall, research has shown that the more accommodative the crisis response strategy is, the more positive the consumers’ reactions toward the company are (Lee, 2004). Although crisis response strategies have attracted the attention of researchers, their interaction with perceived risk hasn’t. According to Stockmyer (1996), after a tampering incident, the constructive action from the company’s part is not significantly associated with a reduction in risk. On the other hand, Siomkos and Kurzbard (1994) showed that consumers regard the defective product as really dangerous, when the company involuntarily recalls it. In this study the typology of crisis response strategies of Siomkos & Kurzbard’s has been used (1994) (accommodative strategies $\leftrightarrow$ super effort $\leftrightarrow$ voluntary recall$\leftrightarrow$ involuntary recall $\leftrightarrow$ denial $\rightarrow$ defensive strategies). Therefore, we form the following hypotheses:

**H3:** Consumers will have a relatively small degree of risk perception and risk aversion associated with the defective product, when the company’s response lies higher in the “company response continuum”.

### 2.6 The Impact of Risk Attitude, Risk Perception and Severity on Purchase Intention

The perceived risk appears to be a factor with significant impact on purchase intentions following a product tampering incident (Stockmyer, 1996). Pennings et al. (2002) have shown that buying a crisis-affected product is considered as highly risky. Furthermore, it has been found that changes in beef consumption were strongly related to the perceived risk of “mad cow disease” (Setbon et al., 2005). Moreover, Dawar and Pillutla, (2000) argue that purchasers of the brand in crisis are more sensitive to the response of the firm than to the risk of the defective product itself, contrary to purchasers of other brands who appear to focus more on product risk perceptions than on the firm’s response. The perceived danger of the defective product is a significant predictor of behavioural intentions, that is the higher the danger perceived, the more unfavourable the behavioural intentions toward the company (de Matos and Rossi, 2007). It has been argued that any element contributing to an increase in the perceived risk of a touristic product affects negatively consumer’s purchasing behaviour, something that clearly applies to business crises as well (Gonzalez- Herrero and Pratt, 1998). What is more, Jones and Davis’s (1965, c.f Lee, 2004) argue that a high crisis severity may trigger negative emotional reactions and send out the alarm that being a costumer of that company involves risks. Additionally, both types of risk (perception and attitude) and the perceived severity can influence purchase intention. Nevertheless, no research has explored the effects of risk and severity on purchase intentions, in relation with product type (hedonic vs. utilitarian) in a crisis context. Therefore, we pose the following research question:

**RQ:** In which way different levels of risk perception, risk attitude and perceived severity affect consumer’s purchase intentions in a product-harm crisis for utilitarian and hedonic products?
3. Methodology

To test the hypotheses, we used a 2 Product Involvement (High and Low) x 2 Product Type (Hedonic and Utilitarian) x 4 Crisis response strategy (Denial, Voluntary Recall, Involuntary Recall and Super Effort) full factorial between-subject experimental design. The manipulations were embedded within descriptions of a hypothetical product harm crisis scenario, presented in a fictitious newspaper article (Appendices: Table 1). A pre-test was conducted in order to select the four investigated products (high involvement utilitarian, high involvement hedonic, low involvement utilitarian, low involvement hedonic). Each respondent was asked to answer the ten-item PII scale for product involvement (Zaichkowsky, 1994) and the five-item scale for product type (Vaughn, 1986) referring to one product from an array of twenty product categories. The pre-test results revealed that the personal computer/laptop is perceived as high involvement utilitarian product, the insecticide as low involvement utilitarian product, the perfume as high involvement hedonic product and finally the beer as low involvement hedonic product. In this research, already established scales were used. Risk attitude and risk perception were measured with the scale of Pennings et al. (2002), having a Cronbach’s alpha of .712 and .847 respectively. The perceived severity of the crisis was measured by using the scale of Silvera et al. (2009), with Cronbach’s alpha of .928. A survey instrument was created and distributed through an online survey, by using a snowball sampling technique. Respondents were randomly divided in 16 treatments. A total of 410 individuals participated voluntarily in this study. However, 33 participants missed to indentify the right crisis response strategy and thus were excluded from the sample, resulting in a sample 377 respondents. In terms of sex, 72 % of the respondents were female. In terms of age group, 37.7 % of the respondents were between 18 and 24 years of age and 44 % in the 25-34 age group.

4. Results

The manipulation checks provide strong evidence that the subjects did not have any problem identifying intended situations (product involvement: F=122.138; p<0.001 and hedonic or utilitarian product type: F=197.677; p<0.001). Due to the correlations of risk attitude with risk perception and the perceived severity (-.530 and -.289), a MANOVA was conducted in order to examine the research hypotheses. Product involvement, product type and crisis response strategy were used as independent variables while risk attitude, risk perception and perceived severity as dependent ones. Tests were run to ensure that all the assumption of MANOVA were satisfied. An approximate z-value based on the skewness was used to test univariate normality (Tabachnik and Fidell, 1996). Our results revealed only minor deviations from the normality assumption. Box's M test was used for the assumption of multivariate homogeneity of variance and the corresponding p-value was not significant (Box's M: 124.95; F = 1.31; p > 0.01).

Firstly, the overall model shows three significant main effects of product involvement (F=2.629, Wilks’ Lamda=.97, p < .05), hedonic-utilitarian product type (F=6.954, Wilks’ Lamda=.94, p < .001) and crisis response strategy (F=2.007, Wilks’ Lamda=.95, p < .05) and a two-way significant effect of product involvement and product type (F=7.283, Wilks’ Lamda=.94, p < .001). MANOVA results indicate that there are no three-way interactions among the three independent variables. Univariate F tests were used to determine the specific dependent variables that contribute to the significant overall effect. The univariate F tests revealed that product involvement has a significant main effect on risk perception (F=7.835, p <.01) but no significant effect on risk attitude and severity. More specifically, risk perception is higher for the low involvement products (e.g. insecticide & beer) than for the high involvement products (M low involvement =4.80 vs. M high involvement =4.35). Thus, only H1b is supported. Regarding the hedonic-utilitarian distinction, the product type does have significant main effects on risk perception (F=10.533, p <.001) and the perceived severity
However, contrary to our expectations, respondents have higher risk perception (M_utilitarian = 4.84 vs. M_hedonic = 4.32) and higher perceived severity (M_utilitarian = 5.53 vs. M_hedonic = 5.11) after product-harm crises involving utilitarian products than hedonic ones. Therefore, H2a, H2b and H2c are not supported.

In terms of crisis response strategies, it has been found that the response of the company has a significant main effect on risk attitude (F = 3.155, p < .05) and risk perception (F = 3.521, p < .05). More specifically, Figure 1 and 2 (see Appendices) show that risk attitude is at the lowest level (M denial = 2.76, M involuntary recall = 2.38, M voluntary recall = 2.55, M super effort = 2.94) and risk perception at the highest (M denial = 4.43, M involuntary recall = 4.94, M voluntary recall = 4.68, M super effort = 4.25) when the company is forced by the government to recall the harmful products. However, as revealed by Tukey HSD Post Hoc Test, there are significant differences only between super effort and involuntary product recall. Consequently, only H3a and H3b are supported. Finally, a two way interaction of product involvement and hedonic-utilitarian product type is significant for the perceived severity (F = 8.974, p = 0.01). It seems that the severity is lower when the product under crisis is a high involvement hedonic product (e.g. perfume), contrary to other combinations of product involvement and hedonic-utilitarian product type (M high involvement-hedonic = 4.85, M high involvement-utilitarian = 5.66, M low involvement-hedonic = 5.37, M low involvement-utilitarian = 5.39).

In order to explore the impact of risk perception, risk attitude and perceived severity on purchase intentions for hedonic and utilitarian products we used separate regression analyses for each product. The results indicate that risk attitude is a significant predictor only for hedonic products (perfume: B = .401, p = .001 & beer: B = .278, p = .017) contrary to the perceived severity which predicts the purchase intentions only for utilitarian products (laptop: B = -.263, p = .020 & insecticide: B = -.280, p = .002). Finally, risk perception has significant impact on purchase intention for both types of product (perfume: B = -.447, p = .000 & beer: B = -.359, p = .001 laptop: B = -.255, p = .010 & insecticide: B = -.623, p = .000).

5. Discussion

This study makes an important contribution to the product-harm crisis theory and to existing research because it is among the first exploring the role of product type (hedonic vs. utilitarian) and the impact of product involvement and crisis response strategies on risk attitude, risk perception and perceived severity. Contrary to our expectations, it was found that respondents have higher risk perception and perceived severity after product-harm crises involving utilitarian and not hedonic products. This could be explained by the fact that according to Chaudhuri (1998) it seems reasonable to assume that important products are likely to be positively associated with a high level of perceived risk, in terms of possible product failure, etc. Furthermore, via our study we strongly support the argument that products of high involvement are perceived as more risky than low involvement ones, something which is consistent with previous researches. It has been found in previous studies that product importance is related to the perceived risk (Laurent and Kapferer, 1985; Zaichkowsky, 1985) and the importance of a product increases the level of perceived product risk (Bettman, 1973). Another interesting result is that there is higher perceived severity for high involvement hedonic products. Finally, our research suggests that the worst crisis response strategy is that of involuntary recall, leading not only to higher risk perception but to enhancement of the risk aversion of consumers as well. Our findings are confined by the usual limitations of an experimental research. Furthermore, there is the limitation of the non-probabilistic sampling process. Finally, a study using scenarios compromises realism. Future
studies should empirically test the effect of involvement on other product categories in a crisis context, in order to verify the product type effect.

Appendices

Table 1: Scenarios for High involvement Utilitarian product

<table>
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<th>Scenario</th>
<th>Description</th>
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<tr>
<td><strong>Scenario 1: Super effort</strong></td>
<td>“Best Computers” company responded to these events saying that it was a shock for the company to hear of a potential connection between the hospitalization of those people and the company’s products and expressed her deep sorry and sympathy to the victims and their families. “Best Computers” company stated that what is most important now is the welfare those immediately affected by this unfortunate incident as consumers safety has always been first priority for the company. To emphasize this, “Best Computers” ordered the immediate recall of 1,500 laptops with a specific serial number. Also the defective products were replaced free of charge and company provided all the information consumers need to know about the faulty product and the ways that they can reimbursed. Additionally, a 24-h call center provided support and was responsible for giving out any information requested. Finally, “Best Computers” compensated the victims and reassured all customers that steps were taken to ensure that a similar occurrence will not happen in the future”.</td>
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<td><strong>Scenario 2: Voluntary Recall</strong></td>
<td>“Best Computers” company responded to these events saying that it was a shock for the company to hear of a potential connection between the hospitalization of those people and the company’s products and expressed her deep sorry and sympathy to the victims and their families. “Best Computers” company stated that what is most important now is the welfare those immediately affected by this unfortunate incident as consumers safety has always been first priority for the company. To emphasize this, “Best Computers” ordered the immediate recall of 1,500 laptops with a specific serial number. Also the defective products were replaced free of charge and the company provided/disclosed all the information consumers need to know about the faulty product and the crisis incident. Beyond of this “Best Computers” recalled 1,500 laptops a few days later, after the Ministry of Health ordered so.</td>
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<tr>
<td><strong>Scenario 3: Denial</strong></td>
<td>“Best Computers” company responded to these events saying that it was a shock for the company to hear of a potential connection between the hospitalization of those people and the company’s products and expressed her deep sorry and sympathy to the victims and their families. Beyond of this “Best Computers” recalled 1,500 laptops a few days later, after the Ministry of Health ordered so. The company argued that all the appropriate controls had been made and the laptop’s batteries were not found defective. “Best Computers” company argued that the product is safe and a recall was unnecessary. Such kinds of incidents could happen to any product regardless of what kinds of precautions are taken.</td>
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Figure 1: Risk Attitude Means for each Crisis Response Strategy

Figure 2: Risk Perception Means for each Crisis Response Strategy
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