

CONSUMER PURCHASE INTENTION OF A COSMETIC PRODUCT AFTER THE FUKUSHIMA NUCLEAR INCIDENT

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We examined the factors affecting consumer purchase intention of a cosmetic product after the Fukushima nuclear incident and the role of distinctiveness in postcrisis recovery. Through a 2-group experiment and structural equation modeling, we found that the incident did not affect the firm's reputation and brand image but it was perceived as a significant threat to health and product safety that consequently negatively affected purchasing intentions. Findings also showed that high distinctiveness is a valid factor in diminishing the impact of crisis. In particular, a firm's reputation and indirect effects on revenue are least affected by, or even positively related to distinctiveness. We have included discussion of the critical implications for firms around the importance of maintaining desirable relationships with the public as preparation for a crisis and for rapid postcrisis recovery.

Keywords: crisis management, distinctiveness, Fukushima nuclear incident, reputation, purchase intention, cosmetics.

From the origin or responsibility of the crisis point of view, *natural disasters* are considered to be external and unintentional events that leave a firm with fewer options to respond compared to a human-induced crisis (Coombs, 2004; Mitroff & Pearson, 1993). Because it is not necessary for firms to excuse or apologize for natural disasters, communication with instructions for handling products that have been affected by the natural disaster seems a possible reaction.

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Researchers of crisis management initially attempted to find causes of crises so that appropriate reactions or strategies may be developed (Weiner, 1985). Whether the cause of a crisis resides outside or within a firm, significantly determines how a firm responds to the crisis (Coombs, 2004).

Situational crisis communication theory (Coombs, 2004) posits that the significance of a crisis is determined by the initial cause of the crisis. As interest groups perceive that a firm is responsible, the significance of a crisis increases and a firm's reputation will be damaged (Claeys, Cauberghe, & Vyncke, 2010; Coombs, 2004). The theorists also argue that when the crisis is perceived as induced by a natural disaster, violence, or vicious rumors, a firm's responsibility is perceived to be very low and the firm may even be considered a victim. In this case, the usual reactions to a crisis, such as the denial, diminish, and rebuild approaches, are less applicable, leaving fewer options for a firm to respond.

Nevertheless, the effects on consumer products such as food and cosmetics, of a crisis induced by a natural disaster, may have significant implications regarding health- and safety-related issues. This type of situation requires firms to devise different communication approaches and business strategies for a fast postcrisis recovery (Coombs, 2006).

Regardless of the cause, crises result in negative consequences, damaging a firm's reputation, brand image, and revenue (Grundy & Moxon, 2013; Hemus, 2007; Keller, 2008; Riezebos, Riezebos, Kist, & Kootstra, 2003). Postcrisis communication and firms' strategic reactions have been studied widely (Coombs, 2006; Dowling, 2002; Mitroff & Pearson, 1993), with the focus mainly on the cause of the crisis and the firm's responsibility to determine the appropriate communication strategy response. However, crises induced by natural disasters have received little attention because the scope of communications and strategic reactions is significantly limited by the lack of stakeholders involved with the disaster.

Previous researchers have focused on relationship history as an intensifying factor in assessing the threat from a crisis. They have suggested that the history of a firm's public relationship with stakeholders in normal situations—defined as *distinctiveness*—can increase or decrease the perceived threat from a crisis (Coombs, 2004; Kelley & Michela, 1980; Martinko, Douglas, Ford, & Gundlach, 2004). However, these studies have been mainly theoretical approaches and case studies across industries at the company level, including food and beverage, tourism, distribution, petrochemical, pharmaceutical, and franchising industries (Ahluwalia, Burnkrant, & Unnava, 2000; Coombs, 2004; Dawar & Pillutla, 2000; Dean, 2004).

Our main purpose in this study was to examine the role of distinctiveness, which is a firm's reputation and public relationship in normal situations (Kelley & Michela, 1980), in postcrisis recovery, particularly in relation to natural disasters.

This purpose was achieved by answering the following research questions: First, does a crisis induced by a natural disaster, which leaves fewer communication and strategic options for firms, still negatively affect its reputation, product image, and revenue? Second, if the first question is affirmed, what are the appropriate strategic reactions for a firm when the postcrisis reaction is significantly limited? Third, does distinctiveness help to diminish the negative impact of a crisis caused by a natural disaster? Our empirical approach allows us to address the research gaps discussed above by examining the negative effects of a crisis induced by a natural disaster and the role of distinctiveness as a moderating factor.

Specifically, we surveyed the perceptions of Korean customers regarding SK-II, the beauty brand of P&G (a cosmetic company), after the Fukushima nuclear disaster. SK-II was developed and launched by Max Factor, Japan, in the 1980s. In 2012, this product line represented US\$941 million in revenue and was sold in 17 countries, with Korea being one of the top-selling markets. Amid fears about the radiation leak at the Fukushima nuclear power plant in northeastern Japan, and for made-in-Japan products overall, P&G Korea denied any radiation concerns associated with the safety of the SK-II products (Lee, 2013). Therefore, the case study of SK-II in Korea was an appropriate example for us to examine the research theme of this study.

Literature Review and Hypothesis Development

We assumed that the effects of the Fukushima nuclear incident would be significant compared with human-induced crises. Consumer products, particularly foods and cosmetics that come into direct contact with the human body, would significantly increase concerns about health and safety, which could result in catastrophic consequences for firms' reputation, product image, and revenue. Coombs (2004) suggested that a crisis is not an isolated incident and that the consequences are part of a pattern of behaviors. It is therefore the evaluation of interest groups that determines the significance of a crisis and its effects on a firm's reputation and brand image (Bennett & Kottasz, 2000; Dowling, 2002). On the basis of these arguments, we developed the following hypotheses:

Hypothesis 1: Recognition of the nuclear incident and product origin will be negatively correlated with a company's reputation and brand image.

Hypothesis 2: Recognition of the nuclear incident and product origin will be positively correlated with the significance of the crisis in terms of health and safety concerns.

In many cases, the consequences of a crisis include not only damage to a firm's reputation and brand image but also a sharp decrease in revenue (Grundy & Moxon, 2013; Hemus, 2007; Keller, 2008; Riezebos et al., 2003; Siomkos & Kurzbard, 1994). We considered that as much as the brand image was damaged

due to the crisis, then consumers' purchasing intentions would be diminished. In particular, the weakened purchasing intention would be due to the consumers' perception of the serious consequences of the crisis in terms of health and safety issues. On the basis of these suggestions, we proposed the following hypotheses: **Hypothesis 3:** A firm's reputation and brand image will be directly correlated with purchasing intention.

Hypothesis 4: Perceptions of the significance of the crisis in terms of health and safety issues will be negatively correlated with purchasing intention.

In assessing the scope of a threat, crisis history and relationship history have been suggested as intensifying factors. Relationship history, also known as distinctiveness, is conceptualized as the prior reputation of a firm and its history of public relationship, indicating how a firm deals with stakeholders in normal situations (Coombs, 2004; Kelley & Michela, 1980; Martinko et al., 2004). Distinctiveness in this study implies firms' public relationship with the general public in a normal situation. In contrast, *reputation* is differentiated as the recognition of consumers after the incident, specifically to the firm and/or related products (Claeys et al., 2010).

High distinctiveness means the firm treats stakeholders well and shows a high level of consideration for them. *Low distinctiveness* simply means that the firm treats stakeholders poorly (Coombs, 2004). A crisis is not usually an isolated incident and the consequences are part of a pattern of behaviors; therefore, low distinctiveness is an alleged factor increasing the threat (such as consumer anxiety about product safety and quality) from a crisis (Coombs, 2004). Thus, it has been assumed that if a firm maintains a positive history of public relationships, this will lessen the negative effects of a crisis, compared with other

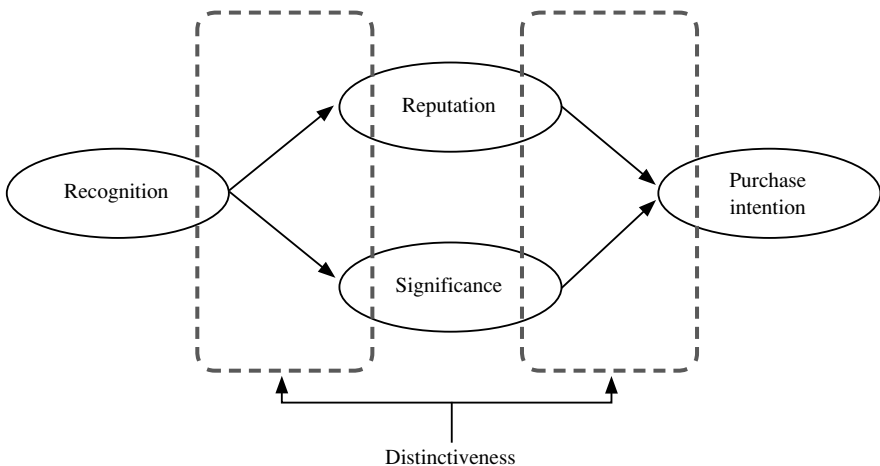


Figure 1. The research model.

firms with negative histories of public relationships (Coombs, 2004; Kelley & Michela, 1980; Martinko et al., 2004). To examine this moderating effect of distinctiveness, we proposed the following hypothesis:

Hypothesis 5: High distinctiveness will diminish the impact of a crisis on revenue via a firm's reputation and significance of the crisis, compared with a firm with low distinctiveness.

On the basis of the theoretical considerations and the hypotheses of this study, we developed the research model shown in Figure 1.

Method

Participants and Procedure

We performed a pilot test of the research theme with 216 participants who were approached via a survey of Korean consumers between April and May, 2014. The sample comprised 43.5% men and 56.5% women, aged from 20 to 30 years, with 27% of participants having used SK-II previously at least once. The crisis scenario used for this research was the nuclear incident in Fukushima that occurred in March, 2011. To examine the moderating effect of distinctiveness, we used a two-group experiment. One group was exposed to positive news about P&G, with affirmative corporate social responsibility (CSR) including effecting positive changes in society and the environment. The other group was exposed to negative news about the company, with information on an actual event when P&G was accused of the discharge of contaminated water in 2006. The number of participants in the first group was 94 and in the second group, 122.

Measures

Recognition was assessed with two items asking if a participant knew about the Fukushima nuclear incident and how much he/she knew about the dangers of the incident (Bennett & Kottasz, 2000; Dowling, 2002). Answers were given on a 7-point Likert scale, ranging from 1 = *do not know at all* to 7 = *know very well*. Second, reputation as a mediating variable, was measured with four items asking respondents if they trusted the company and if they had positive feelings about the brand's image (Grundy & Moxon, 2013; Hemus, 2007; Keller, 2008). Answers were given on a 7-point Likert scale ranging from 1 = *very negative* to 7 = *very positive*. Third, significance of the crisis was measured with two items questioning perceptions about how the crisis negatively affected health and safety and whether or not the incident negatively affected the quality of products. Answers were given on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Finally, purchasing intention was measured using three items asking participants if they wanted to buy or would buy the product in the future, and if they would recommend the product to others (Spears & Singh, 2004).

Answers were given on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Data Analysis

We used structural equation modeling as a tool to examine the mediating and moderating effects of endogenous variables. Statistical analyses were performed using Amos 18 and SPSS 18 software. Prior to the examination of the casual relationships among the factors to test the hypotheses, factor analysis and correlation analysis were performed to confirm the validity and consistency of the model (see Tables 1 and 2). The result of exploratory factor analysis using oblimin rotation, disregarding independence between factors, showed that all factors had loadings greater than .30 (Hair, Anderson, Tatham, & Black, 1995). Bartlett's test for sphericity showed an adjusted chi-square (χ^2) value of 394.667 ($df = 55$, $p = .001$) and the Kaiser–Meyer–Olkin value was .740. Consistency of factors was tested by finding Cronbach's α , which was above the minimum level of .60 (Nunnally, 1978). The fitness indices for analysis of the measurement model indicated the χ^2 value was 46.929 and the p value was .052, which was acceptable because the figure was above .05. Goodness-of-fit index (GFI) and confirmatory factor index (CFI) values were above .90, indicating that the model was acceptable for further analysis.

Table 1. *Analysis of Measurement Model and Confirmatory Factor Analysis*

Construct	Observed variable	Cronbach's alpha	Estimation	SE	<i>t</i>	<i>p</i>	CR	AVE
Recognition	Recog2	.604	1.000	.672			.469	.318
	Recog1	.608	0.541	.422	3.752	< .001		
Reputation	Repu4	.554	1.000	.705			.543	.236
	Repu3	.603	1.067	.590	4.496	< .001		
	Repu2	.529	0.914	.397	3.303	< .001		
	Repu1	.544	1.019	.594	4.512	< .001		
Significance	Sig2	.636	1.000	.519			.397	.249
	Sig1	.660	0.674	.528	4.675	< .001		
Purchase	Pur3	.533	1.000	.773			.783	.541
	Pur2	.528	1.065	.926	10.088	< .001		
	Pur1	.550	1.053	.872	9.696	< .001		

Note. CR = composite reliability, AVE = average variance extracted. $\chi^2 = 46.929$, $df = 38$, $p = .052$, root mean square residual = .094, goodness-of-fit index = .931, adjusted goodness-of-fit index = .880, normed fit index = .886, incremental fit index = .976, comparative fit index = .975.

All p values for the factors showed significant levels and standardized factor loadings for all observed variables, except Repu2, were above .50, indicating these were acceptable.

To confirm the discriminant validity of the model, the correlation analysis was continued. The figures for the analysis used a summated scale to minimize the observed errors and to reduce the dimensions to increase typicality. The correlation between factors was less than 1 and the square root of average variance extracted was larger than the interconstruct correlations, confirming the model's discriminant validity.

The overall research model was also found to be fit for the analysis because the fitness indices showed robust results ($\chi^2 = 63.469$, $df = 40$, $p = .01$, root mean square residual = .120, GFI = .909, adjusted goodness of fit index = .851, normed fit index = .846, incremental fit index = .937, CFI = .934). The χ^2/df ratio of 1.587 met the requirement of being under 3. Figure 2 and Table 3 show the results of the path analysis of the research model.

Table 2. Correlation Matrix Between Constructs

		Recognition	Reputation	Significance	Purchase
Recognition	Pearson correlation	1			
Reputation	Pearson correlation	.123	1		
	Significance	.204		1	
Significance	Pearson correlation	.555**	-.109	1	
	Significance	< .000	.263		1
Purchase	Pearson correlation	-.179	.340**	-.431**	1
	Significance	.064	< .001	< .001	

Note. ** $p < .01$.

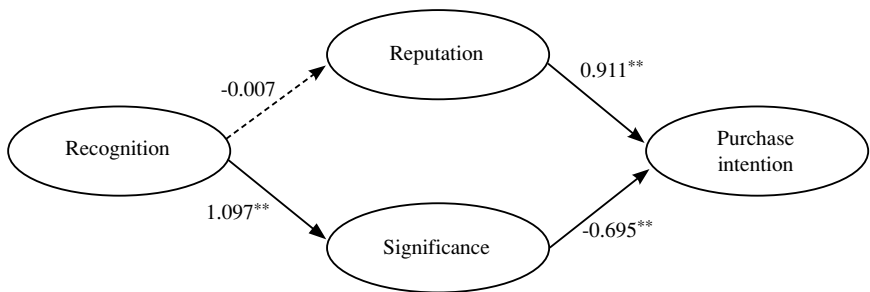


Figure 2. Path coefficients among factors.

First, the test results for Hypothesis 1 indicated that recognition about the nuclear incident was not significantly correlated with the company reputation and brand image ($p = .956$). Second, we found that recognition was positively associated with the significance of the crisis, supporting Hypothesis 2 ($p = .003$). Third, the results indicated that reputation was positively associated with purchasing intention so Hypothesis 3 was supported ($p < .001$). Hypothesis 4 was supported because we found that the significance of the crisis was negatively associated with purchasing intention ($p < .001$). Hypothesis 5 was used to test the moderating effect of distinctiveness by comparing two groups exposed to positive and negative information about the company (see Figure 3).

Table 3. Results of Hypothesis Testing

Hypothesis	Path	SE	t	p	Result
1	Recognition → Reputation	-0.008	-0.055	.956	Not supported
2	Recognition → Significance	1.040	2.996	.003	Supported
3	Reputation → Purchase	0.502	3.616	< .001	Supported
4	Significance → Purchase	-0.424	-3.295	< .001	Supported

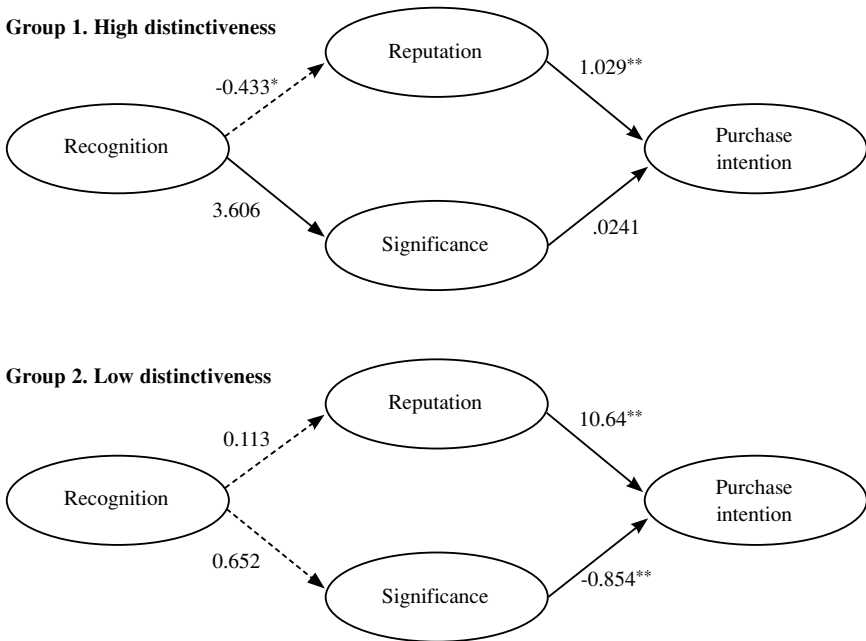


Figure 3. Factor regression weights: Two-group comparison.

As seen in Table 4, the χ^2 value for the restricted model by each path, compared with that of the free model, indicated that Models 1 and 4 were above the threshold ($\chi_2^2 - \chi_1^2 > 3.84$) and Models 2 and 3 were below the threshold. On the basis of these results, we identified that distinctiveness moderated the relationship between recognition and a firm's reputation, and the significance of the crisis with regard to purchasing intention. However, it is also arguable that those paths may be comparable because the statistical significance of the paths between recognition and reputation for low distinctiveness, and significance of the crisis and purchase intention for high distinctiveness are statistically nonsignificant. Thus, Hypothesis 5 was supported in part.

Table 4. *Moderating Effect of Distinctiveness: Two-Group Path Comparison*

Model	Path	$\chi^2(df)$	$\chi^2 - \chi^2$	<i>p</i>	Restricted SE: distinctiveness		Result
					Positive	Negative	
1	Recognition → Reputation	147.337	40.295	< .001	-0.433	0.113	<i>p</i> < <i>N</i>
2	Recognition → Significance	110.052	3.010	.021	3.606	0.652	<i>p</i> = <i>N</i>
3	Reputation → Purchase	107.082	.040	.033	1.029	1.064	<i>p</i> = <i>N</i>
4	Significance → Purchase	140.444	33.402	< .001	0.241	-0.854	<i>p</i> > <i>N</i>

Note. $\chi^2 = 107.042$ (*df* = 80).

Discussion

Our first finding showed that recognition about the natural disaster would not significantly affect a firm's reputation and brand image. Although we assumed that there would be a positive relationship between them (Claeys et al., 2010; Coombs, 2004), it was not statistically significant. The company is recognized as "not guilty" in terms of responsibility or may even be considered a victim of the incident (Grundy & Moxon, 2013; Hemus, 2007).

Second, as consumers grasp the seriousness of the incident they identify its negative effects on health, product safety, and quality (Grundy & Moxon, 2013; Keller, 2008). Additionally, the test results show that future revenue would be inversely affected as purchasing intentions were significantly negatively related to the perception of the seriousness of the incident.

Third, the results for the moderating role of a firm's distinctiveness show that no difference was found in paths from recognition to significance of the crisis, or reputation to purchasing intention between groups exposed to positive

and negative information about P&G. However, the paths from recognition to reputation, and significance of the crisis to purchasing intention were significantly different between the groups. This demonstrates the moderating effects of distinctiveness (Coombs, 2004; Martinko et al., 2004). These results indicate that a firm that maintains a desirable relationship with the public in normal circumstances tends to be less affected by a crisis as the impact on the firm's reputation and indirect effects on sales revenue are less likely to be diminished compared with other firms with lower distinctiveness. It becomes clear that the disastrous effects of a crisis will be significantly reduced or even reversed by maintaining a healthy public relationship because a firm's reputation and revenue are less likely to be affected as much as other firms who do not have such healthy reputations. Considering that high distinctiveness may not be achieved after a crisis, firms should focus on building a desirable level of distinctiveness with the public, interest groups, and—particularly—consumers, as a preemptive approach to a crisis induced by uncontrollable events, such as natural disasters.

The present study has a few limitations while also raising fresh research questions. First, the geographical distribution of the sample was limited to Korea. It is therefore important to extend the scope of test samples and nationalities so that future results and findings can be compared in the search for international business strategies with cross-cultural implications. Second, it is necessary to examine other industries using the same research methodology. Other sensitive industries, such as food and beverages, might show significantly different results and have different implications. Finally, future researchers should consider more sophisticated methods, such as moderated mediation analysis, to investigate the size and confidence intervals of indirect effects at each value of moderator rather than analyzing each moderating condition separately.

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