IMPACT OF PRODUCT-HARM CRISES ON BRAND EQUITY: THREAT OR OPPORTUNITY?

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ABSTRACT

Brand equity is an invaluable asset for most firms. Yet this asset is particularly vulnerable during product-harm crises which are publicized instances of defective or dangerous products. Increased recognition of the value of brand equity and the mounting frequency of product-harm crises raise important questions about the impact on brand equity of product-harm crises. A firm's response to a product-harm crisis is an important determinant of the impact of the crisis on brand equity. However, we suggest that the impact of a response may be moderated by the firm's reputation. We hypothesize that firms with a customer-friendly reputation benefit from a favorable interpretation of their response and consequently a positive impact on brand equity in a product-harm crisis. Firms with no prior reputation do not benefit from a positive interpretation. The difference in impact on brand equity for the two types of reputation is largest when firm response is ambiguous as opposed to unambiguous support.

Impact of Product-Harm Crises on Brand Equity: Threat or Opportunity?

For most firms, the equity vested in their brands is an invaluable yet fragile asset (Aaker 1991, 1996; Keller 1993; Shocker, Srivastava, and Reukert 1994)). Brand equity is fragile because it is founded in customers' perceptions, and is vulnerable to large shifts outside of management's control, due, for example, to consumers' exposure to new information. For instance, the revelation by an independent North Carolina lab in February 1990, that Perrier mineral water contained unacceptable levels of benzene, a known carcinogen, led to an irrecoverable loss of customer loyalty and quality perceptions for Perrier (Hartley 1995; Kurzbard and Siomkos 1992). However, crises such as the Perrier incident need not inevitably lead to a loss of brand equity. For example, Tylenol emerged stronger (in terms of market share and customer trust) from a capsule poisoning incident in the early 1980s by responding quickly and effectively to maintain customer confidence in the brand (Murray and Shohen 1992). Firm response to a crisis may be critical in determining the impact of the crisis on brand equity. However, while firm response may be critical, it may not alone be sufficient to explain the impact on brand equity. We suggest that the impact of firm response on brand equity may be moderated by the reputation of the firm.[1] Specifically, we examine the proposition that objectively identical firm responses may have a different impact on brand equity depending on the firm's existing reputation.

Despite recognition of the value of brand equity and the mounting frequency of crises, there is little research in marketing which investigates the impact of crises on brand equity. Indeed, the study of corporate actions on brand equity is itself a rather new area (Aaker 1996). Crisis situations, and in particular product-harm crises, provide an opportune setting for studying the impact of marketing actions on brand equity for two reasons: (1) product-

harm, as opposed to other forms of crises (e.g. environmental or political crises) directly involve the marketing function and customers' brand-related perceptions; and (2) by their very nature crises can have a profound impact on customer-based brand equity. Large shifts in brand equity are important from a business standpoint and are also more easily detectable from a measurement standpoint.

The purpose of the present research is to develop and empirically test propositions relating to the effects of firm response to a crisis on customer-based brand equity. In the following sections, we suggest a theoretical rationale and develop hypotheses for effects of firm response on customer-based brand equity. We then report results from two experiments and a field survey designed to test these hypotheses.

Background

Product-harm crises are discrete, well publicized occurrences wherein products are found to be defective or dangerous (Mitroff and Kilman 1984; Siomkos and Kurzbard 1994; Siomkos and Malliaris 1992). The increasing complexity of products, more stringent product safety legislation, and the increasing willingness of firms to undertake voluntary product recalls has made product-harm crises an ever more frequent occurrence (Beerworth 1991; Birch 1994; Hartley 1995; Mallozzi 1994; Patterson 1993; Routhier 1993;Weinstein 1993).

One factor which affects the impact of product-harm crises on brand equity is the affected firm's response to the crisis (Siomkos and Malliaris 1992). Historically, we know that brand equity may increase or decrease depending on the firm's response to the crisis (Hartley 1995; Kurzbard and Siomkos 1992; Murray and Shohen 1992). However, the outcome on brand equity may not be predictable on the basis of firm response alone. We suggest that the impact of firm response may be moderated by the firm's reputation which generates customer

expectations about firm behavior in a crisis. In the following sections we outline the key theoretical constructs in our study and provide a rationale for our propositions. We begin with an exposition of consumer research on expectations and their influence on the interpretation of evidence.

Interaction of Expectations and Evidence

Consumers' expectations have important consequences for the manner in which new information is processed (Alba, Broniarczyk, Shimp and Urbany 1994; Pechmann and Ratneshwar 1992). One consequence of such expectations is that objective evidence may be interpreted very differently depending on existing expectations. Deighton (1984) showed how consumers' judgments of the reliability of Ford cars based on objective product test data in *Consumer Reports* are positively affected by pre-exposure to advertisements for Ford cars. In his study, consumers interpreted the objective evidence from *Consumer Reports* much more positively when they had been previously exposed to the advertisement than when they had not. Interestingly, the advertisement alone had no effect on consumers' judgments. Similar interactions of advertising and product-trial evidence were reported by Hoch and Ha (1986). Theoretically, these results are explained in terms of a confirmation-bias (Ha and Hoch 1989; Hoch and Ha 1986; Hoch and Deighton 1989). Hoch and Ha (1986) suggest that initial exposure (e.g. to an advertisement) serves to generate "hypotheses" or expectations about advertised claims. These hypotheses are subsequently tested against evidence from objective sources such as product experience, consumer reports, expert referrals, etc. However, these hypotheses tests are biased because consumers tend to selectively search for confirmatory rather than disconfirmatory evidence. As a result, the likelihood that the hypotheses are confirmed is increased. The confirmation of hypotheses leads to an interactive effect of the

two information sources. In other words, while initial exposure alone only serves to generate expectations, subsequent confirmation through evidence translates into an effect on judgments of, say, product quality. Confirmatory hypothesis testing tendencies are not limited to advertising. They have been reported in a variety of settings in marketing as well as in social psychology (Alba, Broniarczyk, Shimp and Urbany 1994; Baumgartner 1995; Darley and Gross 1983; Levin and Gaeth 1988; Snyder and Swann 1978).

Ambiguity and Firm Response

Confirmatory biases are particularly pronounced when the evidence against which consumers test their hypotheses is inherently ambiguous (Ha and Hoch 1989; Hoch and Deighton 1989; Hoch and Ha 1986). Ambiguity is high if the various dimensions of the evidence are uncorrelated or negatively correlated (Ha and Hoch 1989). In product quality judgments, for example, if different product attributes (price, features, etc.) suggest different levels of quality, ambiguity is high. In product-harm crisis situations, an ambiguous firm response might be one where different dimensions of firm response suggest different levels of firm support for its brand. Ambiguous evidence allows for multiple interpretations, while with unambiguous evidence a unique consensus interpretation of the evidence is more likely.

In practice, firm response to crises varies from stonewalling, as evidenced by Exxon's reaction in the wake of the Valdez oil-spill in 1989 (Williams and Olaniran 1994), to the acceptance of responsibility and pro-active product recall and communication exemplified by Johnson & Johnson during the Tylenol poisoning crises of 1982 and 1986 (Murray and Shohen 1992). Conceptually, these different responses can be considered along a continuum from unambiguous support for the brand to unambiguous stonewalling. Support for a brand consists of acceptance of responsibility, an apology to consumers or other affected

constituencies, and some form of restitution such as a voluntary product recall and free replacement (Hearit 1994). Stonewalling consists of a denial of responsibility and absence of remedial measures, or no communication at all. Between these two extremes lie ambiguous responses where some dimensions of support may be inconsistent with others. For example, a firm may communicate with customers through advertisements and suggest that remedial action is being taken, but fall short of accepting responsibility, extending an apology or instituting a product recall.

Faced with ambiguous evidence, consumers tend to adopt a "top-down" processing approach where expectations bias the interpretation of available evidence, and enhance confirmatory tendencies (Ha and Hoch 1989; Pechmann and Ratneshwar 1992). In a product-harm crisis situation, a firm's response to the crisis constitutes evidence of firm support for the brand. When this evidence is ambiguous, consumers' interpretation of firm response may be biased by prior expectations. A firm's reputation is a source of expectations about firm behavior. Where no prior expectations exist, response to a product-harm crisis may be considered in reference to subjective and idiosyncratic "norms" based, for example, on consumers' experience with similar situations, such as product-harm crises for other brands in the industry (Porter 1980).

Reputation and Expectations

The reputation of a firm is a set of beliefs that consumers hold about a firm based on its past behavior (Kreps and Wilson 1982; Weigelt and Camerer 1988). A firm's reputation sets consumers' expectations about the future behavior of the firm (Weigelt and Camerer 1988). For example, a firm may have a reputation for upholding the interests of its customers. Based on this reputation, individual consumers may form expectations about specific

transactions with the firm. The firm's reputation for customer-friendliness, for example, may affect consumers' expectations about replacement of defective products, and more generally, about behavior in a product-harm crisis. It is important to note that the use of the reputation construct here is drawn from the economic signaling literature where it forms the basis for expectations about the behavior of parties in economic transactions (see Weigelt and Camerer 1988 for a review). It is distinct from brand equity in that it does not capture consumers' brand-related beliefs. For example, Intel Corporation is well known for the quality of its products, and may have considerable brand equity, but it does not have a universally customer-friendly reputation (Smith, Thomas and Quelch 1996; Uzumeri and Snyder 1996).

Brand Equity

Customer-based brand equity is defined as "the differential effect of brand knowledge on consumer response to the marketing of the brand," (Keller 1993). Brand attitudes, customers' likelihood of purchasing the brand, perceptions of quality, reliability, dependability, trustworthiness, and brand desirability constitute important components of brand equity (Aaker 1991). Brand awareness is an additional component but is less relevant here because in a well publicized product-harm crisis, a decrease in awareness is unlikely. Of much greater interest is the direction in which the other components of brand equity evolve as a result of the firm's response to the crisis. While research has examined the transfer and dilution of brand equity in brand extension settings, the literature on the impact of other corporate actions on brand equity is sparse (Aaker and Keller 1990; Dawar 1996; Dawar and Anderson 1994; Keller and Aaker 1992; Loken and Roedder-John 1993). It can be expected that publicity about dangerous or defective products has a negative impact on brand equity (i.e. on

perceptions of quality, reliability, dependability, trustworthiness, desirability, purchase likelihood, and attitudes).

Hypotheses

As discussed above, firm reputation sets customer expectations about future firm behavior. We examine two levels of reputation: (1) firms with a customer-friendly reputation, and (2) firms with no prior reputation. Both types of firm may respond ambiguously or unambiguously to support their brand in a product-harm crisis. We expect that an ambiguous response will have a negative impact on brand equity and that the resulting brand equity will be lower than if the response is unambiguous support.

H1: An ambiguous response will lead to lower brand equity than unambiguous support.

Based on our theoretical framework, we expect that the impact of firm response on brand equity will be moderated by firm reputation. Further, we know that the confirmation bias is most pronounced in cases where the evidence is ambiguous. Therefore, positive expectations about firms with a customer-friendly reputation will be particularly effective in determining the impact on brand equity in cases where the firm's response is ambiguous. In other words, for firms with a customer-friendly reputation, an ambiguous response may nevertheless be interpreted as support for the brand, while firms with no prior reputation do not benefit from this positive expectation. We predict that the negative effect of an ambiguous response relative to an ambiguous support will be more severe on a firm with no prior reputation than on a firm with a customer-friendly reputation.

H2: The negative effect of an ambiguous response predicted in H1 will be more extreme for a firm with no reputation than for a firm with a customer-friendly reputation.

Results from studies on the confirmatory bias in advertising show that the interaction of advertising and evidence leads to a marked improvement in the dependent measure

(judgments of reliability or quality), relative to "advertising only" or "evidence only" conditions (Deighton 1984; Hoch and Deighton 1989). This interaction occurs because expectations formed at the stage of preliminary exposure (e.g. to advertising) are subsequently "confirmed" through evidence (e.g. product trial). On the basis of this reasoning, we suggest that unambiguous support of its brand by a customer-friendly firm will lead to an increase in brand equity relative to a control situation in which no crisis occurs and also in comparison with unambiguous support by a firm with no reputation. In effect, we are suggesting that the combination of a customer-friendly reputation and unambiguous support for the affected brand will lead to higher brand equity than either of these alone.

H3: For a firm with a customer-friendly reputation, brand equity will be positively affected by unambiguous support in a crisis

(a) relative to a no-crisis control situation; and

(b) relative to a firm that unambiguously supports its brand but has no prior reputation.

An assessment of the change in brand equity due to an ambiguous response relative to a no-crisis situation provides a calibration of consumers' norms for expected firm response in a crisis. We predict that an ambiguous response will have a negative effect on brand equity relative to a no-crisis situation. However, reputation is expected to moderate this effect. We expect that the predicted effect will be more extreme for a firm with no prior reputation relative to one with a customer-friendly reputation.

H4: An ambiguous response will lead to lower brand equity than a no-crisis control situation; and

H5: The negative effect of an ambiguous response predicted in H4 will be more extreme for a firm with no reputation than for a firm with a customer-friendly reputation.

Study 1

These hypotheses are tested in an experiment where firm response and reputation are manipulated. Brand equity serves as the dependent variable. A control condition in which no crisis occurred was crossed with each of the two reputation levels.

Independent Variables

A 2 (firm response ambiguity) x 2 (prior reputation) factorial between-subjects design, with control conditions was used to test the hypotheses. Firm response to the crisis was either (1) unambiguous support which consisted of an apology, product recall, and restitution announced in a full-page newspaper advertisement, or (2) a notice from the firm to consumers announcing the product defect but not offering an apology, product recall or restitution, also in the form of a full page advertisement. In the control conditions subjects read a description of the firm and its plans to expand into the city where the study was conducted.

Firm reputation was manipulated by informing subjects in cover story instructions as well as in an excerpt from a newspaper article that the firm (1) in the customer-friendly reputation condition was "highly reputable and successful" in its home market, with a "spotless record of excellent products for over 30 years" and had "won an award from consumers the previous year;" or (2) in the no reputation condition, had "sold products in its home market for over 30 years."

Dependent Variables

The dependent variables consist of multiple item scales tapping dimensions of brand equity (Aaker 1991; Keller 1993). Brand attitude was measured on three seven-point scales (Unfavorable - Favorable, Bad - Good, and Negative - Positive); brand trust on three seven-point scales (Not at All Trustworthy - Very Trustworthy, Not at all Dependable - Very

Dependable, and Not at all Reliable - Very Reliable); perceived quality on two seven-point scales tapping overall quality of the brand and overall quality of the product (Low Quality - High Quality); likelihood of buying and brand desirability on one seven-point scale each (Not at all Likely - Very Likely; Not at all Desirable - Very Desirable). In addition, subjects in the experimental conditions responded to questions to ensure that experimental manipulations were effective.

Stimulus Materials, Subjects and Procedure

A fictitious soft-drink brand, *Vesuvio*, was used as the target brand in all conditions. The trigger event for the product-harm crisis consisted of reports of cans of the Vesuvio drink which were rusted on the inside. This was reported to subjects in the form of a newspaper article which they were asked to carefully read. The reported setting of the crisis was a different city than the one in which the study was run (to ensure plausibility of the fictitious brand name and crisis story), and subjects were instructed as part of the cover story for the experiment that the brand would soon be introduced in their city. In the control condition, subjects read a newspaper article announcing the firm's plans to introduce the Vesuvio soft-drink into the city where the experiments were conducted.

Subjects, 150 purchasers and regular consumers of soft-drinks, were undergraduate students enrolled in business courses, who participated in the study for course credit. Participants were asked to carefully read the stimulus material (newspaper article and advertisement) and to respond to the questions in the booklet before being debriefed. The questionnaires were administered in classroom sessions with all experimental and control conditions run in each session.

Analysis and Results

Manipulation checks. A multiple choice question about the trigger event for the crisis suggested four responses (including the correct response: rust in the cans) and fifteen subjects who incorrectly identified the source of the problem were dropped from the sample. Subjects were also asked their opinion of the seriousness of the problem. Subjects in all experimental conditions believed the problem to be equally serious (means from 5.28 to 5.95 on a seven-point scale where 7 was very serious; $F_{3,94}=1.28$, $p>0.28$) suggesting that the crisis event was successfully manipulated. A check for the reputation manipulation was not included in the questionnaire because it would be contaminated by the firm response manipulation. However, a pretest of the reputation manipulation on 29 subjects from the same pool indicated significant differences in perceptions of how "concerned about customers" the firm was (means: 3.47 for the no-reputation manipulation versus 4.54 for the customer-friendly manipulation, on a seven-point scale where 7= very concerned about customers; $F_{1,28}=10.02$, $p<.01$). As discussed above, ambiguous information allows for multiple interpretations, while unambiguous information yields a consensus interpretation. As a check on the ambiguity manipulation, subjects were asked whether, in their opinion, the firm had apologized. In the unambiguous support conditions, 49 of 54 subjects indicated that, in their opinion, the firm had apologized. In the ambiguous response condition opinion was divided with 29 of 51 subjects indicating that, in their opinion, the firm had apologized.

Dependent Variable. A factor analysis using as input the 10 dependent variables tapping brand equity yielded a single factor which accounted for 69% of the variance. The linear combination represented by this factor was used as the dependent measure representing

brand equity in all tests of hypotheses. Data were analyzed in a between subjects ANOVA with planned contrasts applied to test specific hypotheses.

Hypothesis tests. H1 predicted a main effect of ambiguity of response on brand equity. Specifically, it was predicted that an ambiguous response would have a negative impact on brand equity relative to an unambiguous response. Analysis of the unambiguous response conditions against the ambiguous response conditions indicates that this effect is indeed significant (means: 0.27 vs. -0.31; $F_{1,98}$=11.84, p<0.01). H1 is supported. H2 predicts that an interaction of reputation and firm response. Specifically, it suggests that the negative effect of an ambiguous response will be more extreme for a firm with no reputation than for one with a customer-friendly reputation. The expected interaction of reputation and firm response is significant ($F_{1,98}$ = 4.15, p<.05). Planned contrasts reveal that there is no difference in brand equity between the unambiguous and ambiguous response for the customer-friendly reputation firm ($F_{1,52}$=1.05, p>.30). On the other hand, for the brand with no prior reputation, an ambiguous response leads to a markedly lower brand equity than an unambiguously supportive response ($F_{1,46}$=14.17, p<.001). Results are graphically presented in Figure 1. Cell sizes, means, and standard deviations are presented in Table 1. H1 and H2 are supported.

Please Insert Figure 1 about here

Please Insert Table 1 about here

H3(a) and H3(b) suggest positive main effects on brand equity of unambiguous support by a customer-friendly firm relative to a no-crisis control condition and to unambiguous support by a firm with no reputation. The results show that when a customer-friendly firm responds unambiguously to support its brand, it indeed has a positive impact on brand equity relative to a no-crisis situation ($F_{1,41}$=4.97, p<.04). A comparison with of the unambiguous response by a firm with a customer-friendly with the same response by a firm with no reputation shows that brand equity for the former is significantly higher than for the latter (means: 0.57 for the customer-friendly firm vs. -.05 for the firm with no reputation; $F_{1,52}$=6.97, p<.01. H3(a) and H3(b) are supported.

H4 predicts that an ambiguous response will lead to lower brand equity than in a no-crisis control situation. The prediction is supported by the results (means: 0.02 in the no-crisis situation vs. -1.04 in the ambiguous response condition; $F_{1,36}$=16.1, p<.001). H5 predicts an interaction in which the negative effect of an ambiguous response relative to a no-crisis situation is more severe for the firm with no reputation than for the firm with a customer-friendly reputation. The predicted interaction is significant ($F_{1,75}$=11.81, p<.001). H4 and H5 are supported. Interestingly, for the customer-friendly firm, an ambiguous response leads to higher brand equity than in a no-crisis control situation (means: 032 vs. 0.02). However, this effect is not statistically significant ($F_{1,39}$=1.16, p>.28).

Discussion

The results of the experiment suggest that reputation may moderate the impact of firm response on brand equity in a product-harm crisis. One intriguing result is that a firm with a customer-friendly reputation may be able to not just maintain but enhance brand equity in a product-harm crisis through unambiguous support for its brand. Further, for such firms, even

an ambiguous response may be interpreted positively with no consequent loss of brand equity in the crisis. In this respect, a prior customer-friendly reputation appears to provide at least a a "buffer" and potentially a springboard for brand equity in times of crisis. On the other hand, the results indicate that a firm with no prior reputation may at best be able to preserve its brand equity in a crisis by responding unambiguously to support the brand. An ambiguous response by such a firm can severely damage brand equity. The difference in brand equity between an ambiguous and unambiguous response is not large for a firm with a customer-friendly reputation. On the other hand, if no prior reputation exists, the negative impact on brand equity due to an ambiguous response (relative to an ambiguous response) is considerable.

Theoretically, the effect on brand equity of an interaction of reputation with firm response in a crisis suggests that reputation generates an expectation within which future information about the firm may be interpreted. This is evident in the comparison of an ambiguous versus unambiguous firm response for the two types of prior reputation firms (Figure 1, Panel A); in the positive impact of unambiguous support on brand equity for the customer-friendly reputation brand relative to a no-crisis situation (Figure 1, Panel B); and most significantly in the impact of an ambiguous response on brand equity for the customer-friendly firm versus the no-reputation firm (Figure 1, Panel C). These results provide additional evidence of the hypothesis-confirming tendency which drives the interpretation of information and extends this theoretical framework to consumers' interpretation of corporate response to crises. Finally, the results suggest that the construct of brand equity is sensitive to consumers' interpretation of corporate actions.

Managerially, these results support the notion that an existing positive reputation may provide insurance against the potentially devastating impact of crises. Firms which invest in building a positive image and creating a strong corporate reputation create a cushion for crisis situations. In addition, the results suggest that for firms with a positive customer reputation, a crisis may afford an opportunity to enhance brand equity, provided they are able to aggressively support their brand. Firms with no prior reputation on the other hand may have to undertake aggressive support for their brand simply to preserve brand equity, with little opportunity to enhance it. Indeed, they may even run the risk of severely damaging equity if their response falls short of total support. The ambiguity of their response is likely to be interpreted by consumers as a failure to support the brand.

A critical implication of the results is that regardless of reputation, firms need to ensure that they communicate to customers their support for the brand. While it would be ill-advised for a reputable brand to intentionally trigger a crisis which it can resolve, a clear implication is that firms should strive to respond unambiguously to support their brand in a crisis. Publicizing their efforts to respond to the crisis should be an integral part of the crisis plan.

In this study we examined ambiguous and unambiguous firm support in a product-harm crisis. Firm response was found to have a different impact on brand equity based on the reputation of the firm. However, we did not include a stonewalling condition in which the firm would not respond to the crisis at all. A stonewalling condition was not included because a manipulation for stonewalling would not be equivalent and therefore not comparable to the manipulations in the present study. In practice, however, stonewalling is a common response by firms unprepared for crises (Pauchant and Mitroff 1992). We ran a second study to

examine the effects of a stonewalling response on brand equity. For firms with both types of prior reputation, a stonewalling response should provide unambiguously negative evidence about their willingness to support the brand.

Theoretically, it is useful to examine the effect of a stonewalling response because it helps determine a possible boundary condition to the dominance of prior expectations in interpreting objective evidence. Some evidence from research in psychology suggests that faced with evidence which contradicts prior beliefs, individuals tend to discount the evidence and persist in their prior beliefs (Crocker 1981; Ross and Lepper 1980). Managerially, it is useful to examine the effects of a stonewalling response because such a response is common given that many firms are ill-prepared for crises (Pauchant and Mitroff 1992). A second experiment was conducted to determine the effect on brand equity of a stonewalling response to a product-harm crisis.

Study 2

The purpose of Study 2 is to determine the impact on brand equity of a stonewalling response for firms with different levels of reputation. For a firm with a customer-friendly reputation, a stonewalling response is expected to provide consumers with unambiguous evidence contrary to their prior expectations. If top down processing persists, the stonewalling evidence may be ignored in favor of the prior expectations and no change would be expected in brand equity between a no-crisis situation and a stonewalling response. On the other hand, if evidence of the stonewalling response is processed and leads to an updating, we may expect a drop in brand equity. The latter scenario is more likely, given that top-down processing is more characteristic of ambiguous evidence situations, whereas stonewalling is unambiguous. For a firm with no reputation, it can be expected that the stonewalling

response is processed "bottom-up," i.e., without the bias of prior expectations. Consequently, for a firm with no prior reputation, a stonewalling response is expected to lead to diminished brand equity relative to a no-crisis situation.

A stonewalling response was operationalized by providing subjects with the description of the product-harm crisis in the form of a newspaper article, as in Study 1. However, instead of an advertisement issued by the firm as a response to the crisis, subjects read a second newspaper article which described the absence of any form of response or remedial measures from the firm "despite repeated attempts" by the newspaper to elicit their comments. The manipulations of reputation and control conditions were identical to those in Study 1, as were the dependent measures. A between subjects experimental design was used.

Subjects were 75 undergraduate students drawn from the same pool as for Study 1. Subjects participated in the experiment for course credit. They were asked to carefully read the stimulus newspaper articles and respond to the questions in the booklet before being debriefed.

Analysis and Results

Manipulation checks. Eight subjects incorrectly identified the problem and were dropped from the experimental conditions. Subjects in the two experimental conditions believed the problem to be equally serious (means: 5.55 and 5.79; $F_{1,34}=0.40$, $p>0.53$). Subjects in both experimental conditions felt the firm had not remedied the problem (73% and 86% in the customer-friendly reputation and no reputation conditions respectively). The effectiveness of the reputation manipulation had been tested in a pretest and found to be successful (as described in the manipulation checks for Study 1).

Dependent Variable. As in Study 1, a factor analysis of the 10 variables representing dimensions of brand equity was conducted. A single factor accounted for 65% of the variance. The linear combination represented by this factor was used as the dependent measure representing brand equity.

Hypothesis Tests. It was expected that if prior expectations persist even in the face of evidence to the contrary, brand equity would not diminish for a firm with a customer-friendly prior reputation, but would be damaged for a firm with no prior reputation. The results are graphed in Figure 2 and cell sizes, means, and standard deviations are presented in Table 2. Planned contrasts reveal that while there is a drop in brand equity for the customer-friendly reputation firm, the difference between the control and experimental conditions is not statistically significant ($F_{1,35}$=1.04, p>0.31). On the other hand, the drop in brand equity suffered due to a stonewalling response by the firm with no prior reputation is large and significant ($F_{1,29}$=8.54, p<.01). The results are as predicted by the hypotheses.

Please Insert Figure 2 about here

Please Insert Table 2 about here

Discussion

The results of Study 2 provide further support to the claim that reputation influences the interpretation of firm response by mitigating the negative effect on brand equity for firms with a customer-friendly reputation. Reputation effects are seen to be robust even against a stonewalling response. On the other hand, for firms with no reputation, a stonewalling

response has a considerable negative impact on brand equity. From a theoretical standpoint, there is support for the hypothesis that there is a tendency toward top-down processing, even in the interpretation of a stonewalling response. The steep drop in brand equity for a firm with no prior reputation and the relatively mild drop for the customer-friendly prior reputation reflects the effect of top-down processing.

The two studies reported above together suggest that prior expectations based on firm reputation guide consumers' interpretation of firm response. The key theoretical argument is that positive expectations about a customer-friendly firm lead to a confirmatory bias in the interpretation of the firm's response. However, an alternative explanation for the results obtained in these studies is that consumers who believe that a firm is customer-friendly do not process (perhaps give less weight to) information about firm response as they do for a firm with no prior reputation. Hence we observe lower variance in brand equity across conditions for the customer-friendly reputation than for the firm with no reputation. In a third study we attempt to rule out this alternative explanation. We know that at the source of the confirmatory bias is a tendency to use available information selectively (Ha and Hoch 1989; Hoch and Ha 1986). Consumers seek and selectively filter information in order to confirm expectations and discount information that may disconfirm these expectations. If a positive reputation firm's response has an impact on consumer behavior (e.g. intentions to purchase the brand after the crisis), it would constitute evidence against the alternative explanation suggested above.

Study 3

In contrast to Studies 1 and 2, the third study was conducted as a field survey during a product-harm crisis for a brand of coffee. In this field study we examine how consumer

perceptions of firm response to a product-harm crisis influence their post-crisis intentions to purchase. Specifically, the study addresses two questions: (1) whether consumers who are purchasers of a brand (and are presumably more positively predisposed toward the brand than purchasers of other brands) are more sensitive to information about a product-harm crisis relating to their brand and whether they differ from purchasers of a competing brand in the nature of information they focus on when considering future purchases. We expect that purchasers of the crisis brand are likely to be more attentive to information about the crisis than non-purchasers. As discussed above, such selective attention to and use of information is an antecedent to the confirmatory bias which was examined in the preceding studies (Ha and Hoch 1989). Therefore, we hypothesize that a larger proportion of purchasers of the crisis brand will be spontaneously aware of the occurrence of the crisis event than purchasers of a competitive brand.

Further, we examine whether purchasers of the crisis brand differ from purchasers of a competing brand in the nature of information that affects post-crisis intentions to purchase. Specifically, we examine two factors that may affect consumers' intentions to purchase the affected brand after a crisis: (1) perceptions of risk from the consumption of the product; and (2) perceptions of whether the firm acted responsibly during the crisis. Consistent with the selective information use hypothesis, we expect that purchasers of the affected brand will focus on firm response to the crisis and their interpretation of this response will affect their future intentions to purchase. However, they are expected to be less sensitive to product risk in assessing their intentions to purchase. For current purchasers of a competing brand, on the other hand, future intentions to purchase are expected to be less sensitive to the firm's response and more driven by product related risk perceptions created by the crisis.

Data

Data were collected by a market research firm during a product-harm crisis (i.e., during the week news of the product-harm crisis and firm response unfolded in the media). The trigger event for the product-harm crisis was the discovery of fragments of glass in cannisters of instant coffee of the second largest selling brand in a large European market. The instant coffee market is dominated by two large brands. The data were collected in a survey of 218 instant coffee buyers who had purchased one of the two brands during the previous two-months. Data were collected from respondents in a one-on-one interview. There were 178 usable responses. Sample characteristics are presented in Table 3.

Please Insert Table 3 about here

After identification as instant coffee purchasers and of the brand purchased regularly, respondents were asked if they had recently seen or heard anything about instant coffee in the newspapers, on television or on the radio. If they had, they were asked to identify the brand and what they had heard. If they correctly identified the brand and the problem, they were classified as being spontaneously aware of the product-harm crisis. All respondents were then informed of the crisis event and were asked about their perception of the risk from the affected product (1=No risk at all; 5=Extremely serious risk). Respondents were then informed of the firm's response to the crisis (recall of all cannisters of the product followed by a re-introduction in a newly labeled package). They were then asked whether, in their opinion, the firm acted in a responsible manner in its response to the situation (1=Not at all responsibly; 5=Very responsibly). Finally, intentions to purchase the brand in the future were measured on a five-point scale (1=Definitely will not buy; 5=Definitely will buy).

Analysis and Results

To preserve confidentiality, the brand which was the subject of the crisis is referred to as Brand A and the other large brand in the market is referred to as Brand B. The first hypothesis predicted that purchasers of Brand A would be more likely to be aware of the crisis event than purchasers of Brand B. As expected, a larger proportion of purchasers of Brand A were spontaneously aware of the crisis event than purchasers of Brand B (39% vs. 16%; $\chi^2 = 14.5$, $p<0.001$).

The second hypothesis predicted that purchasers of Brand A and purchasers of Brand B would be influenced by different types of information in the formation of their post-crisis intentions to purchase Brand A. Two regressions, one for purchasers of Brand A and another for purchasers of Brand B, were run to analyze the influence of risk perceptions and perception of firm response in predicting post-crisis intentions to purchase. The results show that for purchasers of Brand A, perceptions of responsible firm behavior predict post-crisis intentions to purchase ($\beta=0.41$, $t_{87}=3.72$, $p<0.001$), while perceptions of risk do not ($\beta=-0.08$, $t_{87}=-1.41$, $p>0.16$). On the other hand, for purchasers of Brand B, perceptions of risk are related to future intentions to purchase ($\beta=-0.28$, $t_{91}=-3.02$, $p<0.01$) while perceptions of responsible firm behavior appear unimportant ($\beta=0.11$, $t_{91}=0.64$, $p>0.52$). For the regression using Brand A purchasers data, model R^2 is 0.16, while for Brand B purchasers model R^2 is 0.10.

Discussion

The results of this field survey provide additional support for the selective information use hypothesis. The data suggest that purchasers of a crisis brand are more likely to be aware of the crisis than are purchasers of other brands and that these two groups of consumers are

affected by different kinds of information in their post-crisis intentions to purchase the affected brand. Specifically, purchasers of the crisis brand are more sensitive to firm response than to the risk inherent in the defective product. Purchasers of other brands appear to be more focused on product-risk perceptions of product risk than firm response to the crisis. These results lend further support to the claim that the confirmatory-bias is at the source of the effects observed in Studies 1 and 2.

From a theoretical standpoint, the evidence suggests that selective attention to and use of information may be at the root of biased processing of information about firm response by segments of consumers with differing predispositions toward the brand. Further, the results suggest that this differential use of information may have an impact on post-crisis intentions to purchase.

Managerially, the results indicate that different customer constituencies (e.g. loyal customers versus potential customers) may respond to different types of information in a product-harm crisis. This implies that communications which form part of the firm's response to the crisis need to be targeted and tailored to the different constituencies. Awareness differences between different constituencies suggest that existing customers versus purchasers of competitor brands are more likely to know of the crisis from the media. Informing these buyers of firm response should be a priority. On the other hand, customers of other brands who may be potential future customers of the crisis brand need to be reassured about the lack of risk in consuming the product. It is important to remember that a crisis, by definition generates substantial brand awareness. Firms can capitalize on this incremental awareness to enhance brand equity by targeting the communication of firm response.

General Discussion

The results of the studies reported here suggest that a product-harm crisis need not inevitably have a negative impact on brand equity and that reputation is a key moderating variable in determining the impact on brand equity. The three studies together suggest the following managerial implications:

1) *Build and Maintain a Positive Reputation:* Reputations are built over protracted periods of time over numerous transactions and may be very costly. However, the results here show that they are extremely valuable assets in times of crisis. When a crisis strikes, it is too late to build a reputation and a firm with no reputation must then take the consequences. On the other hand a firm with a positive reputation may see in a crisis an opportunity to enhance brand equity. From a managerial standpoint a relevant question is whether the cost of building and maintaining a positive reputation can be expected to pay off. In this sense, the decision to invest in a reputation is an actuarial one. However, it may be that a positive reputation also has benefits for the day-to-day business of the firm and not just in crisis situations (e.g. in terms of lower costs of transactions with customers). In evaluating the cost/benefit of building and maintaining a reputation, all costs and benefits, however intangible, need to be included.

2) *In A Crisis, Support the Brand Completely:* An ambiguous response in a crisis does not pay. The impact on brand equity of an ambiguous response is particularly damaging if the firm has no prior reputation. On the other hand, for firms with a positive reputation, full support of the brand has the potential of increasing brand equity. Therefore, the opportunity cost of an ambiguous response is high, even for a firm with a positive reputation. The dominant strategy is one of complete and full support for the brand.

While the exact operational definition of full support for the brand may differ by industry and by market, our results show that for problems that consumers consider "serious", they expect apologies, product recalls, and remedial measures. Further research into customer expectations and "norms" is necessary in order to establish operational norms for responses in crisis situations.

3) *Communicate with Customers:* Our results show that not only is it necessary to fully support the brand in a crisis, but that it may be just as important to demonstrate and communicate to customers that such support is being mobilized. If consumers are not convinced of full support, they may assume that the firm's response has been ambiguous. As we have seen, an ambiguous response can have severly negative consequences for brand equity. Further, it is necessary to tailor communications to different customer constituencies. For example, existing customers may be looking for confirmation that the firm is behaving responsibly in handling the crisis, while potential customers are focusing on the risks associated with the product. A product-harm crisis generates heightened media and public attention. This heightened media attention can be used to advantage by delivering tailored and targeted messages for different constituencies.

As discussed earlier, theoretically this research suggests that (1) reputation may guide interpretation of firm response in a product-harm crisis; (2) there exists a link between firm response in a product-harm crisis and customer-based brand equity; and (3) this relationship is moderated by firm reputation. In addition, the results of Study 3 provide support to the notion that the confirmatory tendencies may be grounded in the selective use of available information.

Limitations

In Studies 1 and 2, the experimental method provides a means of assessing "pure" effects in controlled laboratory settings. While the results obtained provide insight into the mechanisms by which reputations and firm response interact to impact brand equity, there are limitations to the conclusions that can be drawn from these studies alone. First, a product-harm crisis is, in large measure, a public opinion phenomenon which involves market place dynamics such as word-of-mouth and rumors. Although care was taken to make the stimuli (newspaper articles and advertisements) as realistic as feasible, it was not possible to replicate the market place dynamics aspect of product-harm crises in the controlled experiments. Second, in order to avoid contamination of the effects from previous brand knowledge and brand equity, it was necessary to use a fictitious brand name. The use of a fictitious brand name has two apparent limitations. First, it becomes necessary to experimentally manipulate firm reputation. Second, the notion of brand equity for a brand which subjects encounter for the first time in the laboratory setting may be limited. However, given previous research which has successfully manipulated reputation, we were confident of our ability to do this in the laboratory (see Weigelt and Camerer 1988). Further, we were interested in examining *changes* in brand equity across conditions rather than absolute levels of brand equity. Given the absence of brand equity for the stimulus brand prior to the experiment, we can more confidently ascribe changes in brand equity to the effects of our manipulations rather than to the interactions of our manipulations with previous knowledge. Finally, while it does not overcome all of the limitations cited here, Study 3 provides a limited confirmation of our hypothesized framework in a field setting.

Future Research

Brand equity is acknowledged to be among a firm's most valuable assets. The present state of knowledge about the impact of firm actions on brand equity is minimal. While the present research makes an initial step towards understanding the impact on brand equity of firm response in a product-harm crisis situation, numerous questions remain.

In the studies reported here, we kept constant the locus of control for the source of the crisis (rust in the cans). Future research is needed to explore the impact of the locus of blame for the crisis on customer-based brand equity. If the source of the crisis is internal to the firm and the firm is responsible (e.g. unclean filters caused benzene traces to appear in Perrier water) it may be more damaging to brand equity than if the source of the problem is external to the firm (e.g. a consumer terrorist poisoned Tylenol capsules). In other words, it may matter whether the firm is the victim or the cause of the crisis. However, this predicted main effect may be moderated by both prior reputation and firm response. Prior reputation may play a role because evidence of the locus of the problem may be ambiguous. Consumers' interpretation of the crisis situation may play a role in establishing the blame for the crisis. Firms with good prior reputations may not be as likely to be held responsible for the crisis as firms with no or a poor prior reputation. Further, firm response may interact with the locus of the crisis because if the source of the crisis is not internal to the firm, and yet the firm engages its efforts to support the brand (e.g. as in the Tylenol case), brand equity may be enhanced. On the other hand, if a crisis is attributable to a firm and yet it is not perceived to be responding to remedy the situation, the consequences on brand equity may be severe. Daily news events of product-harm crises underscore the need for more systematic research to understand their impact.

NOTES

[1] We use the term "firm reputation" to mean customer expectations about the behavior of the firm. Firm reputation could also be labeled "brand reputation" since for the customer the brand and the firm are often indistinguishable (e.g. Perrier represents Source Perrier S.A. , and Tylenol represents Johnson & Johnson or McNeil Consumer Products Company). In the present study, in order to avoid confusion with brand equity, we retain the label "firm reputation."

Table 1 Study 1, Cell Means (Standard Deviations) of Brand Equity Under Unambiguous and Ambiguous Firm Response

PRIOR REPUTATION	FIRM RESPONSE		
	No Incident (Control)	Unambiguous Support	Ambiguous Response
	n=15	n=28	n=26
Customer-Friendly	-0.01	0.57	0.32
	(0.80)	(0.82)	(0.99)
	n=16	n=26	n=22
None	0.02	-0.05	-1.05
	(0.66)	(0.92)	(0.89)

Table 2 Study 2, Cell Means (Standard Deviations) of Brand Equity Under Stonewalling

PRIOR REPUTATION	FIRM RESPONSE: No Incident (Control)	FIRM RESPONSE: Stonewalling
	n=14	n=22
Customer-Friendly	0.51 (0.64)	0.18 (1.08)
	n=17	n=14
None	0.05 (0.96)	-0.86 (0.71)

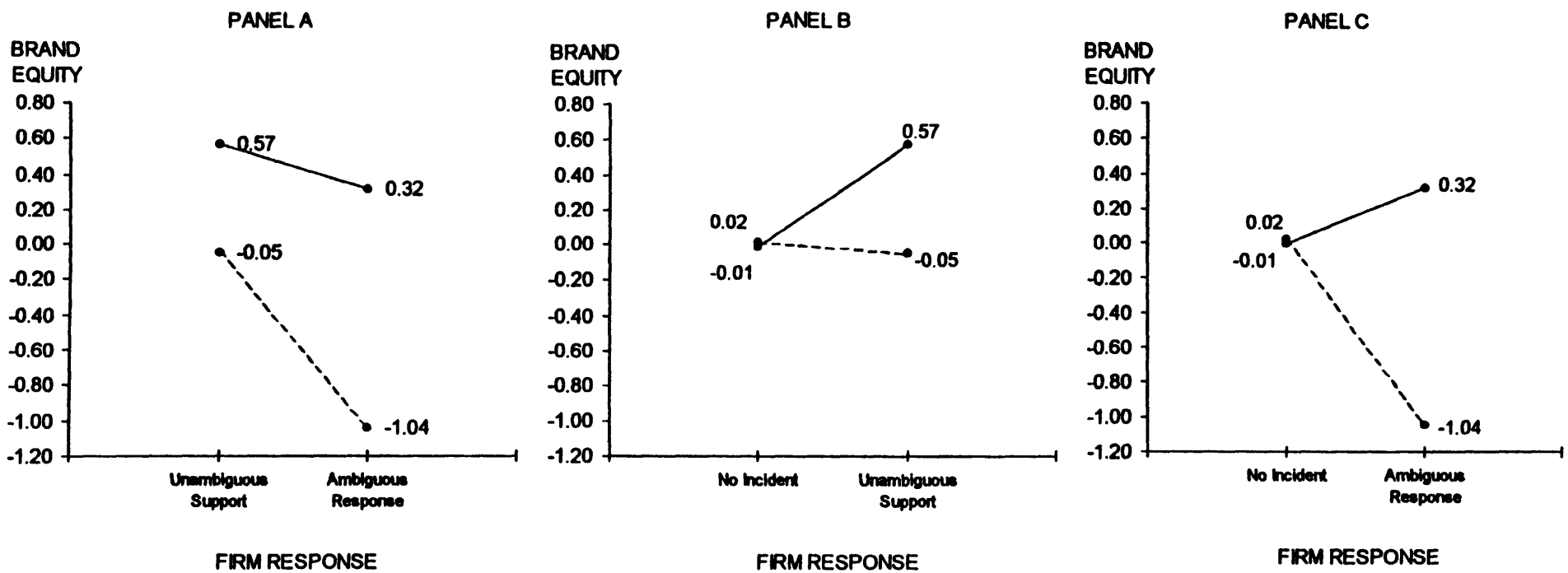
Table 3 Study 3 Sample Characteristics

AGE (Years)	<25	25-34	35-44	45-54	>54
	5.5%	10.6%	19.7%	16.1%	48.2%
SEX	Male	Female			
	42.6%	57.4%			
REGULAR BRAND	Brand A	Brand B			
	49%*	51%			

TOTAL SAMPLE 218 respondents

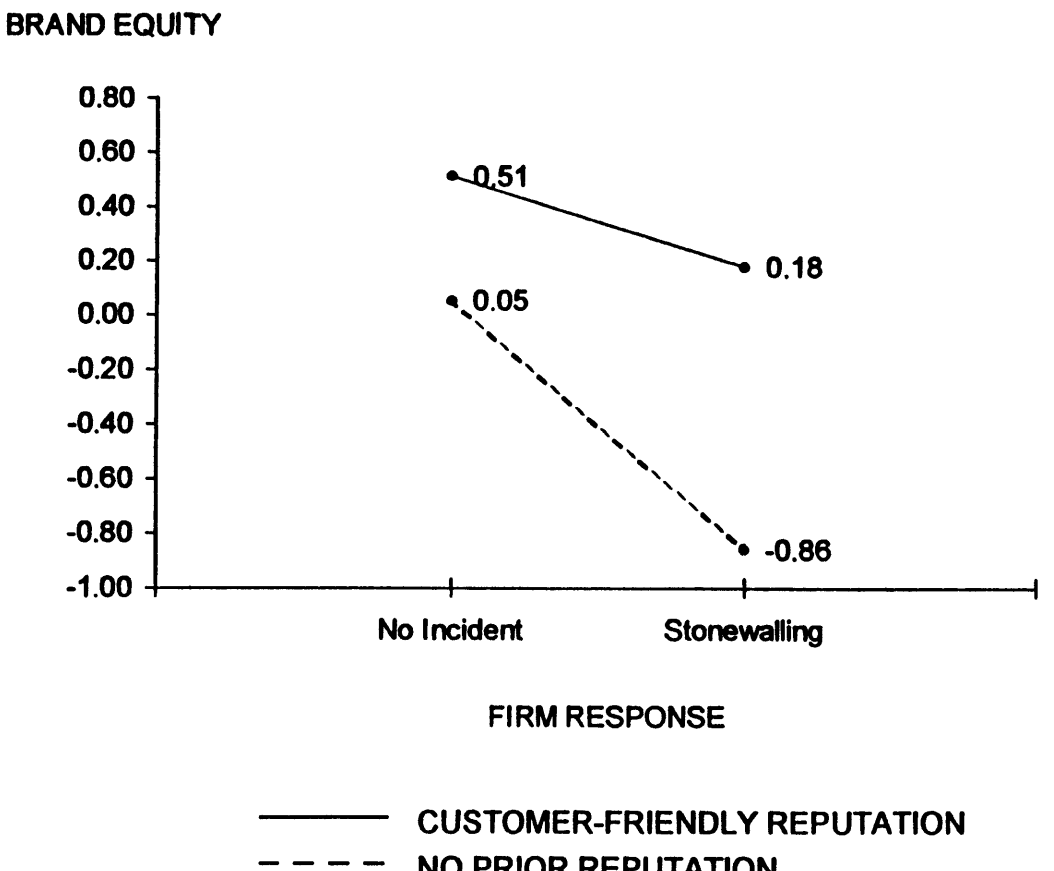
* Includes 31 consumers who purchased both brands.

Figure 1:
STUDY 1: EFFECTS OF FIRM RESPONSE ON BRAND EQUITY



——— CUSTOMER-FRIENDLY REPUTATION
– – – – NO PRIOR REPUTATION

Figure 2
STUDY 2: EFFECTS OF STONEWALLING ON BRAND EQUITY



References

Aaker, D. A. (1991), *Managing Brand Equity: Capitalizing on the Value of a Brand Name*, New York: Free Press.

Aaker, D. A. (1996), *Building Strong Brands*, New York: Free Press.

Alba, J. W., S. M. Broniarczyk, T. A. Shimp, and J. E. Urbany (1994), "The Influence of Prior Beliefs, Frequency Cues, and Magnitude Cues on Consumers' Perceptions of Comparative Price Data," *Journal of Consumer Research*, 21 (2), 219-235.

Baumgartner, J. (1995), "On the Utility of Consumers' Theories in Judgments of Covariation," *Journal of Consumer Research*, 21 (4), 634-643.

Beerworth, E. (1991), Contemporary Issues in Product Liability Law, The Federation Press: Sydney.

Birch, J. (1994), "New Factors in Crisis Planning and Response," *Public Relations Quarterly*, Spring, 31-34.

Crocker, Jennifer (1981), "Judgment of Covariation by Social Perceivers," *Psychological Bulletin*, 90 (September), 272-292.

Darley, J. M. and P. H. Gross, (1983), "A Hypothesis-Confirming Bias in Labeling Effects," *Journal of Personality and Social Psychology*, 44 (1), 20-33.

Dawar, N. (1996), "Extensions of Broad Brands: The Role of Retrieval in Evaluations of Fit," *Journal of Consumer Psychology*, 5 (2), 189-207.

Dawar, N and P. F. Anderson, (1994), "The Effects of Order and Direction onMultiple Brand Extensions," *Journal of Business Research*, 30, 119-129.

Deighton, J. (1984), "The Interaction of Advertising and Evidence," *Journal of Consumer Research*, 11, 763-770.

Ha, Young-Won and Stephen J. Hoch (1989), "Ambiguity, Processing Strategy, and Advertising-Evidence Interactions," *Journal of Consumer Research*, 16 (3), 354-60.

Hartley, R. H. (1995), *Marketing Mistakes*, Sixth Edition, New York: John Wiley.

Hearit, K. M. (1994), "Apologies and Public Relations Crises at Chrysler, Toshiba, and Volvo," *Public Relations Review*, 20 (2), 113-125.

Hoch, S. and J. Deighton, (1989), "Managing What Consumers Learn from Experience," *Journal of Marketing*, 53(2), 1-20.

Hoch, S. and Y. W. Ha (1986), "Consumer Learning: Advertising and the Ambiguity of Product Experience," *Journal of Consumer Research*, 13 (2), 221-233.

Keller, K. L. (1993), "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity," *Journal of Marketing*, 57 (1), 1-22.

Kirmani, A. and P. Wright (1989), "Money Talks: Perceived Advertising Expense and Expected Product Quality," *Journal of Consumer Research*, 16, No. 3 (December), 344-353.

Kreps, D. M. and R. Wilson (1982), "Reputation and Imperfect Information," *Journal of Economic Theory*, 27, 253-279.

Kurzbard, Gary and George J. Siomkos (1992), "Crafting a Damage Control Plan: Lessons from Perrier," *Journal of Business Strategy*, March-April, 39-43.

Levin, I. P. and G. gaeth (1988), "How Consumers Are Affected by the Framing of Attribute Information Before and After Consuming the Product," *Journal of Consumer Research*, 15, No. 3 (December), 374-378.

Loken, B. and D. Roedder-John (1993), "Diluting Brand Beliefs: When do Brand Extensions have a Negative Impact," *Journal of Marketing*, 57, No. 3, 71-84.

Malozzi, C. (1994), "Facing the Danger Zone in Crisis Communications," *Risk Management*, January, 34-42.

Mitroff, I. I. And R. H. Kilman (1984), *Corporate Tragedies, Product Tampering, Sabotage, and Other Catastrophes*, New York: Praeger Publishers.

Mowen, J. C. (1979), "Further Information on Consumer Perceptions of Product Recalls," in *Advances in Consumer Research, Vol. 7*. J. C. Olson, ed., Provo UT: Association for Consumer Research, 519-523.

Murray, E. and S Shohen (1992), "Lessons from the Tylenol Tragedy on Surviving a Corporate Crisis," *Medical Marketing and Media*, February, 14-19.

Patterson, B. (1993), "Crises Impact on Reputation Management," *Public Relations Journal*, November, 47-48.

Pauchant, T. C. and I. Mitroff (1992), "The Dial Tone Does Not Come From God! How a Crisis Can Challenge Dangerous Strategic Assumptions Made About High Technologies: The Case of the Hinsdale Telecommunications Outage," *Academy of Management Executive*, 6 (3), 66-79.

Pechmann, C. and S. Ratneshwar (1992), "Consumer Covariation Judgments: Theory or Data Driven?" *Journal of Consumer Research*, 19(3), 373-386.

Porter, M. E. (1980), *Competitive Strategy*, New York: Free Press.

Ross, L., and M. R. Lepper (1980), "The Perseverance of Beliefs: Empirical and Normative Considerations," *New Directions for Methodology of Social and Behavioral Science*, 4, 17-36.

Routhier, R. (1993), "Puching Out a Hoax," *Sales and Marketing Management*, 12.

Shocker, A. D., R. K. Srivastava, and R. Ruekert (1994), "Challenges and Opportunities Facing Brand Management: An Introduction to the Special Issue," *Journal of Marketing Research*, 31 (2), 149-158.

Siomkos, G. J. and G. Kurzbard (1994), "The Hidden Crisis in Product-Harm Crisis Management," *European Journal of Marketing*, 28 (2), 30-41.

Siomkos, G. J. and P. G. Malliaris (1992), "Consumer Response to Company Communications During a Product Harm Crisis," *Journal of Applied Business Research*, 8 (4), 59-65.

Smith, N. C., R. J. Thomas, and J. A. Quelch (1996), "A Strategic Approach to Managing Product Recalls," *Harvard Business Review*,September-October, 102-112.

Snyder, M. and W. B. Swann, Jr. (1978), "Hypothesis-Testing Processes in Social Interaction," *Journal of Personality and Social Psychology*, 36 (11), 1202-1212.

Uzumeri, M. V. and C. A. Snyder (1996), "Information Technology and Accelerated Science: The case of the Pentium Flaw," *California Management Review*, 38 (2), 44-63.

Weigelt, K., and C. Camerer (1988), "Reputation and Corporate Strategy: A Review of Recent Theory and Applications," *Strategic Management Journal*, 9, 443-454.

Weinstein, S. (1993), "The Hoax That Failed," *Progressive Grocer*, August, 17.

Williams, D. E., and B. A. Olaniran (1994), "Exxon's Decision-Making Flaws: The Hypervigilant Response to the Valdez Grounding," *Public Relations Review*, 20 (1), 5-18.

Zeithaml, V. A. (1988), "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence," *Journal of Marketing*, 52 (3), 2-22.