JING LEI, NIRAJ DAWAR, and ZEYNEP GÜRHAN-CANLI*

Consumers spontaneously construct attributions for negative events such as product-harm crises. Base-rate information influences these attributions. The research findings suggest that for brands with positive prior beliefs, a high (vs. low) base rate of product-harm crises leads to less blame if the crisis is said to be similar to others in the industry (referred to as the "discounting effect"). However, in the absence of similarity information, a low (vs. high) base rate of crises leads to less blame toward the brand (referred to as the "subtyping effect"). For brands with negative prior beliefs, the extent of blame attributed to the brand is unaffected by the base-rate and similarity information. Importantly, the same base-rate information may have a different effect on the attribution of a subsequent crisis depending on whether discounting or subtyping occurred in the attribution of the first crisis. Consumers who discount a first crisis also tend to discount a second crisis for the same brand, whereas consumers who subtype a first crisis are unlikely to subtype again.

Keywords: base-rate information, consumer attributions, product-harm crises

Base-Rate Information in Consumer Attributions of Product-Harm Crises

Product-harm crises, or well-publicized instances of defective or dangerous products, have become commonplace because of the increasing complexity of products and more stringent product-safety legislation (Dawar and Pillutla 2000). Mattel's toy hazards, Toyota's sudden acceleration problem, and the many baby car seats, cribs, food products, and medicines that were recalled in 2011 due to design and quality flaws are just a few of the more prominent examples of the recent incidents. While recalls are expensive for firms, the immediate expense of product replacement and consumer compensation may pale in comparison with the loss of consumer trust and damage to brand evaluations. The extent of such damage largely depends on the extent to which consumers attribute the blame to internal firm-related factors (Folkes 1984).

One important cue that influences consumers' attribution is the base-rate (consensus) information, or how common the focal behavior or event is among the population of interest. Base-rate information is intuitively appealing as a basis for attribution (Kassin 1979; Pilkonis 1977), especially in a consumer setting (Kardes 1988). In judging a behavior/event, consumers often ask if others would do the same. In the context of a product-harm crisis, base-rate information may describe the frequency of crises or recalls in the industry. This simple statistic tends to be commonly available to consumers from various sources, influencing their crisis attribution. However, findings on the use of base-rate information are decidedly mixed. Some studies (e.g., Folkes and Kotsos 1986; Kelley 1972; Pilkonis 1977) suggest that a high (vs. low) base rate leads to less attribution to actor-related internal factors, because widespread prevalence suggests that external factors may be to blame for the incident. However, there is also considerable evidence that base rate has little or no effect on attributions (e.g., Kardes 1988; Kassin 1979; Nisbett and Borgida 1975). Given this incon-

*Jing Lei is Senior Lecturer, Faculty of Business and Economics, University of Melbourne (e-mail: leij@unimelb.edu.au). Niraj Dawar is the Barford Professor of Marketing, Richard Ivey School of Business, University of Western Ontario (e-mail: ndawar@ivey.uwo.ca). Zeynep Gürhan-Canli is Migros Professor of Marketing, Koç University (e-mail: zcanli@ku.edu.tr). The authors contributed equally to this project. They thank June Cotte, Robert Fisher, and three anonymous reviewers for valuable comments. They also thank Charan Bagga for part of the data collection. Gita Johar served as associate editor for this article.

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sistency of findings, it is unclear whether base rate (e.g., industry frequency) influences attribution of a product-harm crisis. For example, would a "not just me" response (Johar, Birk, and Einwiller 2010), suggesting the prevalence of recalls in the auto industry, help alleviate consumers' blame of Toyota, and if so, under what circumstances?

The objective of this research is to examine whether base-rate information affects consumers' attribution of a product-harm crisis, and if so, how? Findings from two experimental studies and follow-up experiments contribute to understanding of attributions and the effects of product-harm crises in several ways. First, we demonstrate that the effect of base-rate information does not always conform to the conventional prediction that a high (vs. low) base rate leads to less blame being attributed to the actor (in our setting, the focal brand). Instead, the effect of base-rate information on consumers' attribution of a product-harm crisis depends on (1) consumers' prior beliefs about the brand and (2) the similarity of the focal crisis to other crises in the industry. For brands with positive prior beliefs, high (vs. low) industry frequency leads to less blame attributed to the brand, but only when the crisis is considered similar to other crises in the industry. When similarity information is absent, the effect is reversed, and low (vs. high) industry frequency leads to less blame toward the brand. For brands with negative prior beliefs, the extent of brand-directed blame is affected by neither base-rate nor similarity information. Moreover, we show that a high base rate leads to less blame attributed to the brand through a discounting effect, whereas a low base rate leads to less blame through a subtyping effect. While both effects may help alleviate consumers' blame of the brand, their impact goes well beyond the immediate crisis. We find that those who had discounted a first crisis would also discount a subsequent crisis, whereas consumers who had subtyped the former are unlikely to subtype the latter. Theoretically, these results specify conditions under which base-rate information does or does not affect attributions of a product-harm crisis and shed new light on the different patterns of effects that base-rate information may have on attributions. Managerially, these results suggest different outcomes on brand evaluations depending on the attribution process that was engaged. We draw implications for how these effects can help firms effectively respond to the focal crisis and preempt and manage possible subsequent crises.

We organize the remainder of the article as follows: First, we discuss the importance of base-rate information in attribution and the conditions under which consumers will likely use it in crisis attribution. We then discuss two patterns of effects for how (a high vs. low) base rate affects consumer attributions of a crisis (Experiment 1) and the differential impacts of the two effects on consumer attributions of a subsequent crisis (Experiment 2).

THE USE OF BASE-RATE INFORMATION IN ATTRIBUTIONS

Informational Bases of Attributions

In Kelley's (1967) widely accepted attribution framework, three types of information serve as input to observers' attributions about an actor's behavior or an event: consensus (base rate), or how common the behavior or event is in the population of interest;[1] distinctiveness, or whether the actor behaves similarly toward other stimuli; and consistency, or whether the actor behaves similarly in other situations. In a product-harm crisis setting, the actor is the firm or brand in crisis, and consumers make attributions about the affected product. Examples of the three types of information are how common recalls are in the industry (base rate), whether the firm recalls other products as well (distinctiveness), and whether the firm also recalls the product in other situations (consistency). We focus on the impact of base-rate information for several reasons. First, although all three types of information serve as inputs to attributions, base-rate information is considered to have a stronger link to actor inference (e.g., whether the crisis is attributed to the firm/brand), whereas distinctiveness has a stronger link to stimulus inference (e.g., whether the crisis is attributed to the nature of the product) and consistency has a stronger link to situation inference (e.g., whether the crisis is attributed to the situation) (Hilton, Smith, and Kim 1995). To examine the impact of a product-harm crisis on brands, we focus on the extent to which a crisis is attributed to the actor-related factors rather than the differentiation between various external factors (e.g., stimulus, situational factors). Second, compared with the generally consistent findings about the impact of distinctiveness and consistency on attributions, findings about base-rate information are mixed. Contextual factors that affect the impact of base-rate information on attributions may help explain why (Higgins and Bryant 1982; Kardes 1988). Finally, the base rate of crises often varies significantly across industries (e.g., food products, toys, and automobiles are more prone to product-harm crises than furniture), making it a particularly useful source of information for attribution judgments in this context.

The Use of Base-Rate Information and Influential Factors

While there is strong empirical evidence showing the impact of base-rate information on attributions in both social psychology (e.g., Feldman et al. 1976; Pilkonis 1977) and consumer research (e.g., Folkes and Kotsos 1986; Sparkman and Locander 1980), some studies find little or no effect (e.g., Kardes 1988; Kassin 1979). Research examining this inconsistency suggests that, in addition to methodological issues (as Kelley and Michela 1980 point out), several factors may influence the neglect or use of base-rate information.

First, Higgins and Bryant (1982) indicate that the observer–actor similarity may influence the use of base-rate information. They find that observers are less likely to use experimenter-provided base-rate information when judging behaviors of in-group peers than when judging those of out-group nonpeers. This is because observers tend to derive their own base rate from the knowledge of their own behavior when judging behaviors of actors similar to them. The use of self-derived base-rate information makes the provided base-rate information seem redundant, and therefore it has little impact on attributions (Kassin 1979; Kelley and Michela 1980).

Second, Hilton and Slugoski (1986) suggest that the use of base-rate information also depends on whether observers

[1] "Consensus," used in some studies, refers to the same type of information as base rate (e.g., Kardes 1998; Kelley 1980).

perceive the actor's behavior to be normal or unexpected according to their prior knowledge about the actor. If the behavior is normal (vs. unexpected), the base-rate information is considered uninformative and is less likely to affect attributions (see also Jackson et al. 1993). Despite this finding, most prior studies do not include prior beliefs about the actor in their analysis of base-rate information (e.g., Folkes and Kotsos 1986; Hilton, Smith, and Kim 1995; Nisbett and Borgida 1975; Sparkman and Locander 1980). This could be because they examine attributions in person perception, a context in which observers often have no strong or stable prior beliefs about the actor (e.g., a buyer's attributions about a salesperson's behavior; Folkes and Kotsos 1986).

Third, Lynch and Ofir (1989) suggest that the use of base-rate information is a function of the characteristics (e.g., specificity) of such information (see also Bar-Hillel 1980, 1990; Ofir and Lynch 1984). Specifically, consumers often perceive "abstract and pallid" base-rate information to be less causally relevant than the "concrete and vivid" case information (about the behavior to be attributed), leading to neglect of base-rate information. However, base-rate information can be made more relevant if it pertains specifically to the individual case (Lynch and Ofir 1989).

According to these findings, we expect the use of base-rate information to be more prevalent in crisis attribution than in person perception, because consumers' knowledge of their own behavior is often insufficient for them to derive their own base rate for firm crises. However, we expect that consumers' use of base-rate information in crisis attribution depends on their prior beliefs about the brand and the specificity of the base-rate information. In the next section, we develop these predictions.

THE EFFECT OF BASE-RATE INFORMATION ON CRISIS ATTRIBUTION

Default Attributions and Attribution Adjustment

Consumers spontaneously engage in reasoning about unexpected negative events such as a product-harm crisis (Folkes 1988; Wong and Weiner 1981). This attribution process typically involves identifying the locus of cause and assessing who to blame for the event (McGill 1990; Weiner 1980). Whereas locus measures how consumers locate the cause to different parties involved, blame measures consumers' evaluative judgment of each party's liability for censure (Bradbury and Fincham 1990). In general, blame directly follows locus so that more (less) cause attribution leads to more (less) blame (Folkes 1988; Weiner 1980). However, studies have also shown that observers may, at times, not blame the actor, despite perceiving the actor as the cause, when the outcome or event caused is viewed as acceptable or excusable (Bradbury and Fincham 1990; Fincham, Beach, and Nelson 1987; Folkes and Kotsos 1986; McGill 1990). Thus, compared with locus, blame is conceptualized as a more accurate and direct attribution variable in forming the basis of consumers' brand judgment and behavior (Klein and Dawar 2004; McGill 1990).

Research shows that observers tend to make default attributions to the actor (Gilbert, Pelham, and Krull 1988; Trope 1986) and that this tendency is even stronger for negative (vs. positive) behaviors (Bernard 1998; Ybarra 2002). Consistent with this view, research indicates that consumers tend to believe that crises are generally firm related and blame the firm as a result of the motivation for self-protection, their dependency on the firm for positive service outcomes, and their belief that most consumers use a product intending, or even devoting effort toward, its success (Cowley 2005; Folkes 1988). However, these default attributions may be adjusted if the contextual information (e.g., base rate) leads consumers to acknowledge the external constraints facing the brand (Gilbert, Pelham, and Krull 1988). While the primary response of default attribution is automatic, the secondary response of attribution adjustment may or may not occur, depending on the characteristics of contextual information and the observer's motivation and ability (e.g., cognitive capacity) to process it (Gilbert and Malone 1995; Gilbert, Pelham, and Krull 1988). Given sufficient processing ability, we expect that consumers are more motivated to process the base-rate information for brands with positive (vs. negative) prior beliefs, and the effect pattern of (high vs. low) base-rate information depends on the specificity of the information.

The Effect of Prior Beliefs on the Use of Base-Rate Information

Consumers' prior beliefs about a brand are formed on the basis of their experience with and exposure to the brand's past actions (Krishnan 1996). When formed, prior beliefs bias consumers' interpretation of new information (Johar 1996). Crisis information confirms negative prior beliefs and reinforces the default attributions initially made to the brand. In contrast, when prior beliefs are positive, the crisis information challenges the beliefs and presents an information inconsistency. To resolve this inconsistency and maintain (positive) beliefs, people tend to elaborate on belief-inconsistent information and may seek information that helps refute the negative (e.g., crisis) information (Edwards and Smith 1996; Kunda 1990). A possible consequence of this search for refutational evidence is that consumers are more receptive to, and even actively seek, (contextual) information (e.g., base rate) that could explain the crisis. This prediction is also in line with prior research, which suggests that the use of base-rate information is more likely when the behavior or event (e.g., a crisis) is unexpected (vs. normal) according to observers' prior beliefs about the actor (e.g., consumers' positive prior brand beliefs) (Hilton and Slugoski 1986; Jackson et al. 1993).

The Effect Pattern of High Versus Low Base-Rate Information

Given sufficient processing ability and motivation, what is the effect pattern of a high versus low base rate on attributions? Previous predictions about the effect of base-rate information are mainly based on its causal role in attributions. Specifically, a cause is defined as the factor that "is present when the effect is present and ... is absent when the effect is absent" (Kelley 1967, p. 154). Thus, if a behavior occurs only when the actor is present (low base rate), the cause is likely to be attributed to the actor. For example, consider the 2001 Firestone tire blowout product crisis. If such events are rare in the industry, consumers may reason that the cause of the crisis is specific to the brand, in line with their default attributions. In contrast, information about equally widespread defects in tires made by other firms may

lead consumers to reason that the vehicles or roads, not necessarily the tires, caused the blowouts, giving consumers a reason to adjust their attribution to the brand. This process of adjustment is commonly referred to as "discounting" (Kelley 1972, p. 8), meaning that "the role of a given cause (e.g., brand) is discounted if other plausible causes are present." In this case, discounting leads to less blame attributed to the brand and better brand evaluations.

However, in the context of product-harm crises, the presence of base-rate information itself may not be sufficient to discount the default attributions to the brand. This is because negative events (e.g., crises) are often construed as a violation of social code requiring volition and intentionality (or, at the very least, acts of omission) and are likely to induce strong beliefs that the behavior is actor related (Ybarra 2002). Only if base-rate information can provide clear causal links between external factors and the crisis are the default attributions to the brand likely to be discounted. However, base-rate information may appear particularly abstract and pallid compared with the often dramatic case information of a crisis, making the former seem irrelevant to the attribution task at hand (Bar-Hillel 1980; Koehler 1996). A major factor that influences base-rate utilization is whether the base-rate pertains specifically and is related directly to the focal case (Bar-Hillel 1980; Lynch and Ofir 1989; Ofir and Lynch 1984). Bar-Hillel (1980) indicates that the most straightforward way to bring specificity is to provide a base rate for the subset of the population that is directly related to the focal case (see also Koehler 1996). For example, Lynch and Ofir (1989) find that a base rate described as pertaining to the focal case of Peugeot automobiles in particular is more causally relevant and used in judgment than the base rate described as pertaining to foreign cars in general (see also Ofir and Lynch 1984). In the context of our study, industry frequency information would pertain specifically to the focal crisis if the information is about crises similar to the focal case (referred to as "similarity information"). It is more plausible for consumers to infer from this specific base-rate information (i.e., the focal crisis is similar to those in the industry) that common external factors, rather than the brand, may have caused the crisis.[2] Thus, when similarity information is present, we expect that a high (vs. low) base rate leads to less blame attributed to the brand and better brand evaluations.

However, when the similarity information is absent, the lack of specificity in base-rate information makes it less causally relevant to discount the default attribution to the brand. Yet the information inconsistency between the crisis and positive prior beliefs remains unresolved. If the use of base-rate information rests on the assumption that consumers are motivated to resolve this inconsistency and maintain (positive) beliefs, a different resolution route may be employed. Specifically, instead of serving as a basis to infer other causes of the crisis, a (low or high) base rate can be a simple statistical cue suggesting the rarity or commonality of such crises for brands in the industry. When a crisis is perceived as generally rare, and conflicts with consumers' (positive) beliefs about a brand, they may simply consider it an exception to the otherwise well-behaved brand. For example, in schema research, studies have shown that information that is inconsistent with an existing schema (about a social group, a product category, or a brand) may be considered an exception to the rule and be subtyped as an instance that is unrepresentative of the schema (Crocker and Weber 1983; Romeo 1991; Taylor and Crocker 1981). This effect of subtyping is more likely when the instance of disconfirmation is rare versus prevalent (Richard and Hewstone 2001; Sujan and Bettman 1989). Similarly, some studies in attribution research also indicate that an unexpected, rare behavior may be dismissed as an accident or a fluke of chance rather than a reflection of the actor's true qualities (Bradbury and Fincham 1990; Kaltcheva and Weitz 1999; Taylor, Lichtman, and Wood 1984; Wilder, Simon, and Faith 1996). On the basis of these studies, we propose that consumers may view a rare crisis as an exception or accident to an otherwise good brand and excuse the brand from blame by reasoning that "things happen." That said, although a low base rate may not allow consumers to explain away the crisis with other factors, it may help resolve the information inconsistency between the crisis and positive brand beliefs by treating the crisis as an unrepresentative case of the brand's normal behavior. We borrow the term "subtyping" from schema research to label this effect. In general, subtyping is theorized as a mechanism that people use to reconcile inconsistent information and maintain their beliefs about a schema (Taylor and Crocker 1981), although it is more often discussed in person perception and product categorization research. In the context of this research, we define subtyping as an effect in which consumers treat a rare crisis as an exception to the brand's normal behavior and excuse the brand from blame.

In summary, the presence of base-rate (industry frequency) information may help adjust the default attributions to the brand. Adjustment occurs when consumers can either attribute the crisis to external factors (discounting) or consider it an exception to the rule (subtyping). If the base rate pertains specifically to the focal case (similarity information present), it helps consumers determine the locus of the cause. High (vs. low) industry frequency suggests that other causes may be at play, leading to less brand blame and better brand evaluations. However, if the base-rate information lacks specificity (similarity information absent), it may serve as a statistical cue. Low (vs. high) industry frequency prompts consumers to perceive the event as an exception to the rule, resulting in less brand blame and better brand evaluations. Regardless of whether the effect of discounting or subtyping is at play, the use of base-rate information in attribution adjustment is more likely for brands with positive (vs. negative) prior beliefs. In line with previous research (e.g., Klein and Dawar 2004), we gauge the effect of attributions by measuring blame assignment as well as a specific (brand trustworthiness) and an overall evaluation (brand evaluation) of the brand. We hypothesize the following:

H_1: The effect of base-rate information (industry frequency) on crisis attribution (as measured by blame assignment, brand trustworthiness, and brand evaluation) is moderated by similarity information and prior brand beliefs.

(a) When similarity information is present, high (vs. low) industry frequency information leads to less attribution to the brand (discounting). However, when similarity informa-

[2]A pilot test (n = 68) showed that the base rate with similarity information was perceived as more causally relevant than that without similarity information (4.94 vs. 4.26; $t(66) = 2.16$, $p < .05$).

tion is absent, low (vs. high) industry frequency leads to less attribution to the brand (subtyping).

(b) The effect of base-rate information (either discounting or subtyping) is more pronounced for brands with positive (vs. relatively negative) prior beliefs.

EXPERIMENT 1

The purpose of Experiment 1 is to test H_1 which examines the different effects of base-rate information on consumer attributions in a product-harm crisis. Student respondents participated in the experiment in exchange for partial course credit.

Stimulus Development

The experimental stimulus used in this study was beer, a product that is relevant and familiar to student participants. We used fictitious brand names to avoid the confounds of the specificities of real brand names. Twenty-four participants were asked to evaluate five fictitious beer brands, and the name "Stiegal" was selected because it was considered a suitable name for both a premium and a low quality product. Next, we developed several descriptions to manipulate positive or negative brand beliefs, including a *Consumer Reports* article, classification of the brand, and sample online consumer reviews. Specifically, Stiegal was described as a premium (nonpremium) beer brand that is rated as one of the best beer brands (has received weak ratings) in a *Consumer Reports* article. The article rated the brand on four commonly discussed beer attributes (quality, flavor, freshness, and overall satisfaction) on a ten-point scale, and consumer testers also provided verbal evaluations on each attribute. In addition, the brand was classified in the same quality tier as several well-known premium (low-quality) beer brands in the market to help participants remember and build positive (or relatively negative) associations to the brand. Peer communication is reported to have a strong influence on consumers' brand evaluations, especially when they have no experience with the brand (Herr, Kardes, and Kim 1991). Therefore, we provided fictitious positive (negative) online consumer reviews to reinforce the image of a well-regarded (poor) brand. Finally, two groups of participants ($n_1 = 21$, $n_2 = 20$) evaluated the Stiegal brand described in positive or negative descriptions, respectively, using a composite scale (Keller 2003) including dimensions of brand evaluation ("negative/positive," "bad/good," and "unfavorable/favorable"), brand trust ("not at all trustworthy/very trustworthy," "not at all reliable/very reliable," "not at all dependable/very dependable"), perceived quality of the brand and the product ("low quality/high quality"), brand purchase likelihood ("not at all likely/very likely") and brand desirability ("not at all desirable/very desirable") (Cronbach's $\alpha = .96$).[3] The results confirmed that the positive descriptions generated significantly more positive beliefs than the negative descriptions (5.05 vs. 3.22; $t(39) = 5.93$, $p < .001$).

Experimental Procedure

One hundred ninety-two participants were assigned randomly to the experimental conditions in a 2 (prior beliefs: positive vs. negative) × 2 (industry frequency: high vs. low) × 2 (similarity information: present vs. absent) between-subjects design. First, participants were instructed to read the booklet of positive or negative descriptions of the Stiegal brand and asked to remember as much information as possible. To add realism to the scenario, participants were informed that the Stiegal brand had just entered the market, so they might or might not be familiar with it. Next, participants were provided with paper and a pencil to write down their "overall impressions" about Stiegal after reading the information booklet. This step helps internalize the positive or negative descriptions of the brand as the participants' own opinions, facilitating the manipulation of prior beliefs. Next, participants completed the first part of an unrelated filler questionnaire. In the third step, they were presented with the key stimulus in the experimental task, a fictitious but realistic newspaper article about a recall of [brand] beer. The article described a brand's recall of its beer after a few consumers reportedly fell ill from drinking the beverage. Under high (low) industry frequency, participants were told that in recent years, product recalls in the beer industry "have been very common (rare), averaging more than one recall every two weeks (averaging less than one recall every two years)." We manipulated similarity information either by stating that the focal crisis "is similar to earlier incidents that have occurred in the industry" or by not presenting such information. After reading the article, participants were asked to fill out the second part of the filler questionnaire and then respond to the scaled dependent measures of the main study. Next, participants stated what they thought the purpose of the study was. We found that participants believed the purpose was about either the filler study or the effect of the described crisis. No participant guessed the real purpose of the study. Finally, participants were debriefed and informed about the fictitious nature of the brand and the crisis incident.

Dependent Variables

We measured blame assignment on a three-item, seven-point scale ("Stiegal is to blame for consumers' illness," "Stiegal is responsible for consumers' illness," and "Stiegal is at fault for consumers' illness") anchored by "strongly disagree" and "strongly agree" (Klein and Dawar 2004) ($\alpha = .87$). We averaged these items to form a blame index. We measured brand trustworthiness on a three-item, seven-point scale anchored by "not at all/very trustworthy," "not at all/very dependable," and "not at all/very reliable" ($\alpha = .95$). We measured brand evaluations on a three-item, seven-point scale anchored by "very unfavorable/very favorable," "very bad/very good," and "very negative/very positive" ($\alpha = .95$). We averaged these items to form a brand trustworthiness index and a brand evaluation index, respectively. In addition, to assess the participants' tendency to consider the crisis an exception, we measured their agreement with the statements "This incident is an exception for [the brand]" and "This incident is an isolated event for [the brand]," anchored by "strongly disagree/strongly agree" (adapted from Sujan and Bettman 1989). We averaged these items to form a subtyping index ($r = .69$, $p < .001$).

We performed manipulation checks by asking participants to indicate how common product recalls are in the beer industry on a three-item, seven-point scale (anchored

[3]A factor analysis of these items yields one factor (explained variance of 78.9%, Kaiser–Meyer–Olkin = .90), enabling us to average these items.

by "not at all common/very common," "not at all frequent/very frequent," and "not at all widespread/very widespread") ($\alpha = .96$). Finally, participants stated their level of agreement with two statements ("According to the newspaper article this incident is identical to previous incidents," and "According to the newspaper article this incident and previous incidents are alike") anchored by "strongly disagree/strongly agree" ($r = .77$, $p < .01$).

Results

Manipulation check. The analysis of variance (ANOVA) test on the industry frequency index indicated only a main effect of industry frequency ($F(1, 184) = 420.23$, $p < .001$). Participants in the high (vs. low) industry frequency condition reported that recalls in the industry were more common (5.16 vs. 2.30). Similarly, an ANOVA on the similarity index revealed only a main effect of similarity information ($F(1, 184) = 119.22$, $p < .001$). Participants reported that this incident was more similar to previous ones when similarity information was present versus absent (5.68 vs. 3.68).

Blame assignment. We analyzed the data using a 2 (industry frequency: high vs. low) × 2 (similarity information: present vs. absent) × 2 (prior beliefs: positive vs. negative) between-subjects ANOVA. First, the ANOVA test revealed a significant three-way interaction on blame assignment ($F(1, 184) = 4.63$, $p < .05$). The interaction between industry frequency and similarity information was significant for brands with positive prior beliefs ($F(1, 184) = 17.70$, $p < .001$) but not so for brands with negative prior beliefs ($F(1, 184) = 1.43$, $p > .20$). Planned contrast tests for simple effects showed that, for the positive brand, participants assigned less blame to the brand in the high (vs. low) industry frequency condition when similarity information was present (5.29 vs. 5.91; $F(1, 184) = 5.50$, $p < .05$). However, when similarity information was absent, they assigned less blame in the low (vs. high) industry frequency condition (4.78 vs. 5.74; $F(1, 184) = 12.90$, $p < .01$). For the negative belief condition, the blame assignment was not significantly different between the high and low industry frequency conditions when similarity information was either present (5.68 vs. 5.83; $F < 1$) or absent (6.11 vs. 5.82; $F(1, 184) = 1.22$, $p > .20$).

Brand trustworthiness and evaluation. We then examined the effect of the crisis on brand trustworthiness and evaluation. First, the ANOVA test revealed a significant three-way interaction on brand trustworthiness ($F(1, 184) = 5.70$, $p < .05$). The interaction between industry frequency and similarity information was significant for brands with positive prior beliefs ($F(1, 184) = 13.18$, $p < .01$) but not so for brands with negative prior beliefs ($F < 1$). Specifically, when prior beliefs are positive, participants rated the Stiegal brand as more trustworthy in the high (vs. low) industry frequency condition when similarity information was present (3.45 vs. 2.60; $F(1, 184) = 6.82$, $p < .05$). However, when similarity information was absent, the brand's trustworthiness was rated higher in the low (vs. high) industry frequency condition (3.28 vs. 2.44; $F(1, 184) = 6.37$, $p < .05$). When prior beliefs are negative, the brand's trustworthiness was not significantly different between the high and low industry frequency conditions either when similarity information was present (2.20 vs. 2.01; $F < 1$) or absent (2.27 vs. 2.22; $F < 1$). The analysis of brand evaluations revealed the same pattern of results with similar levels of significance (Table 1, Panel A). These results support H_1.

Likelihood of considering the crisis an exception. In addition, we examined the extent to which participants were likely to consider a crisis an exception under different conditions. The ANOVA revealed a significant three-way interaction on the participants' likelihood of considering the crisis an exception ($F(1, 184) = 4.38$, $p < .05$). The interaction between industry frequency and similarity information was significant for brands with positive prior beliefs ($F(1, 184) = 5.96$, $p < .01$) but not for brands with negative prior beliefs ($F < 1$). Specifically, for the positive brand, participants considered the crisis more an exception in the low (vs. high) industry frequency condition when similarity information was absent (5.25 vs. 3.97; $F(1, 184) = 15.82$, $p < .001$). However, when similarity information was present, the likelihood of considering the crisis an exception was below the neutral point (4) and did not vary across different industry frequency conditions (3.94 vs. 3.76; $F < 1$). For the negative brand, the likelihood of considering the crisis an exception was below the neutral point (4) in all conditions (Table 1, Panel A). These results suggest that consumers consider the crisis an exception only when the crisis is rare, when the similarity information is absent, and when they have positive brand beliefs. The results also indicate that only in this condition did the likelihood of considering the crisis an exception have a significant impact on blame assignment ($\beta = -.51$, $t = -2.80$, $p < .05$), brand trustworthiness ($\beta = .49$, $t = 2.68$, $p < .05$) and evaluation ($\beta = .41$, $t = 2.16$, $p < .05$).

Follow-up experiment.[4] We work under the assumption that people spontaneously engage in attributional activity following negative and unexpected outcomes. Although prior research has empirically supported this assumption (e.g., Folkes 1984; Wong and Weiner 1981), we examine the assumption in the specific context of a product-harm crisis. Furthermore, in Experiment 1, we set the base-rate information at two distinct levels: high (product recalls averaging more than one recall every two weeks) and low (product recalls averaging less than one recall every two years). Although this was in line with most prior studies' manipulation of base-rate information, we generalize our findings by varying the base-rate at a different (weaker) magnitude.[5] A follow-up study ($n = 106$) using the same fictitious brand (Stiegal) replicated the four experimental conditions with positive prior beliefs (because most of our findings were in these conditions). Participants followed a similar procedure as in Experiment 1 with a few notable changes. First, we set the two levels of base rate at a different magnitude than Experiment 1: high (averaging about one recall every two months) and low (averaging about one recall every two years). Second, after reading the crisis story, participants listed their thoughts and questions before responding to the

[4]We are grateful to an anonymous reviewer for the suggestions.

[5]Previous research has typically manipulated the magnitude of base-rate information at two distinct levels. At the high level, several people perform the same behavior as the actor (e.g., "John, George, Ringo, and Paul all help Linda"). At the low level, only the actor performs the behavior (e.g., "Paul helps Linda; hardly anyone else helps Linda") (Hilton, Smith, and Kim 1995; see also Feldman et al 1976; Higgins and Bryant 1982; Jackson et al. 1993; Kardes 1988; Kassin 1979; Nisbett and Borgida 1975; Sparksman and Locander 1980).

Table 1
MEANS (STANDARD DEVIATION) OF DEPENDENT VARIABLES IN EXPERIMENT 1

	A: Main Experiment			
	Similarity Information Present		*Similarity Information Absent*	
	High Industry Frequency	*Low Industry Frequency*	*High Industry Frequency*	*Low Industry Frequency*
Positive Prior Beliefs				
Blame assignment	5.29 (1.00)	5.91 (.78)	5.74 (1.05)	4.78 (.73)
Brand trustworthiness	3.45 (1.38)	2.60 (1.32)	2.44 (1.05)	3.28 (1.19)
Brand evaluations	3.65 (1.11)	2.81 (1.31)	2.94 (1.06)	3.56 (1.07)
Sub-typing index	3.76 (1.08)	3.94 (.65)	3.98 (1.20)	5.25 (.94)
Negative Prior Beliefs				
Blame assignment	5.68 (1.08)	5.83 (.79)	6.11 (.83)	5.82 (1.03)
Brand trustworthiness	2.20 (1.04)	2.01 (.90)	2.27 (.98)	2.22 (1.07)
Brand evaluations	2.09 (.75)	1.94 (.62)	2.11 (1.00)	2.19 (1.02)
Sub-typing index	2.82 (1.42)	3.56 (.94)	2.85 (1.15)	3.37 (1.13)
	B: Follow-Up Experiment			
	Similarity Information Present		*Similarity Information Absent*	
	High Industry Frequency	*Low Industry Frequency*	*High Industry Frequency*	*Low Industry Frequency*
Positive Prior Beliefs				
Brand trustworthiness	3.28 (1.21)	2.41 (1.16)	2.25 (1.13)	3.13 (1.07)
Brand evaluations	3.60 (1.14)	2.56 (1.24)	2.35 (1.26)	3.42 (1.36)
	C: Post-Hoc Experiment in the Discussion			
	Similarity Information Present		*Similarity Information Absent*	
	High Industry Frequency	*Low Industry Frequency*	*High Industry Frequency*	*Low Industry Frequency*
Positive Prior Beliefs (Heineken)				
Brand trustworthiness	4.74 (.98)	4.02 (.86)	3.84 (1.54)	4.60 (.94)
Brand evaluations	5.02 (1.18)	4.26 (1.27)	3.97 (1.41)	4.84 (1.14)
Negative Prior Beliefs (Lakeport)				
Brand trustworthiness	3.17 (1.18)	3.19 (1.59)	3.40 (1.34)	3.28 (.97)
Brand evaluations	2.92 (1.31)	2.78 (1.45)	3.07 (1.15)	2.86 (1.09)

scaled dependent variables on the next page. Third, participants responded to the dependent variables of brand trustworthiness and evaluation directly without first responding to the blame assignment variable, because questions about blame assignment may prime the attribution process. These last two changes were designed to examine whether consumers spontaneously engage in attributional activities following a product-harm crisis.

According to Wong and Weiner (1981), we coded five categories of thoughts in the verbal protocols of participants' thoughts after reading the crisis story: affective reactions (expressions of emotions such as anger, frustration), attributional thoughts (causes/blame of the recall), action-related thoughts (actions in reaction to the recall), reevaluation thoughts (reassessment of the brand/product), and miscellaneous thoughts. Consistent with the findings in Wong and Weiner, we found that participants engaged in spontaneous attributions: Attributional thoughts comprised the largest proportion of the total thoughts listed (affective reactions: 4.12%; attributional thoughts: 41.82%; action-related thoughts: 16.27%; reevaluation thoughts: 33.19%; and miscellaneous thoughts: 4.60%). We then coded the attributional thoughts into subtyping-related thoughts (consider the crisis an exception/accident), discounting-related thoughts (consider possible non-brand-related causes), and other thoughts. We found 20.34% of the attributional thoughts were subtyping related in the low industry frequency/similarity information–absent condition (the subtyping condition), but fewer than 3% of such thoughts were subtyping related in all other conditions. In addition, we found that 29.41% of the attributional thoughts were discounting related in the high industry frequency/similarity information–present condition (the discounting condition), but fewer than 7% of such thoughts were discounting related in all other conditions. These results offer further evidence of the subtyping and discounting effects we hypothesized under the different conditions. Furthermore, the results reveal a significant interaction of industry frequency and similarity information on both brand trustworthiness ($F(1, 102) = 15.51$, $p < .001$) and evaluation ($F(1, 102) = 18.81$, $p < .001$) with the same pattern of means as in Experiment 1 (Table 1, Panel B). Overall, these results support the assumption of spontaneous attributional search following negative and unexpected outcomes (e.g., a crisis) and help corroborate the findings in Experiment 1.

Discussion

These results support our propositions that base-rate information is more likely to affect attribution to brands with positive (vs. negative) prior beliefs and that the effect pattern of (high vs. low) base-rate information depends on similarity information. For brands with positive prior beliefs, participants attributed less blame and had higher ratings of brand trustworthiness and evaluation in the high (vs. low) industry frequency condition when the crisis was said to be similar to others in the industry. However, when the similarity information was absent, participants attributed less blame and had higher ratings of brand trustworthiness and evaluation in the low (vs. high) industry frequency con-

dition. For brands with negative prior beliefs, the blame assignment and the ratings of brand trustworthiness and evaluation were not significantly affected by the industry frequency and similarity information. To generalize our findings in a more naturalistic setting, we conducted an additional experiment (n = 257) with two existing brands (Heineken and Lakeport) using the same 2 (prior beliefs: positive vs. negative) × 2 (industry frequency: high vs. low) × 2 (similarity information: present vs. absent) between-subjects design as Experiment 1. A pretest (n = 32) showed that Heineken and Lakeport were similarly familiar to participants (4.18 vs. 4.60; t (30) = –.82, $p > .40$) but with positive and relatively negative prior beliefs, respectively (5.25 vs. 3.72; t(30) = 3.67, $p < .01$). We manipulated industry frequency and similarity information as in Experiment 1. At the end of the study, participants were debriefed and informed of the fictitious nature of the incident. The results showed significant interactions and the same pattern of means (Table 1, Panel C) on brand trustworthiness and evaluation as Experiment 1, providing additional support for H_1.

Although the results in Experiment 1 showed that both the discounting and subtyping effects lead to less blame being attributed to the brand than in other conditions, we suggest that the two effects are the result of different processes. Specifically, discounting helps divert the cause away from the brand to other factors, whereas subtyping simply allows consumers to excuse the brand by treating the crisis as an exception or accident. If this is the case, we should observe less cause attributed to the brand in the discounting condition, though not necessarily in the subtyping condition. Despite similar outcomes, the differences in process are important. The reasoning by which the attribution occurs may have different implications for consumers' treatment of subsequent crisis events. All else being equal, will the same base-rate information that helped alleviate consumers' blame in the first crisis have a similar effect on the second one? Multiple product-harm crises are not uncommon for brands. For example, Tylenol experienced a second crisis in 1986 after its well-publicized crisis in 1982 (and a third one in 2010), and Firestone's 2001 recall was not its first. We address this question in Experiment 2.

EXPERIMENT 2

In reasoning about an event, observers are often guided by their own beliefs and assumptions about what happened (Reeder 1993). As we discussed previously, consumers tend to make default attributions to the firm (e.g., Folkes 1988). This schematic assumption is so strong that consumers may ignore the contextual information (e.g., base-rate) when attributing the event (Gawronski 2003; Reeder 1993). However, consumers do use the (high) base-rate information to discount the default attribution when the base-rate information pertains specifically to the focal case, as Experiment 1 shows. We propose that when consumers question their implicational schema by acknowledging possible external causes implied by (high) base-rate information, they may be more receptive to base-rate information in attributions of subsequent events. Therefore, although multiple crises may imply a cause inherent to the brand, we expect that if consumers had discounted a crisis under the high base-rate and similarity information present condition, they may also discount a similar subsequent crisis under the same conditions.

However, when consumers subtype a crisis under the low base-rate and similarity information absent condition, they are unlikely to subtype a similar subsequent crisis under the same conditions. Recall that subtyping occurs when consumers consider the crisis an exception to an otherwise well-behaved brand. However, when a similar subsequent crisis occurs, it is difficult for consumers to consider repeating occurrences as exceptions or accidents (Wilder, Simon, and Faith 1996). Moreover, although a low base rate leads consumers to subtype the crisis as an unrepresentative exception to the brand's normal behavior, it may not exonerate the brand fundamentally by diverting the cause to other factors as happens under discounting. Instead, the subtyped information (e.g., crisis) may stand out as a unique, salient episode (e.g., Crocker 1984) reminding consumers of the possible (quality) issues with the brand. Therefore, when a similar subsequent crisis occurs, together with the subtyped prior occurrence, it raises questions about the brand and makes it difficult for consumers to subtype again. We hypothesize the following:

H_2: Consumers are (a) likely to discount a second crisis if they had discounted the first crisis and (b) less likely to subtype a second crisis if they had (vs. had not) subtyped the first crisis.

Experimental Procedure

The results of Experiment 1 show that discounting and subtyping effects only occur for brands with positive prior beliefs. Therefore, we only used a brand with positive prior beliefs (Heineken) in Experiment 2. Two fictitious crisis stories were required as stimuli: one for the first crisis manipulation and one for the subsequent crisis manipulation. The crisis story used in Experiment 1 served as the first crisis, and we created a new crisis story similar (but not identical) to the first one for the second occurrence.

In the first part of the experiment, 134 participants were randomly assigned to a 2 (industry frequency: high vs. low) × 2 (similarity information: present vs. absent) between-subjects design with a control group (Control Group 1). Participants in the four experimental groups were presented with the first crisis with the industry frequency and similarity information manipulation as in Experiment 1. Participants in the control group were presented with the first crisis without industry frequency or similarity information, to measure their default (baseline) attributions of the crisis. We designed the experiment to include the control group so we could compare attributions in each experimental group directly with the default attributions and measure the extent of attribution adjustment. Our aim with this part of the experiment was to induce the subtyping effect in the low industry frequency and similarity information absent condition, and the discounting effect in the high industry frequency and similarity information present condition for the first crisis.

Three days later, participants in the subtyping condition (low industry frequency, similarity information absent) and the discounting condition (high industry frequency, similarity information present) were asked to participate in the second part of the experiment, in which they were presented with the second crisis. Participants were told that the article they had read in the first part of the experiment had been published several years earlier, but they were not reminded

of the content of the article.[6] They were then presented with a recent newspaper article describing the second crisis. In the subtyping condition, participants were presented with the low industry frequency and similarity information absent manipulation to test whether they would subtype the second crisis. Similarly, in the discounting condition, participants were presented with the high industry frequency and similarity information present manipulation to determine whether they would discount the second crisis. No participant guessed the real purpose of the study. In addition, another control group (control group 2) (n = 25) was recruited to measure the default (baseline) attributions of the second crisis (no industry frequency or similarity information was present).

Dependent Variables

We measured blame assignment and brand evaluation as in Experiment 1.[7] In addition, we measured the locus of cause by asking participants to assign a percentage of cause to "the brand" and "factors other than the brand" with totals summing to 100 percent (Folkes and Kotsos 1986). Including the locus measurement enables us to compare how consumers attribute the cause to the brand in the discounting versus subtyping condition.

Results

Induce subtyping and discounting effects on the first crisis.[8] We used an ANOVA test with Type IV sums of squares (Norusis 2003) to analyze the 2 (industry frequency: high vs. low) × 2 (similarity information: present vs. absent) between-subjects design with a single control group (no industry frequency and similarity information). The results showed a significant interaction term between industry frequency and similarity information on blame assignment ($F(1, 129) = 14.33$, $p < .001$). Planned contrast tests for simple effects showed that participants assigned less blame to the brand in the high (vs. low) industry frequency condition (4.38 vs. 5.31; $F(1, 129) = 9.41$, $p < .01$) when similarity information was present but assigned less blame in the low (vs. high) industry frequency condition (4.58 vs. 5.27; $F(1, 129) = 5.22$, $p < .05$) when similarity information was absent. This result replicates the findings in Experiment 1 and suggests that the subtyping and discounting effects were successfully induced for the first crisis. In addition, compared with the baseline effect in Control Group 1, participants attributed less blame to the brand in both the subtyping condition (low industry frequency similarity information absent) (4.58 vs. 5.20; $F(1, 129) = 4.27$, $p < .05$) and the discounting condition (high industry frequency similarity information present) (4.38 vs. 5.20; $F(1, 129) = 7.55$, $p < .01$) but not so in the other two conditions ($F < 1$). As corroborative evidence, we obtained the same pattern of results with similar levels of significance for brand evaluations (see the results in Table 2, Panel A). Furthermore, the results show that participants attributed a lower percentage of cause to the brand in the discounting condition than in the control group (46% vs. 69%; $F(1, 129) = 12.89$, $p < .001$), but this is not the case for the subtyping condition (63% vs. 69%; $F < 1$). The loci of cause in the other two conditions (67% and 60%) were not significantly different from those in the control group ($ps > .10$). These results showed that participants deflected the cause to other factors when discounting but not when subtyping.

Effects of the second crisis.[9] To examine whether participants would subtype or discount the second crisis, we com-

[6]We designed Experiment 2 to examine the consequence of discounting versus subtyping in the first crisis on consumers' attribution of a second crisis. To avoid the possible impact of crisis frequency at the focal brand, we set a large time span between the first and second crises. A pretest showed that participants who saw both crises rated the crisis frequency at the focal brand as equally infrequent (3.26) as participants who only saw the second crisis (3.10; $p > .10$).

[7]We eliminated brand trustworthiness because it led to results similar to brand evaluation in Experiment 1.

[8]The manipulation check for industry frequency and similarity information was successful. The ANOVA on industry frequency showed only a main effect of industry frequency ($F(1, 106) = 279.58$, $p < .001$). Participants in the high (vs. low) industry frequency condition rated the recalls as more common (5.23 vs. 2.17). In addition, the ANOVA on similarity information showed only a main effect of similarity information ($F(1, 106) = 50.79$, $p < .001$). Participants rated the incident as more similar to other occurrences in the industry when similarity information was present (vs. absent; 5.34 vs. 3.73).

[9]The manipulation check for industry frequency and similarity information was successful. The independent t-tests showed that participants in the discounting condition (high industry frequency/similarity information present) rated the recalls as more common (5.26 vs. 2.47; $t(59) = 11.20$, $p < .001$) and more similar to other occurrences (5.11 vs. 3.82; $t(59) = 4.13$, $p < .001$) than did participants in the subtyping condition (low industry frequency/similarity absent).

Table 2
MEANS (STANDARD DEVIATION) OF DEPENDENT VARIABLES IN EXPERIMENT 2

	A: Effects of the First Crisis				
		Similarity Information Present		*Similarity Information Absent*	
	Control Group 1	*High Industry Frequency*	*Low Industry Frequency*	*High Industry Frequency*	*Low Industry Frequency*
Brand blame	5.20 (1.24)	4.38 (1.12)	5.31 (.99)	5.27 (1.06)	4.58 (1.14)
Brand evaluations	3.99 (1.20)	4.73 (.98)	4.12 (1.14)	4.05 (1.13)	4.81 (1.05)
Locus of cause	.69 (.22)	.46 (.24)	.67 (.18)	.60 (.22)	.63 (.28)

	B: Effects of the Second Crisis		
	Control Group 2	*Similarity Information Present High Industry Frequency (Discounting)*	*Similarity Information Absent Low Industry Frequency (Subtyping)*
Brand blame	5.15 (1.05)	4.45 (1.20)	5.08 (1.13)
Brand evaluations	3.89 (1.22)	4.67 (.93)	4.03 (1.32)
Locus of cause	.67 (.20)	.55 (.22)	.72 (.25)

pared the effect of the second crisis under the subtyping condition and discounting condition with that in Control Group 2 (baseline effect of the second crisis). Planned contrasts show that participants assigned less blame to the brand in the discounting condition than in Control Group 2 (4.45 vs. 5.15; $F(1, 83) = 5.19$, $p < .05$) but not so in the subtyping condition (5.08 vs. 5.15; $F < 1$). As corroborative evidence, the results also showed a higher rating of brand evaluation in the discounting condition than in Control Group 2 (4.67 vs. 3.89; $F(1, 83) = 6.11$, $p < .05$) but not so in the subtyping condition (4.03 vs. 3.89; $F < 1$). These results support H_2 in that consumers who had discounted a first crisis are likely to discount a second crisis, but those who had subtyped the first crisis are less likely to subtype the second one. Furthermore, we found that participants attributed less cause to the brand in the discounting condition than that in Control Group 2 (55% vs. 67%; $F(1, 83) = 4.07$, $p < .05$), but this was not the case in the subtyping condition (72% vs. 67%; $F < 1$).

Discussion

The results of Experiment 2 replicate and extend our findings in Experiment 1 to show that participants attribute less blame to the brand and have more favorable brand evaluations in both the discounting and subtyping conditions than in the control group in which no base-rate information is provided. More important, the results suggest that while a high base rate with similarity information present (the discounting condition) can lead consumers to discount the attributions to the brand for both the first and second crisis, a low base rate with similarity information absent (the subtyping condition) only leads consumers to subtype the first crisis, not the second. The results of Experiment 2 suggest that despite the similar outcome of the discounting versus the subtyping effect after the first crisis, the process matters because a second crisis may or may not receive the same treatment depending on how it was attributed in the first instance.

GENERAL DISCUSSION

Base-rate information is a simple yet important source of information that influences consumers' inference judgments. Previous research has shown mixed findings on whether this information affects attribution. In this research we show that base-rate information affects consumers' attribution of a product-harm crisis, but this effect is more salient for brands with positive (vs. negative) prior beliefs. In addition, we find that base-rate information may have a different pattern of effects on attributions than previously examined, and we specify the conditions under which these effects occur. Finally, we show that the same base-rate information may have a different impact on a subsequent crisis depending on how it affects the attribution of the first crisis. From these results, we draw theoretical implications for the effect of base-rate information in attribution and suggestions for the management of the negative impact of product-harm crises.

First, our findings carry implications for how base-rate information affects attribution in different contexts. We show that base-rate information has a much greater impact on attributions for brands with positive (vs. negative) prior beliefs. This finding supports Johar, Birk, and Einwiller's (2010) managerial advice regarding the "not just me" response, suggesting the prevalence of crises in the industry should be more effective for consumers who identify with the brand than those who do not. Our finding specifies a boundary condition for the use of base-rate information in the context of a brand-related (negative) event. In addition, this finding may explain why not all brands are found to be equally affected by a crisis, even though consumers make default attributions to the brand in case of a negative event (Ybarra 2002). For example, Klein and Dawar (2004) find that a firm is less affected by a crisis when consumers have positive (vs. negative) prior beliefs about the firm's corporate social responsibility. Similarly, Johar (1996) shows that negatively (vs. positively) evaluated advertisers are more likely to be held responsible for a deceptive advertisement. Our findings suggest that brands with positive (vs. negative) beliefs are less affected by a crisis, but not because the positive beliefs merely "insulate" the brand from negative information; rather, these positive beliefs make consumers more receptive to the influence of contextual information (e.g., base-rate information), reducing the default attributions to the brand. Further research could explore whether base-rate information would also contribute to adjustment in the default attributions to a negative brand when such information is made more salient to consumers. Managerially, these results suggest that investment in forming consumers' positive brand beliefs is paid back in case of an adverse event, but the positive beliefs alone do not predict consumers' attribution about the crisis. Managers should be aware of the dual effect of both the characteristics of the affected brand and the context of the crisis to predict consumers' attributions accurately.

Next, we show that when base-rate information affects consumers' crisis attribution, the pattern of effects does not always conform to the predictions from previous research. Previous research has primarily examined the causal role of base-rate information. Specifically, a high (vs. low) base rate leads to less blame attributed to the brand because it implies that external factors may have caused the event. In the context of a product-harm crisis, we show that high base-rate information alone does not affect attributions. In particular, a high (vs. low) base-rate leads to less blame toward the brand only when the focal crisis is said to be similar to other cases in the industry. This result suggests that the causal role of base-rate information may be weakened in the face of strong default attributions initiated by a crisis incident. Unless the base-rate information pertains specifically to the focal case and provides strong alternative explanations for the causes of the incident, this information is unlikely to affect consumers' default attributions. This finding does not nullify the previous prediction about the causal role of base-rate information. Instead, it offers support by specifying conditions under which it occurs in a product-harm crisis.

Besides the previously predicted causal route, we show that a different route through which base-rate information affects attribution may be at play. In particular, a low base rate can suggest the rarity of a crisis and lead consumers to excuse an otherwise well-regarded brand by considering the event an exception, which we term the "subtyping effect." Our finding of the subtyping effect corroborates previous research that shows that consumers may at times not blame

the brand despite perceiving it as the cause of the incident (e.g., Folkes and Kotsos 1986; McGill 1990). This finding suggests that attribution adjustment does not invariably take the causal route, according to which consumers are only likely to adjust their default attributions to the brand when they can shift the perceived cause to external factors. Instead, when base rate suggests the rarity of crises, consumers reduce blame toward the brand because they consider the crisis an exception that is unrepresentative of the brand's normal behavior.

From a marketing standpoint, the different patterns of base-rate effect on attributions carry implications for the management of the negative impact of product-harm crises. Conventional wisdom suggests that highlighting the general prevalence of a behavior/event helps reduce the blame attributed to the focal firm by getting consumers to consider the external causes. In the context of a product-harm crisis, our results show that simply suggesting the industrywide prevalence of a crisis does not help reduce the blame attributed to the brand for the crisis. Unless there are clear, strong alternative explanations to the causes of the incident, consumers are unlikely to deflect attribution from the brand. Indeed, Folkes (1988) suggests that a causal inference, when formed toward one party, is often difficult to change to other parties (see also Folkes and Kotsos 1986). In comparison, subtyping does not require consumers to find other causes to explain the incident. Thus, emphasizing the rarity of a crisis may be an "easier" path for managers to dampen the negative impact of a crisis on a brand. Where industry prevalence is engaged as an explanation, managers should ensure that the base-rate information is perceived as relevant by specifying the similarities/links between the focal crisis and previous crises that occurred in the industry. By doing so, managers urge consumers to view the crisis as caused by common factors that affect the industry, not just the focal firm. At one point during the Toyota recalls in early 2010, the company highlighted the recall record of its competitors, which indicated that North American car companies topped the list of recalls. In response, however, the press questioned the similarity of Toyota's recall to previous recalls in the industry.

Furthermore, we show that the same base-rate information may have a different impact on a subsequent crisis depending on how it affects the attribution of the first crisis. We find that consumers who had discounted a previous crisis under the high base-rate with similarity information present condition would still discount a subsequent crisis under the same condition. However, consumers who had subtyped the previous crisis under the low base rate in the similarity information–absent condition do not subtype the subsequent crisis under the same conditions. These results show the dynamic nature of consumer attribution and suggest that attributions develop in a more complex pattern than has been previously assumed. Managerially, these results highlight the importance of understanding not only the attribution outcomes but also the process of attribution for managers to preempt and respond to consumer reactions to multiple product-harm crises. Prior research on consumer attribution of negative events has primarily focused on the impact of a single event. However, the increasing use of umbrella and family brand strategies has led to large numbers of products manufactured under a single brand name or are linked under an umbrella brand. Even well-regarded brands may experience multiple crises (e.g., multiple recalls by Firestone, Toyota, and Tylenol). Our results show that although these brands with positive prior beliefs may be protected through both discounting and subtyping effects, the former sustains the protection afforded by the positive beliefs, whereas the latter consumes and depletes it. This implies that crises may require very different communication and handling depending on whether they are first or repeat incidents.

In our research, we controlled for or kept constant consumer-related and crisis-related factors that might potentially moderate the effects in our findings. First, research suggests that observers are unable to take contextual information into consideration when their cognitive capacity is taken up by other tasks (Gilbert 2002). Previous research has shown that discounting requires cognitive effort (e.g., Gilbert 1989; Gilbert and Malone 1995). We expect that subtyping also requires cognitive effort, as the use of contextual (base-rate) information, whether to discount or subtype, would require the observer to spend cognitive effort assessing covariation between the case information and the base-rate information to adjust the default attribution. Second, research suggests that as the consequences of an event become more unpleasant, observers' defenses are raised, and they are more likely to attribute the causes to the actor because the same thing might befall the self (Fiske and Taylor 1991). Thus, as the consequences of a crisis become increasingly severe, contextual information should have less impact on adjusting the default attributions to the brand. For example, Johar, Birk, and Einwiller (2010) suggest that, if a crisis is severe, the "not just me" response may not be effective, as consumers are less likely to shift the blame. Thus, in addition to the characteristics of the brand (e.g., consumers' prior brand beliefs) involved in the crisis, the characteristics of the consumers (e.g., cognitive capacity) and the crisis (e.g., crisis severity) can also affect the use of base-rate information in the attribution of a product-harm crisis. Further research could examine more systematically the interactive impact of the crisis, the consumers, and the brand on the use of base-rate information in attribution. Furthermore, in this research, we examined the impact of a crisis on consumers by placing participants in the role of observers not directly affected by the crisis. Consumers who are directly affected by the crisis may develop even stronger default attributions to the brand (Folkes 1988) and be less likely to be affected by contextual cues such as base-rate information. Further research is needed to examine how base-rate information affects consumers' attribution of a product-harm crisis when they are in an observer's versus victim's role.

Finally, our findings regarding the different effects of base-rate information also have broader implications for its impact in other contexts. Kardes (1998) suggests that base-rate information may have multiple, opposing effects instead of one pattern of unified effect. For example, a high base rate of product adoption suggests desirable attributes of the product, whereas a low base rate suggests the uniqueness of a product. Thus emphasizing a high or low base rate of a behavior/event may be effective in different conditions to influence consumers' judgment and behavior. Our study corroborates this proposition by investigating two different

effects of base-rate information in consumer attribution of a product-harm crisis and suggests conditions under which each occurs. Further research could examine how multiple effects of base-rate information affect consumers' judgments in other research contexts such as message framing in advertising.

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