ESSAYS ON MARKETING'S ROLE DURING FIRM CRISES

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by

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ABSTRACT

This research examines marketing’s role during two types of firm-crises. Essay 1 investigates brand equity’s role when product recalls occur, and essay 2 examines the role of marketing’s influence within the firm when the firm faces the junk-crisis, i.e., when the firm’s credit is downgraded to the lowest investment-grade level. Both essays contribute to the firm-crisis and the marketing-finance interface literatures and suggest that marketing has significant and, for the most part, positive performance implications for firms that face product recalls and/or the junk-crisis. Building on an assimilation-contrast framework in essay 1, I hypothesize and find that high levels of brand equity attenuate negative consumer responses in low severity recalls but augment them in high severity recalls. Thus, while brand equity seems to provide a reservoir of goodwill in the former case, it acts as a liability in the latter case. Process tests indicate that consistency and discrepancy thoughts account for the observed attenuating and augmenting effects in a manner consistent with the underlying assimilation-contrast framework. Further, building on the firm-crisis and marketing’s influence within the firm literatures, essay 2 shows that marketing’s influence within the firm provides significant benefits during the junk-crisis. Specifically, the empirical results suggest that marketing’s influence within the firm reduces the likelihood of business-to-consumer (B2C) firms cutting their advertising spending during the junk-crisis, which has a positive impact on the firms’ future credit rating trajectory. In contrast, marketing’s influence does not moderate the likelihood of business-to-business (B2B) firms cutting their advertising, which does not seem to negatively affect their future credit ratings. Moreover, the empirical results show that both, B2B and B2C firms in which marketing’s influence is high are significantly less likely to get downgraded to speculative grade (i.e., junk) when faced with the junk-crisis than the firms in which marketing’s influence is low.
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Chapter 1

**INTRODUCTION**

Firms frequently face anomalous events, referred to as crises, that create high levels of uncertainty and that can threaten the very existence of the firm. Such crises can be firm-idiosyncratic and endogenous (e.g., Mattel’s massive toy product recall after it was found that the toys contained dangerous levels of chemicals and toxins) or industry or economy wide and exogenous (e.g., the stock-market crash of 2008-2009). Firm crises have been extensively researched from divergent perspectives (e.g., Halpern 1989; Weick 1988; Pauchant and Douville 1994), and extant research has started to study marketing’s role in the case of exogenous crises. For example, Grewal and Tansuhaj (2001) examine the relevance of market orientation and strategic flexibility during periods of economic crises. Also, Srinivasan, Lilien and Rangaswamy (2005) and Srinivasan, Lilien and Srihari (2011) study the performance implications of marketing during a recession.

Yet, relatively little academic research has explored marketing’s role during endogenous and firm-idiosyncratic crises. This is surprising, considering that, for example, brands in their role as market-based assets (Srivastava et al. 1998) may play a vital role when firms face endogenous crises. For example, product recalls are outcomes that deviate from consumers’ prior expectations (e.g., Berman 1999). To make sense of these deviates, consumers likely rely on intangible firm assets such as brand equity as interpretative frames to guide them in their sense making process. Further, in the case of a firm-idiosyncratic, financial crisis, advertising is frequently the first that gets cut due to the investments’ innate riskiness (e.g., Picard 2001, Barwise and Styler 2002). Indeed, when the going gets tough, most firms seem to think of advertising as a “dispensable luxury” (Biel and King 1990, p. 7). However, such cuts may hurt the troubled firm due to, for example, their negative impact on the firm’s market-based assets (e.g. Srivastava et al. 1998) and
liquidity (e.g., Grullon, Kanatas and Weston 2004). Likewise, advertising may in fact allow the firm to appropriate value from the marketplace (Mizik and Jacobson 2003) which, in turn, could help the firm in its combat against the financial crisis.

This dissertation adds to the firm-crisis literature by studying marketing’s role when firms face endogenous crises. Specifically, in essay 1, I examine brand equity’s role in product recalls which represent negative organizational events of considerable economic and strategic significance. Building on an assimilation-contrast framework, I hypothesize and find that high levels of brand equity attenuate negative consumer responses in low severity recalls but augment them in high severity recalls. Thus, while brand equity seems to provide a reservoir of goodwill in the former case, it acts as a liability in the latter case. Process tests indicate that consistency and discrepancy thoughts account for the observed attenuating and augmenting effects in a manner consistent with the underlying assimilation-contrast framework.

In essay 2, I examine marketing’s role when firms are downgraded to a BBB- credit rating, i.e., one notch above the junk-bond threshold. A downgrade to junk status would, among other things, entail a significant increase in cost-of-debt for the firm, an almost guaranteed noteworthy downward adjustment of the firm’s security price assuming the firm is publicly traded, and, if loans become due in full upon downgrade, create a death spiral forcing the firm into bankruptcy. Thus, a downgrade to just above the junk-threshold can be viewed as an important firm event that has the properties of a financial crisis. Further, between 1997 and 2009, 284 of the Fortune 1500 firms were downgraded to just above junk status indicating that the junk crisis can affect many firms.

As expected, my findings show that firms tend to cut their advertising in response to the junk-crisis. I also find that these cuts have a significant negative effect on business-to-consumer (B2C) firms’ future credit rating trajectory whereas they do not seem to (negatively) affect
business-to-business (B2B) firms. Moreover, as predicted, I find that marketing’s influence within the firm (1) decreases the likelihood of B2C firms cutting their advertising investments in response to the junk-crisis and (2) has a significant positive effect on both, B2B and B2C firms’ future credit rating trajectory.

Both essays suggest that marketing plays an important role when firms face endogenous and firm-idiosyncratic crises. Namely, brands seem to provide important anchoring information for consumers during product recalls, and marketing’s influence within the firm plays a significant role during the junk-crisis. Further, both essays are embedded in the broader marketing-finance interface literature and reveal that marketing has significant and, for the most part, positive performance implications for firms during the two types of crises examined. This finding is notable considering that marketing as a discipline is increasingly urged to reveal its impact on firm performance (e.g., Rust et al. 2004; McAlister et al. 2007).
Recognizing the importance of brand equity, I study its role in product recalls, which represent negative organizational events of considerable economic and strategic significance. Using an assimilation-contrast framework, I assess attenuating and augmenting effects of brand equity on consumer responses when product recalls occur. Consistent with my theorization, results from an event study and two laboratory experiments show that high levels of brand equity attenuate negative consumer responses in low severity product recalls but augment them in high severity product recalls. Thus, while brand equity seems to provide a reservoir of goodwill in the former case, it acts as a liability in the latter. Process tests indicate that consistency and discrepancy thoughts account for the attenuating and augmenting effects in a manner consistent with the underlying assimilation–contrast framework. These findings add to the extant brand equity and product recall literature by demonstrating that brand equity has a complex effect on consumer responses when product recalls occur. Because product recalls are widespread, these findings also have notable managerial relevance.
The concept of brand equity dates back as far as 1200 BC, when potters’ marks appeared on porcelain in India and China to signal craftsmanship and quality (Blackett 1998). In medieval times, English bakers and goldsmiths branded their products, partially to ensure honesty in measurement, but also as a sign of value and repute (Keller 2000). French outlaws were “branded” with a royal *fleur de lis*, and Hester Prynne’s mark is well known. However, while the idea of branding dates back over 3000 years, it was Aaker’s (1991) proposal that brand equity creates value that led to the emergence of brand equity as a significant area of research in Marketing.

Since then, many scholars have argued that brand equity is the incremental utility or value added to a product by its brand name (Farquhar, Han, and Ijiri 1991; Kamakura and Russell 1993; Park and Srinivasan 1994), and it is now widely acknowledged that brand equity represents one of the most valuable intangible assets a firm can possess (Aaker 2007; Keller and Lehmann 2006). Literally hundreds of empirical articles have studied the positive consequences of brand equity. These articles suggest that brand equity increases the probability of brand choice, customer’s willingness to pay premium prices, marketing communication effectiveness, brand name extendibility, and brand licensing opportunities, and decreases vulnerability to competitive marketing actions and elastic responses to price increases (Erdem, Swait, and Valenzuela 2006; Rangaswamy, Burke, and Oliva 1993; Sriram, Balachander, and Kalwani 2007). These findings are further supported by the extant literature on intangible resources, which suggests that firms’ intangible resources can indeed be sources of sustainable competitive advantage (e.g., Barney 1991).

Recognizing the many benefits of brand equity, I seek to examine the role of brand equity in product recalls, which represent negative events for the firm. Specifically, based on the extant literature, I examine whether brand equity provides a “reservoir of goodwill” (Jones, Jones, and Little 2000) for the recalling firm by endowing it with “idiosyncrasy credits” (Hollander 1958).
that safeguard against the generally negative consumer responses to recalls (Chen, Ganesan, and Liu 2009; Cleeren, Dekimpe, and Helsen 2008; van Heerde, Helsen, and Dekimpe 2007). Further, it is well established in the literature that consumers expect better performance from high compared with low equity brands (Ailawadi, Neslin, and Lehmann 2003; Janiszewski and van Osselaer 2000). Accordingly, it could be that consumers are especially disappointed when a high equity brand is recalled, given the high expectations attached to it. Consequently, the negative repercussions from the disclosure of a product recall may in fact be stronger for high versus low equity brands; in a sense, high expectations for high equity brands may be shattered by the recall while low expectations from low equity brands are merely not met. Consistent with this line of reasoning, I also examine whether brand equity can in fact serve as a liability in a recall setting, an effect of brand equity that has received little attention in the literature so far. In summary, there are reasons to believe that brand equity might either be helpful or harmful during product recalls, and I hence aim to understand which effect (i.e., reservoir of goodwill or liability) emerges in which conditions.

To unravel the conditions for helpful and harmful brand equity effects, I recognize that product recalls are not homogeneous events and suggest that recall severity—determined by the consumer-based tribulations linked to a recall event—is an important aspect that distinguishes product recalls. To understand the role of brand equity, I therefore examine how recall severity interacts with brand equity during a recall. Building on an assimilation–contrast framework (e.g., Biernat 2005; Sherif and Hovland 1961), I posit that brand equity can have both attenuating and augmenting effects on negative consumer responses to recalls. Specifically, I theorize that while brand equity should provide a reservoir of goodwill for low severity recalls, it likely becomes a liability in high severity recalls.
I use an event study and two laboratory experiments to test this hypothesis. The results from the event study show that the stock market responds in a manner consistent with the expected consumer responses to product recalls based on the assimilation–contrast framework. Further, confirming the theorized effect, my results from the laboratory experiments indicate that high levels of brand equity attenuate negative consumer responses in low severity recalls but augment them in high severity recalls. The experiments also allowed me to conduct process tests to assess the validity of my theoretical framework. Consistent with the underlying assimilation–contrast framework, the process tests show that consistency and discrepancy thoughts largely account for the observed attenuating and augmenting effects. Further, as predicted, I find the attenuating and augmenting effects absent in recalls of low equity brands.

I structure the remainder of this paper as follows: In the next section, I develop theory regarding brand equity’s asymmetric effect in product recalls. I then describe the event study and show how the predicted attenuating and augmenting effects of brand equity are manifest in a real-world setting. Subsequently, I turn my attention to the laboratory experiments in which I, first, replicate the effects from the event study (experiment 1) and, second, conduct process tests to assess the validity of my underlying theoretical framework (experiment 2). Finally, I discuss some theoretical and managerial implications, as well as limitations, of my research.

**BACKGROUND AND THEORY**

Product recalls are ubiquitous and familiar, including toys with toxic paint, seafood contaminated with dangerous antibiotics, and bottled water with benzene (Cleeren, Dekimpe, and Helsen 2008). In 2010, the U.S. Food and Drug Administration (FDA) reported more than 70 medical device recalls, and the U.S. Consumer Product Safety Commission announced more than 360 consumer product recalls. No manufacturing firm is immune to product recalls, whether
because the quality of the product does not conform with registered specifications or due to unforeseen hazards. Potentially calamitous financial consequences include substantial sales losses and diminished profitability (Chen, Ganesan, and Liu 2009; Van Heerde, Helsen, and Dekimpe 2007); firms also might face litigation or product liability claims, especially if they are slow to recall defective products (Dranove and Olsen 1992).

The prevalence and potential harmfulness of recalls has prompted several streams of research, including investigations of their performance consequences (e.g., stock prices, Davidson and Worrell 1992; brand sales, van Heerde, Helsen, and Dekimpe 2007); studies of the roles of different business functions (Laufer and Coombs 2006); comparisons of proactive, firm-initiated recall strategies with reactive, passive approaches (Chen, Ganesan, and Liu 2009); and considerations of how consumer-level differences affect recall perceptions and responses (Cleeren, Dekimpe, and Helsen 2008). Most research indicates that consumers respond negatively to product recalls (Cheah, Chan, and Chieng 2007).

Another research stream thus focuses specifically on how industry-, firm-, and/or brand-related factors affect consumer responses. For example, in their study of product recalls in the U.S. automotive industry, Rhee and Haunschild (2006) examine the moderating role of firm reputation. Klein and Dawar (2004) note how corporate social responsibility affects consumers’ attributions in product harm crises, and Lei, Dawar, and Gurhan-Canli (2011) examine how the frequency of such crises in an industry influences consumers’ attributions for the failure. Also, Ahluwalia, Burnkrant, and Unnava (2000) examine consumer responses to negative publicity and the moderating role of brand commitment.

I add to this latter research stream by proposing that brand equity serves as anchoring information for consumers who learn of product recalls. Because recalls are outcomes that deviate from prior expectations (Berman 1999), consumers must make sense of the deviation, so they turn
to intangible firm assets, such as brand equity, to find interpretative frames to guide their sense-making process. Further, my study extends this literature by proposing that it is important to consider recall severity—an aspect that the research stream has ignored—in determining brand equity’s role when product recalls occur.

**Severity of and Consumer Responses to Product Recalls**

Product recalls are not homogeneous but rather vary in their severity, among other factors (Cheah, Chan, and Chieng 2007; U.S. FDA 2011). I define *recall severity* as a measure of consumer-based tribulations linked to the recall. For example, considering past product recalls, some products had caused serious health problems (e.g., Boston Scientific’s 2004 recall of a drug-coated coronary stent that had been linked to 3 deaths and 47 severe injuries); others were responsible only for minor injuries or had not caused any harm at all (e.g., Chrysler’s recall of its Grand Cherokee in 2004 because of a wiring issue; no injuries or deaths were linked to the error).

The severity of a recall can be expected to relate to consumer trust, commitment, and word of mouth; indeed, Berry and Parasuraman (1991) warn about the strong negative impact of a critical mistake on consumers’ future relationships with a firm. Also, in a study of switching behavior, Keaveney (1995) notes that a single catastrophe is one of the primary factors causing customers to switch (service) providers. Accordingly, Cheah, Chan, and Chieng (2007) find that recall severity correlates with negative abnormal stock market returns surrounding the recall announcement. Aside from Cheah, Chan, and Chieng (2007), however, most extant product recall literature has either kept recall severity constant (e.g., Chu, Lin, and Prather 2005; Davison and Worrell 1992; Lei, Dawar, and Gurhan-Canli 2011; Rhee and Haunschild 2006) or treated it as a control variable (e.g., Chen, Ganesan, and Liu 2009).
Recall Severity, Brand Equity, and Consumer Responses

Consumers’ experiences with and judgments of events frequently reflect the backdrop of some frame of reference (e.g., Eagly and Chaiken 1993; Sherif and Hovland 1961), whether they are assimilative or contrasting. Assimilation occurs when the judgment of the evaluation target is consistent with the standard or expectation, whereas contrast arises when the target judgment conflicts with the comparative frame. An assimilation effect causes events to be judged as more similar to the frame of reference than they actually are, whereas a contrast effect means events get judged as more dissimilar than they are (Biernat 2005). Null effects also might occur (Ganesan et al. 2010) such that neither assimilation nor contrast effects are present. I predict assimilation and contrast effects arise for recalls of high equity brands but anticipate null effects for low equity brand recalls.

Assimilation effects. Extant research indicates that brand equity offers a predictive cue for future brand performance (e.g., Bharadwaj, Varadarajan, and Fahy 1993; Janiszewski and van Osselaer 2000), so high brand equity might lead to inferences that a brand recall is an aberrant, one-off event that is unlikely to reoccur. Also, according to categorization literature (Cohen and Basu 1987), consumers prefer to conserve their cognitive energy by relying on summary judgments stored in memory to evaluate current events (Sujan 1985). Therefore, the previously generated positive momentum of high equity brands might map onto new performance evaluations and attenuate the potentially negative repercussions of a product recall. In other words, brand equity may allow firms to accrue idiosyncrasy credits that protect them from the potentially negative effects of recalls.

Extant research also suggests that consumers can become emotionally attached to brands. Specifically, attachment theory (Bowlby 1979) indicates that the degree of emotional attachment to an object predicts the nature of interactions with that object. For example, people who are
strongly attached to another person are likely to be committed to, invest in, and make sacrifices for that person (Hazan and Shaver 1990). Analogously, consumers’ emotional attachments to a brand might predict their commitment to and willingness to make sacrifices for it. In a product recall context, attachment theory suggests that strong brands possess a reservoir of goodwill that operates as a safeguard for the firm.

Finally, high brand equity may affect consumers’ interpretations of new information that stems from the recall. The consumer learning literature provides evidence of a confirmatory bias in information interpretation, such that consumers grant preference to preexisting brand-related information, especially if newly acquired information appears ambiguous (Dawar and Pillutla 2000; Hoch and Ha 1986).

**Contrast effects.** Although the advantageous effects of brand equity are theoretically and intuitively plausible, research has also identified mechanisms by which high brand equity may augment the negative effects of a recall event. First, consumers may come to expect more from a brand with high equity (Brady et al. 2008) and feel more disappointment when a high equity brand is recalled. High brand equity enhances consumers’ expectations about the quality of a firm’s brands (Shapiro 1983), and these quality expectations entail an implicit promise from the firm to produce brands that are commensurate with brand equity and product expectations (Rhee and Haunschild 2006). According to this logic, higher brand equity increases the extent to which product defects represent a breach of the implicit promise. The negative repercussions of a product recall thus may be stronger for high versus low equity brands, consistent with the expectancy–disconfirmation effect (Oliver 1993).

Second, equity theory (Homans 1961; Oliver 1996) suggests that consumers may punish high equity brands more for a recall than they do low equity brands. Equity theory relies on the “rule of justice,” such that “a person’s rewards in exchange with others should be proportional to
his investments” (Homans 1961, p. 235). This definition highlights proportionality, or an implicitly distributive form of justice, whereby actors “get what they deserve” in accordance with their inputs (Guillermina 1980). In a recall setting, equity theory suggests that consumers will view the recall of a high equity brand as less fair than the recall of a low equity brand, so proportionality appears significantly more distorted in the former case.

Assimilation and contrast effects. The preceding discussions outline two conceivable logics for predicting how a firm’s brand equity affects consumer responses to product recalls. Given the conflicting nature of these logics, the question arises whether a moderator might help disentangle the seemingly contradictory perspectives. I posit that such a moderator exists in recall severity, and I outline my reasoning below.

The level of recall severity correlates with the perceived ambiguity of a recall event (Cheah, Chan, and Chieng 2007), such that a low severity recall appears ambiguous, with a vague signaling effect. Consumers may not be able to determine the extent to which the firm has committed a transgression when recall severity is low. The event even may suggest that the recalling firm is acting responsibly and putting customers’ needs first. In contrast, high severity recalls do not seem ambiguous (Cheah, Chan, and Chieng 2007), because consumers experience significant tribulations in these cases, including considerable injuries or even death.

In turn, I posit that brand equity serves as a safeguard only in less severe, ambiguous recall events. Assimilation effects should arise in high brand equity/low severity recall events, leading to idiosyncrasy credits that protect the firm against the potentially negative effects of recalls. However, no attenuating effects should emerge in low brand equity/low severity recall events. First, for low equity brands, consumers lack any positive predictive cues about the brands (Bharadwaj, Varadarajan, and Fahy 1993), which might have acted as safeguards. Second, consumers will not have accumulated positive summary judgments (Sujan 1985), which would
provide idiosyncrasy credits in an ambiguous recall event. Third, consumers tend to possess notably less brand-related information about low equity brands (Sriram, Balachander, and Kalwani 2007), so a confirmatory bias is unlikely to play a noteworthy role in ambiguous recall events involving low equity brands.

Furthermore, because of the unambiguous nature of a high severity recall, I predict that a high equity brand’s idiosyncrasy credits can no longer provide an attenuating mechanism when high severity recalls occur. Instead, in the case of a high severity recall the brand’s performance clearly refutes the high expectations of it, so high brand equity provokes disconfirmation and contrast effects in the case of a high severity recall. This line of reasoning converges with the notion that people accept preconceived explanations for events only if they do not greatly conflict with the facts of the event (Heider 1958). However, whereas I expect contrast effects in recalls of high equity brands, I do not predict them for low equity brands, for several reasons. First, according to equity theory (Homans 1961), proportionality should be considerably more violated in a high brand equity/high severity recall than in a low brand equity/high severity recall. Thus the inequitable treatment should be perceived as greater in recalls of high versus low equity brands. Second, without prior positive associations and experiences, consumers lack expectations about a low equity brand’s performance, so the disconfirmation effect should be much weaker for low equity brands, even in high severity recalls. In contrast, for high equity brands, the strong disconfirmation could feel personal, like a feeling of betrayal, as if the consumers were set up with overhyped product claims.

In summary, I predict that brand equity has an asymmetric effect on consumer responses to recall events. Brand equity should prompt assimilation effects in low severity recalls and contrast effect in high severity recalls, and I predict:
H1: Brand equity attenuates negative consumer responses in low severity product recalls but augments negative consumer responses in high severity product recalls.

In the following, I make use of an event study to test H1 and examine whether the hypothesized asymmetric effect of high brand equity occurs in a real-world setting. Subsequently, I move my empirical analysis into the laboratory to, first, inspect whether brand equity’s attenuating and augmenting effect also exists in a more controlled environment (experiment 1) and, second, to develop and conduct process tests to assess the validity of my underlying framework (experiment 2).

EVENT STUDY

Event Study Context

To test H1, I sought industries with product recalls that vary in severity, that offer accurate recall information, and that include firms with varying levels of brand equity. The medical device industry fits these requirements well. First, product recalls that occur in this industry vary significantly in their severity. Some recalls are triggered by relatively minor product errors (e.g., incorrect labeling), but others reflect major product issues (e.g., a heart stent that caused severe patient injuries). Second, the U.S. FDA monitors product recalls in this industry and provides accurate, publicly available information. Of particular interest is the FDA’s classification of each recall according to its severity and potential risk to public health. Third, medical device firms possess varying levels of brand equity. For example, Johnson & Johnson and Baxter Healthcare enjoy relatively high brand equity, but firms such as Kyphon and Staar Surgical have lower levels. Hence, the focus of this event study is the medical device industry. Specifically, I investigate medical device recalls that occurred in the United States between 2000 and 2007. Testing my
theory in a single industry allows me to control for environmental peculiarities (Grewal, Chandrashekaran, and Citrin 2010; Rust, Lemon and Zeithaml 2004).

A medical device is “any instrument, apparatus, implement, software, material, or other article intended by the manufacturer to be used for diagnosis, prevention, monitoring, treatment, or alleviation of diseases, injury, or handicap” (U.S. FDA 2011). Medical devices comprise a diverse set of products ranging from surgical stapling products to knee and hip implants. In the United States, manufacturers and distributors of medical devices must register their products with the FDA, and many medical devices also require FDA approval before they can be distributed and sold. Further, once medical devices are in use, health care professionals are legally required to report any suspected deaths or injuries related to those devices to the FDA.

**Event Study Methodology**

The event study methodology uses abnormal stock market returns of a firm (Brown and Warner 1980) to assess the impact of a particular event on the firm’s expected future profits (MacKinlay 1997). Based in the efficient market hypothesis (Fama 1970), this approach measures the size of the effect of an unanticipated event on the expected profitability of firms. That is, the efficient market hypothesis indicates that the price of a security equals the present value of future cash flows expected from a firm’s assets, which reflects at any given time all available information about the firm’s current and future profit potential. If new information from an unexpected event appears likely to affect a firm’s earnings, the security price changes as soon as the market learns of it. Therefore, stock prices offer reliable indicators of a firm’s value, and the amount of change in the price of a security reflects the market’s unbiased estimate of an event’s economic value (Brown and Warner 1985).
To ensure that stock market responses offer a good measure of consumer responses to product recalls, I turn to Wiles et al.’s (2010) study of deceptive advertising. In their survey of pharmaceutical stock analysts, they find that the respondents attended assiduously to the effects of the transgression on consumers’ perceptions of the firm, in the belief that those perceptions would affect sales and thus financial performance. This reasoning is even more applicable for product recalls, because in this case, the products themselves fail, not just the communication. Thus, I assert that a product recall may be even more susceptible to negative reactions by consumers.

What is true for product recalls in general is also likely to be true for medical devices of the types I examine here. My industry experience reveals that physicians who use medical devices determine which products to buy. To confirm this experience-based assessment, I surveyed seven medical device industry experts, who unanimously agreed that the individual physicians who use the devices, not hospital administrators or buyers, represented key decision makers. Therefore, purchases in the medical device category tend to be individualistic and user oriented, similar to those in consumer goods categories. Considering physicians’ roles as primary decision makers, their decisions likely drive the economic effect of a product recall on the recalling firm and influence investors’ expectations about future stock market performance.

**Sampling Procedures**

My initial sample consisted of 391 medical device recalls between 2000 and 2007, as listed in the FDA recall database.¹ I then excluded announcements by companies that were not listed at the recall date, as well as duplicate announcements that reflected repeated recalls of the same product by the same firm for the same reason. Then following McWilliams and Siegal (1997), I

¹ The FDA database was my initial source to identify recall cases, though in line with other event studies (e.g., Agrawal and Kamakura 1995), I used the press announcement date (i.e., when the recall was announced in daily newspapers and wire services) of the recall to represent the event itself.
conducted a Factiva database search and removed firms that announced, in the period from four
days before to two days after the recall, any information related to earnings, earnings guidance,
mergers and acquisitions, spin-offs, stock splits, changes in key executives, layoffs, restructurings,
joint ventures, lawsuits, new product announcements, buybacks, or unexpected changes to
dividends. Ultimately, I thus obtained a sample of 119 recalls.

Regression Analysis

The typical approach in event studies is to conduct cross-sectional regression of abnormal
returns against a set of explanatory variables (MacKinlay 1997). I followed this approach, and, to
test my hypothesis, included the following dependent and independent variables in my model.

Dependent Variable

My dependent variable is the firm’s cumulative average abnormal return (CAAR) resulting
from a recall event. I used the standard Fama-French four-factor model (e.g., Fama and French
2003; Sood and Tellis 2009; Wiles et al. 2010) to generate the expected return for security $i$ on day $t$:

\[
R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i SMB_t + \delta_i HML_t + \theta_i UMD_t + \varepsilon_{it},
\]

where $R_{it}$ is the actual return for security $i$ on day $t$, $R_{mt}$ is the market return for the designated
market, $SMB_t$ is the average return of portfolios of small over large capitalization securities on day
$t$, $HML_t$ is the average return of portfolios of high over low book-to-market securities on day $t$,
$UMD_t$ is the average return of portfolios of high prior return over low prior return securities on day
$t$, and $\varepsilon_{it}$ is the error term.

A security’s abnormal return ($AR_{it}$) on day $t$ is the difference between its actual return and
the expected return based on the general market movement and the Fama-French factors:
(2) \[ \epsilon_{it} = AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt} + \gamma_i SMB_t + \delta_i HML_t + \theta_i UMD_t), \]

where \( \alpha_i, \beta_i, \gamma_i, \delta_i, \) and \( \theta_i \) are the parameter estimates from Equation 1. In turn, the CAAR is the cumulative average of the daily ARs over the selected window. I estimated the parameters of the model for each firm using the Center for Research in Security Prices (CRSP) equal-weighted index to model the market portfolio. In my subsequent analysis, I dropped the subscript \( t \) because each recall event was associated with a unique abnormal return.

**Independent Variables**

*Brand equity.* I used Simon and Sullivan’s (1993) technique to determine the brand equity of recalling firms.\(^2\) This technique extracts the value of brand equity from the value of the firm’s other assets and involves the following components: (1) firm’s advertising and selling expenditures and advertising and selling share, (2) firm age, (3) four-firm concentration ratio, (4) firm market value, (5) firm market share, (6) firm order of entry, (7) firm patent share, (8) firm R&D stock share\(^3\), (9) firm tangible asset value, and (10) firm intangible asset value. I obtained relevant data from multiple data sources, including CRSP and COMPUSTAT, Mergent Online, the US Patent and Trademark Office patent database, and 10-K reports.

*Recall severity.* The FDA uses three categories (classes 1–3) of medical device recalls, based on their severity and potential risk to public health. This classification determines the number of checks the company must make and the number of audits the FDA will conduct to ensure the effectiveness of the recall action. A class 1 recall is the most severe and indicates there is a reasonable chance the product will cause serious health problems or death. The example I

\(^{2}\) I calculated the firm-based brand equity scores as of (on average) four months prior to the recall event, to ensure that the scores did not incorporate the potentially negative impact of the recall event.

\(^{3}\) I estimated R&D stock using a Koyck lag structure, with declining weights for annual R&D expenditures in the past. Following Griliches’s (1984) and Dutta, Narasimhan, and Rajiv’s (2005) suggestion, I use a weight of .4.
provided previously, the 2004 Boston Scientific recall of a drug-coated coronary stent linked to 3 deaths and 47 severe injuries, represented a high severity, class 1 recall. Further, a class 2 recall indicates a possibility that the device will cause temporary or reversible health problems or a remote chance that the device will cause serious health problems. U.S. Surgical’s 2004 recall of a surgical stapling device appeared in this class, because it had a tendency to clamp without firing staples into the tissue but caused no reported deaths or serious health issues. Finally, a class 3 recall is the least serious; there is little risk that being exposed to the device will cause serious health problems. However, because the product violates FDA law, action must be taken to address the problem, as in the case of Medtronic’s recall of medical pouches mislabeled with incorrect expiration dates. Of the 119 recalls in my sample, 29 (24%) were class 1, 67 (56%) were class 2, and 23 (20%) were class 3. Based on this FDA measure, I use indicator variables for recall severity in my analysis.

**Control variables.** Recall magnitude, or the direct and relative monetary value of recalled products, may affect stock market returns. Recalls often involve replacing defective products or refunding purchase prices, rather than just providing notice to repair or check product conditions. Many recalled products must be destroyed, especially in the medical industry. Because the direct costs of a product recall thus relate directly to recall magnitude, the magnitude may be linked with the stock market response. I evaluate recall magnitude by dividing the value of the recalled products (e.g., number of recalled units × unit price) by the firm’s annual sales in the year prior to the recall. Thus, I calculate a continuous variable between 0 and 1, based on data gathered from COMPUSTAT, the FDA medical device recall database, and current and past company price lists. In 23% of cases though, price lists were not available, so I interviewed hospital purchasing managers and physicians to obtain a close proxy of the actual unit prices. The hospital managers had access to pricelists for all but 15 of the products for which prices were missing. Both the
hospital managers and physicians provided estimates for the remaining 15 products, and I used the average of those price estimates as proxies for the unit price.

In addition, larger firms, firms that earn higher returns on assets, and firms with greater liquidity may be perceived as better able to cope with a recall because of their greater resources. I control for these factors by including overall firm assets (as a proxy for firm size), return on assets (ROA), and the firm’s long-term debt-to-equity ratio (as a proxy for liquidity). I also include the market-to-book ratio of the securities in my analysis to control for potential abnormal returns due to under- or overvalued securities and subsequent anomalous market adjustments. I note that I do not control for recall strategy (Chen, Ganesan, and Liu 2009), because 117 of the 119 recalls in my sample were reactive (i.e., a safety incident had been reported to the firm or the FDA prior to the recall announcement). Health care professionals are required to report suspected medical device–related deaths or injuries, which likely explains why reactive recalls are the norm in this industry. To calculate firm size, ROA, long-term debt-to-equity ratio, and market-to-book ratio, I used year-end data from the year prior to the recall event, which I obtained from COMPUSTAT, CRSP, and Mergent Online. I present the correlations and summary statistics in Table 2.1.

My final empirical model is as follows:

(3) \[ CAAR_i = \beta_0 + \beta_1 Brand\ Equity_i + \beta_2 Recall\ Class\ 2_i + \beta_3 Recall\ Class\ 3_i \]
\[ + \beta_4 Brand\ Equity_i \times Recall\ Class\ 2_i + \beta_5 Brand\ Equity_i \times Recall\ Class\ 3_i \]
\[ + \beta_6 Recall\ Magnitude_i + \beta_7 Size_i + \beta_8 Market-to-Book_i \]
\[ + \beta_9 ROA_i + \beta_{10} Long-term\ Debt\ to\ Equity\ Ratio_i + \epsilon_i \]

where \( CAAR_i \) is the cumulative average abnormal return for security \( i \), \( \beta \)’s are coefficients to be estimated, and \( \epsilon_i \) is distributed i.i.d. \( N(0, \sigma^2) \).
Correlations and Summary Statistics

Correlations with an absolute value ≥ .18 are significant at the .05 level. Those with an absolute value ≥ .23 are significant at the .01 level.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cumulative average abnormal return [-1, 0]</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Brand equity</td>
<td>0.049</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Recall magnitude</td>
<td>0.072</td>
<td>-0.147</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Size</td>
<td>0.053</td>
<td>0.557</td>
<td>-0.101</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ROA</td>
<td>0.060</td>
<td>0.083</td>
<td>-0.036</td>
<td>-0.047</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Market-to-book ratio</td>
<td>0.039</td>
<td>0.043</td>
<td>0.167</td>
<td>0.050</td>
<td>-0.056</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>7. Long-term debt-to-equity ratio</td>
<td>0.086</td>
<td>0.624</td>
<td>-0.096</td>
<td>0.374</td>
<td>0.030</td>
<td>0.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>-0.881</td>
<td>2.685</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>2.269</td>
<td>3.825</td>
</tr>
</tbody>
</table>

Correlations with an absolute value ≥ .18 are significant at the .05 level. Those with an absolute value ≥ .23 are significant at the .01 level.

**Results**

To allow for uncertainty about when information becomes available to investors, common event study practice is to determine the event window empirically (Brown and Warner 1985; Agrawal and Kamakura 1995). Thus, consistent with other event studies, I include several days surrounding the press announcement in my analysis to investigate possible leakage.

Using the time-series standard deviation test (Brown and Warner 1980, 1985), I find a significant, negative CAAR for the [-2, 0], [-1, 0], and [-1, +1] event windows, with the [-1, 0] event window showing the most significant negative CAAR. Consistent with prior event studies (e.g., Agrawal and Kamakura 1995; Chu, Lin, and Prather 2005), I employed the CAAR from the [-1,0] event window in the subsequent analysis (time-series standard deviation test: t = -3.548, p <
A recall event was associated with an average decrease in firm stock prices of .88% upon the announcement, similar to the negative returns of .87% found by Chu, Lin, and Prather (2005) for product recalls in the same event window. This negative abnormal return corresponded to an average $267 million loss in market value per recall for my sample.

To test the hypothesis, I next regressed the abnormal returns from the [-1,0] event window on my independent variables and controls. I show the regression results in Table 2.2.

**Results excluding the brand equity variable.** Model 1 contains the recall severity variables along with the controls. The model is significant (F = 4.33, p < .001), and, consistent with extant research (e.g., Cheah, Chan, and Chieng 2007), it shows that as recalls become more severe, abnormal returns become more negative. With all other variables fixed to their means, the main effects of the dummy variables for recall classes 2 and 3 are positive (b_{Recall Class 2} = 2.77, p < .01; b_{Recall Class 3} = .97, p > .10) whereas the constant, or recall class 1’s impact, is negative (b_{Constant} = -2.82, p < .01).

**Results including the brand equity variable.** In Model 2 I added the brand equity variable and the interactions between brand equity and recall severity. This model is significant (F = 7.29, p < .001), and it offers a higher adjusted R-square than Model 1 (Adj. R^2_{Model 1} = .17; Adj. R^2_{Model 2} = .35), so the brand equity variable explains a significant amount of additional variance in the abnormal returns. I also find empirical support for H1. First, the brand equity main effect is negative and significant (b_{Brand Equity} = -.79, p < .01) suggesting that high levels of brand equity do augment abnormal negative returns in severe recalls. Note that in high severity recalls (i.e., class 1) the brand equity main effect captures brand equity’s impact on abnormal returns. Second, the interaction terms of brand equity with recall equity’s impact on abnormal returns. Second, the interaction terms of brand equity with recall severity variables are both positive and significant.

---

4 I also employed other statistical tests to assess the robustness of the negative abnormal returns: the generalized sign test (Cowan 1992), cross-sectional test (Pilote 1992), and rank test (Corrado 1989). All tests revealed a significant negative CAAR for the [-1, 0] event window.
(b_{Brand Equity \times Class 2} = .87, p < .01; b_{Brand Equity \times Class 3} = 1.29, p < .01), suggesting that brand equity is beneficial in class 2 and 3 recalls.

Table 2.2
Cross-Sectional Regression Results with CAAR (%) as the Dependent Variable

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1: Excluding Brand Equity</th>
<th>Parameter Estimate</th>
<th>t-Value</th>
<th>Model 2: Including Brand Equity</th>
<th>Parameter Estimate</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand Equity</td>
<td></td>
<td>-0.787</td>
<td>-4.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recall class 2(^a)</td>
<td></td>
<td>2.768</td>
<td>5.03</td>
<td></td>
<td>2.549</td>
<td>5.21</td>
</tr>
<tr>
<td>Recall class 3(^a)</td>
<td></td>
<td>0.972</td>
<td>1.40</td>
<td></td>
<td>1.163</td>
<td>1.80</td>
</tr>
<tr>
<td>Brand equity \times Recall class 2(^a)</td>
<td></td>
<td>0.872</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brand equity \times Recall class 3(^a)</td>
<td></td>
<td>1.286</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recall magnitude</td>
<td></td>
<td>6.298</td>
<td>0.50</td>
<td></td>
<td>1.332</td>
<td>0.12</td>
</tr>
<tr>
<td>Firm size</td>
<td></td>
<td>0</td>
<td>0.42</td>
<td></td>
<td>0</td>
<td>0.37</td>
</tr>
<tr>
<td>Market-to-book ratio</td>
<td></td>
<td>0</td>
<td>-0.29</td>
<td></td>
<td>0</td>
<td>-0.34</td>
</tr>
<tr>
<td>ROA</td>
<td></td>
<td>0.137</td>
<td>0.46</td>
<td></td>
<td>0.075</td>
<td>0.29</td>
</tr>
<tr>
<td>Long-term debt-to-equity ratio</td>
<td></td>
<td>0.195</td>
<td>0.34</td>
<td></td>
<td>-0.203</td>
<td>-0.32</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>-2.820</td>
<td>-5.48</td>
<td></td>
<td>-2.381</td>
<td>-4.86</td>
</tr>
</tbody>
</table>

| n                                             | 119                             | 119                |
| R\(^2\)                                       | 0.215                           | 0.403              |
| Adjusted R\(^2\)                              | 0.165                           | 0.348              |
| F-value                                       | 4.33                            | 7.29               |
| F-probability                                 | <0.001                          | <0.001             |

\(^a\) Dummy variable
I also investigated the nature of the slope of abnormal returns in non-severe recall cases (i.e., class 3) considering brand equity by adding the $b_{\text{Brand Equity}}$ and the $b_{\text{Brand Equity x Class 3}}$ coefficients and calculating the standard error for the expression. As expected, the combined coefficient is positive and significant ($b_{\text{Combined}} = .50, p < .05$). Thus, holding all other variables fixed, higher brand equity produces a less negative abnormal return for low severity recalls.

**Discussion**

Given these findings, it seems that brand equity may in fact be a double-edged sword for product recalls. Specifically, consistent with $H_1$, my results suggest that, while brand equity provides a reservoir of goodwill in low severity recalls, it acts as a liability in high severity recalls.

A limitation of the event study, however, is that it provides little information about the underlying process that causes the attenuating and augmenting effects. Such information is critical to understanding consumer responses and also in allowing for falsification or support of the theoretical explanation for the pattern of effects obtained in the event study – namely that consumers who think highly of the recalled brand assimilate low severity recalls as standard, whereas they contrast high severity recalls in the opposite direction. To address this limitation of the event study, I conducted a set of experiments in an effort to assess my theoretical framework.

In the following, in experiment 1, I first examine whether brand equity’s attenuating and augmenting effects also emerge in a more controlled laboratory setting. Subsequently, in experiment 2, I develop process tests to determine the underlying processes that lead to these effects.
EXPERIMENT 1: BRAND EQUITY’S TWOFOLD EFFECT

Overview

A total of 186 students from a large U.S. university participated in this experiment for extra credit in a marketing course. The participants were randomly assigned in a 2 (brand equity of recalled product: high versus low) × 2 (recall severity: high versus low) between-subjects design.

Procedure

When they arrived for the experiment, the participants were told that they would be participating in a media study, in which they would evaluate “breaking news articles” published online on the morning of the experiment by a well-known news provider (CNN). The participants were also told that the news articles contained information about brands, and that they would be asked to evaluate these brands. Then, the participants were given a booklet that included three contiguous sections. In the first section, the participants were asked to indicate their opinions of the brands, prior to learning more about them in the news articles. In the second section, the participants were given four news articles to read. To control for position effects, the focal, fictional article that contained information about a product recall always appeared third. The remaining three articles served as filler. The filler articles were based on real articles and served to reduce the likelihood of ceiling effects due to excessive attention focused on the target message (Ahluwalia, Burnkrant, and Unnava 2000). Finally, in the third section, the participants were asked again to evaluate the brands mentioned in the previous news articles. I debriefed the participants after they finished by noting that the target article was made up and that they should therefore ignore the information it presented. I also quizzed the participants about whether they had guessed the purpose of the experiment. None had, and all believed the news articles were factual.
Stimuli and Independent Variables

I selected hair shampoo as my product category in this experiment because students are familiar with this category. Pretests with 31 participants suggested that Pantene (high brand equity) and White Rain (low brand equity) were suitable target brands (on a seven-point Likert scale, Pantene’s mean brand equity rating was 4.23; White Rain’s mean brand equity rating was 2.67; \( t = 7.55, p < .001 \)).

I fabricated the target messages, discussed next, on the basis of a series of pretests. In the high severity condition, the message suggested that the focal brand (i.e., Pantene or White Rain) had been found to cause significant hair loss and that the company was recalling the product. Conversely, the low severity message suggested that Pantene or White Rain had unintentionally shipped bottles that contained approximately 15% less content than listed and that the company was therefore recalling those bottles. In the final pretest, 62 participants were exposed to either the high or low severity message, with an unknown brand, and rated the events (seven-point Likert scale) as significantly different in severity (mean hair loss = 5.8; mean content = 2.6; \( t = 9.84, p < .001 \)). I provide the target messages in Appendix B.

Dependent Variable

I measured consumer responses to the recall by assessing the degree to which the participants’ attitude toward the target brand changed from before they read the message to after. Specifically, for each participant, I subtracted the postmessage mean attitude score from the premESSAGE mean attitude score; these scores came from six seven-point Likert scales (anchored by “good/bad,” “beneficial/harmful,” “desirable/undesirable,” “favorable/unfavorable,” “positive

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5I assessed brand equity using existing scales (Brady et al. 2008). Items are listed in Appendix A.
image/negative image,” “high quality/low quality”) (coefficient alpha = .96), adapted from Ahluwalia, Burnkrant, and Unnava (2000).

**Results**

My prediction that high equity brands attenuate consumer responses (i.e., attitude change in the experiment) for low severity recalls but augment them for high severity recalls calls for an interaction between recall severity and brand equity. This interaction was significant ($F = 24.83, p < .001$), as were the main effects (brand equity: $F = 9.06, p < .001$; severity: $F = 6.08; p < .001$).

Further, as predicted, respondents expressed significantly greater attitude changes in the low brand equity/low severity condition than in the high brand equity/low severity condition ($\text{mean}_{\text{low BE_low Sev}} = 1.27$, $\text{mean}_{\text{high BE_low Sev}} = .46$; $t = 3.06$, $p < .01$). In contrast, they expressed significantly greater attitude changes in the high brand equity/high severity condition compared with the low brand equity/high severity condition ($\text{mean}_{\text{low BE_high Sev}} = 1.93$, $\text{mean}_{\text{high BE_high Sev}} = 3.04$; $t = 3.94$, $p < .01$). I illustrate the asymmetric effects of brand equity in Figure 2.1.

**Discussion**

These results again support my hypothesis. However, experiment 1 still provides little information about the underlying process that drives the attenuating and augmenting effects of brand equity. To address this limitation, in what is to follow, I first develop a set of process tests and then present findings from a second experiment.
EXPERIMENT 2: A CLOSER LOOK AT THE UNDERLYING PROCESS

I have posited theoretically that assimilation effects arise because consumers perceive the recalling firm’s action as reasonably consistent with the normative standard, whereas contrast effects result when they regard the firm’s action as discrepant from a normative standard (Biernat 2005; Eagly and Chaiken 1993). Accordingly, I anticipate two types of consumer responses to a recall event that involves high equity brands. On the one hand, a low severity/high brand equity recall should prompt consumers to express thoughts that suggest consistency with their frame of reference. For example, they might suggest that the recall was “what I would expect from the
brand” or assert that “the brand did the right thing.” On the other hand, in a high severity/high
brand equity recall, consumers should convey significant discrepancy in their thoughts, in that the
brand’s behavior would not seem consistent with their prior normative standard. Thus, I anticipate
comments such as, “this is not at all acceptable for this brand” or “I did not expect such a serious
mistake from this brand” (Biernat 2005).

Consistent with my theoretical framework, I further reason that these consistent and
discrepant thoughts should mediate the attenuating and augmenting effects of high brand equity on
negative consumer responses. Specifically, if attenuating effects occur because consumers
assimilate the implications of low severity recalls with a normative standard for high equity
brands, then controlling for consistency thoughts should mediate the attenuating effect of high
equity brands for low severity recalls. Likewise, if augmenting effects occur because consumers
perceive a firm’s high severity recall as discrepant from normative standards, then controlling for
consumers’ discrepancy thoughts also should mediate the augmenting effect of high equity brands
in high severity recall situations. Finally, I predict significantly fewer consistency and discrepancy
thoughts when low equity brands are recalled, such that they should not act as mediators for low
brand equity recalls, regardless of severity level.

Overview

Experiment 2 differs from experiment 1 in two important ways (all else was the same).
First, I used different stimuli. Second, after reading each of the four articles, the participants in this
study took three minutes to list all their thoughts while reading the article. As I describe in more
detail, I used these thought protocols for my process test. A total of 137 students from a large U.S.
university participated in this experiment for extra credit.
Stimuli and Variables

I selected smartphones as the target product category, mainly because the student respondents were familiar with this product category. Using a different product category also helped me assess the generalizability of my findings. Pretests with 31 subjects suggested that iPhone (high brand equity) and Sanyo (low brand equity) smartphones would be suitable target brands (iPhone mean brand equity = 5.01; Sanyo mean brand equity rating = 2.84; \( t = 10.44 \) (\( p < .001 \))). I note that I conducted this experiment in 2010, before Steve Jobs died.

I created fictional target messages with a series of pretests. In the high severity condition, the message focused on a recent scientific report that indicated that iPhone or Sanyo smartphone users were 207 times more likely to suffer from life-threatening brain hemorrhages. The message also indicated that a recall was unavoidable. In the low severity condition, the report stated that the smartphone maker (iPhone or Sanyo) was recalling some smartphones over a battery issue. In the final pretest, 62 respondents read either the high or low severity message, in relation to an unknown brand of smartphones, and rated event severity on a seven-point Likert scale (1–7). They considered the messages significantly different in severity (mean hemorrhages = 6.53; mean battery = 3.36; \( t = 9.72, p < .001 \)). The target messages are in Appendix B.

As in experiment 1, I measured consumer responses to the recall by assessing respondents’ degree of attitude change toward the target brand, using the same six Likert scales (Ahluwalia, Burnkrant, and Unnava 2000). The attitude change measures again formed my dependent variable.

Results

The interaction between recall severity and brand equity was significant (\( F = 34.18, p < .001 \)), as were the main effects (brand equity \( F = 10.49, p < .001 \); severity \( F = 10.75; p < .001 \)). The respondents again expressed significantly greater attitude changes in the low brand equity/low
severity condition than in the high brand equity/low severity condition (mean_{low BE, low Sev} = 1.3, mean_{high BE, low Sev} = .38; t = 4.83, p < .001), as well as in the high brand equity/high severity condition compared with the low brand equity/high severity condition (mean_{low BE, high Sev} = 2.22, mean_{high BE, high Sev} = 3.63; t = 4.02, p < .001). I illustrate the asymmetric effect of brand equity in Figure 2.2; these findings replicate the results from experiment 1.

Figure 2.2
Illustrating the Attenuating and Augmenting Effects of Brand Equity in the Smartphone Category

\[ \Delta = \text{attitude before} - \text{attitude after} \]

<table>
<thead>
<tr>
<th></th>
<th>Non-Severe Recall</th>
<th>Severe Recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone</td>
<td>0.38</td>
<td>3.63</td>
</tr>
<tr>
<td>Sanyo</td>
<td>1.30</td>
<td>2.22</td>
</tr>
</tbody>
</table>

\[ t = 4.83, p < .01 \quad t = 4.02, p < .01 \]
Process Tests

After the experiment ended, three judges coded the participants’ listed thoughts related to the focal article, using three categories: consistency, discrepancy, and other. The judges achieved high intercoder reliability (agreement > 85%) and resolved disagreements through discussion.

As predicted, consistency thoughts were most prevalent in the high brand equity/low severity condition; on average, respondents reported 1.57 consistency but only .18 discrepancy thoughts and .23 other thoughts. A different pattern emerged in the low brand equity/low severity condition: Other thoughts were most prevalent (average other thoughts = 1.01; average consistency thoughts = .17; average discrepancy thoughts = .42). Further, as predicted, discrepancy thoughts were most prevalent in the high brand equity/high severity condition, in which participants reported an average of 2.21 such thoughts, but only .38 consistency thoughts and .93 other thoughts. Finally, a new pattern emerged in the low brand equity/high severity condition: Other thoughts were most prevalent (average = 1.82), followed by consistency (average = .56) and finally discrepancy (average = .72) thoughts.

To test if consistency and discrepancy thoughts mediate the attenuating and augmenting effects of high brand equity on negative consumer responses, I included the number of consistency and discrepancy thoughts from the thought coding task as mediators of the effect of brand equity on attitude change. Following Zhao, Lynch, and Chen (2010), I assessed mediation using the bias corrected bootstrap test of the indirect effects (Preacher and Hayes 2008). I conducted the mediation analysis separately for the low and the high severity condition.

As expected, in the low severity condition, consistency thoughts emerged as a significant mediator of brand equity’s effect on attitude change. Using 5,000 bootstrap samples, the bias corrected 95% confidence interval for the indirect effect of the path through consistency thoughts
was [−.688; −.236]. Discrepancy thoughts were not a significant mediator in this condition [−.333; .002].

I then repeated the mediation analysis for the high severity condition. As predicted, discrepancy thoughts now emerged as a significant mediator of brand equity’s effect on attitude change. Again, using 5000 bootstrap samples, the bias-corrected 95% confidence interval for the indirect effect of the path through discrepancy thoughts was [.736; 1.955]. In addition, consistency thoughts did not emerge as a significant mediator in this condition [−.025; .159]. I depict these findings in Figures 2.3 and 2.4.

DISCUSSION

Brand equity is one of the most valuable intangible assets of a firm (Aaker 2007; Keller and Lehmann 2006), and many articles have studied its positive effects. In this research, I examine how brand equity influences consumer responses, and thus firm outcomes, to product recalls. By adopting an assimilation–contrast framework and building on the extant brand equity and product recall literature, I explore a dual role of brand equity when recalls occur. That is, I examine if brand equity’s positive effects extend to the product recall domain, and I also explore an effect of brand equity that previously has received little attention in the brand equity literature: Can brand equity serve as a liability in product recalls?

The combined results from the event study and two laboratory experiments provide consistent evidence that brand equity has complex effects on consumer responses to recall events. The event study shows that the stock market responds in a manner consistent with the consumer responses to product recalls that an assimilation–contrast framework predicts. In addition, the results from the laboratory experiments indicate that high levels of brand equity attenuate negative consumer responses in low severity recalls but augment them for high severity recalls.
Figure 2.3
Consistency Thoughts Mediate Brand Equity’s Effect on Attitude Change in the Low Severity Condition

Notes: The effect of brand equity on attitude change was −.921 (t = −4.94) before entering the mediators into the model. I estimated the direct and indirect effects simultaneously using Mplus Version 6.11.  †p < .10. *p < .05. **p < .01. ***p < .001.

<table>
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<th>Upper</th>
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</thead>
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<td>Indirect effect though consistency thoughts</td>
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<td>-0.688</td>
<td>-0.236</td>
</tr>
<tr>
<td>Indirect effect though discrepancy thoughts</td>
<td>-0.114</td>
<td>-0.333</td>
<td>0.002</td>
</tr>
</tbody>
</table>

I used 5000 bootstrap samples
Figure 2.4  
Discrepancy Thoughts Mediate Brand Equity’s Effect on Attitude Change in the High Severity Condition

Consistency Thoughts

-0.173 (n.s.)

Discrepancy Thoughts

1.203***

Brand Equity
1 = high, 0 = low

0.180 (n.s.)

Attitude Change

0.795***

Notes: The effect of brand equity on attitude change was 1.405 (t = 4.14) before entering the mediators into the model. I estimated the direct and indirect effects simultaneously using Mplus Version 6.11.

† p < .10. *p < .05. **p < .01. ***p < .001.

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<th>Mediator</th>
<th>Point Estimate</th>
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<td>Indirect effect though consistency thoughts</td>
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<td>1.203</td>
<td>0.736</td>
<td>1.955</td>
</tr>
</tbody>
</table>

I used 5000 bootstrap samples
Theoretical Implications

This study contributes to marketing theory in several ways. First, it extends the product recall literature by revealing the importance of brand equity in product recall incidents. Product recalls are increasingly rampant in the marketplace and they have provoked a significant amount of research attention (e.g., Cleeren, Dekimpe, and Helsen 2008; Chen, Ganesan, and Liu 2009; Laufer and Coombs 2006; van Heerde, Helsen, and Dekimpe 2007). In this study, I systematically explore how brand equity, in combination with recall severity, affects consumer responses to product recalls. To provide these insights, I note that consumers’ experiences and judgments of events frequently rely on some frame of reference (Biernat 2005; Eagly and Chaiken 1993), such that standards and expectancies serve as critical anchors for evaluating current events. Three studies confirm that brand equity serves as an anchor for product recalls. Furthermore, the anchoring role of brand equity can be either assimilative or contrasting; consumers who think highly of the recalled brand assimilate low severity recalls as standard, but they contrast high severity recalls in the opposite direction.

Second, this study makes important contributions to the brand equity literature. To the best of my knowledge, this investigation is one of the first to pinpoint circumstances under which brand equity constitutes a liability. I theorize that two seemingly conflicting logics are at play: Brand equity may provide a reservoir of goodwill and endow the recalling firm with idiosyncratic credits that safeguard against the negative effects of recalls, but consumers also may come to expect more from a brand with high equity and be especially disappointed if it suffers a recall. To unravel these two plausible logics, I apply the assimilation–contrast framework and introduce recall severity as a moderator, which enables me to show theoretically that though brand equity provides a reservoir of goodwill in low severity recalls, it becomes as a liability in high severity recalls.
Managerial Implications

These findings offer useful implications for practice. I show that brand equity can produce negative outcomes, so marketing managers must take my findings into consideration. Noting the value of brand equity, common beliefs seem to imply that a brand with high equity enjoys a reservoir of goodwill, regardless of negative events. I surveyed 56 U.S. executives about whether brand equity should help or hurt in crisis situations; most (77%) asserted that brand equity would always be advantageous for a recalling firm. My study contests this widespread conventional wisdom and I show that brand equity can serve as a liability in product recalls.6

Because product recalls are frequent, managers can use my findings to predict consumer responses to their recalls. If their firms possess only low levels of brand equity, managers can expect relatively negative consumer responses, regardless of the severity of their recalls. In contrast, managers of firms with high brand equity can expect relatively mild consumer responses to a low severity recall, but they need to anticipate very negative responses to high severity recalls. I believe that these results are valuable to managers responsible for managing recalls. For example, managers of high equity brands may decide to exceed consumer expectations when managing a high severity recall because such a response might reduce otherwise negative consumer responses. In 1982, Johnson & Johnson famously went beyond the call of duty when it issued a nationwide recall of more than 30 million Tylenol bottles after realizing that medication sold in the Chicago area had been tampered with. Its successful efforts were instructive, and any other response might have been disastrous for the brand.

Finally, marketing executives increasingly need to demonstrate the financial impact of their efforts (McAlister, Srinivasan, and Kim 2007; Rust et al. 2004). The event study confirms

6 All respondents were senior executives (director level or above) in Fortune 1500 companies. The convenience sample came from personal contacts.
that the stock market does not ignore marketing. Rather, Wall Street’s decisions depend significantly on the most valuable intangible asset related to marketing, that is, brand equity.

**Limitations and Further Research**

While I believe that I have broken new ground with this work, there are clear limitations, several of which provide avenues for further research. First, I consider consumer responses immediately following the recall announcement; I thus cannot examine how the firm’s handling of the recall might affect consumer responses. A well-managed, high brand equity/high severity recall may offset the augmenting effects of brand equity, whereas a poorly managed, high brand equity/high severity recall could evoke even more negative consumer responses. Also, perhaps a well-managed, high brand equity/low severity recall could lead to positive consumer responses. Additional research should examine how brand equity, recall severity, and recall management jointly affect consumer responses.

Second, my results across the three studies suggest that product recalls must stem from a serious, potentially life-threatening offense for the augmenting effect of brand equity to play a role. This raises questions of whether the augmenting effect also manifests in less egregious recall events and, more generally, where the “tipping point” is, beyond which brand equity acts as a liability.

Third, I have examined how brand equity influences consumer responses to product recalls, but I ignore the potential damage to brand equity as a result of the recall event (e.g., Dawar and Pillutla 2000). It is conceivable that the damaging effect of the recall event on brand equity is greater in high severity recall events or if the firm handles the recall poorly. Research should examine how recall severity and additional recall-related factors affect brand equity.
Fourth, other negative events can affect a firm. In this study, I consider product recalls. I believe that my key premise regarding brand equity’s dual role transfers to other types of negative events. Future research should test whether this holds and examine if brand equity’s attenuating and augmenting effects occur in other types of negative events.

**Conclusion**

This research makes theoretical and practical contributions. Theoretically, it adds to the product recall literature by demonstrating that brand equity plays an important anchoring role for recalls, leading to either assimilation or contrast effects and thus helping or hurting the recalling firm. Further, it adds to the brand equity literature by demonstrating a negative characteristic of brand equity, something that prior research has largely ignored. Finally, considering the prevalence of product recalls, the findings offer critical insights for managers, who are likely to face a recall at some point in their careers.
Chapter 3

MARKETING’S ROLE DURING THE JUNK-CRISIS

Abstract

Recognizing the importance of credit ratings for the health of a firm, I investigate marketing’s role when a firm’s credit rating is downgraded to one notch above the *junk-threshold*, i.e., when the firm’s credit is downgraded to the lowest investment-grade level and the firm faces the junk-crisis. Building on the extant firm-crisis literature, I posit and find that firms tend to cut their advertising spending as a way to combat the junk-crisis. However, I find that such a line of attack is likely to backfire for business-to-consumer (B2C) firms whereas it does not seem to harm business-to-business (B2B) firms. Moreover, building on the extant literature on marketing’s influence within the firm, I find that marketing’s influence significantly attenuates the degree to which B2C firms cut their advertising as a response to the junk-crisis. Marketing’s influence in B2B firms, however, does not seem to moderate advertising cuts during the junk-crisis. The results also suggest that marketing’s influence within the firm provides significant benefits during the junk-crisis above and beyond its role in advertising. Considering the average B2C firm, the results show that the probability of a credit rating upgrade, i.e., a move away from the junk-threshold, is approximately 23% for the firms in which marketing’s influence is high and only about 7% for those in which it is low. Further, considering the average B2B firm, the probability of a credit rating upgrade is roughly 22% for the firms in which marketing’s influence is high and only about 12% for those in which it is low. The empirical results are based on 210 *Fortune* 1500 firms that faced the junk-crisis sometime between 1997 and 2009.
On August 5, 2011, the United States (US) lost its prized AAA credit rating from Standard and Poor’s (S&P) which it had previously held since 1941. According to Reuters (2011), this downgrade constitutes an “unprecedented blow to the world’s largest economy” and is “likely to…raise borrowing costs for the American government.” The downgrade will most likely also be a top campaign issue during the upcoming presidential election. Indeed, presidential hopeful Mitt Romney has already pounced on the downgrade and proclaimed that it is a “deeply troubling indicator of our country’s decline.” In short, while not everyone agrees with S&P’s verdict, the historic downgrade has had a crisis-like impact on the current US government.

Firms, much like the US (and other sovereign countries) also have credit ratings assigned if they issue debt securities (e.g., bonds), that is, if they borrow money from other entities to finance their operations. Credit ratings are important because they largely determine the interest rate a firm has to pay to its debt (e.g., bond) holders. Also, new corporate bonds in 2010 totaled over $1 trillion, making bonds by far the most important source of capital for US based firms (Fortune 2010). A firm’s credit rating is a key indicator of the firm’s (financial) health and, not surprisingly, firms are known to manage their credit ratings closely and carefully.

Credit ratings are assigned by credit rating agencies, and the largest credit rating agencies in the US are S&P, Moody’s, and Fitch Ratings. Further, all credit rating agencies use letter-based grading systems. S&P’s ratings, for example, range from AAA for the most financially stable firm to D for a firm in default.

Firms are known to manage their credit ratings closely and carefully. For example, Apple Inc. currently does not have a credit rating because the firm does not have any debt. Indeed, during the summer of 2011, Apple Inc. listed more cash reserves than the U.S. Treasury.
It is unlikely that a credit rating downgrade to one-notch below AAA would trigger as stark of a negative response for firms as it did for the US. However, there is a credit rating threshold that may elicit such responses: The *junk-threshold*. This threshold determines whether firms are considered investment grade or speculative grade (colloquially known as “junk”), and firms are known to be highly motivated to avoid the downgrade to junk, because such a downward move would, among other things, significantly increase their cost of debt. Further, the junk-crisis, i.e., the downgrade to one notch above speculative grade, affects many firms. For example, between 1997 and 2009, 284 of the *Fortune* 1500 firms were faced with the junk-crisis.

To escape the junk-crisis, firms must improve their liquidity, and there are two generally accepted strategies to accomplish just that: Cut costs and/or increase revenues (e.g., Kaplan and Urwitz 1979). A third strategy may entail the selling off of firm assets. As one would perhaps expect, cutting costs seems to be the prevailing strategy firms pursue to improve their liquidity (e.g., Graham, Harvey, and Rajgopal 2005). Further, there is ample evidence in the extant literature that suggests that marketing spending, and in particular advertising spending, is often the first that gets cut when the going gets tough for firms (e.g., Barwise and Styler 2002; Graham, Harvey, and Rajgopal 2005; Picard 2001). Indeed, most firms seem to think of advertising as a “dispensable luxury” during difficult times (Biel and King 1990, p. 7).

Considering these findings, it is conceivable that many firms would choose to reduce their advertising spending as one way to combat the junk-crisis. However, here I posit that such a line of attack is likely to backfire, especially for business-to-consumer (B2C) firms, and decrease rather than increase the firm’s liquidity thereby increasing the likelihood of the firm getting downgraded to speculative grade, i.e., junk. Advertising investments are important customer-facing activities of the firm (e.g., Tellis 2004, p.12) and, as customers are among the few
constituencies that actually provide revenues to the firm, it is plausible that cuts to the firm’s advertising investments can result in decreased revenues (e.g., Mizik 2010). In turn, advertising investment cuts may hence also negatively influence the firm’s liquidity which would negatively impact its credit rating.

Considering the *Fortune* 1500 firms that faced the junk-crisis sometime between 1997 and 2009, I find that 64% of them cut their advertising spending in the year after the downgrade to just above the junk-threshold. In contrast, only 41% of the firms’ competitors cut their advertising during the same time period. Thus, it seems that many firms choose to cut their advertising as a way to battle the junk-crisis. Moreover, I find that these advertising cuts are negatively correlated with B2C firms’ future credit rating trajectory. Specifically, considering the average B2C firm, I find that the probability of a subsequent credit rating upgrade (i.e., moving away from the junk-threshold) is roughly 6% for the firms that cut their advertising whereas it is near 15% for those that did not. I also find that business-to-business (B2B) firms do not seem to be negatively affected by advertising cuts.

In view of these findings, I also investigated if there are firm-level factors that might impede the ubiquitous advertising cuts when firms face the junk-crisis. Field interviews suggested that marketing’s influence within the firm might act as such a moderator. This hypothesis was partially supported by my empirical results which show that marketing’s influence within the firm, as determined by chief marketing officer (CMO) presence/absence, significantly attenuates the degree to which B2C firms cut their advertising as a response to the junk-crisis. Specifically, of the B2C firms that faced the junk-crisis, 72% of the non-CMO firms cut their advertising whereas only 44% of the CMO firms did so. CMO presence in B2B firms,
however, did not moderate the advertising cuts. Given the non-significant effect of advertising cuts among B2B firms, this (non-)finding seems encouraging for B2B firms.

Finally, building on the extant literature on marketing’s influence (e.g., Homburg, Workman and Krohmer 1999; Moorman and Rust 1999; Verhoef and Leeflang 2009) I also posit and find that marketing’s influence within the firm provides significant benefits during the junk-crisis above and beyond its role in advertising spending cuts. Specifically, considering the average B2C firm, I find that the probability of a credit rating upgrade is approximately 23% for the firms that employed a CMO and only about 7% for those that did not. Further, considering the average B2B firm, the probability of a credit rating upgrade is roughly 22% for the firms that employed a CMO and only about 12% for those that did not. Thus, while B2C firms seem to have the upper hand, both B2B and B2C firms appear to benefit from marketing’s influence within the firm during the junk-crisis.

I proceed as follows: I first provide a more detailed overview of a firm’s credit rating and the junk-crisis. I then present my hypotheses and conceptual framework followed by a description of the data and methodology. Subsequently, I present my findings before concluding with a discussion of the theoretical and managerial implications, as well as limitations, of this research.

**BACKGROUND AND THEORY**

*Credit Ratings and the Junk-Crisis*

Firms have a credit rating if they issue debt securities (e.g., bonds), that is, if they borrow money from other entities to finance their operations. A firm’s credit rating serves as an indicator of the firm’s financial liquidity and hence its likelihood of credit default. Credit ratings are
assigned by credit rating agencies that have experienced analysts who regularly question executives about operations, finances, marketing, and management plans to arrive at the ratings. Credit ratings are not based on mathematical algorithms; instead, the credit rating agencies’ analysts use their judgment and experience along with the available information in determining the credit rating of a firm. Further, credit ratings are not cast in stone; they change whenever the analysts, who continuously monitor the firms, see the need for it. The largest credit rating agencies in the US are S&P, Moody’s, and Fitch Ratings. All credit rating agencies use letter-based grading systems. S&P’s ratings, for example, range from AAA for the most financially stable firm to D for a firm in default.

Further, considering S&P’s ratings, the junk-threshold is located between BBB- and BB+ as shown in Figure 3.1.

![Figure 3.1](image)

**Figure 3.1**

Credit Rating Letter Designations Used by Standard & Poor’s

<table>
<thead>
<tr>
<th>AAA</th>
<th>A-</th>
<th>BBB+</th>
<th>BBB</th>
<th>BBB-</th>
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Investment Grade

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<tr>
<th>BB+</th>
<th>BB</th>
<th>BB-</th>
<th>B+</th>
<th>......</th>
<th>D</th>
</tr>
</thead>
</table>

Speculative Grade (i.e., “junk”)

Note: Standard and Poor’s complete credit rating scale is as follows (from excellent to poor): AAA, AA+, AA, AA-, A+, A, A-, BBB+, BBB, BBB-, BB+, BB, BB-, B+, B, B-, CCC+, CCC, CCC-, CC, C, D.

A downgrade to junk could have devastating consequences for a firm and be perceived very negatively by the firm’s stakeholders. First, a downgrade to junk would certainly increase
the cost of debt (i.e., the interest rate the firm will have to pay to its creditors) of the firm because the likelihood of credit default is now higher. Second, assuming the firm is publicly traded, a downgrade to junk would almost certainly lead to a significant downward adjustment of the firm’s security price. Third, and perhaps most importantly, the lowering of a firm’s credit rating to speculative grade could create a vicious cycle. That is, in some cases, large loans to firms contain a clause that makes the loan due in full if the firm’s credit rating falls below investment grade. In a worst-case scenario, the firm’s loans might become due in full, and, since the firm would typically not be able to pay back all of the loans at once, it would be forced into the “death spiral” and hence bankruptcy. In other words, firms that sit at BBB-, i.e., one notch above junk, are faced with a peculiar crises-like situation, and, given the negative implications of a potential downgrade to junk, firms are highly motivated to avoid a credit rating downgrade to speculative grade.

**Advertising and the Junk Crisis**

Firms are known to cut costs when faced with a financial crisis. For example, in a survey of 401 top executives, Graham, Harvey, and Rajgopal (2005) found that 80% of the executives would cut spending when faced with financial difficulties. Further, due to the oftentimes uncertain return on investment (ROI) of advertising spending, it is often the first that gets cut when the going gets tough for the firm (e.g., Barwise and Styler 2002; Biel and King 1990; Graham, Harvey, and Rajgopal 2005; Picard 2001). Indeed, Graham and his colleagues found that, of the 80% of executives who would cut spending, most would cut advertising to get back on track. Based in these empirical findings, I expect firms to cut their advertising when they face the junk crisis. However, while there may be circumstances under which advertising cuts are
sensible (e.g., see Srinivasan, Lilien, and Sridhar 2011) I posit that the junk-crisis is not one of them, and I outline my reasoning below.

**Performance Implications of Advertising Cuts**

Customers are among the few constituencies that provide revenue and that keep a firm alive by endowing it with liquidity. Thus, customers are invariably connected to a firm’s credit rating. In support of this link, Anderson and Mansi (2009) recently found that a firm’s level of customer satisfaction is significantly and positively related to its credit rating. Given the critical role customers play in supplying liquidity to the firm, cutting back customer facing activities such as advertising during the junk-crisis would - *ceteris paribus* - seem uncalled for. In support of this notion, Mizik (2010) recently showed that cuts in marketing spending have a negative effect on a firm’s future financial performance and liquidity, an outcome that would almost certainly guarantee a downgrade to junk. Moreover, Grullon, Kanatas and Weston (2004) have shown that firms with greater advertising investments have better liquidity. Finally, recall that credit ratings are assigned by the credit rating agencies’ analysts who, in turn, may (consciously or subconsciously) view advertising as a credible signal from the focal firm indicating that it (continues to) believe in its product, is viable and has economic staying power.

**B2B vs. B2C Firms**

There are many differences between business-to-business (B2B) and business-to-consumer (B2C) firms (see Grewal and Lilien 2012). In general, B2B firms spend much less on advertising as a percentage of sales than B2C firms. For example, in 2011, the average

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8 To the best of my knowledge, Anderson and Mansi (2009) are the only scholars who have examined the link between marketing and a firm’s credit rating so far.
advertising to sales ratio of consumer products firms was 7.2% compared to 1.5% for industrial equipment and furnishings firms (Schonfeld and Associates 2012). Clearly, B2C firms allocate their finite resources to a much greater degree to advertising investments than B2B firms. Considering the economic principle, these differences may suggest that advertising investments are more effective in a B2C than a B2B context. Indeed, B2B firms’ customers are known to be more sensitive to changes in their (downstream) customer demand than to changes in supplier advertising (Srinivasan, Lilien and Sridhar 2011). Moreover, the less rational B2C buying process (Gilliland and Johnston 1997) suggests that advertising investments are more effective in a B2C than a B2B context. Thus, advertising investment cuts may be less problematic for B2B than B2C companies during the junk crisis.

Based on the above, I hypothesize that

\[ H_1: \] Firms cut their advertising investments when faced with the junk-crisis.

\[ H_{2a}: \] Advertising investment cuts during the junk-crisis negatively impact the firm’s future credit rating trajectory.

\[ H_{2b}: \] Advertising investment cuts during the junk-crisis have less of a negative impact on the future credit rating trajectory of B2B than B2C firms.

**Firm-level Contingency Factors**

Marketing spending cuts are ubiquitous when firms face financial difficulties. Indeed, as outlined above, several scholars have documented the prevalence of marketing spending cuts when the going gets tough for firms and, more recently, scholars have also demonstrated the oftentimes detrimental consequences of such cuts (e.g., Barwise and Styler 2002; Biel and King 1990; Picard 2001; also see Mizik and Jacobson 2007, Mizik 2010, and Chakravarty and Grewal 2011 for examples of how firms act myopically to inflate earnings and/or meet investors’
expectations). However, marketing researchers have so far performed little empirical measurement of contingent, firm-level determinants that may hamper these cuts. This is surprising, considering that knowledge of such factors would not only advance marketing theory but also inform (marketing) practitioners.

To at least partially address this void, I followed an inductive approach and conducted field interviews to help me understand what firm-level factors might affect the degree to which firms dial back their advertising spending during the junk-crisis. The persons interviewed were for the most part credit rating experts who either worked for a financial services company (e.g., S&P) or had detailed subject matter knowhow (e.g., a PhD in accounting with a focus on credit ratings). I also interviewed a number of senior marketing and research and development executives.

An important insight derived from this field research was that marketing’s influence within the firm should act as a potent moderator. In short, either on their own or when prompted, all interviewees argued that the greater marketing’s influence within the firm, the less likely it should be for advertising investments to get cut during the junk crisis. Marketing’s influence within the firm has been conceptualized as the function’s (1) perceived importance within the firm, (2) respect in the boardroom, and (3) decision influence (Verhoef and Leeflang 2009). Considering these manifestations, it seems probable that greater levels of marketing influence will indeed decrease the likelihood of advertising cuts during the junk crisis. Thus, I submit the following hypothesis to my empirical investigation:

\[ H_3: \text{Firms in which marketing plays an influential role are less likely to cut their advertising spending when faced with the junk crisis.} \]
**Marketing’s Influence within the Firm**

There are reasons to believe that marketing’s influence within the firm has a positive impact on the firm’s credit rating trajectory during the junk-crisis above and beyond its posited valuable attenuating role on advertising spending cuts.

First, a crisis usually brings with it a great deal of uncertainty (e.g., Smart and Vertinsky 1984). When uncertainty is high, marketing makes an important strategic contribution to the firm because there is a need to gather and process market related information (e.g., Homburg, Workman, and Krohmer 1999). In contrast, a simple environment to a large degree frees a firm from the necessities of sophisticated information gathering and processing tasks (e.g., Duncan 1972).

Second, although almost 20% of the *Fortune* 1500 firms were faced with the junk crisis sometime between 1997 and 2009, the junk crisis is a relatively rare event that requires “out-of-the-box” thinking (Pearson and Clair 1998). Marketing has often been described as the “creative function” within the firm and the Chief Marketing Officer (CMO) has been labeled the “creative mind” on the top management team (TMT) (e.g., Booz Allen Hamilton 2007). Thus, the marketing function may be well equipped to deliver the needed “out-of-the-box” thinking, allowing (e.g.) the firm to offer products that resonate well with its customers and thereby allowing the firm to escape the junk crisis.

Third, as outlined above, customers play a focal role during the junk crisis as they endow the firm with the much needed liquidity. One of marketing’s primary roles is to connect the customer to the product (e.g., Moorman and Rust 1999) and exploring customer needs structures is one of the core competencies of the marketing unit (e.g., Homburg, Workman, and Krohmer 1999). Also, a standard argument in the market orientation literature (Kohli and Jaworski 1990;
Narver and Slater (1990) suggests that market-oriented firms are in a better position to satisfy the needs of their customers, and Verhoef and Leefland (2009) show that marketing’s influence within the firm and the firm’s market orientation are positively correlated. Thus, all else being equal, greater marketing influence within the firm should allow the firm to better (re-)connect the firm (and its products) with its customers during the time of crisis, which in turn should have a positive impact on the firm’s credit rating trajectory (Anderson and Mansi 2009). Hence, I propose:

\[ H_4: \text{Marketing’s influence within the firm is positively related to the firm’s future credit rating trajectory (beyond its attenuating role on advertising cuts).} \]

Finally, Moorman and Rust (1999) show that marketing’s influence within the firm is positively correlated with specialized marketing knowledge which, in turn, positively affects firm performance. This suggests that firms in which marketing plays an influential role may invest their advertising dollars more effectively by, for example, developing superior advertising campaigns and/or scheduling their advertising more pragmatically (e.g., Tellis 2004, p. 109).

These specialized knowledge structures may allow the firm to get by on a reduced advertising budget during the junk crisis without threatening firm outcomes. Indeed, extant research has documented significant heterogeneity in the effectiveness of advertising (e.g., Eastlack and Rao 1989; Goldenberg, Mazursky, and Solomon 1999; Schumann, Petty, and Clemons 1990). Thus, besides the hypothesized positive main effect on the firm’s future credit rating trajectory (i.e., \( H_4 \)), marketing’s influence within the firm may allow the firm to obtain a greater return from its

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9 This hypothesis may seem to contradict with Grewal and Tansuhaj (2001) finding that market orientation can have a negative influence on firm performance after a severe (in their case economic and exogenous) crisis. However, note that Grewal and Tansuhaj (2001) also posit and find that market orientation remains useful for managing crises in conditions of high demand uncertainty. As mentioned, customers are invariably linked to a firm’s credit rating, and demand uncertainty is ubiquitous for firms that face the junk crisis. Hence, I believe that Grewal and Tansuhaj’s (2001) findings and my hypothesis are reconcilable.
advertising investments, thereby attenuating the posited negative effect of advertising spending cuts (i.e., $H_{2a}$). Thus, I propose:

$H_5$: Advertising spending cuts during the junk-crisis have less of a negative impact on the future credit rating trajectory of firms in which marketing’s influence is high than on firms in which marketing’s influence is low.

I present my theoretical model in Figure 3.2, which summarizes my hypotheses.

Figure 3.2
Conceptual Framework

![Conceptual Framework Diagram]
Measuring Marketing’s Influence within the Firm

Different approaches have been postulated and used to capture marketing’s influence within the firm. For example, Verhoef and Leeflang (2009) used a survey-based approach to measure marketing’s influence within the firm as did Homburg, Workman, and Krohmer (1999). Moreover, Webster, Malter, and Ganesan (2003) have suggested that CMO presence is a credible signal that the firm is likely to appreciate the marketing concept, and Nath and Mahajan (2008, 2011) have proposed that CMO presence is an indicator of marketing’s influence within the firm. In a similar vein, McGovern et al. (2004, p. 71) have recognized the CMO as the “voice of the customer” in the C-suite, and Boyd, Chandy, and Cunha (2010, p. 1162) have labeled the CMO “the most direct steward of a firm’s customers”. These scholars adopt an upper echelon’s perspective (Hambrick and Mason 1984) and argue that to understand why firms do the things they do it is critical to seek an understanding of the people at the top. Thus, they make the compelling case that if marketing has an explicit voice at the strategy table, marketing’s influence within the firm should, ceteris paribus, be significant.

While both approaches to measure marketing’s influence within the firm seem appropriate, I rely on the second approach in my subsequent analysis (i.e., CMO presence as a sign of marketing’s influence). The main reason for my choosing this approach is that I employ archival data in my analysis which precludes me from adopting the survey-based approach.

RESEARCH METHODOLOGY

Sample

I limit my sample to the Fortune 1500 firms. This cutoff is an empirical necessity given the unavailability of advertising data as well as low prevalence of CMOs in smaller firms (Hyde,

Between 01/1997 and 12/2009, 284 of the Fortune 1500 firms were downgraded to just above junk status indicating that the junk-crisis affects many firms. From this set, I retained only firms for which the BBB- credit rating was not the very first credit rating of the firm. This approach was motivated by the fact that credit rating agencies frequently place newly rated firms just above the junk-bond threshold as a conservative measure to signal the relative uncertainty of the rating. This filter resulted in a sample of 216 firms that represent a cross-section of industries.

**Data and Measures**

I used the RatingsXpress database to (1) identify the firms that were downgraded to one notch above the investment-grade/speculative-grade boundary between 1997 and 2009 and (2) examine these firms’ subsequent credit rating paths (i.e., whether they got downgraded to junk, upgraded or remained the same (i.e., right-censored)). RatingsXpress provides S&P’s daily issuer-level credit ratings.

Further, the TMT has been operationalized in various ways by prior researchers (see Carpenter, Geletkanycz, and Sanders 2004, pp. 754-758 for a good overview). In line with more recent research (e.g., Hambrick and Cannella 2004; Nath and Mahajan 2008, 2011), I operationalize the TMT as the listing of executive officers specified by a firm in its 10-K or proxy statement, i.e., the firm’s annual filings with the Securities Exchange Commission (SEC). I gained access to these filings via EDGAR, the Electronic Data-Gathering, Analysis, and Retrieval system of the SEC.
I also used the 10-Ks or proxy statements to identify the presence (or absence) of a CMO in the firm’s TMT. Specifically, I adopted the process put forth by Nath and Mahajan (2008, 2011) to identify CMO presence. That is, an executive officer with marketing in his/her title constitutes CMO presence. For example, the actual titles that I encountered include Vice President (VP) Marketing, Senior VP Marketing, Executive VP Marketing, and Chief Marketing Officer. In my subsequent analysis, I classified a firm as having a CMO if the firm employed a CMO during the year when it was downgraded to one notch above the junk-threshold.

I obtained the firms’ advertising investments from Kantar Media’s Ad$pender database. Ad$pender reports monthly advertising investments for 3+ million brands across 18 media in the United States. I had access to monthly Ad$pender data for the years 1995 – 2011.

Using these sources, I was able to obtain data for 210 of my 216 sample firms. Advertising data was missing for 4 firms and TMT information for the remaining 2 firms. Thus, my final sample consists of 210 firms.

Three expert judges coded the sample firms as either B2B or B2C firms. Inter coder reliability was very high (>94%), and disagreements were resolved through discussion. I also included several control variables in my analysis. First, given the importance of firm size on performance (e.g., Moorman and Rust 1999), I control for firm size in my model. I measured firm size as the log of the number of employees in the firm during the year of the downgrade to BBB-, and I obtained the relevant data either from COMPUSTAT or the company filings with the SEC. Second, when faced with the junk-crisis, firms may choose to sell some of their assets in an effort to raise liquidity. Such sales could positively impact the firm’s credit rating trajectory, and I hence control for them in my analysis. I used the ratio of property, plant and equipment sales to property, plant and equipment total during the year following the firm’s
downgrade to BBB- to measure this variable, and I obtained the relevant data from COMPUSTAT. Third, firms may opt to lay off employees to cut costs which in turn may positively affect the firm’s future credit rating trajectory. To control for this potential effect in my analysis, I calculated the percentage change in the number of employees from the year of the downgrade to BBB- to the subsequent year, and I obtained the relevant data from COMPUSTAT or the company filings with the SEC. Fourth, firms may choose to issue additional shares to raise liquidity which in turn could positively influence their future credit rating trajectory. To control for the effects of such an approach, I calculated the percentage change in common shares outstanding from the year when the downgrade to BBB- occurred to the subsequent year and included the resulting measure in my analysis. I obtained the relevant data from COMPUSTAT. Fifth, I control for the firms’ operating and financial leverage at the onset of the junk-crisis to capture the firms’ “baseline” liquidity. Using data from COMPUSTAT, I measure operating leverage as the ratio of fixed assets to total assets, and I use the firms’ long-term debt-to-equity ratio as a proxy for financial leverage.

**Descriptive Statistics**

Table 3.1 provides an overview and description of the variables, and Table 3.2 shows the correlations and summary statistics. Table 3.3 lists the names of some sample firms and indicates that the sample represents a broad range of (for the most part well-known) firms.

The summary statistics show that 64% of the sample firms decreased their advertising spending in the year following the downgrade to BBB-. Also, 55% of the sample firms are B2B and 45% are B2C firms. Further, 21% of the sample firms employed a CMO (16% of B2B firms and 27% of B2C firms employed a CMO), and the average size of the firms as measured by
Table 3.1
Overview of the Data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable Type</th>
<th>Data Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit rating</td>
<td>Continuous</td>
<td>COMPUSTAT’s RatingsXpress</td>
<td>Number of days the firm stayed at BBB- (i.e., the junk-threshold).</td>
</tr>
<tr>
<td>CMO presence</td>
<td>Indicator</td>
<td>10-Ks and proxy statements retrieved from EDGAR</td>
<td>CMO presence = 1 (i.e., yes) if TMT includes member with “marketing” in his/her title, otherwise 0.</td>
</tr>
<tr>
<td>Advertising</td>
<td>Indicator</td>
<td>Kantar Media’s AdSpender</td>
<td>Advertising = 1 if firm decreased advertising in the year after downgrade to BBB-, otherwise 0.</td>
</tr>
<tr>
<td>Firm type</td>
<td>Indicator</td>
<td>3 expert judges coded the firms as either B2B or B2C firms</td>
<td>B2B firm = 1, B2C firm = 0.</td>
</tr>
<tr>
<td>Firm size</td>
<td>Continuous</td>
<td>COMPUSTAT or 10-Ks</td>
<td>Log of the number of employees.</td>
</tr>
<tr>
<td>Asset sales</td>
<td>Continuous</td>
<td>COMPUSTAT</td>
<td>Ratio of property, plant and equipment sales to property, plant and equipment total.</td>
</tr>
<tr>
<td>Employee layoffs</td>
<td>Continuous</td>
<td>COMPUSTAT or 10-Ks</td>
<td>Percentage change in number of employees from year (t) to year (t+1)</td>
</tr>
<tr>
<td>Issuance of common</td>
<td>Continuous</td>
<td>COMPUSTAT</td>
<td>Percentage change in common shares outstanding from year (t) to year (t+1)</td>
</tr>
<tr>
<td>Operating leverage</td>
<td>Continuous</td>
<td>COMPUSTAT</td>
<td>Ratio of fixed assets to total assets.</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>Continuous</td>
<td>COMPUSTAT</td>
<td>Long-term debt-to-equity ratio.</td>
</tr>
</tbody>
</table>
Table 3.2
Correlations and Summary Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Advertising</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CMO Presence</td>
<td>-0.09</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Firm type</td>
<td>-0.01</td>
<td>-0.14</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Firm size</td>
<td>-0.03</td>
<td>0.06</td>
<td>-0.19</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Asset sales</td>
<td>0.01</td>
<td>0.03</td>
<td>0.08</td>
<td>0.03</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Employee layoffs</td>
<td>0.02</td>
<td>0.08</td>
<td>0.02</td>
<td>0.12</td>
<td>-0.01</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Issuance of common shares</td>
<td>-0.01</td>
<td>-0.02</td>
<td>0.11</td>
<td>-0.03</td>
<td>-0.10</td>
<td>0.24</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Operating leverage</td>
<td>-0.13</td>
<td>0.12</td>
<td>0.09</td>
<td>-0.02</td>
<td>-0.13</td>
<td>-0.06</td>
<td>-0.01</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>9. Financial leverage</td>
<td>-0.03</td>
<td>0.04</td>
<td>-0.05</td>
<td>0.05</td>
<td>0.11</td>
<td>-0.05</td>
<td>-0.05</td>
<td>0.05</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.64</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>0.21</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>0.55</td>
<td>0.49</td>
</tr>
<tr>
<td></td>
<td>9.48</td>
<td>1.46</td>
</tr>
<tr>
<td></td>
<td>0.06</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>0.01</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>0.03</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>0.29</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>1.37</td>
<td>3.79</td>
</tr>
</tbody>
</table>

Descriptions of the variables are provided in Table 3.1. Correlations with an absolute value ≥ 0.13 are significant at the .05 level; those with an absolute value ≥ 0.17 are significant at the .01 level.

Table 3.3
Sample Firms (Partial List)

- Office Depot Inc
- Tyson Foods Inc
- Whirlpool Corp
- Dow Chemical
- H&R Block Inc
- Corning Inc
- Raytheon Co
- PerkinElmer Inc
- JC Penney Co
- Alcoa Inc
- Sprint Nextel Corp
- Mattel Inc
- Bausch & Lomb Inc
- Yum Brands Inc
- Big Lots Inc
- Hilton Hotels Corp
- Dial Corp
- Reebok International
- Xerox Corp
- Toys R Us Inc
- Tyco International
- Tupperware Brands Corp
- Wendy's International Inc
- Lockheed Martin Corp
- Goodrich Corp
- Lucent Technologies Inc
- Macy's Inc
- Agilent Technologies Inc
- Radioshack Corp
- Marriott International Inc
- Textron Inc
- Hasbro Inc
- Best Buy Co Inc
- Avaya Inc
number of employees is 34,495 (SD: 58,292). Moreover, of the 210 sample firms, 48 were subsequently upgraded and 122 were downgraded. The remaining 40 firms stayed at BBB- during the entire observation period (i.e., until December 2011). I treat these firms as right-censored in my subsequent analysis. Finally, the firms that were subsequently upgraded stayed at BBB- for, on average, 1377 days (SD: 749) and those that were downgraded stayed at BBB- for, on average, 547 days (SD: 423). The right-censored firms have been at BBB- for, on average, 1454 days (SD: 860).

Figure 3.3 shows the advertising spending trajectory of the sample firms surrounding the junk-crisis, and Figure 3.4 shows the advertising trajectory of the sample firms’ competition during the same timeframe. As the figures illustrate, the sample firms, on average, decreased their advertising spending during the 12 months following their placement at BBB- whereas the sample firms’ competition displayed an upward trajectory during the same timeframe.

Figure 3.3
Advertising trajectory of sample firms surrounding the junk-crisis
**Methodology**

I used a forecasting model similar to that employed by Mizik (2010) and Chakravarty and Grewal (2011) to determine if firms dial back their advertising when faced with the junk-crisis (and to test $H_1$ and $H_3$). Specifically, I used the following fixed-effects autoregressive panel data forecast model to compute normal levels of advertising in the year after the firm was downgraded to BBB-:

$Adv_{it} = \alpha_{Adv,i} + \beta_{Adv}Adv_{it-12} + \gamma_{Adv}AdvComp_{it} + \sum_{t=1}^{T} \delta_{Adv,t} Year_t + \epsilon_{Adv,it}$

where $Adv_{it}$ is advertising for firm $i$ in month $t$, and $Adv_{it-12}$ is their lagged values (i.e., lagged by 12 months). $AdvComp_{it}$ is advertising for firm $i$’s competition in month $t$, and $Year_t$ is a

---

10 AdSpender also reports monthly advertising spending at the industry level, and every firm is assigned to an industry. To determine the competitors’ advertising spending, I subtracted firm $i$’s advertising in month $t$ from the advertising of firm $i$’s industry in month $t$. 
set of annual dummy variables. Further, $\alpha_{Adv,i}$ is the firm-specific intercept, and $\beta_{Adv}$ is the estimate of persistence for the series. In short, the series (i.e., advertising of firm $i$ in month $t$) depends on a firm-specific level, the value of the series (i.e., advertising) 12 months ago, the industry-specific effect (i.e., advertising of the competition), and the time-specific effect. The forecast error of the model provides the estimate of the deviation of the series, i.e., $\varepsilon_{Adv,it} = (Adv_{it} - \hat{Adv}_{it})$. Namely, following Mizik (2010), I used the forecast errors of the model to determine if firms reduced their advertising spending during the 12 months following the downgrade to just above the junk-threshold and then assigned a value of 1 to firms that reduced their advertising and 0 otherwise.\footnote{I repeated the analysis considering different time periods post downgrade to BBB (- i.e., 3, 6 and 9 months). The results did not change in any meaningful way.}

Further, given the temporal dimension of the firms’ credit rating trajectory, I use a survival model to test $H_{2a}$ and $H_{2b}$ as well as $H_{4}$ and $H_{5}$. Moreover, because firms that face the junk-crisis can in a next step either get upgraded, i.e. move away from the junk-threshold, or downgraded to junk, I use a competing-risks regression model (Fine and Gray 1999). Competing-risks regression provides a useful alternative to Cox regression (Cox 1972) for survival data in the presence of competing risks. The focus of a competing-risks regression is on the cumulative incidence function (CIF) which indicates the probability of the event of interest occurring within a given time. The model keeps the firms who experience the competing event at risk so that it can be adequately counted as having no chance of “failing”. Also, the hazard ratio is presented as a subhazard for the event of interest, and the model is semiparametric in that the baseline subhazard is left unspecified. My model takes the following form:
2 \textit{Credit}_{i} t, X

\begin{align*}
= \text{Credit}_{i,0} t \\
\times \exp(\beta_{1}Adv_{i} + \beta_{2}CMO_{i} + \beta_{3}Adv \times CMO_{i} + \beta_{4}B2B_{i} + \beta_{5}Adv \times B2B_{i} + \\
\beta_{6}Size_{i} + \beta_{7}Asset Sales_{i} + \beta_{8}Layoffs_{i} + \beta_{9}Common Shares_{i} + \beta_{10}Operating Leverage_{i} + \beta_{11}Financial Leverage_{i}) + \varepsilon_{i}
\end{align*}

where \textit{Credit}_{i} t, X is the days from when firm i was placed at BBB- until the subsequent credit rating change occurs, \textit{Credit}_{i,0} t is the baseline subhazard (i.e., when the covariates are set to zero), and \beta are subhazard ratios (or exponentiated coefficients) to be estimated. A positive (negative) coefficient means that the effect of increasing a particular covariate is to increase (decrease) the subhazard and thus increase (decrease) the CIF.

\section*{RESULTS}

\textit{Results pertaining to H$_{1}$ and H$_{3}$}

H$_{1}$ proposes that firms cut their advertising investments when they face the junk-crisis. The results provide empirical support for this hypothesis. Figure 3.5 shows that, of the firms that faced the junk-crisis, 64\% cut their advertising in the year following the downgrade to just above the junk threshold. In contrast, only 41\% of the firms’ competitors, on average, cut their advertising during the same time period.$^{12}$ The two-proportion test of difference = 0 (vs. > 0) yielded \( z = 4.92 \) which is significant ($p < .001$).

$^{12}$ I estimated equation (1) for the firms’ respective competitors to determine whether they decreased their advertising during the year after the sample firms’ were downgraded to BBB-. I dropped the \textit{AdvComp}_{it} variable from the forecast model for this estimation.
Further, $H_3$ proposes that firms in which marketing plays an influential role (i.e., firms that employ a CMO) are less likely to cut their advertising spending when faced with the junk crisis than firms in which marketing does not play an influential role. The results do not provide empirical support for this hypothesis. Figure 3.6 shows that 56% of the firms that employ a CMO cut their advertising in the year following the downgrade to BBB-. In contrast, 66% of the firms that did not employ a CMO cut their advertising in the year following the downgrade to BBB-. While directionally as predicted, the two-proportion test of difference $= 0$ (vs. $< 0$) yielded $z = 1.27$ which is not significant ($p = .103$; Fisher’s exact test yielded $p = .131$).
Given these non-significant findings, I next examined if B2B and B2C firms responded differently to the junk-crisis in terms of their advertising spending and conditional on marketing’s influence. The empirical results suggest that this was indeed the case.

As can be seen in Figure 3.7, only 44% of the B2C-CMO firms cut their advertising in the year following the downgrade to BBB-. In contrast, 72% of the B2C-non-CMO firms cut their advertising in the year following the downgrade to BBB-. The two-proportion test of difference = 0 (vs. < 0) confirmed that this difference is significant (i.e., $z = 2.52; p < .01$; Fisher’s exact test yielded $p = .011$).

Further, Figure 3.8 shows that, of the B2B-CMO firms, 72% cut their advertising in the year following the downgrade to BBB- whereas 62% of the B2B-non-CMO firms did so. The two-proportion test of difference = 0 (vs. < 0) revealed that this difference is non-significant (i.e., $z = -0.86; p = .196$; Fisher’s exact test yielded $p = .299$).
Thus, these results provide at least partial support for H₃ such that marketing influence attenuates advertising cuts in B2C (but not B2B) firms.

### Results pertaining to H₂a, H₂b, H₄ and H₅

I present the results from the competing-risks regression as shown in equation (2) in Table 3.4 (model 1). The model is significant (Wald $\chi^2$ (11)model 1 = 29.75, $p < .01$), and it provides empirical support for H₄. Namely, the main effect of CMO presence is positive and (marginally) significant ($\beta_{CMO} = 0.98, p = .057$) suggesting that marketing’s influence within the firm seems to be positively related to the firm’s future credit rating trajectory.

However, H₂a, H₂b, and H₅ are not supported by model 1. The advertising main effect in model 1 captures the effect of advertising on B2C firms’ credit rating trajectory. This effect is negative but not significant ($\beta_{Advertising} = -0.71, p > .10$) suggesting that advertising cuts may not hurt B2C firms when they face the junk-crisis. Moreover, the combined coefficient of $\beta_{Advertising}$ and $\beta_{Advertising \times B2B}$ in model 1 yields the estimate of advertising’s effect on the credit rating...
### Table 3.4
Estimates from Competing-Risks Regression Models

“Failure” Event: Credit Rating Upgrade | Competing Event: Credit Rating Downgrade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1 (Wald $\chi^2 = 29.75$, df = 11, $p &lt; .01$)</th>
<th>Model 2 (Wald $\chi^2 = 27.62$, df = 13, $p &lt; .01$)</th>
<th>Model 3 (Wald $\chi^2 = 25.30$, df = 9, $p &lt; .01$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Robust SE</td>
<td>$z$</td>
</tr>
<tr>
<td>Advertising</td>
<td>-0.71</td>
<td>0.57</td>
<td>-1.23</td>
</tr>
<tr>
<td>CMO</td>
<td>0.98†</td>
<td>0.52</td>
<td>1.90</td>
</tr>
<tr>
<td>Advertising x CMO</td>
<td>0.16</td>
<td>0.62</td>
<td>0.25</td>
</tr>
<tr>
<td>B2B</td>
<td>-0.28</td>
<td>0.52</td>
<td>-0.55</td>
</tr>
<tr>
<td>Advertising x B2B</td>
<td>0.82</td>
<td>0.63</td>
<td>1.30</td>
</tr>
<tr>
<td>Size</td>
<td>0.09</td>
<td>0.11</td>
<td>0.81</td>
</tr>
<tr>
<td>Asset Sales</td>
<td>-2.74*</td>
<td>1.20</td>
<td>-2.27</td>
</tr>
<tr>
<td>Layoffs</td>
<td>-0.29</td>
<td>0.47</td>
<td>-0.61</td>
</tr>
<tr>
<td>Common Shares</td>
<td>-0.13</td>
<td>1.10</td>
<td>-0.12</td>
</tr>
<tr>
<td>Operational Leverage</td>
<td>-0.03</td>
<td>0.66</td>
<td>-0.04</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-0.05</td>
<td>0.04</td>
<td>-1.24</td>
</tr>
<tr>
<td>CMO x B2B</td>
<td></td>
<td>0.58</td>
<td>0.96</td>
</tr>
<tr>
<td>Advertising x CMO x B2B</td>
<td>-1.44</td>
<td>1.18</td>
<td>-1.22</td>
</tr>
</tbody>
</table>

Number of firms total    | 210     | 210        | 210    |
Number of firms upgraded | 48      | 48         | 48     |
Number of firms downgraded | 122    | 122        | 122    |
Number of firms censored | 40      | 40         | 40     |

†$p<.10$, *$p<.05$, **$p<.01$, ***$p<.01$ (two tailed tests)
trajectory of B2B firms. This effect is positive and non-significant ($\beta_{\text{Advertising}} + \beta_{\text{Advertising} \times \text{B2B}} = 0.11, p > .10$) suggesting that B2B firms may also not be negatively impacted by advertising cuts. Finally, the interaction between the advertising and CMO variables in model 1 is positive and non-significant ($\beta_{\text{Advertising} \times \text{CMO}} = 0.16, p > .10$) suggesting that marketing’s influence does not moderate the posited (albeit not manifest in model 1) negative effect of advertising cuts.

The earlier results showed that marketing’s influence seems to affect B2B and B2C firms differently as far as their advertising spending trajectory after being placed just above the junk-chasm is concerned. With that in mind, I added two additional variables to the model; namely, the three-way interaction among the advertising, CMO, and B2B variables and the two-way interaction between the CMO and B2B variables. I present the results from this model in Table 3.4, model 2.

Model 2 is significant (Wald $\chi^2 (13)_{\text{model 2}} = 27.62, p < .05$); However, it does not provide any additional insights beyond those provided by model 1. Of note is that the main effect of CMO presence is positive but no longer significant ($\beta_{\text{CMO}} = 0.79, p > .10$) in model 2. However, this non-effect may be caused by the presence of the three (non-significant) interactions in model 2 that contain the CMO variable.

Given that all the interactions of model 2 are non-significant, I next estimated a model that excluded these interactions. The results from this model are presented in Table 3.4, model 3. The model is again significant (Wald $\chi^2 (9)_{\text{model 3}} = 25.30, p < .01$). Of note is also that the main effect of CMO presence is now again positive and quite significant ($\beta_{\text{CMO}} = 1.2, p < .001$). However, besides the confirmation of marketing influences’ positive impact on the firms’ future credit rating trajectory, model 3 does not provide any additional novel insights.
Table 3.5
Estimates from Competing-Risks Regression Models (continued)
“Failure” Event: Credit Rating Upgrade | Competing Event: Credit Rating Downgrade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 4 (Wald $\chi^2 = 35.04$, df = 9, $p &lt; .001$)</th>
<th>Model 5 (Wald $\chi^2 = 58.08$, df = 9, $p &lt; .0001$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Robust SE</td>
</tr>
<tr>
<td>Advertising</td>
<td>0.23</td>
<td>0.50</td>
</tr>
<tr>
<td>CMO</td>
<td>0.34</td>
<td>0.66</td>
</tr>
<tr>
<td>Advertising x CMO</td>
<td>0.58</td>
<td>0.78</td>
</tr>
<tr>
<td>B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising x B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.38*</td>
<td>0.17</td>
</tr>
<tr>
<td>Asset Sales</td>
<td>-1.49</td>
<td>0.97</td>
</tr>
<tr>
<td>Layoffs</td>
<td>-0.24</td>
<td>0.62</td>
</tr>
<tr>
<td>Common Shares</td>
<td>-0.69</td>
<td>1.07</td>
</tr>
<tr>
<td>Operational Leverage</td>
<td>2.23**</td>
<td>0.72</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>CMO x B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising x CMO x B2B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of firms total: 116
Number of firms upgraded: 27
Number of firms downgraded: 66
Number of firms censored: 23

* $p<.10$, ** $p<.05$, *** $p<.01$, **** $p<.01$ (two tailed tests)
In a next step, I estimated the baseline model as shown in equation (2) separately for the B2B and B2C firms. This step was motivated by the relatively small sample sizes ($n_{B2B} = 116; n_{B2C} = 94$). I present the results from these two models in Table 3.5. Model 4 shows the results for the B2B firms and model 5 the results for B2C firms.

Both models are significant ($\text{Wald } \chi^2(9)_{\text{model } 4} = 35.04, p < .001; \text{Wald } \chi^2(9)_{\text{model } 5} = 58.08, p < .0001$). However, the results from model 4 suggest that neither advertising cuts nor marketing’s influence within the firm impact the future credit rating trajectory of B2B firms. In contrast, model 5’s results are consistent with my predictions in $H_4$ and once more suggest that marketing’s influence ($\beta_{\text{CMO}} = 1.4, p < .05$) has a significant effect on B2C firms’ future credit rating trajectory when they face the junk-crisis.

However, both model 4 and 5 include the interaction between the CMO and advertising variables which, in both cases, is non-significant (i.e., $H_5$ is again not supported here). Further, given the presence of the interaction, one needs to be cautious when interpreting the respective main effects (i.e., advertising and CMO).

Thus, given the non-significance of the advertising x CMO interaction in both models 4 and 5, I dropped the interaction term from both models and re-estimated the reduced form models in a next step. I present the results from these two models in Table 3.6 (models 6 and 7). Model 6 shows the results for the B2B firms and model 7 the results for B2C firms.

Both models are significant ($\text{Wald } \chi^2(8)_{\text{model } 6} = 35.03, p < .0001; \text{Wald } \chi^2(8)_{\text{model } 7} = 57.19, p < .0001$), and, given their relatively high Wald $\chi^2$ statistics, they seem to yield the most parsimonious results of all 7 models examined so far. Further, both models provide empirical support for $H_4$. Namely, the results from both models suggest that marketing’s influence within the firm has a significant and positive effect on the respective firms’ subsequent credit rating.
### Table 3.6
Estimates from Competing-Risks Regression Models (continued)
“Failure” Event: Credit Rating Upgrade | Competing Event: Credit Rating Downgrade

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 6 (Wald $\chi^2 = 35.03$, df = 8, $p &lt; .0001$)</th>
<th>Model 7 (Wald $\chi^2 = 57.19$, df = 8, $p &lt; .0001$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>Robust SE</td>
</tr>
<tr>
<td>Advertising</td>
<td>0.36</td>
<td>0.43</td>
</tr>
<tr>
<td>CMO</td>
<td>0.77$^*$</td>
<td>0.37</td>
</tr>
<tr>
<td>Advertising x CMO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising x B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.35$^*$</td>
<td>0.17</td>
</tr>
<tr>
<td>Asset Sales</td>
<td>-1.56</td>
<td>0.97</td>
</tr>
<tr>
<td>Layoffs</td>
<td>-0.29</td>
<td>0.59</td>
</tr>
<tr>
<td>Common Shares</td>
<td>-0.74</td>
<td>1.05</td>
</tr>
<tr>
<td>Operational Leverage</td>
<td>2.01$^{**}$</td>
<td>0.70</td>
</tr>
<tr>
<td>Financial Leverage</td>
<td>-0.05</td>
<td>0.04</td>
</tr>
<tr>
<td>CMO x B2B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising x CMO x B2B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Number of firms total 116 94
Number of firms upgraded 27 21
Number of firms downgraded 66 56
Number of firms censored 23 17

$^+p<.10$, $^*p<.05$, $^{**}p<.01$, $^{***}p<.01$ (two tailed tests)
trajectory when faced with the junk-crisis ($\beta_{\text{CMO(B2B)}} = 0.77, p < .05; \beta_{\text{CMO(B2C)}} = 1.5, p < .001$). Figures 3.9 and 3.10 further illustrate these positive effects and, with the help of CIF curves, portray the probability of a credit rating upgrade for B2B (Figure 3.9) and B2C (Figure 3.10) firms conditional on CMO presence (and all other variables set at their mean over the data).

Figure 3.9 shows that the probability of an upgrade within 1500 days (which is about the average time firms remained at BBB- prior to an upgrade) is roughly 12% for non-CMO B2B firms and near 22% for CMO B2B firms. Further, Figure 3.10 shows that the probability of an upgrade within 1500 days is approximately 7% for non-CMO B2C firms and about 23% for CMO B2C firms.

**Figure 3.9**
**Cumulative Incidence Function (CIF) Curves for B2B Firms conditional on CMO Presence**
Figure 3.10
Cumulative Incidence Function (CIF) Curves for B2C Firms conditional on CMO Presence

Model 7 also provides partial empirical support for $H_{2a}$ such that advertising cuts during the junk-crisis have a (marginally) significant negative effect on B2C firms’ future credit rating trajectory ($\beta_{\text{Advertising}(B2C)} = -0.86, p < .10$). In contrast, the results from model 6 once more confirm that advertising cuts of B2B firms do not seem to negatively affect the firms’ credit rating trajectory when faced with the junk-crisis ($\beta_{\text{Advertising}(B2B)} = 0.36, p > .10$). These results provide (at least partial) support for $H_{2b}$ which proposes that advertising cuts have less of a negative impact on B2B than B2C firms. Indeed, the results suggest that advertising cuts do not seem to matter in the case of B2B firms. Again using CIF curves, Figures 3.11 and 3.12 illustrate the negative effect of advertising cuts for B2C firms as well as the non-significant effect of such cuts for B2B firms.
Figure 3.11
Cumulative Incidence Function (CIF) Curves for B2B Firms conditional on Advertising

Figure 3.12
Cumulative Incidence Function (CIF) Curves for B2C Firms conditional on Advertising
Figure 3.12 shows that the probability of an upgrade within 1500 days is roughly 6% for B2C firms that cut their advertising and near 15% for B2C firms that do not. Figure 3.11 illustrates the non-significant effect of advertising cuts for B2B firms: The probability of an upgrade within 1500 days is about the same for B2B firms that cut their advertising as well as those that do not (i.e., somewhere between 11 and 15%).

In summary, the results from the competing-risks regressions suggest that (1) both B2B and B2C firms benefit from marketing’s influence within the firm during the junk-crisis, (2) advertising cuts during the junk-crisis harm B2C but not B2B firms, and (3) marketing’s influence does not moderate the effect of advertising cuts on the firms’ future credit rating trajectory. Thus, H₄ is supported, H₂ₐ and H₂ₖ are partially supported, and H₅ is not supported by the empirical results.

**Robustness Checks**

*Endogeneity.* A question I must address is if my advertising variable is endogenous. Specifically, it is conceivable that the advertising effect identified for B2C firms is driven by the focal firms’ product quality such that the firms that possess high product quality continue to advertise when placed at BBB- whereas the firms with poor product quality dial back their advertising spending. If this was the case, then product quality and not advertising would drive the effect of advertising found for B2C firms. I conducted two additional analyses, discussed next, to address this potential omitted variable bias.

First, I used Heckman’s two-step estimation (Heckman 1979). This estimation requires an instrument that is correlated with the advertising trajectory of the focal firms in the year after they are placed at BBB- but not with their respective product quality. I selected the advertising...
trajectory of the focal firms’ competition in the year after the focal firms were placed at BBB- as the instrument. This variable is correlated with the focal firms’ advertising trajectory. Further, at least in the short-run, it should not be correlated with the product quality of focal firms as it is unlikely that the focal firms’ product quality changed significantly in the months surrounding their downgrade to BBB-.

Considering the B2C firms, the instrument emerged as a significant predictor in the first-stage probit regression. Further, advertising’s effect becomes stronger in the (second-stage) competing-risk regression when adding the inverse mills ratio to model 7 ($\beta = -0.99; z = -1.98; p < .05$). The other effects of model 7 did not change in any meaningful way. I also repeated this analysis for B2B firms and the key findings remained unchanged.

Second, I estimated a fixed-effects regression model. In a fixed-effects regression, time-invariant unobserved factors are controlled for, and product quality of the focal firms should be time-invariant during the observation period. To estimate the fixed-effects regression, I built a panel for my focal firms that started 6 months prior to the focal firms being downgraded to BBB- and ended 3 months after their subsequent credit rating change (i.e., from BBB- to the next credit rating). I included the firms’ monthly credit rating (ranging from 1 [D] to 22[AAA]) as the dependent variable and their monthly advertising spending as the independent variable in the model. Considering the B2C firms, advertising emerged as a significant predictor in the model ($\beta = 0.000005; z = 2.85; p < .01$). Further, advertising’s effect was not significant in the fixed-effect regression considering the B2B firms of my sample ($\beta = -0.000001; z = -0.26; p > .10$).

In summary, the two additional analyses cumulatively suggest that advertising plays an important role during the junk-crisis in the case of B2C firms.

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13 I repeated this analysis using different time windows and the results did not change in any meaningful way.
Advertising measure. In my main analysis, I employ a binary measure to capture the sample firms’ advertising trajectory after they are downgraded to BBB-. However, this measure may be too rudimentary to capture advertising’s effect. To rule out this speculation, I repeated my initial analysis using a continuous measure of the firms’ advertising trajectory.

In a first step, and using the results from the forecasting model (i.e., equation 1), I determined the difference in predicted and actual advertising spending for the firms in the year after they were downgraded to BBB-. Then, I calculated the delta, expressed in percentage points, with the predicted advertising spending of the focal firms constituting 100%. For example, if the predicted advertising spending was 1000, and the actual advertising spending was 900, I used a measure of minus 10% for that particular firm in my analysis. I re-ran models 6 and 7 using the resulting measure instead of the binary advertising measure in my analysis.

Considering B2B firms, the advertising variable was positive but not significant ($\beta = 0.004; z = 0.38; p = .703$). Further, considering B2C firms, the advertising variable was positive and also failed to reach significance ($\beta = 0.038; z = 1.46; p = .144$). Note, however, that in the case of B2C firms, the z-value of the advertising variable almost reaches (marginal) significance. Thus, the key-takeaways using both the binary and continuous variable of the focal firms’ advertising trajectory are reasonably close and no additional insight can be gained from using the continuous variable.

Operationalization of marketing’s influence. Another question that I must address is if my operationalization of marketing’s influence is a valid one; i.e., if CMO presence/absence is a good surrogate measure of marketing’s influence within the firm. I employed two additional analyses to assess this potential issue.
First, as mentioned earlier, Verhoef and Leeflang (2009, p. 34) find that marketing’s influence within the firm is positively related to the market orientation of the firm ($r = .30$). In other words, while certainly not a perfect measure, market orientation may also serve as a surrogate measure of marketing’s influence within the firm and should hence be positively correlated with my measure (i.e., CMO presence/absence). Thus, I measured market orientation for my sample firms and then assessed the correlation between the two measures.

To measure the sample firms’ market orientation, I adopted the approach proposed by Noble, Sinha, and Kumar (2002) and content analyzed the letters to shareholders that appeared in the sample firms’ annual reports the year they were downgraded to BBB-. I used the orientation dictionaries developed by Saboo and Grewal (2012) and retrieved the letters from EDGAR, i.e., the firms’ filings with the SEC. Unfortunately, and in contrast to, e.g., the 10-K form, firms are not required to file their letters with the SEC. Consequently, I was able to retrieve letters for only 38% of my sample firms ($n=81$). Nevertheless, I content analyzed this sub-sample and then correlated the resulting measure with mine. The correlation between the two is positive and significant ($r = .39$), providing at least some face-validity for my measure of marketing’s influence.

Second, I also modified my binary CMO measure by adapting Finkelstein’s (1992) measure of structural power called “percentage with higher titles” (p. 512). Further, following Nath and Mahajan (2011), I subtracted from 1 the proportion of levels in the TMT above the CMO’s level. Doing so ensured that increasing values represent greater influence. The resulting variable was highly correlated with the binary CMO variable ($r = .88$), and swapping the two variables in the competing-risk regression models did not affect the model results in any meaningful way.
In summary, the binary measure of CMO presence/absence may not capture all of the intricacies of marketing’s influence within the firm; However, given these two additional robustness checks, and, considering Nath and Mahajan’s (2008), McGovern et al.’s (2004), Webster, Malter, and Ganesan’s (2003) and Boyd, Chandy and Cunha’s (2010) research, CMO presence appears to be a sound indicator of marketing’s influence within the firm.

DISCUSSION

Firms cut costs when they are struggling financially, and there is ample evidence in the literature that shows that, when this happens, more often than not advertising is cut first. One of the main reasons for these cuts is that it is often difficult to gauge the return on advertising investments. Over a century ago, Henry Ford claimed that half of his advertising spending is wasted. He continued saying that the problem is that he doesn’t know which half it is. Many executives today still agree with his viewpoint.

In this paper, I study firms that face the junk-crisis and investigate marketing’s role therein. Based on the extant literature, I posit and find that the majority of firms cut their advertising during the junk-crisis, and I also find that this line of attack can backfire in the case of B2C firms. In contrast, advertising cuts during the junk-crisis do not seem to negatively affect B2B firms. Thus, it seems that advertising cuts are a double-edge sword such that they are not always harmful for firms.

Further, marketing’s influence within the firm, as determined by CMO presence/absence in the TMT, emerged as a significant moderator of advertising cuts, but only in the case of B2C firms. That is, B2C firms in which marketing’s influence is high are less likely to cut advertising during the junk-crisis than those in which it is low. In contrast, marketing’s influence within the
firm does not seem to moderate the advertising cuts in the case of B2B firms. Given the non-effect of advertising cuts in the case of B2B firms, this finding is actually good news for B2B firms. Indeed, it seems that both B2B and B2C firms benefit from marketing’s influence during the junk-crisis as far as their advertising spending is concerned, albeit in quite different ways.

Moreover, I posit and find that marketing’s influence has a positive effect above and beyond its role in advertising. And this finding seems to hold for both B2C and B2B firms. A word of caution, however, seems warranted: Firms are unlikely to reap the positive rewards during the junk-crisis by simply putting a CMO in place. Instead, the marketing concept likely must be deeply embedded within the fabric and culture of the firm (e.g., Ouchi 1981; Deshpande and Webster 1989) and, in a sense, be part of the firm’s DNA for the positive effects to manifest.

Finally, I do not find support for H5. Thus, advertising cuts seem to hurt (B2C) firms irrespective of marketing’s influence within the firm. This finding is notable and merits further discussion. I offer the following explanation for this (non-)result: Advertising cuts must occur for the hypothesized effect to occur. However, in this study, I find empirical support for the hypothesis that such cuts are attenuated in B2C firms by marketing’s influence. In other words, marketing’s influence should, on average, be low in the B2C firms that cut their advertising. Also, the cuts do not seem to harm B2B firms in the first place. Thus, the hypothesized effect may in fact not be able to manifest itself.

Further, another plausible explanation for this non-finding may be that making advertising more effective takes time and, for example, may require the collaboration with a new advertising agency. Future research may want to take a case-study approach and (e.g.) examine if and how firms alter their advertising and creative strategy when faced with the junk-crisis.
(conditional on CMO presence) and determine the performance consequences of the emerging approaches.

**Theoretical and Managerial Implications**

Advertising spending cuts are ubiquitous when firms face financial difficulties. Here I find that such cuts are not necessarily bad when firms face the junk crisis. Indeed, B2B firms seem to be affected little by them. In contrast, B2C firms seem to be significantly and negatively affected by advertising cuts during the junk-crisis. Thus, this study adds to the body of literature that shows that advertising is not necessarily discretionary spending but can be an integral and valuable resource for the firm (e.g., Chakravarty and Grewal 2011; Mizik and Jacobson 2007; Mizik 2010). Hopefully managers of both B2B and B2C firms will take these findings into consideration if and when the time comes.

Moreover, in recent years, the marketing function has been increasingly urged to reveal its impact on firm performance (e.g., Rust et al. 2004; McAlister et al. 2007). Marketing influences’ strong and positive impact during the junk-crisis is quite remarkable and should help marketers defend their position at the strategy table and beyond.

Further, while not the focus of this study, it adds to the nascent literature on the CMO’s performance implications. This literature has yielded somewhat ambivalent results in recent years. For example, in 2003, Weinzimmer and colleagues (2003) suggested that CMO presence positively affects sales growth. However, Nath and Mahajan (2008) failed to document such positive performance implications and, not surprisingly, these (non-)results have provoked quite a bit of debate in the business press. Frazier (2007), for example, urged CMOs to “hide this
publication” because CMOs are being “rapped for having zero impact”. Unfortunately and to Frazier’s likely dismay, Kashmiri and Mahajan (2010) reported similar (non-)results.

Recent findings from the academic literature, however, have painted a somewhat friendlier picture about the CMO’s performance implications. For example, Boyd, Chandy and Cunha (2010) found that the impact of CMOs on firm performance depends on the managerial discretion available to them (Hambrick and Finkelstein 1987), and Nath and Mahajan (2011) found that powerful CMOs have a positive impact on sales growth. Thus, both these studies suggest circumstances under which CMOs drive firm performance. However, both studies also put out a strong call for additional research. For example, Boyd, Chandy and Cunha (2010, p. 1174) assert that “the CMO remains a rather enigmatic creature in academic literature” and “the scarcity of …research …is lamentable.” Similarly, Nath and Mahajan (2011, p. 74) urge for additional research to “shed further light on the issue of CMO presence”. This study at least partially responds to these calls and shows that the presence of a CMO significantly (and positively) affects the firm’s credit rating trajectory during the junk crisis. Also, the relatively high positive correlation between CMO presence and market orientation is notable, especially considering the by-and-large positive performance implications attributed to a firm’s market orientation (e.g., Kirca, Jayachandran and Bearden 2005). Of course, and as mentioned above, these findings must be viewed with a grain of salt such that the mere presence of a CMO is unlikely to yield the positive effects discovered.

Finally, this study also adds to the emerging literature on myopic marketing management (e.g., Mizik and Jacobson 2007; Mizik 2010; Chakravarty and Grewal 2011). This literature has shown that managers often (i.e., not just during crises) try to artificially inflate earnings by cutting marketing spending. It also calls for research that develops a better understanding of the
mechanisms that drive and/or influence myopic management (e.g., Mizik 2010). This study responds to this call and suggests that myopic marketing management (i.e., marketing spending cuts) may be attenuated if marketing’s influence within the firm is high. Future research should investigate whether marketing influences’ positive effect also manifests in non-crisis events such as, for example, seasoned equity offerings (Mizik and Jacobson 2007).

**Limitations and Future Research**

While I believe that I have broken some new ground with this research, it has clear limitations, several of which provide avenues for future research. First, there is no doubt that at times, B2C firms may benefit from advertising cuts, even during the junk-crisis. For example, Srinivasan, Lilien and Sridhar (2011) show that many B2C service firms overspend on advertising during a recession. Recessions, of course, are exogenous and not endogenous crises such as the one I examine here. Nevertheless, future research should examine how firm-level contingencies beyond the product-market profile of the firm (i.e., whether it operates in the B2B or B2C marketplace) - for example, the firm’s market share - affect the performance implications of advertising cuts.

Second, in this study, I investigate how advertising spending cuts affect a firm’s credit rating trajectory. However, firms can alter other marketing mix variables during the junk-crisis as well, such as those related to distribution (e.g., add or close distribution channels) or pricing (e.g., offer promotions and discounts). Advertising and non-advertising approaches are, of course, frequently aligned in an integrated marketing communications framework. Indeed, it might be that B2C firms benefit from advertising during the junk crisis primarily because they use it to announce sales promotions and discounts. Future research should investigate this
hypothesis and, more generally, examine the role of other marketing mix elements, i.e., beyond advertising, during the junk-crisis.

Third, marketing’s influence as determined by CMO presence seems to play a remarkable role during the junk-crisis. However, besides deriving the effect theoretically, this study does not examine the exact inner workings of the effect. Future research should investigate boundary conditions and/or contingencies that may attenuate or augment this effect.

Fourth, my results are based on, and limited to, large U.S. firms (i.e., Fortune 1500 firms). It would be useful to extend this work to other geographies and to the much larger universe of medium-sized and small firms.

Despite these limitations, I believe that beyond their theoretical interest, the findings should prove useful for managers who may face the junk or similar crises at some point in their career. Further, marketing influences’ noteworthy effect during the junk-crisis should give marketers confidence when questioned about the disciplines performance implications. Incidentally, in late August of 2011, just a few weeks after the historic credit rating downgrade, the US hired its own CMO (Parekh 2011). Considering the results from this study, it appears that this was a smart move.
Chapter 4

CONCLUSION

This research seeks to investigate marketing’s role during two different types of firm-crises: product recalls (essay 1), and the junk-crisis (essay 2). Both essays suggest that marketing plays a noteworthy role during these two types of crises and hence add to the firm-crisis literature (e.g., Grewal and Tansuhaj 2001; Pearson and Clair 1998; Smart and Vertinsky 1984).

Moreover, both essays are embedded in the broader marketing-finance interface literature and reveal that marketing has significant and, for the most part, positive performance implications for firms during product recalls and the junk-crisis. This finding is notable considering that marketing as a discipline has been increasingly urged to reveal its impact on firm performance.

For example, Rust et al. (2004, p. 76) assert that “for too long, marketers have not been held accountable for showing how marketing expenditures add to shareholder value.” In their opinion, this lack of accountability has “undermined marketers’ credibility, threatened the standing of the marketing function within the firm, and even threatened marketing’s existence as a distinct capability within the firm.” They hence put out a strong call for research that investigates marketing’s performance implications.

Similarly, McAlister, Srinivasan and Kim (2007) argue that marketing needs to speak in the language of finance to gain respect from the firm’s senior management and finance executives. In their words, “senior management and finance executives….do not value marketing performance metrics (e.g., awareness, sales growth, loyalty, customer satisfaction, repeat purchase) because they do not understand how or even whether these metrics are of interest to the firm’s shareholders” (p. 35). Consequently, McAlister, Srinivasan and Kim (2007) stress that
marketing research must study financial metrics and processes that senior management (as well as finance executives) can relate to.

Moreover, as firms struggle to produce profits in increasingly competitive environments, calls to justify marketing investments are growing. Hence, there are now few marketing executives who are not demanding more scientific evidence to help defend marketing and brand building strategies to the chief financial officer (e.g., Marketing News 2009). In the absence of such evidence, many firms are cutting back on their marketing and brand building investments (e.g., Shoebridge 2009). Against this backdrop, Grewal et al. (2009, p. 117) state that “the importance of justifying marketing investments…..have taken center stage,” and they put out a strong call for research that sheds light on marketing’s performance implications.

Both essay 1 and essay 2 respond to these calls. The findings from essay 1’s event study show that Wall Street’s reaction to product recalls is significantly influenced by marketing’s most valuable intangible asset – brand equity. Moreover, essay 2 reveals that marketing’s influence within the firm significantly (and positively!) impacts firms’ credit rating trajectories when they face the junk-crisis. Senior management is well aware (and fearful) of the negative implications a downgrade to junk would entail. Hence, the findings from essay 2 will hopefully provide meaningful insights for senior management and strengthen the standing of the marketing function within the firm.

Essays 1 and 2 also independently contribute to marketing theory and practice in several ways. First, essay 1 contributes to the product recall literature by systematically exploring how brand equity affects the usually negative consumer responses to product recalls. It is well known that consumers’ experiences and judgments of events frequently occur against the backdrop of some frame of reference (e.g., Eagly and Chaiken 1993; Biernat 2005). That is, standards and
expectancies are known to serve as critical anchors against which current events are experienced and judged. This judgment can be characterized as either assimilative or contrastive in nature. Cumulatively, the three studies of essay 1 provide evidence that brand equity serves as such an anchor when product recalls occur. The results also show that the anchoring role of brand equity can be either assimilative or contrastive in recall settings. Namely, the results suggest that consumers who think highly of the recalled brand assimilate low severity recalls as standard, whereas they contrast high severity recalls in the opposite direction.

Second, essay 1 also contributes to the brand equity literature. To the best of my knowledge, essay 1 is one of the first studies to pinpoint circumstances under which brand equity may serve as a liability. I start my theorizing with two seemingly conflicting logics. On the one hand, brand equity may provide a reservoir of goodwill by endowing the recalling firm with idiosyncrasy credits that safeguard against the negative effects of recalls. On the other hand, it is conceivable that consumers may come to expect more from a brand with high equity and thus be especially disappointed when a high equity brand is recalled. Consequently, the negative repercussions from the disclosure of a product recall may in fact be stronger for high versus low equity brands. I unravel these two plausible logics by adopting the assimilation-contrast framework. Specifically, by introducing a moderator – recall severity, a key aspect of any recall event – I theoretically derive that while brand equity provides a reservoir of goodwill in low severity arguments, it serves as a liability in high severity recalls.

Third, essay 2 adds to the body of literature that shows that advertising is not necessarily discretionary spending but can be an integral and valuable resource for the firm (e.g., Chakravarty and Grewal 2011; Mizik and Jacobson 2007; Mizik 2010), especially in the case of B2C firms.
Fourth, essay 2 also adds to the nascent literature on the CMO’s performance implications. There has been much debate in the extant literature regarding the performance implications of CMOs, and, unfortunately, much of the debate has been ambivalent. Consequently, there continue to be many skeptics who question if and how CMOs add to firm value. This skepticism may be at the root of the (continuing) low tenure of CMOs, which has recently been estimated to be somewhere at around 20 months (e.g., Engler 2011). Likewise, given the hitherto conflicting findings in the literature, boards of directors may conclude that marketing does not deserve a seat at the strategy table, an outcome that would greatly diminish marketing’s role and influence in firms. The findings from essay 2 suggest that firms that employ a CMO are significantly less likely to be downgraded to speculative grade when faced with the junk-crisis. This finding should help marketers defend their position at the strategy table and beyond.

Fifth, essay 2 also contributes to the emerging literature on myopic marketing management (e.g., Mizik and Jacobson 2007; Mizik 2010; Chakravarty and Grewal 2011). This literature has shown that executives frequently cut marketing spending in an effort to artificially inflate short-term firm performance at the cost of long-term firm performance. Essay 2 suggests that myopic marketing management may be less prevalent in firms in which marketing’s influence is high. Namely, marketing’s influence within the firm may attenuate the generally detrimental marketing spending cuts thereby improving the firm’s long-term performance.

Sixth, beyond the theoretical implications, the two essays’ findings should prove useful for managers who are likely to face a product recall or the junk-crisis at some point in their career. Managers can use the findings from essay 1 to predict consumer responses to their recalls. If their firms possess only low levels of brand equity, they can expect relatively negative
consumer responses, regardless of the severity of their recalls. In contrast, managers of firms with high brand equity can expect relatively mild consumer responses to a low severity recall, but they need to anticipate very negative responses to high severity recalls. Further, essay 2’s findings should help managers decide on their advertising spending strategy should they face the junk-crisis, and, more generally, help senior management appreciate the marketing concept and its (sometimes elusive) performance implications. Finally, the empirical results from both essays should raise marketers’ confidence when questioned about the disciplines performance implications.

In summary, the two essays that form this dissertation pinpoint performance implications of marketing that extant research has so far not considered. I hope that my findings will prove provocative and spawn additional work in this important area.
APPENDIX A

Brand Equity Measure (adapted from Brady et al. 2008)

1. How loyal are you to this brand ("not at all loyal" to "very loyal")
2. What kind of attitude do you have about this brand ("negative attitude" to "positive attitude")
3. What kind of image does this brand have ("negative image" to "positive image")
4. How would you rate the quality delivered by this brand? ("low quality" to "high quality")
5. Would you be willing to pay more for this brand than you would for another brand in the same product category? ("definitely not" to "definitely")
APPENDIX B

Target Messages

High severity message, smartphone category

Apple (Sanyo) Inc. expected to recall millions of iPhones (SCP-2700 smartphones) following a study that links the popular smartphone to deadly brain hemorrhages.

“A team of independent researchers, led by Stanford scientist Dr. Peter Takeyama, has discovered a shocking association: Apple’s iPhone (Sanyo SCP-2700 smartphone) users are 207 times more likely to suffer from potentially life threatening brain hemorrhages than users of other smart- and cell phones. Brain hemorrhages are usually caused by a spontaneous bleeding within the brain tissue. According to the scientific report, multiple iPhone (Sanyo SCP-2700) features combine together to facilitate this traumatic brain injury. However, low frequency radio waves and an extremely powerful EVO battery – features not shared by other smart- or cellphones - are singled out as most likely to cause this perilous outcome. Takeyama’s team’s 18 month long investigation was motivated by a recent upsurge in brain hemorrhages, which have more than quadrupled since 2007. Rocker Bret Michaels, 47, and actor Gary Coleman, 42, who were sidelined by brain hemorrhages, are two recent examples that made news all over the country. Coleman succumbed to the hemorrhage, Michaels lived. Both were avid iPhone (Sanyo SCP-2700) users. Cofounder and CEO Steve Jobs (Masami Murata, CEO of Sanyo USA) will be holding a press conference within the next hours. Industry experts expect that Apple (Sanyo) will stop selling its popular smartphone immediately and that it will be forced to announce what may become known as the product recall of the decade.”
High severity message, shampoo category

Pantene Pro-V (White Rain) shampoo linked to hair loss

“Watch out America! Your shampoo may actually be causing your hair to fall out. After a 260% increase of complaints filed at the Consumer Product Safety Commission involving hair loss over the past 9 months, an independent research team at Stanford University has linked the problem to the new Pantene Pro-V (White Rain) Thin Hair Solutions shampoo. Researchers have found that polyquaternium-10 combined with methylisothiazolinone, chemicals used exclusively in the new Pantene (White Rain) formula, stimulate the hormone which causes hair loss. Consumers have complained of a noticeable increase in hair left over in the shower after using the shampoo for a week or more. In extreme cases, Pantene (White Rain) users have lost over 60% of their hair. Pantene (White Rain) officials have announced this morning that they will recall all of its Hair Solutions series shampoo. For more information, go to www.pantene.com (www.whiterain.com) or www.cpsa.gov.”
Low severity message, smartphone category

**Apple (Sanyo) recalls iPhone (SCP-2700 Smartphone)**

“Apple (Sanyo) Inc. has announced this morning that it is recalling about 5,000 iPhones (SCP-2700 Smartphones) due to a manufacturing mistake in the batteries. The battery life of the iPhone (SCP-2700 Smartphone), which is advertised as 300 hours on standby, actually only lasts for about 30 hours and after about 6 months of recharging – it quits all together. Apple co-founder and CEO Steve Jobs (Masami Murata, CEO of Sanyo USA) has issued a statement this morning, saying that there was a faulty manufacturing process in the new battery that has since been found and fixed. All iPhones (SCP-2700 Smartphones) that have been affected by this problem will receive new batteries. For more information and to see if your phone is affected, go to www.apple.com (www.sanyo.com) or www.cpsa.gov.”

Low severity message, shampoo category

**Pantene Pro-V (White Rain) shampoo recalled**

“In today’s difficult economy, many firms avoid price increases by simply decreasing product sizes. However, hair care products maker Pantene (White Rain) has announced this morning that it has unintentionally done just that with its shampoo. About 5,000 bottles of its Pantene Pro-V (White Rain) Thin Hair Solutions Shampoo have been shipped with approximately 15% less content than listed on the bottle. According to company officials, the problem in Pantene’s (White Rain’s) manufacturing process has been identified and fixed and all bottles that are being shipped now contain the appropriate amount of shampoo. Pantene (White Rain) has recalled the light bottles and is issuing a full refund for the affected customers. For more information, go to www.pantene.com (www.whiterain.com) or www.cpsa.gov.”
REFERENCES


VITA
Frank Germann

Education

Smeal College of Business, Pennsylvania State University  August 2012 (expected)
PhD in Business Administration

Eberly College of Science, Pennsylvania State University  August 2012 (expected)
Master of Applied Statistics

Mendoza College of Business, University of Notre Dame  May 2005
Master of Business Administration

European School of Business, Reutlingen University  July 2001
Diplom-Betriebswirt

Université de Savoie  July 2000
Diplôme d’Université

Research Interests

My research interests are in the area of marketing strategy. More specifically, I am interested in how marketing assets (e.g., brand equity) and marketing actions (e.g., the use of marketing analytics) influence firm performance.

Honors and Awards

Ossian R. MacKenzie Doctoral Teaching Award, Smeal College of Business, Pennsylvania State University (2011); AMA-Sheth Foundation Doctoral Consortium Fellow, Oklahoma State University (2011); Competitive Dissertation Summer Stipend Award, Smeal College of Business, Pennsylvania State University (2010 & 2011); Scott Award (co-winner), Department of Marketing, Pennsylvania State University (2010); Haring Symposium Fellow, Presenter, Indiana University (2010); Institute for the Study of Business Markets (ISBM) Scholarship, Pennsylvania State University (2010 - 2012); Small Research Grant Award, Smeal College of Business, Pennsylvania State University (2009, 2010, 2012); Overall Best Conference Paper Award & Best Paper in Brand Marketing and Communication Track Award, American Marketing Association Winter Educators’ Conference, New Orleans, LA, February 2010; Best Comprehensive Examination Award (co-winner), Department of Marketing, Pennsylvania State University (2009); Best Candidacy Examination Award, Department of Marketing, Pennsylvania State University (2008).

Industry Experience

Johnson&Johnson Switzerland (Regional Sales Manager; Product Specialist); Hewlett-Packard Germany (Consultant); Hewlett-Packard Spain (European Quality Manager; Quality Lead); Ecostar Electric Drive Systems (Ford Motor Co) USA (Intern); IBM USA (Intern).