

# .... RESEARCH NOTES AND COMMUNICATIONS

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In this article, the authors examine the circumstances in which brand names convey information about unobservable quality. They argue that a brand name can convey unobservable quality credibly when false claims will result in intolerable economic losses. These losses can occur for two reasons: (1) losses of reputation or sunk investments and (2) losses of future profits that occur whether or not the brand has a reputation. The authors test this assertion in the context of the emerging practice of brand alliances. Results from several studies are supportive of the premise and suggest that, when evaluating a product that has an important unobservable attribute, consumers' quality perceptions are enhanced when a brand is allied with a second brand that is perceived to be vulnerable to consumer sanctions. The authors discuss the theoretical and substantive implications for the area of brand management.

## Signaling Unobservable Product Quality Through a Brand Ally

The area of brand management recently has begun to receive renewed scrutiny in the marketing literature. Research symposia, special sessions at conferences, and an entire issue of the *Journal of Marketing Research* have been devoted to research on the meaning and measurement of "brand equity" (e.g., Park and Srinivasan 1994; Simon and Sullivan 1993), issues related to extending a brand name

into new categories (e.g., Broniarczyk and Alba 1994; Loken and John 1993), and managerial actions that can be taken to enhance brand differentiation and profits (e.g., Boulding, Lee, and Staelin 1994; Zenor 1994). In addition, the popular business press suggests that brands increasingly are becoming a key strategic asset of firms. Apparently, brand names have significant monetary value (Aaker 1991).

One important theoretical perspective that informs the monetary underpinning of a brand name is signaling theory in information economics (Spence 1973). According to this perspective, because branded products that falsely claim high quality stand to lose (1) investments in reputation (e.g., brand equity) and (2) future profits, a branded product's claim about unobservable quality will likely be true (Erdem and Swait 1998). In other words, consumers rationally should infer that a branded seller's claims about unobservable quality are credible because false claims would lead to monetarily unattractive outcomes (Tirole 1988). Consequently, a brand name can be an effective signal of unobservable quality. We adopt this perspective in our research and propose that a brand's signaling power can emerge from

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two sources: (1) dissipative signals, which involve an up-front expenditure in reputation building that will be forfeit should quality turn out to be poor, and (2) nondissipative signals, which do not involve any up-front expenditure but place only future profits at risk (roughly corresponding to Bhattacharya 1980). In the case of the second type of signal, regardless of whether it has invested in reputation building activities in the past, a brand may be able to signal unobservable quality. As we discuss next, we examine this issue in the context of an emerging marketing practice—the formation of brand alliances (Rao and Ruekert 1994).

### CONTEXT

Much of the current academic research, as well as writing in the popular business press, focuses on individual brands that have an independent and distinct identity. However, as Simonin and Ruth (1998) recently discussed, brands often exist in conjunction with other brands within the same product. For example, Diet Coke and NutraSweet are physically and perceptually intertwined, IBM (and other) computers use Intel chips, and a recently launched line of ice cream cordials features Häagen-Dazs in combination with various branded liqueurs. In addition, two or more brands may be featured in joint promotions, even though they are not physically integrated (e.g., television commercials featuring Oscar Mayer and Mail Boxes Etc.). Following Rao and Ruekert (1994) and Simonin and Ruth (1998), we define such *brand alliances* to include all circumstances in which two or more brand names are presented jointly to the consumer. These alliances range from multiple brands that are physically integrated in a product (as in the case of Apple and Motorola) to multiple brands that simply are featured in joint promotions (e.g., Bacardi Rum and Coca-Cola). Furthermore, a new or unknown brand could ally with one that is well known (e.g., when NutraSweet initially allied with Coca-Cola), or two or more well-known brands could form an alliance (e.g., Eddie Bauer and Ford). This phenomenon, when two or more brand names are featured simultaneously in a product context, is the focus of our research.

Although brand alliances are formed for a variety of reasons, ranging from the desire to gain mutual access to proprietary markets (e.g., Northwest Airlines and KLM) to the attempt to encourage affect transferal (e.g., Lexus and Coach), there exists little systematic empirical examination of the issue in the academic literature. Consequently, brand alliances present several complexities about which existing theory in marketing is largely mute. Specifically, though there exist commonsense prescriptions, such as ensuring that the allies “fit” in some way (Simonin and Ruth 1998), it is unclear what circumstances favor the formation of a brand alliance and why, as well as what other specific characteristics may make one brand an appropriate ally relative to another.

Our article attempts to offer one theoretically based perspective on the issue. Drawing on the signaling notion that brand names may communicate unobservable quality, we develop and test the argument that the conjoining of two (or more) brands may have the desirable consequence of enhancing consumers’ quality perceptions of the jointly branded product when quality is not readily observable. This occurs when the second brand (i.e., the brand ally) credibly

communicates a level of quality that the first brand is unable to communicate by itself. As we develop in this article, the credibility of the brand ally is driven in part by its vulnerability to consumer sanctions (i.e., economic sanctions such as boycotts) should the claim of high quality turn out to be false. These sanctions may result in a brand losing prior investments in reputation or future profits (whether or not it has a reputation). Thus, for example, when NutraSweet first was introduced, concerns about its potential harmful health effects were only allayed after Coca-Cola, Pepsi, and other such credible brands (i.e., brands that could be hurt by adverse publicity if NutraSweet turned out to be harmful) “endorsed” the unobservable quality of NutraSweet by incorporating it into their diet formulations (Rao and Ruekert 1994). We propose that a reputationless brand with future profits at stake also could have allayed fears successfully about the harmful health effects of NutraSweet.

Our article offers the first systematic empirical examination of a brand ally’s ability to communicate unobservable product quality. (Our focus is not on the more traditional issue of attribute or affect transferal [i.e., when Brand A has a proprietary technology or image that Brand B desires, and/or vice versa], not because that issue is uninteresting, but because there is a large literature on multiattribute models that can be applied directly to understanding that phenomenon.) We report on two studies that address our predictions regarding the circumstances in which an alliance with a particular type of brand can yield enhanced perceptions of product quality.

### REVIEW OF LITERATURE

Although it is not controversial that brand names are an important marketing tool, or that brand names are generally a good long-term marketing investment (Kotler 1994), it is less clear precisely why brand names are beneficial. One school of thought suggests that brand names enhance consumer perceptions of product quality because brand names carry meanings that consumers come to value (Gardner and Levy 1955; for a meta-analysis of the empirical link between brand name and perceived product quality, see Rao and Monroe 1989). Another complementary perspective suggests that brand names have utility because they are sources of information that identify the manufacturer, and this information should limit any tendency on the part of manufacturers of low quality to claim high quality because such behavior will (when detected) be associated with the brand in question and will affect future sales and profits negatively (Wernerfelt 1988). This second perspective falls under the rubric of signaling models in information economics and is examined next.

#### *Applying Signaling Theory to Brand Names*

Often, product quality is not readily observable to buyers prior to purchase but is revealed fully after purchase (a class of products termed “experience goods”; Nelson 1974; Wright and Lynch 1995). Furthermore, the level of quality is generally not opaque to the seller, and this differential level of information between buyers and sellers creates the well-known problem of “information asymmetry” (Akerlof 1970; Kreps 1991). A *signal* is an action that the seller can take to convey information credibly about unobservable product quality to the buyer. For example, one signal is the offer of

a good warranty (Boulding and Kirmani 1993; Cooper and Ross 1985; Grossman 1981). If the sellers' product is of poor quality, it would be foolish to offer a good warranty, because presumably, warranty fulfillment costs would be higher for poor quality products because they are likely to have higher failure rates. Conversely, sellers of high quality products can afford to offer good warranties because the likelihood that they will have to honor those warranties is relatively low.<sup>1</sup> Similarly, advertising expenditure can serve as a signal because such expenditures will be incurred only by honest, high quality firms that can recoup their advertising expenditures from future sales. If a low quality firm were to advertise heavily, it likely would not recover the advertising expenditure because consumers would discover its low quality after purchase and use, and repeat purchase would not occur. (If purchases in the first period provide sufficient compensation for the advertising expenditure, however, such expenditures do not serve as a signal.) In essence, therefore, a signal is a credible and informative action because those attempting to signal dishonestly would suffer harmful monetary consequences. According to the information economics literature on brands, under information asymmetry, brand names also can serve as a signal of unobservable quality.

*Brands names as signals of unobservable quality.* If the claim associated with a brand is one of high quality and the brand turns out to be of poor quality, consumers can punish the brand (Montgomery and Wernerfelt 1992; Wernerfelt 1988). Driven principally by the withholding of repeat purchase, this punishment may range from simply exiting the market to engaging in negative word of mouth or calling for regulatory action. On occasion, the negative outcome may turn out to be disproportionately severe; that is, after quality debasement is discovered, the offending brand may fare worse than low quality brands because this brand may have no customer franchise among consumers of low quality (Rao and Ruekert 1994; Wernerfelt 1988). Because such punishment will be monetarily detrimental to the seller, the provision of a brand name can serve as a quality assurance device. Branded products are likely to be of higher quality than unbranded products, and brand names therefore can function as effective signals of unobservable quality. Consumers who believe this logic will accept the branded product's quality claim as true.

According to much of the extant literature, the ability of a brand name to signal unobservable quality is based on the potential loss of prior brand equity-related investments in reputation (Erdem and Swait 1998). In other words, consumers can punish firms by withholding future purchases; consequently, sunk investments in brand equity-building activities are irrevocably lost. This investment can be thought of as a "bond" that the brand offers; the higher the bond (i.e., the greater the dollar amount spent on building a reputation), the more credible the signal is (Ippolito 1990). Implicitly, therefore, if a brand has not invested in brand-

building activities, its ability to use the brand name signal should be affected adversely.

However, we argue that it is still feasible for a reputationless brand to signal quality by exposing future sales and profits to risk. In other words, consistent with Wernerfelt's (1988) argument that umbrella brands are useful signals because they expose profits in allied markets to risk, we argue that a brand can offer a bond other than prior investments in reputation. One such bond is future profits that would be forfeit if the brand claiming high quality were to offer low quality. Therefore, though the principle (loss of money) is the same in the case of reputable and reputationless brands, the mechanism is different. A reputable brand already has spent money that will be forfeit if it offers low quality (a dissipative signal), whereas a reputationless brand can, without spending money, claim to be credible because it will lose money in the future should it offer low quality (a nondissipative signal) (Bhattacharya 1980). This distinction on how brand names successfully can signal quality is a key subtlety that distinguishes our approach from that of extant approaches (e.g., Erdem and Swait 1998) and, as the results from our empirical studies suggest, is potentially a managerially useful distinction.

The argument thus far has emphasized the logic that, in the event the brand offers low quality, the bond is forfeit because consumers will take some action that will harm the brand. However, consumers' ability to hurt a brand depends on how vulnerable the brand is to consumer sanction. In other words, the vulnerability of the brand signal to consumer sanction may vary depending on the degree to which consumers can identify and punish a brand that offers low quality. For example, if a brand caters to three large automobile manufacturers that are geographically close, as opposed to catering to three aerospace buyers that are located in three different continents, the likelihood that low quality in the first case will lead to speedy negative publicity and consumer sanction by all three customers is relatively higher. By the same logic, a brand that is diversified (e.g., 3M, which caters to multiple markets through more than 60,000 stockkeeping units) offers a less vulnerable bond than one that is not (e.g., McDonalds, which caters to essentially one market, with a small assortment of homogeneous products), because it is more costly for consumers to seek out and destroy every tentacle of a diversified firm. Even a reputationless brand that stakes future profits (a nondissipative signal) is credible only if these future profits can be influenced negatively by consumers relatively easily. If it is costly to harm the future profits of such a brand, then the credibility of the nondissipative signal is lower. (This argument is fundamentally similar to the argument in investment portfolio theory, according to which the riskiness of a portfolio of investments is related inversely to the degree to which it is diversified; Fama and Miller 1972.) In summary, the degree to which a brand's signal is bonded is a function of not only the amount of money at stake (either in terms of sunk costs or future profits), but also the degree to which these monies are vulnerable to future consumer sanction in terms of the cost to the consumer in effecting monetary damage.

*The brand ally as a signal of unobservable product quality.* We now turn to the second element of our research question. As we argued previously, brand names are credible sig-

<sup>1</sup>This strategy will work only if the provision of a good warranty by a poor quality seller raises his or her costs (and price) to a level higher than that of the high quality seller. If the poor quality seller can offer a good warranty and successfully absorb the higher costs of warranty fulfillment through charging a higher price (which is still lower than that of the high quality seller), warranties will not be a successful signal of quality.

nals of quality when they post vulnerable bonds based on either (1) past expenditures on brand equity or reputation-building activities or (2) future sales and profits at risk. However, when a brand cannot successfully signal its high quality by itself (perhaps because, similar to NutraSweet when it first entered the market, it is a new brand and therefore has no reputation), it would be appropriate for it to consider alternative means of signaling its high quality to the marketplace. Credible and enforceable warranties are one such mechanism (Grossman 1981). Alternatively, an unknown brand might signal high quality by selling through a reputable retailer (Chu and Chu 1994). Another signaling mechanism, which forms the focus of this research, is to enter into an alliance with a second brand that can assist in credibly signaling high quality to the marketplace.<sup>2</sup> The premise here is that the second brand in the alliance successfully signals the quality that the original brand could not signal by itself. The source of the second brand's signaling ability could be its vulnerability to loss of either (1) investments in reputation (a dissipative signal) or (2) future profits independent of its investments in reputation (a nondissipative signal).

Notice that we simply have taken our theoretical argument regarding the utility of a brand name as a signal and applied it to the brand alliance context. As we discuss in a subsequent section, managers' beliefs about the prospect of consumer sanctions likely drive their attempts to ensure that their brand names are not associated with low quality products. Consequently, consumer beliefs that brand allies are credible endorsers of unobservable quality indeed might be rational.

To summarize, a brand's (or brand ally's) ability to signal quality depends on the size and vulnerability of its (1) sunk investments in brand reputation at risk and/or (2) future profits (independent of its investments in reputation) at risk. The bond in the former case can be viewed as the amount of brand-related advertising performed in the past, other product design and development activity, and the like (elements of brand equity) that will be forfeit if consumers boycott the brand should it be caught offering low quality, whereas the bond in the latter case can be viewed as the amount of profits that will be forfeit if consumers costlessly can identify all the products associated with a brand that has offered low quality and withhold future purchases.

### HYPOTHESES

The principal predictions that emerge from our theory are captured in two interaction hypotheses that predict different quality perceptions depending on quality unobservability and the credibility of the signal (dissipative and nondissipative) provided by the brand ally.

**H<sub>1</sub>:** Overall perceptions of quality for a product featuring a brand alliance will vary, depending on the observability of the product's quality and the credibility of the nondissipative signal provided by the brand ally.

Specifically, focused tests should reveal that

**H<sub>1a</sub>:** When the observability of product quality is low, overall perceptions of quality will be higher when the nondissipative signal provided by the brand ally is vulnerable to consumer sanction, relative to when this signal is not vulnerable to consumer sanction.

This prediction is based on the rationale that the vulnerability of the ally to future sanctions makes the quality claim credible when quality is unobservable. When the brand ally is not vulnerable to future sanctions, its implicit endorsement is relatively less credible because, if the quality claim turns out to be false, consumers will find it costly to harm the ally. Consequently, under low observability of quality, quality perceptions should be higher when the brand ally is easy to punish.

**H<sub>1b</sub>:** When the observability of product quality is high, overall perceptions of quality will not be significantly different, regardless of the vulnerability of the nondissipative signal provided by the brand ally.

In this case, the observability of quality makes the ally's signal irrelevant because the claim can be verified through inspection. Consequently, if the claim is observed to be true, quality perceptions will be high, regardless of the vulnerability of the ally.

Using the same rationale, it is possible to predict effects on the basis of the dissipative signal provided by the brand ally:

**H<sub>2</sub>:** Overall perceptions of quality for a product featuring a brand alliance will vary, depending on the observability of the product's quality and the credibility of the dissipative signal provided by the brand ally.

Specifically, focused tests should reveal that

**H<sub>2a</sub>:** When the observability of product quality is low, overall perceptions of quality will be higher when the dissipative signal provided by the brand ally is vulnerable to consumer sanction, relative to when this signal is not vulnerable to consumer sanction.

Again, this prediction is driven by the rationale that, under low observability, when the brand ally is vulnerable to consumer sanction because it has a valuable asset that will be lost should it falsely claim high quality, its claims about unobservable quality are credible.

**H<sub>2b</sub>:** When the observability of product quality is high, overall perceptions of quality will not be significantly different, regardless of the vulnerability of the dissipative signal provided by the brand ally.

Here again, because the claim can be verified by inspection, the signal provided by the ally is irrelevant.

In the interest of brevity, we do not formally propose an exhaustive set of hypotheses for all possible main and interaction effects. However, we report and discuss significant results of interest subsequently.

To test our predictions, an experiment was conducted in which three factors were manipulated: the observability of quality, the nature (or type) of the signal communicated by the brand ally, and its credibility. In a second study, we replicate a portion of the first study with some methodological changes and find identical results.

<sup>2</sup>Although not germane to this research, an obvious question centers around which of the several available signaling mechanisms (warranties, channel alliances, brand alliances, and so on) should be chosen.

## METHODOLOGY

### Overview of Methodology

To test the assertions suggested by the theoretical development, several different approaches were considered. Because of the paucity of reliable secondary data and the potential advantages of experimentation in theory testing, it was decided that an appropriate methodological approach would be a traditional, between-subjects, multifactor experiment. In this design, the impact of the credibility of the two types of signals, as well as the observability of the product's performance, could be manipulated directly. The key dependent variable would be the perception of product quality for the jointly branded product.

Pretesting focused on the development of appropriate stimuli, manipulations, and dependent variables, as well as the identification of potential problems with the instrument, procedures, transparency of hypotheses (yielding demand artifacts), and the like. Subsequently, in the formal data collection exercises, mall-intercept subjects were assigned randomly to one of several experimental conditions and requested to respond to typical paper-and-pencil measures. Multiple indicators of dependent variables were submitted to traditional reliability checks and factor analysis. Tests of hypotheses involved standard analysis of variance procedures.

### Study 1

The first study employed a 2 (low and high credibility of the signal provided by the brand ally)  $\times$  2 (type of the signal [dissipative and nondissipative] provided by the brand ally)  $\times$  2 (high and low observability of product quality) between-subjects factorial design. As we discuss subsequently, though the manipulation of the credibility of the signal (relative vulnerability of future profits to consumer sanctions) and observability of quality were embedded in the stimulus description, the manipulation of the type of signal was accomplished by using real and fictitious brand names (i.e., a reputable brand potentially placing a dissipative signal at risk, and a reputationless brand potentially placing only a nondissipative signal at risk).

*Pretests.* On the basis of three pretests ( $n = 43, 168,$  and  $105$ ), the following decisions were made: Television sets were selected as the stimulus product for the first study because product quality was perceived to be an important consideration in the purchase decision (6.28 on a seven-point scale), a key requirement of the theory (Tellis and Wernerfelt 1987). "Calypso" (Imagery = 3.84, Concreteness = 3.69, Meaningfulness = 1.58, rated on seven-point scales where 1 = "Low" and 7 = "High") and "Advantage" (Imagery = 3.88, Concreteness = 2.33, Meaningfulness = 2.63, rated on seven-point scales where 1 = "Low" and 7 = "High"), which are both fictitious names, were selected as the primary brand name and name of the fictitious brand ally, respectively. The scores on the imagery, concreteness, and meaningfulness scales (Paivio, Yuille, and Madigan 1968) reveal that these names do not have high imagery, are not concrete (i.e., well-entrenched), and are not laden with secondary meanings and, thus, are relatively neutral terms. These properties are desirable for the experiment, because they reduce the possibility that the imagery, concreteness, or meaningfulness of the fictitious brand name drove the observed results. A five-item dependent variable scale for

quality perceptions (Cronbach's  $\alpha = .85$ ) also was generated. Finally, using subjects' guesses about the true identity of "Advantage" and "Calypso" as a basis, the most frequently occurring name was selected as the name for the real brand ally. This brand is a well-known international corporation with a wide array of electronic consumer products and interests in other aspects of the entertainment business and was among the top five global brands in a recent popular industry survey of brand affect and recognition. Thus, it was reasoned that this brand was likely to yield a high reputation perception, yet a claim about future profits being secure (in the low credibility condition) also would be believable.<sup>3</sup> The pretests also were useful in developing product stimuli based on the information needs of the subjects.

*Independent variables.* The first factor (credibility of signal) involved the manipulation of the degree to which the brand ally stood to suffer if the product failed to live up to the promised level of quality. The two levels of manipulation included (1) a high condition, in which the ally providing the endorsement potentially stood to suffer considerable monetary damage should customers' quality expectations be betrayed, and (2) a low condition, in which the ally providing the endorsement potentially stood to suffer little monetary damage should customers' quality expectations be betrayed. Consistent with the procedure employed by Boulding and Kirmani (1993), these claims were provided in the stimulus, attributed to a *Consumer Reports* story on the product, and (as we discuss subsequently) perceived as credible.

The relevant description for the high credibility condition was as follows:

While there is not enough information available to accurately evaluate the quality of the Calypso TV, the fact that it is a collaboration with Advantage should make consumers very comfortable with the claims of high quality. Advantage is a brand name that is associated with many products, and if the Calypso product fails, consumers will definitely blame Advantage for the failure. As a result, Advantage sales in their other product categories will suffer greatly.

The relevant description for the low credibility condition was as follows:

There is not enough information available to accurately evaluate the quality of the Calypso TV. The fact that it is a collaboration with Advantage should not necessarily make consumers comfortable with the claims of high quality. Advantage is a brand name that is associated with many products, and if the Calypso product fails, Advantage is safe from blame because the other products are sold in completely different markets. As a result, Advantage sales in their other product categories will not suffer.

Notice that in both conditions, the market characteristics of the brand ally are unchanged; in the low condition, the brand ally's presence in multiple markets is argued to make it relatively immune to punishment, whereas in the high condition, the brand ally's presence in multiple markets is argued to make it relatively vulnerable to punishment. This was done to ensure that both stories differed minimally to avoid potential confounding. In addition, similar to the argu-

<sup>3</sup>Consistent with prior research in the area (Loken and John 1993) and to protect this journal from potential litigation, the true identity of the brand is not revealed here.

Table 1  
DEMOGRAPHIC INFORMATION

	Study 1 (n)	Study 2 (n)
<i>Gender</i>		
Males	53	31
Females	67	29
<i>Age</i>		
20–29	59	19
30–39	35	22
40–49	24*	19
<i>Annual Income (\$)</i>		
<20,000	34	16
20,001–30,000	35	14
30,001–40,000	20	12
40,001–50,000	11	6
50,001–60,000	8	3
>60,000	9*	9
<i>Education</i>		
Some high school	—	2
Graduated high school	25	19
Some college	35	24
Graduated college	36	10
Post college	22*	5
Total	120	60

\*Does not total to 120 because of missing observations.

ments provided in advertisements by a firm or a competitor, the reasoning for the credibility of the claim is embedded in the description (for a similar stimulus that provides strong quality-related arguments, see Simonin and Ruth 1998). Such an approach is considered appropriate given our interaction hypotheses, according to which this strong manipulation should not yield an effect when observability is high, but should yield an effect when observability is low.

The second factor (observability of quality) refers to whether the product's performance could be assessed prior to purchase. Subjects were told that the television set had a unique attribute; it automatically would lower the volume during commercials. In the high observability condition, in addition to being able to observe performance in the store, subjects were told that they had observed the television set perform well in a free, 30-day, in-home trial. In the low observability condition, subjects were told that they could examine the product's performance only in the store; the stimulus did not include an in-home trial opportunity. Thus, the automatic volume reduction mechanism was differentially observable to the two sets of subjects.<sup>4</sup>

Finally, the manipulation of the third factor (type of signal) involved the use of a fictitious and real brand name as the brand ally, as noted previously. The implicit rationale is that the real brand name carries a high investment in reputation (which potentially could serve as a dissipative signal), whereas the fictitious brand name has no reputation (and therefore can serve only as a nondissipative signal).

*Dependent variables.* The theory addresses the effect of credible information on perceptions of quality for attributes that are not observable. Therefore, it is important to measure attributes that are unobservable. This requirement presents a problem, because in the quality observable conditions, mea-

suring the perceived quality of unobservable attributes is infeasible. However, because perceptions about attribute quality (regardless of their observability) should influence perceptions of overall quality (Zeithaml 1988), the principal dependent variable was constructed using a multidimensional scale of overall quality that was based on prior literature and pretests. This approach is consistent with prior empirical research in this area (Boulding and Kirmani 1993). Scale items included measures of global quality, as well as specific attribute-relevant evaluations that were appropriate for the product under examination (see the Appendix for scale items). Finally, manipulation checks and demographic information also were gathered.

*Sample.* One hundred twenty mall shoppers in a major Midwestern city participated in the study. The sampling frame was restricted to adults age 18 to 49 years. Subjects received a small (\$2.00) token of appreciation for their efforts. Data collection was executed by a professional marketing research firm. Subjects took no more than 30 minutes to complete the questionnaire.

*Instrument and procedures.* Subjects were informed that they were being asked to participate in a market research survey that would help manufacturers better design and develop new products. Then, in the first section of the questionnaire, in addition to responding to several distracter items, subjects provided information about their awareness of the various brand names used in the study, as well as their perception of the quality of those brand names.

In the second section of the instrument, subjects were provided information about a new television set on the market. As mentioned previously, a key feature of the television set was the ability to reduce the volume during commercial breaks. Following this, subjects responded to dependent measures.

*Analysis and results.* An examination of responses to the question about the true purpose of the study indicated that no subjects guessed the hypotheses. Descriptive information about the sample is available in the first column of Table 1. Subjects represented both genders and tended to be relatively young, well-educated, and reasonably affluent. Subjects owned an average of 1.96 television sets (ranging from a low of 0 to a high of 5). Manipulation check results suggest that all three manipulations were successful (mean differences of .47 [ $p < .05$ ], 1.2 [ $p < .0001$ ], and 2.6 [ $p < .0001$ ] on a seven-point scale for observability, whether brand ally was perceived to be vulnerable to punishment, and whether the brand name was perceived to be real, respectively). Finally, quality was perceived as important in the purchase of television sets (5.87 on a seven-point scale).

One hundred eighteen usable responses were analyzed in an overall ANOVA for the full model on perceived quality. All cells had a sample size of 15, except the high observability/high vulnerability cells for both real and fictitious brand ally conditions ( $n = 14$ ). The overall model is significant ( $F_{7,110} = 2.55$ ,  $p < .05$ ) and our key interaction hypothesis (credibility of signal  $\times$  observability) is supported ( $F_{1,110} = 3.30$ ,  $p < .10$ ,  $\eta^2 = .029$ ), albeit at a weaker level of significance than desired.<sup>5</sup> Some other notable significant

<sup>4</sup>In the second study, these manipulations were changed and made considerably more subtle.

<sup>5</sup>Because of the high cost of data collection, our sample is relatively small, and therefore, the significance level attached to the omnibus F-tests are relatively weak. However, as we discuss subsequently, our sample is sufficiently powerful to allow for assessing support for focused tests of the specific hypotheses at the traditional  $p < .05$  level.

results were the following: (1) observability  $\times$  type of signal interaction effect ( $F_{1,110} = 3.00, p < .10, \eta^2 = .027$ ), (2) the main effect of credibility of signal ( $F_{1,110} = 5.21, p < .05, \eta^2 = .045$ ), and (3) the main effect of the type of the signal ( $F_{1,110} = 5.58, p < .05, \eta^2 = .048$ ). The latter two results indicate that when the brand ally has something to lose, the product receives significantly higher ratings than when it does not, and the reputable brand ally generates significantly higher ratings than the reputationless brand. (Details about the reliability and factor structure of the dependent variable are available in the Appendix.)

To assess support for the principal predictions, the cell means for the appropriate conditions were compared using a planned contrast procedure (Figure 1). Under high observability, quality perceptions were not significantly different, regardless of the credibility of either kind of signal provided by the brand ally. Under low observability, however, quality perceptions when the ally provides a credible signal of either type are significantly higher than when the ally does

not provide a credible signal (both results significant at  $p < .01$ , one-tailed tests;  $d = .96$  and  $.70$  for the comparisons involving the reputable brand ally and the reputationless brand ally, respectively). In other words, under low observability, for both the reputable brand ally and the reputationless brand ally, relatively higher quality ratings are observed when the brand ally is perceived to be vulnerable to punishment and not otherwise.<sup>6</sup> Collectively, these results provide support for  $H_{1a-b}$ , as well as  $H_{2a-b}$ .

*Rival explanations.* To make the signal credibility manipulation credible and consistent with prior research (Boulding and Kirmani 1993), the source of information regarding the potential negative consequences (or lack thereof) of product failure was *Consumer Reports*. Although this source of information was not varied across conditions and was perceived as credible by subjects, there is a potential concern that, in conditions of low observability, the reputation of *Consumer Reports* for objective and unbiased evaluations drove subjects' responses, not the differences in credibility of the signal. In other words, it is unclear whether the effect would be obtained if *Consumer Reports* had not been identified as the source of the information. In light of this concern, a second study was conducted. In this study, *Consumer Reports* was not identified as the source of information about the brand ally's vulnerability (or lack thereof) and its implication for making quality judgments. In addition, several other modifications were made: (1) a more refined multiple-item scale was used for the observability manipulation check and (2) a new observability manipulation was provided in which, in both high and low conditions, subjects could take the television set home. This second refinement protects us from any concerns that subjects in the "free, in-home trial" believed that the 30-day trial itself provided a signal of quality. The results of the second study are identical to those of the first. The second study and associated results are described next.

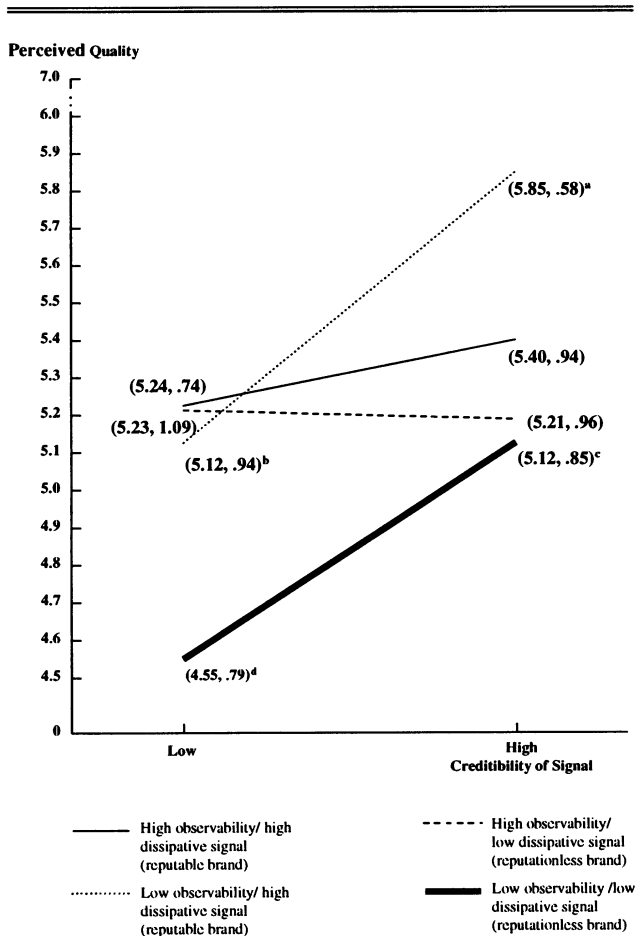
### Study 2

Because the results observed in the first study showed identical effects for real as well as fictitious brands, and in an attempt to minimize the costs of data collection, the second study focused on a replication of the real brand name condition in Study 1. Therefore, in this study, a  $2 \times 2$  between-subjects factorial design studied the impact of varying the credibility of the signal provided (high and low) by a well-known brand ally in conditions of high and low observability. In other words, the well-known (and reputable) brand ally has a dissipative signal that is either at risk (i.e., the signal is credible) or not at risk (i.e., the signal is not credible). The product context and dependent variables were identical, though several additional items from a perceived risk scale (Jacoby and Kaplan 1972) were added as a more refined manipulation check of observability. This modification was considered appropriate because the theory suggests that reductions in observability increase perceptions of risk of nonperformance.

*Independent variables.* Several modifications were made to the stimulus. First, as noted previously, the credibility of

Figure 1

QUALITY PERCEPTIONS FOR THE JOINTLY BRANDED PRODUCT UNDER DIFFERENT LEVELS OF SIGNAL CREDIBILITY AND TYPE: STUDY 1



Notes: Figures in parentheses are means and standard deviations, respectively. <sup>a</sup> is significantly higher than <sup>b</sup> ( $p < .05$ ). <sup>c</sup> is significantly higher than <sup>d</sup> ( $p < .05$ ).

<sup>6</sup>We also collected and analyzed data on willingness to (1) pay and (2) buy, as well as on (3) the target of punitive action should the product not perform. Because these issues are tangential to this article, the results are not reported here but are available in Rao, Qu, and Ruekert (1997).

signal manipulation was made more subtle by eliminating *Consumer Reports* as the source of information. Second, the observability manipulation was changed so that, in both conditions, subjects were told that they could take the television set home and observe it functioning. However, under low observability, two factors that potentially could affect performance (vagaries of weather and location of the set in the room) were described to have stayed constant, whereas under high observability, these two factors varied sufficiently to allow for a rigorous test of the electronics of the television. It was reasoned that subjects who had observed the television set work well in a variety of settings would belong in the high observability condition, whereas subjects who had observed it working in only one setting would belong in the low observability condition.

The low observability condition stimulus was as follows:

The automatic volume control of commercials is a very attractive feature. However, you know that there are two important things that can make this feature fail. First, if there is interference from other equipment like microwave ovens or high voltage power lines, this volume control of commercials may become permanently damaged. Second, during thunderstorms, because of electrical discharge in the atmosphere, this volume control of commercials may become permanently damaged.

You pick up a remote control and turn the Calypso TV set on to a program in progress, and in a few minutes a commercial break occurs. You can see the volume level on the screen, and you notice that the volume drops. You try this on another brand of TV set and notice that the volume is much higher during a commercial. You can hear it, and you can also see it on the volume monitor on the screen.

You look at the product brochure and decide to take them up on their free trial offer. So, you have the set delivered and installed in your home free of charge. You use the set for 7 days after which the dealership comes and takes the TV away. During these 7 days, you forget to place the TV in many different places of your home to see if there were any problems because of electrical interference. You also experienced fine weather—there were no thunderstorms. Throughout, the TV set performed fine, and the automatic volume control of commercials feature performed as it had performed in the store. Every time a commercial came on, the volume was reduced.

For the high observability condition, in the last paragraph, the degree to which the set was exposed to vagaries of weather was enhanced, as follows:

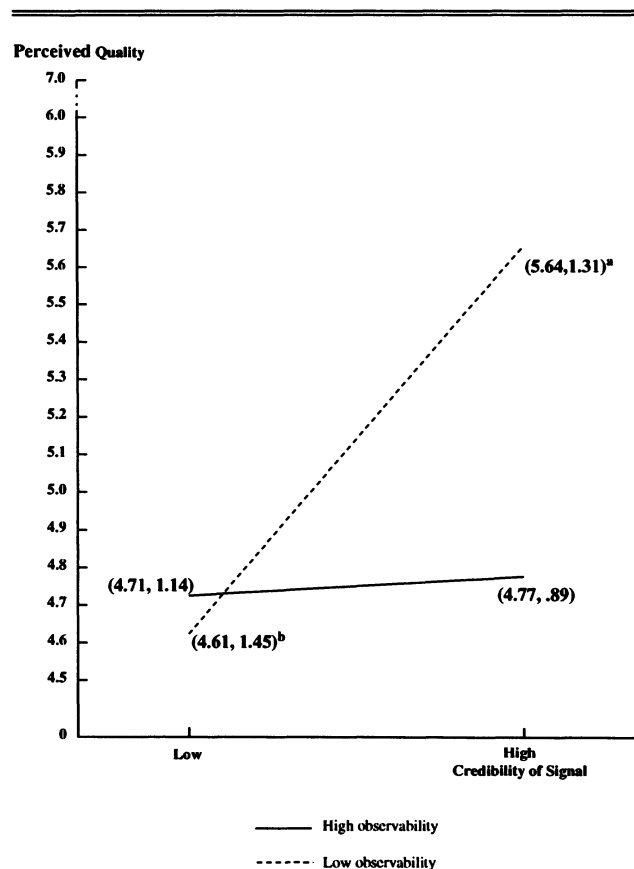
You look at the product brochure and decide to take them up on their free trial offer. So, you have the set delivered and installed in your home free of charge. You use the set for 7 days after which the dealership comes and takes the TV away. During these 7 days, you place the TV in many different places of your home to see if there were any problems because of electrical interference. You also experienced many thunderstorms during the week, some of which occurred when the TV was in one place, and some of which occurred when the TV was in other places in your home. Throughout, the TV set performed fine, and the automatic volume control of commercials feature performed as it had performed in

the store. Every time a commercial came on, the volume was reduced.

**Procedures and results.** Similar to the first study, a mall-intercept procedure was used, and 60 usable responses were collected ( $n = 15$  per cell) by a professional market research firm. Demographic information about the subjects is available in the second column of Table 1. The dependent variable was identical to that used in the first study and displayed desirable psychometric properties (Cronbach's  $\alpha = .92$ , factor loadings ranging from .91 to .94, with one factor [ $\lambda = 4.32$ ] emerging). In addition, the manipulation check for the credibility of the signal (Cronbach's  $\alpha = .85$ ) was significant (mean difference of .66,  $p < .05$ ) though, as we expected, lower than in the first study; the observability manipulation check (Cronbach's  $\alpha = .92$ , mean difference of .57,  $p < .05$ ) was also significant.

The results from this study closely mirror those of the first study (Figure 2). As predicted, a Duncan's Multiple Range Test reveals ( $\alpha = .05$ ) that quality perceptions are significantly higher when the brand ally is vulnerable to punishment, relative to when it is not so vulnerable, in the low observability condition; however, in the high observability

Figure 2  
QUALITY PERCEPTIONS FOR THE JOINTLY BRANDED  
PRODUCT UNDER DIFFERENT LEVELS OF SIGNAL  
CREDIBILITY AND TYPE: STUDY 2



Notes: Figures in parentheses are means and standard deviations, respectively. <sup>a</sup> is significantly higher than <sup>b</sup> ( $p < .05$ ).



condition, there is no significant difference in quality perceptions. In other words, when the brand ally provides a credible signal and quality information is unobservable, the brand ally's vulnerability to punishment is used by consumers to infer the quality of the product, which suggests that the ally's vulnerability to loss of future sales (and thus, loss of sunk costs in reputation) serves as a credible signal of unobservable quality.<sup>7</sup>

### GENERAL DISCUSSION

Empirical tests of economic theories using primary data are relatively rare (for exceptions, see Boulding and Kirmani 1993; Rao and Bergen 1992; Urbany 1986). In addition, as Venkatesh and Mahajan (1996) note, analytical or empirical research on products that include multiple brand names does not exist. This article employs an empirical test that uses primary data to assess the utility of an economic theory in addressing the issue of multiply branded products. In particular, we offer the first empirical test of the circumstances when a brand's (1) vulnerability to loss of future profits alone and independent of reputation (i.e., the provision of a nondissipative signal) and (2) reputation (i.e., the provision of a dissipative signal) are likely to yield enhanced perceptions of product quality for the jointly branded product.

The results from the studies suggest that, consistent with our premise, the credibility of the "hostage" provided by the second brand in a brand alliance is a useful piece of information regarding product quality when quality is unobservable. The hostage makes the brand vulnerable because it stands to suffer economic losses in the future should the claim turn out to be false, or because it stands to lose investments made in the past (i.e., investments in reputation) (Shapiro 1983) because that investment will be forfeit should the claim turn out to be false. This finding lends added credence to the finding reported by Boulding and Kirmani (1993), albeit in a different context. They were able to show the effects of bond credibility through a manipulation of reputation (*Consumer Reports* ratings of past models), whereas we are able to show the effect with and without the manipulation of reputation. As we discuss subsequently, this is potentially important from a managerial standpoint.

### Contributions

*Theoretical.* The current literature in marketing and economics has emphasized the utility of constructs such as advertising and reputation in conveying the unobservable quality of a branded product. In our treatment of this issue, we implicitly argue that the degree to which a firm will suffer monetarily is the crucial construct of interest. In other

words, the firm's vulnerability to economic losses is the central issue. This is an important subtlety that enriches the theoretical argument, because vulnerability exists at a higher level of abstraction than reputation and advertising. For example, though signals such as reputation and advertising involve a monetary expenditure (i.e., "public burning of money"), signals such as warranty do not involve any monetary expenditure but stake or pledge a future cost to communicate unobservable quality credibly. Similarly, a brand name with no reputation (i.e., a brand that has not engaged in any public burning of money) can communicate unobservable quality credibly if it is able to demonstrate a vulnerability to future economic sanctions.

In addition, we show how a brand ally's vulnerability would make it an attractive partner. When a brand is unable to communicate quality credibly by itself (i.e., it can not "make" vulnerability in-house), it may do so by allying with a credible ally (i.e., it may "buy" another brand's vulnerability). This is an insight that is new to the brand management literature in marketing. It also suggests that vulnerable brands may trade on their names in a market for brand allies. For example, in 1988, Sunkist received royalties worth \$10.3 million by licensing its name for use on products as diverse as soda, candy, and vitamins (Aaker 1991).

Finally, though the degree of fit between the two brands may be an important issue, our theoretical perspective suggests that alliances between brands that do not necessarily fit well together (but the brand ally is vulnerable to punishment) also may be successful. Thus, advertising tie-ins between US West and 3M, or American Express and Timberland, may be appropriate as one brand tries to leverage the vulnerability or reputation of another brand to endorse its unobservable quality.

*Managerial.* Managers should use extreme care in forming brand alliances. Particularly in competitive markets in which small percentages of market share translate into huge dollar volumes and margins, managers' perceptions that their brand franchise will be damaged if it is associated with a poor quality product likely motivates them to be circumspect, with good reason (Rao and Ruckert 1994). This circumspection likely is driven by the recognition that a brand that is associated with another brand of poor quality stands to suffer significant monetary losses should consumers attribute any blame to the first brand. In other words, managers are and should be cognizant of the vulnerability of their brand to future economic sanctions from irate consumers, should their brand be associated with another brand that delivers lower quality than claimed.

In addition, a brand that has a large amount of profits at risk potentially can use that vulnerability to argue that its claims about unobservable quality must be true; if they were false, it would have too much to lose. More specifically, a reputationless brand could make itself vulnerable to loss of future profits by putting a large future revenue stream at risk and thus signal its unobservable quality. Then, the economic rationale for high unobservable quality could be offered in advertising copy or during sales presentations.

### Limitations and Further Research

*Methodology.* Experimental approaches to examining marketplace phenomena often are criticized for lacking realism (i.e., an external validity concern) and for often generating results as a consequence of artificially strong manipu-

<sup>7</sup>In a third study, the details of which can be obtained from the first author, a subtler manipulation of the credibility (vulnerability) signal was employed in a three-factor design that replicated Study 1. This subtler manipulation was not effective, and consequently, the study did not yield the hypothesized results. An internal post hoc analysis of those subjects for whom the manipulation worked as desired (approximately 90% of the data) provides support for the effect of the signal credibility, albeit only for the reputable brand. This finding provides an important boundary condition for the theory; seemingly, subjects do not infer sophisticated economic theories about the vulnerability of a brand to sanctions and the relationship of that vulnerability to credible claims about unobservable quality spontaneously, but (as suggested by the first two studies), if they are alerted to the reasoning, they may act in a manner consistent with the theory.

lations (i.e., a demand artifact concern).<sup>8</sup> In this research, we have been sensitive to these concerns in two ways. First, the use of a between-subjects design limits concerns regarding demand artifacts; a within-subjects design would have raised concerns that the differences in the manipulations would be obvious to subjects and potentially could influence their response. Second, after establishing theoretically driven results in the first study, we performed a second study with weaker manipulations to determine if the effects would disappear. Yet, in this second study, we find an identical pattern of effects.

It should be noted that we consistently find interaction effects such that the effect of the brand signal is observed only under low observability and not under high observability, regardless of the strength of the manipulation. In other words, despite what appear to be overwhelming manipulations at first blush, when product quality is not a mystery, subjects are not persuaded by those strong manipulations. In effect, the presence of quality observability made the issue of the signal moot in subjects' minds.

*Further research.* From a theoretical standpoint, a brand's future profits at stake (a nondissipative signal) is different than a brand's investment in reputation (a dissipative signal). Given that they are differentially expensive from a cash-flow standpoint, but should be equally costly to be credible, what factors determine the choice of one type of signal relative to the other? Although theoretical models have addressed both types of signals, little theoretical or empirical work exists that compares and contrasts these different classes of signals. Research that focuses on this issue would be of significant theoretical value to the field of brand management.

With regard to brand alliances, an examination of the short- and long-run consequences of alliance formation is perhaps the next appropriate step in examining this area. Specifically, what price should the brand ally charge for (1) the signaling power provided, (2) the consequences if the joint brand fails, and (3) the potential loss of its original identity if the joint brand is hugely successful? Adequate compensation must accrue in the form of royalty payments, access to profitable markets, or access to other costly resources. Perhaps the application of transactions cost analysis or agency theory would yield interesting insights into this contracting problem.

Finally, we have focused our attention on the signaling power of a brand in an alliance. However, the very act of forming a brand alliance, if it is transparently expensive (because of royalty payments, promotional expenditures, or administrative costs) also may serve as a signal of unobservable quality. The signaling value of this managerial action likely would benefit from further study, so that the circumstances in which the formation of an alliance signals unobservable quality may be identified.

In summary, recent developments in information economics provide potentially useful tools for expanding the extant knowledge base on brand management issues. Perhaps, as additional research will reveal, economic, psychological, and other theoretical perspectives combined with an examination of experimental, survey, and secondary, as well

## Appendix

### SCALE ITEMS FOR PERCEIVED QUALITY

Item	Item-Total Correlation	Factor Loadings*
<i>A. Global Measures of Quality</i>		
1. Perception of the overall quality	.74	.83
2. Perception of the durability	.83	.90
3. Perception of the workmanship	.83	.90
<i>B. Product-Specific Measure of Quality</i>		
4. Perception of the sound quality	.70	.81
5. Perception of the picture clarity	.72	.82

\*Only one factor emerged with an eigenvalue greater than 1 ( $\lambda = 3.64$ ).  
Note: Cronbach's  $\alpha = .91$ . Although the items were identical in all studies, these data pertain only to Study 1.

as qualitative, data will provide a rich description of various phenomena in the area of brand management.

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<sup>8</sup>For a somewhat philosophical discussion of the trade-offs involved in laboratory versus field studies, see Greenwood (1982).

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