

# The Effects of Perceived and Objective Market Cues on Consumers' Product Evaluations

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This paper investigates the interactive effects of objective quality information on price and brand name information on buyer's product evaluation. To answer a call made more than 20 years ago, the study brings objective quality rating information such as those reported in Consumer Reports into a proven market cue - product evaluation model. The research method uses a 2x2x2 factorial design to systematically examine interaction effects of objective information with price and brand name in a market cue-product evaluation model. The conclusions find that the brand effects are not influenced by the objective quality information. However, there are strong interaction effects between price and objective quality information.

Keywords: quality, product evaluation, price, brand, market cues

## Introduction

Consumers often judge the quality of value of a product on the basis of a variety of informational cues that they associate with the product. Some are specific product characteristics while others are extrinsic to the product, such as the buyer's perception of price, store and brand name. Others are objective measures of quality such as those reported by Consumer Reports.

Marketers have been looking for better ways to manage the informational cues of price and brand name to create more effective and efficient behavior in the marketplace by both consumers and marketers (Dodds, Monroe & Grewal 1991). In recent years, there has been a concerted effort to extend research beyond the price/perceived quality relationship in order to gain a clearer understanding of the relationship between market cues and product choice. (Dodds & Monroe 1985; Monroe & Krishnan 1985; Zeithaml 1988; Dodds, Monroe & Grewal 1991; Dodds 1995, 1996). Clearly, the purpose of these efforts has been to unravel the intricate relationships that exist between market cues such as price and brand names, and to further define consumer's cognitive evaluations of these cues in terms of monetary sacrifice, product quality, value, and their intent to buy. At the same time, empirical studies on the relationship between price and objective quality have relied upon correlational tests of best rankings published in Consumer Reports or in Consumer's Research Magazine (Oxenfeldt 1950; Morris & Bronson 1969; Sproles 1977; Reisz 1978, 1979; Geistfeld 1982; Gerstner 1985). The general conclusions of these studies are that the price-quality relationship is product specific and weak in general.

Twenty-five years ago, Sproles (1977) called for research to integrate objective price-quality research with investigations of consumer decision making to identify conditions under which consumers' subjective judgments of product characteristics and purchasing criteria such as price and brand name lead to efficient consumer performance in the market. In the years since, there were no studies found that fulfilled this call.

The purpose of this study is to use Dodds, Monroe and Grewal's (1991) market cue-product evaluation model as extended by Dodds (1996) to examine the robustness of price and brand

information for a product evaluation model in the presence of objective quality information. Past studies have shown a strong perceived brand effect on the evaluation of a product's overall goodness. The introduction of objective quality information is tested in an experimental design to ascertain if its effects can supplant the strong effect of brand information. After a review of the relevant literature, specific hypotheses are presented, the research design and measures are described, and the results are reported. The discussion and conclusions examine the implications of the findings for the influence of price and brand information and their interaction with objective quality information on consumer's evaluations of products.

### **Information Search**

The market environment is certainly complex for the consumer and poses huge problems for consumers. Maynes (1985) characterizes most markets as informationally imperfect where there are extensive price dispersions, even when quality is constant. In such markets, consumers may pay too much for products. Maynes suggested three key factors underlie the present-day shopping environment.

- The overabundance of brands in the marketplace leads to information overload.
- The technical complexity of many products makes quality assessment virtually impossible for the average consumer.
- The urbanization of our society creates an environment where there are too many stores offering similar goods.

While Mayne's statement of over abundance of brands and stores is his observation, there is no empirical evidence of an "overabundance" of brands or "too many" stores. Maynes is making a normative judgment. Surely if there were too many brands or stores, the market would correct the situation. If it doesn't then there aren't too many. In his article, Mayne's assertion is modified to state there is an abundance of brands and stores and when coupled with the technical complexity of many product types, places the consumer in a complex marketplace. These factors diminish a consumer's ability to conduct an exhaustive search, which in turn may result in making poor choices.

The complexity of the marketplace is not a recent development. Over fifty five years ago, Scitovsky (1945) observed that buyers use price as an indicator of product quality. He argued that such behavior was not irrational but simply represents a belief that the forces of competitive supply and demand leads to a "natural ordering" of products on a price scale, resulting in a strong, positive relationship between price and product quality. A plausible explanation for the persistence of this belief is that consumers do not have or attempt to obtain the necessary information about product quality before purchase and use. For example, Neuman and Staelin (1972) found that consumers do not engage in information searches even when the financial commitment is large.

Along the same lines, a brand-quality relationship can be posited. Liechtenstein, Ridgway and Nitemeyer (1993) suggested that consumers using a price/quality relationship are actually relying on a well-known brand name as an indicator of quality, without actually relying directly on price per se. Research was found that showed that the effect of a positively perceived brand name will enhance buyers' perception of the quality, value and hence their willingness to buy the product (Dodds, Monroe & Grewal 1991) while also decreasing social, psychological

and functional risk (Dodds 1996). Risk becomes a part of this research program as it relates to consumer use of information.

While price is a transient indicator of quality, i.e. the marketer can change price readily, brand appears to be more stable and enduring. In fact, Dodds (1995, 1996) found an asymmetric relationship between price and brand name information where evaluation of the brand name impacted the perception of the price but the evaluation of the price information did not affect the perception of the brand name. This finding lead to the conclusion that consumers believe in the bundle of information of a brand name over the signals contained in a price. Hence, it might be more plausible to believe that consumers more readily use a brand-quality relationship than a price-quality relationship to evaluate products.

The missing link in the research findings is understanding how objective quality information interacts with this model. In a perfectly functioning market, one might expect a strong, positive relationship between product quality and price (Gestner 1985). But what if objective quality information reports a poor price quality relationship? Given the assumption that most markets are informationally imperfect and that they are characterized by extensive price dispersions, the interaction of this information with the product's price and the brand name's image can result in unexpected consumer behavior.

## **Hypotheses**

The extension of an established paradigm poses some difficult challenges for the formulation of hypotheses. However, the above discussion provides guidance for how objective quality information might affect the influence of price and brand name information on perceived quality, perceived monetary sacrifice, perceived value, social, psychological and functional risk and willingness to buy. Brand image, defined as the set of associations linked to the brand that consumers hold in memory (Keller 1993), is strong and not easily mitigated by contradictory information. Positive brand image is associated with consumer loyalty, consumer beliefs about a positive brand value, and a willingness to search for the brand. On the other hand, consumers see price information in a much more transient way so that contradictory information such as brand name could easily affect the price-perceived quality relationship. Given what we understand about the relative strengths of price and brand information, it might be reasonable to posit that objective quality information might fall between price and brand name information on a continuum of cue strength. Hence, the hypotheses will test for a weak (non-significant) interaction between objective quality information and brand name, but a strong (significant) interaction between objective quality information and price.

- A Objective quality rating information will not influence the effect of the brand information on perceived quality, perceived sacrifice, perceived value and willingness to buy, i.e. there will be no significant interactions between brand and objective information.
- B Objective quality rating information will not influence the effect of the brand information on psychological, functional, and social risk, i.e. there will be no significant interactions between brand and objective quality information.

- C Objective quality rating information will influence the effect of the price information on perceived quality, perceived sacrifice, perceived value and willingness to buy, i.e. there will be a significant interactions between price information and objective information.
- D Objective quality rating information will influence the effect of the price information on psychological, functional, and social risk, i.e. there will be a significant interactions between price information and objective quality information.

## Method

### Research Design.

A pre-test led to the selection of televisions as a product familiar to subjects. This decision was guided by the criteria that both male and female subjects should be potential purchasers of the products. The phenomenon of an acceptable price range was utilized in the pre-test in which subjects were asked to suggest the highest and lowest acceptable price they would pay for different products. Two perceptively different prices were determined to be within the subjects' acceptable price range for televisions: \$229 and \$339. The brand names of Sony and Sears met the criteria of being significantly different in perceived quality with Sony being perceived to be higher in quality. The objective consumer quality information was contrived to create situations where the quality information was either good or poor. The quality information is good when there is either a high price and high objective quality rating or a low price and a low objective quality rating. The quality information is poor when the price is high and the objective quality rating is low or when price is low and objective quality rating is high.

A 2x2x2 between groups factorial design crossed price, brand name and objective consumer quality information to test the hypotheses (see Table 1). The factorial design used 149 subjects who were generally over 50, well educated, active in watching television and familiar with the Sony and Sears brand names (Appendix A). Subjects were randomly assigned to one of eight treatment groups and were asked to assume they had read an article in Consumer Reports featuring televisions.

### Televisions

*There's a pecking order among televisions in which the inclusions of more features matches the rise of higher and higher prices quite reliably step for step. The televisions that were evaluated in this test had 25 inch screens, stereo sound, and a remote. An outlay of from \$225 to \$350 should get you a television that performs well and has all the features that most people want. Spend less, and you may be disappointed in the sacrifice that you have to make in quality. Spend more, and you may not be satisfied that the extra money bought enough extra features.*

*The following information reports on picture quality, sound, and ease of use. An overall score was tabulated that reflects these three attributes. Scores range from 0 to 100 with 0 being unacceptable quality and 100 being outstanding quality.*

<u>Model</u>	<u>List Price</u>	<u>Quality Score</u>
TOSHIBA	\$389.00	94
SONY	339.00	87
RCA	289.00	74
SEARS	229.00	58
GRAND PRIX	149.00	38

For example, a scenario (group 1 in Table 1) for one of eight treatments where the brand name is of high quality, the price is high and the objective quality rating is high follows. This treatment is referred to as a “good objective information” situation. Subjects were then asked to evaluate the Sony television.

**Table 1. The Experimental Design**

	High Price		Low Price	
	High Quality Brand	Low Quality Brand	High Quality Brand	Low Quality Brand
<b>Good Objective Information</b>	<u>Group #1</u>	<u>Group #2</u>	<u>Group #3</u>	<u>Group #4</u>
Positive price-objective quality relationship	Sony \$339	Sears \$339	Sony \$229	Sears \$229
Rating:58	Quality Rating:87	Quality Rating:87	Quality Rating:58	Quality Rating:58
<b>Poor Objective Information</b>	<u>Group #5</u>	<u>Group #6</u>	<u>Group #7</u>	<u>Group #8</u>
Negative price-objective quality relationship	Sony \$339	Sears \$339	Sony \$229	Sears \$229
	Quality Rating:58	Quality Rating:58	Quality Rating:87	Quality Rating:87

### Dependent Variables.

After reading the information, subjects evaluated the television’s quality, the monetary sacrifice they would have to make to purchase it, the value of the transaction, and their willingness to buy it. As well, three measures for psychological, social and functional risk were used. These variables were chosen as a result of research by Dodds (1996) that indicates only these three types of risk were influential in the market cue - product evaluation model. These evaluations were determined by their responses to eleven measures that underlie the four constructs as well as the three risk variables shown in Appendix B.

The measurement model for evaluating the television was analyzed for internal and external consistency using confirmatory factor analysis to select the final set of measures. The values of coefficient alpha were 0.925 for perceived quality, 0.800 for perceived sacrifice, and 0.950 for perceived value. Using equal weights, the measures were averaged into an index to obtain one measurement for each construct. Willingness to buy as well as the three risk variables were single indicators.

Each of eight scenarios was constructed by interchanging the information for the Sony and the Sears model. For example, a treatment where the objective quality rating is inconsistent with price information is referred to as a “poor objective information” situation. Subjects in group 5 (Table 1) were asked to evaluate the Sony Television given the following information:

<u>Model</u>	<u>List Price</u>	<u>Quality Score</u>
TOSHIBA	\$389.00	94
SEARS	229.00	87
RCA	289.00	74
SONY	339.00	58
GRAND PRIX	149.00	38

## Results

### Manipulation Checks.

At the end of the experiment, subjects evaluated the price (very high to very low) and the brand name (very high quality to very low quality) on a seven point scale. Analysis of variance indicated that the manipulations of the two independent variables were perceived as intended [Price:  $F(1,141)=79.85, p= 0.00$  and Brand:  $F(1,141)=46.609, p= 0.00$ ]

### General Findings.

The model worked as expected in regard to the price and brand name effects. Brand name, as in previous research, was the dominant market cue (Table 3) with Sony being stronger than Sears (Table 2). Interactions between price and brand were statistically nonsignificant as each worked independently to provide information to the subjects. The effect of objective quality information on the perceptions of quality, sacrifice, value, risk and the willingness to buy was non-significant although it could be argued that this effect as well as the price effect were masked by the significant interactions of price and objective quality cues. These interactions are discussed extensively later in the paper.

**Table 2. Preliminary findings (cell mean ratings)**

		Perceived Quality	Perceived Sacrifice	Perceived Value	Willingness to Buy	Psychological Risk	Social Risk	Functional Risk
	<b>Treatment</b>							
<b>Good</b>	1: Sony/\$339/87	4.02	3.47	3.39	3.53	2.58	2.53	2.11
<b>Objective</b>	2: Sears/\$339/87	3.98	3.92	3.24	3.11	2.78	3.00	2.50
<b>Information</b>	3: Sony/\$229/58	3.04	2.21	3.10	2.95	3.16	2.95	2.63
	4: Sears /\$229/58	2.76	2.92	2.56	2.28	3.22	3.39	3.83
<b>Poor</b>	5: Sony/\$339/58	3.39	3.47	3.19	3.00	2.83	3.28	2.50
<b>Objective</b>	6: Sears /\$339/58	2.57	3.73	2.35	2.30	3.65	3.45	3.70
<b>Information</b>	7: Sony/\$229/87	4.06	2.11	4.17	3.89	2.11	2.89	2.00
	8: Sears /\$229/87	3.58	2.63	3.47	2.95	2.63	3.37	3.26

## Objective Quality Information Hypotheses Tests.

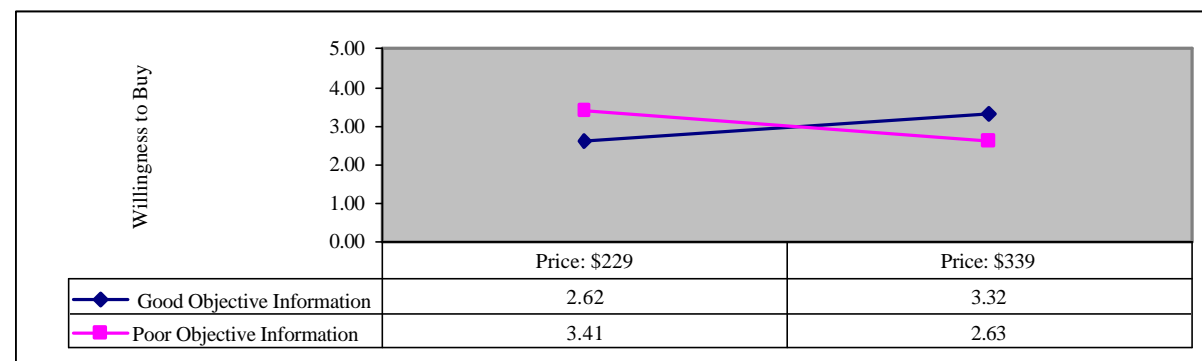
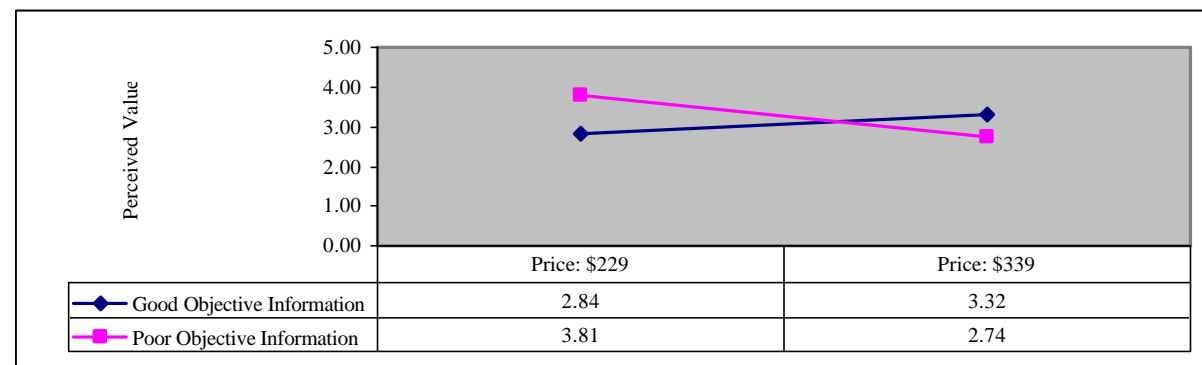
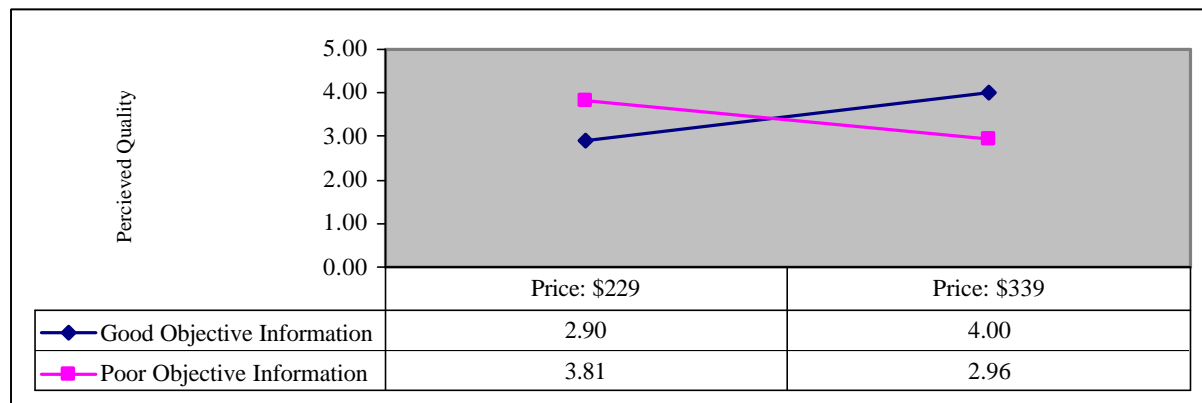
### Hypothesis A.

The analysis of variance results from testing the price, brand and objective quality information effects on the perceptions of quality, perceived sacrifice, perceived value, and willingness to buy are presented in Table 3. There were no significant interactions between brand and objective information. Therefore, the brand name effect on perceived quality, perceived monetary sacrifice, perceived value, and willingness to buy was not influenced by the objective quality rating information. While the interactions for perceived quality and value were close to significance ( $p=0.066$  and  $0.097$  respectively), the hypotheses of no significant interactions between brand name and objective quality rating information is supported. Thus brand name and objective quality information acts independently in the model. If the cells means were plotted for the brand – objective information interaction, the resulting graph would show approximately parallel lines.

**Table 3. Basic Test for Price- Objective Quality Information Model**

	df	Perceived Quality		Perceived Sacrifice		Perceived Monetary Value		Willingness to Buy	
		eta <sup>2</sup>	p	eta <sup>2</sup>	p	eta <sup>2</sup>	p	eta <sup>2</sup>	p
Brand (B)	1	<b>.061</b>	<b>.003</b>	<b>.090</b>	<b>.000</b>	<b>.123</b>	<b>.000</b>	<b>.105</b>	<b>.000</b>
Price (P)	1	.006	.370	<b>.373</b>	<b>.000</b>	.037	.022	.000	.835
Objective Information (OI)	1	.001	.658	.009	.263	.020	.091	.001	.708
PxB	1	.000	.838	.007	.304	.002	.613	.004	.462
BxOI	1	.024	.066	.004	.466	.019	.097	.005	.409
PxOI	1	<b>.273</b>	<b>.000</b>	.001	.711	<b>.210</b>	<b>.000</b>	<b>.120</b>	<b>.000</b>
PxBxOI	1	.008	.275	.000	.993	.008	.276	.000	.985
Residual	141								

**Significant Price - Objective Quality Information Interactions**



**Hypothesis B.**

There were no significant interactions between brand name and objective quality information on the perception of the three risk measures (Table 4). This leads to the conclusion that the effect of the brand information on psychological, functional, and social risk is not influenced by objective quality rating information.



**Table 4. Analysis of the Risk Measures for Price- Objective Quality Information**

	df	Psychological		Functional		Social	
		eta <sup>2</sup>	p	eta <sup>2</sup>	p	eta <sup>2</sup>	p
Brand (B)	1	<b>.054</b>	<b>.005</b>	<b>.270</b>	<b>.000</b>	<b>.053</b>	<b>.006</b>
Price (P)	1	.012	.194	.017	.117	.003	.535
Objective Information (OI)	1	.005	.396	.004	.456	.028	.044
PxB	1	.004	.450	.017	.126	.002	.618
BxOI	1	.025	.062	.017	.123	.002	.633
PxOI	1	<b>.143</b>	<b>.000</b>	<b>.150</b>	<b>.000</b>	<b>.036</b>	<b>.023</b>
PxBOI	1	.001	.777	.012	.188	.003	.541
Residual	141						

**Significant Price - Objective Quality Information Interactions**



### **Hypothesis C.**

The price effect on perceived quality, perceived value, and willingness to buy was influenced by the objective quality rating information. This hypothesis examines the influence of objective information in a price-quality information configuration. Table 3 shows significant interactions between objective price and objective quality information. Therefore, the hypotheses that there would be significant interactions between price and objective quality rating information is upheld. The direction of the effects, as hypothesized, is discussed in the next section. The only situation where the hypotheses did not hold was for the interactive effect on perceived monetary sacrifice. In this situation, the effect was highly non-significant.

### **Hypothesis D.**

There were significant interactions between price and objective quality information for all three risk variables as shown in Table 4. This can lead to the conclusion that the effect of price information on psychological, functional, and social risk is influenced by objective quality rating information. The direction of the effects, as hypothesized, is discussed in the next section.

## **Discussion**

The focus of this study examined how objective quality rating information influenced price and brand name information's effect on perceived quality, perceived monetary sacrifice, perceived value, and willingness to buy as well as three measures of perceived risk

Overall, the brand name effect proved to be a strong and stable factor in the subjects' evaluation of the offering. The effect size for brand name,  $\eta^2$ , was considerably bigger than the effect sizes of price and objective information in most of the tests. The one notable exception is perceived sacrifice. The findings support brand name as a very strong market cue, not easily swayed by other market cues such as price and objective quality rating information. The first hypothesis, which argues against the ability of objective quality information to influence the brand effect, was supported. The brand and objective quality information interaction shows that there is no dependence between the variables in their effect on willingness to buy ( $p=0.409$ ). However, for perceived quality (Table 3:  $p=0.066$ ) and value (Table 3:  $p=0.097$ ) and psychological risk (Table 4:  $p=0.062$ ), there was an interaction that could be argued to be "mildly" significant. In these situations, the poor quality information produced stronger quality and value perceptions and lowered psychological risk when a strong brand name, SONY was given than when a weaker brand name, SEARS, was provided.

There is ample evidence of a significant co-dependence between price and objective quality information. Table 3 illustrates three very strong interactions between the two market cues' effect on perceived quality, value and willingness to buy. It is evident that when subjects had corroborating evidence of an objective price quality relationship, the effect of a higher price, \$339, would boost the perception of quality as expected, but also increase the perceptions of value and willingness to buy. On the other hand, poor (inconsistent) quality information acts to raise the perceptions of quality, value, and willingness to buy for the lower price. Overall, this would suggest that the subjects were highly influenced by the objective quality information in evaluating the product in this model. Similarly, the perceptions of psychological and functional risk decreased for the higher price when the quality information was good (Table 4). The interaction for social risk was significant in that the means were nearly identical for the lower price but at the higher price the good quality information reduced the risk.

The finding of this research extends the model by Dodds (1996) adding the effect of objective information into the model. The interaction of objective information with price was the only significant effect on the model. The direct impact of this interaction is on perceived quality since there was a non-significant effect on perceived monetary sacrifice. The decision rules for this interaction would be:

- If the product's perceived low price is consistent with the quality rating (low quality rating) then the buyer assumes lower quality.
- If the product's perceived low price is inconsistent with the quality rating (high quality rating) then the buyer assumes higher quality.
- If the product's perceived high price is consistent with the quality rating (high quality rating) then the buyer assumes higher quality.
- If the product's perceived high price is inconsistent with the quality rating (low quality rating) then the buyer assumes lower quality.

When situations of higher perceived quality are found with no effect on perceived monetary sacrifice, then it would lead to higher perceptions of perceived monetary value, and lower perceptions of risk. Overall this would lead to an increased willingness to buy. When situation of lower perceived quality are found, the opposite results would occur.

## **Conclusions**

It has been a worthwhile endeavor to answer the long ago call for research to integrate objective price-quality research with the market cue - product evaluation paradigm described in this paper. This investigation has lead to the identification of conditions under which consumers' subjective judgments of product characteristics and purchasing criteria such as price and brand name are influence by the use of objective quality information. This has lead to modification of the market cue-product evaluation model to include the important aspect of objective information into the model.

## **Managerial Implications.**

To build long-term relationships with customers, marketers must ensure positive brand-objective quality and price-objective quality associations are maintained. However, the success of this approach is conditional on marketers' understanding of how price and brand information works and how consumers perceive these market cues. How objective quality information interacts with price to influence the goodness of a product is enlightening.

The findings from this study portend good news for those concerned with potential unscrupulous behavior in the market place where a seller might use a higher price to get away with the perception of better overall quality and value. It was clearly shown in this research that consumers place a "premium" on the perceived quality, value and willingness to buy for a lower priced product that has a superior objective quality rating and will "discount" the overall goodness of a higher priced product when the objective quality information is poor. Overall, this suggests that if consumers use objective information such as provided by

*Consumer Reports* then they are more likely to make good purchase decisions. These findings may guide practitioners to better manage the information cues of price and brand name to be consistent with objective quality-rating information in order to bring about a worthier balance between the interests of consumers and marketers. The bottom line is that marketers need to build a strong brand image through quality. Through consumer's perception of quality, along with being reinforced with strong objective quality ratings, premium prices are expected and justified.

### **Consumer Implications.**

The results in this study come from a tightly controlled experiment in which a homogeneous group of subjects in a between factorial design were asked to evaluate televisions. The description of the product was identical in all treatments; however, subjects were allowed to use any past knowledge about the products. If every consumer looked at an identical product and was influenced by the price or brand name to buy the product in light of poor objective quality rating, then a poor decision was made. Consumers need to understand the phenomenon of how perceptions of external market cues such as price and brand name influence their buying behavior, and how the use of objective quality-rating information can counter this influence. Marketers' awareness of these finding will contribute to a naturally ordered market so that both the buyer and the seller can transact business fairly and effectively.

### **Limitations.**

Knowledge of the market place needs to be developed from informed observation of market behavior that is generalizable to different products and different types of consumers. One study does not provide a basis for knowledge since it looks at limited number of products, consumer segments, and measured perceptions in an artificial type environment.

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## Appendix A. Description of the Subjects

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Age	under 50 years	47.6%
	51-60 years	27.2%
	61-70 years	15.6%
	71-80 years	16.3%
	over 80	3.4%
Gender	female	47.6%
	male	52.4%
Level of education	grade school or less	1.4%
	some high school	6.1%
	high school graduate	21.6%
	some college	27.7%
	bachelor's degree	33.8%
	master's degree	8.1%
	doctoral degree	1.4%

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## Appendix B. Dependent Measures and Constructs

### Perceived Quality

- The SEARS TELEVISION would be reliable.
- The SEARS TELEVISION should be of very good quality.
- The SEARS TELEVISION would be very durable.

### Perceived Monetary Sacrifice

- The price for the SEARS TELEVISION is a lot of money to spend
- The price for the SEARS TELEVISION is much more than I expected

### Perceived Value

- The SEARS TELEVISION is a good buy for the money.
- This SEARS TELEVISION appears to be a good bargain.
- The SEARS TELEVISION is worth the money it costs.
- For the quality of the television that I would get, I feel good about spending this amount of money.
- I would consider the SEARS TELEVISION to be a good value.

### Willingness to Buy

- The probability that I would consider buying the SEARS TELEVISION is very high.

### Psychological Risk

- I would feel good about this purchase.

### Social Risk

- This brand is similar to televisions bought by my friends.

### Functional Risk

- The SEARS TELEVISION will perform much better than competitive televisions.

All variables measured on a Likert scale.