THE ROLE OF CONSUMER PRODUCT WARRANTIES AND OTHER EXTRINSIC CUES
IN REDUCING PERCEIVED RISK

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Abstract

Recent attempts to demonstrate consumer product warranties reduce perceived risk have yielded mix results. The present paper extends previous research by investigating the effectiveness of warranties and other selected extrinsic cues as reducers of perceived performance and financial risk. The results indicated that a full warranty and favorable store image did reduce these components of risk but price and private test certification did not.

Introduction

Despite increased research efforts over the past decade, the consumer product warranty remains one of the least understood aspects of a product strategy. According to Kelley (1986), this condition exists for three main reasons. First, much of the warranty research has been fragmented into a myriad of topics. Second, with the exception of attempts to analyze the readability of warranties, previous research has not been replicated. Third, generalizations about the nature and influence of warranties on consumer behavior have not been possible because much of the empirical research has yielded mixed results.

Several research questions need to be answered before consumer product warranties are more fully understood. Additional attempts at theory discovery and justification, research on the provisions of the Magnuson-Moss Warranty Act, and an investigation into what effect extended warranties have on perceptions of express warranties are topics that future research should address. Another topic that needs further research is how consumers use expresse warranties when making purchase decisions. Some evidence exists that warranties may reduce certain components of perceived risk (Bearden and Shimp 1982; Shimp and Bearden 1982). However, replication and extension of this research is necessary before the results can be generalized. The purpose of the present study is to investigate whether warranties, when combined with other extrinsic cues (e.g., price and store image), reduce selected components of perceived risk.

The remainder of the paper is organized into five sections. First, the relevant literature related to warranties and perceived risk is briefly reviewed. Second, the hypotheses are stated. Next, the methodology employed in the study is presented, followed by a discussion of the results. Finally, the marketing and public policy implications of the results are highlighted.

Background

Bauer (1960) suggested every purchase decision involves an element of perceived risk. Concep-tually, perceived risk is thought to be a function of the amount of uncertainty and magnitude of the consequences surrounding a particular act (Cox 1967; Humphreys and Kenderdine 1979; Taylor 1974), and it may be financial, performance, social, psychological, or physical in nature (Jacoby, Kaplan, and Szybillo 1974). Although the relative importance of each of type of risk depends on the nature of the product and purchase decision, performance (P-risk) and financial (F-risk) risk are usually the most important (Ross 1975).

Much of the research in marketing that has investigated perceived risk has focused on ways to reduce risk. Most of this research has found mix results. For example, Roselius (1971) found that brand loyalty and brand image had the greatest effect on reducing all components of perceived risk across several product classes. Warranties, endorsements, word-of-mouth, store image, and private testing were found to have little or no effect on reducing perceived risk. However, Roselius's (1971) results cannot be generalized since the reliability of the single-item scales used in his study could not be assessed. In addition, Roselius (1971) did not study whether the above extrinsic cues might interact to reduce perceived risk.

Price also may reduce perceived risk in the absence of other product information (Monroe 1973; Olson 1977). However, little evidence exists which supports this hypothesis. For example, price did not reduce P-risk or F-risk in a series of experiments conducted by Shimp and Bearden (1982).

The fact that various extrinsic cues may not act independently could be the reason for the lack of evidence that extrinsic cues reduce perceived risk. Jacoby, Olson, and Haddock (1971) found that price and perceived quality of a product were related. Evidence that warrantor reputation and warranty quality interact to reduce P-risk and F-risk also exists (Bearden and Shimp 1982; Shimp and Bearden 1982). However, the interactive effect that three or more extrinsic cues have on reducing perceived risk has not been addressed. The present study extended earlier perceived risk research by investigating the combined effect that express warranties, price, store image, and private test certification had on reducing P-risk and F-risk.

Hypotheses

Marketers have used warranties to reduce perceived risk (Feldman 1976). But is the amount of risk reduced dependent on the terms of a warranty? A consumer should perceive less P-risk and F-risk when purchasing a product with a full warranty vis-a-vis a limited warranty because a full warranty provides more coverage. Partial

support for this hypothesis exists (Bearden and Shimp 1982; Shimp and Bearden 1982). However, additional tests are needed before generalizing this hypothesis. Therefore, the first hypothesis is:

H_{1a}: A high-quality warranty will result in less P-risk than a low-quality warranty

H_{1b}: A high-quality warranty will result in less F-risk than a low-quality warranty

Although they did not find any support for their hypothesis, Hisrich, Dornoff, and Kernan (1972) argued that store image might act as a surrogate risk reducer for product cues if the product was ambiguous. It can be inferred from their argument that consumers would reduce perceived risk by shopping in stores that had a favorable image. Thus, one would expect that P-risk and F-risk would decrease with increasing store image. Stated formally, the second hypothesis is:

H_{2a}: A more favorable store image will result in less P-risk than an unfavorable store image

H_{2b}: A more favorable store image will result in less F-risk than an unfavorable store image

Marketers have also used seals or certificates issued by private testing organizations, such as Underwriter Laboratories, in their marketing communications as a means of reducing perceived risk. Certification should assure the consumer that the product has met certain performance standards. Thus, a seal of approval issued by a reputable organization should reduce P- and F-risk, whereas certification by a disreputable organization should have little effect on reducing P- and F-risk. Hence, the third hypothesis is:

H_{3a}: Certification by a reputable private testing organization will result in less P-risk than certification by a disreputable private testing organization

H_{3b}: Certification by a reputable private testing organization will resulting less F-risk than certification by a disreputable private testing organization

Consumers may impute product quality from the price (Monroe 1973; Olson 1977). Although the relationship may vary by product class, higher prices should reduce P-risk. At the same time, a higher price should increase F-risk. These relationships have not been supported in previous research but may hold in the presence of several extrinsic cues. Thus, the final hypothesis is:

H_{4a}: A high price will result in less P-risk than a low price

H_{4b}: A high price will result in more F-risk than a low price.

Methodology

Two levels of warranty quality (low and high), two levels of store image (favorable and unfavor-able), two levels of private testing (favorable and unfavorable), and two levels of price (low and high) were manipulated in a 2 x 2 x 2 x 2 between-subjects factorial design. A sample of 320 students enrolled in beginning marketing classes consented to participate in the study. The subjects were randomly assigned to the 16 treatments and were exposed to the experimental manipulation in groups of 25 or less. Each treatment included 20 subjects.

It was thought that the experimental product needed to be somewhat technical and complex in order for P-risk to be manifested (Shimp and Bearden 1982). Pretesting indicated that stereo speakers fulfilled this requirements.

Independent Variables

Shimp and Bearden (1982) manipulated the words full and limited and the duration of coverage to define the warranty cue. Warranty quality was operationalized similarly in the present study. The high-quality warranty was described as a 3-year full warranty. The low-quality warranty version was described as a 6-month limited warranty.

Pessemier (1981) and Menezes and Elbert (1979) identified several store characteristics that shape store image. Using a list compiled from these studies, the present study used descriptions of location, availability of service, product selection, and length of time in business to operationalize store image. A favorable store was described as one that had (1) been in business for an extended period of time, (2) a strong reputation for customer and product service, (3) a large selection of brands, and (4) convenient store locations. Conversely, the unfavorable store was characterized as one that had (1) been in business for a very short period of time, (2) a questionable reputation for customer service, (3) a limited selection of brands, and (4) inconvenient store locations.

Private testing was operationalized as either being a highly reputable and creditable testing organization or as a questionable and incredulous testing organization. The reputable manipulation source was Consumer Reports while the disreputable testing source was described as Stereo Facts, a fictitious testing organization established by the manufacturers of audio equipment.

Price was operationalized as high ($249) or low ($49) similar to Shimp and Bearden (1982).

Dependent Variables

P-risk and F-risk were each measured with a five-item Likert-type scale. The items measured the two dimensions of perceived risk: uncertainty and consequences. Examples of these items included, "considering the investment involved, purchasing the pair of advertised stereo speakers would be (very risky . . . not very risky)" and "after reading the ad, how certain are you that the advertised speakers will perform satisfactorily (uncertain . . . certain)."

Procedure

An advertisement was developed for the experimental product. An effort was made to allocate the same amount of space to the manipulation of each independent variable such that demand effects would be minimized. No extraneous text material was included in the advertisement.

Booklets containing a cover page of instructions, the experimental advertisements, and the questionnaire were distributed to the subjects. The instructions stated that the subjects were selected to participate in a pilot test of an advertisement being developed for a manufacturer of stereo equipment. The subjects were then thanked for their participation and asked to read the experimental advertisement and respond to the short questionnaire. The test was self-administered, but an attempt was made to maintain a controlled environment by asking the subjects to remain quite until everyone had a chance to finish the test. Once all of the subjects had completed the questionnaire, the booklets were collected and the subjects were debriefed.

Results

Manipulation Checks and Reliability

Price, store image, and private testing were measured with separate two-item, seven-point Likert-type scales. Warranty quality was measured with a single-item, seven-point Likert-type scale. Illustrative of the items was the item for warranty quality. "The warranty attached to the advertised speakers is (very unsatisfactory . . . very satisfactory)." Separate independent t-tests indicated that manipulations were successful. The scales also possessed a high degree of internal reliability as measured by Cronbach's coefficient alpha. Table 1 summarizes the t-test and coefficient alpha results.

The P-risk and F-risk scales also possessed an acceptable level of internal reliability. Cronbach's coefficient alpha for these scales was .86 and .85, respectively. (See Table 1.)

Experimental Findings

The treatment means are summarized in Table 2. The four hypotheses were tested using a multivariate analysis of variance (MANOVA). The results of the MANOVA are shown in Table 3. (See Tables 2 and 3.)

Hypotheses H_{1a} and H_{2a} were partially supported. The significant interaction of store image and warranty indicated that together these variables reduced P-risk ($F = 3.96$, p. $< .015$). A plot of the interaction is shown in Figure 1 and a Tukey test ($p = .05$) indicated that the following differences existed. The high-warranty/favorable store image treatment resulted in less P-risk than the high-warranty/unfavorable store image treatment or the two low-warranty treatments. The high-warranty/unfavorable store image treatment had significantly less P-risk than the low-warranty/unfavorable store image treatment.

The low-warranty/favorable store image treatment differed from the low-warranty/unfavorable store image treatment. Finally, there was no difference between the high-warranty/unfavorable storage image and the low-warranty/favorable store image. (See Figure 1.)

The main effects of warranty quality ($F = 13.99$, $p < .000$) and store image ($F = 13.83$, $p < .000$) were significant for F-risk; thus, fully supporting H_{1b} and H_{2b}.

Hypotheses H_{3a}, H_{3b}, H_{4a}, and H_{4b} were not supported. The reputable testing treatment did not result in less P-risk and F-risk compared to the disreputable testing organization ($F = 1.33$, $p < .264$) and the higher price treatment did not reduce P-risk or increase F-risk relative to the lower price treatment ($F = 296$, $p < .120$).

Discussion

This study contributes to a growing body of evidence that consumer product warranties reduce perceived risk. A high-quality warranty and a favorable store image combined to reduce the amount of P-risk that was associated with the purchase of a pair of stereo speakers. Individually, a high-quality warranty and a favorable store image reduced F-risk. Price and private test certification were not found to be significant risk-reducing cues.

Perhaps the reason store image and warranty quality reduced P-risk and F-risk was that they were some of the more salient cues tested. Someone would immediately form an image of a store upon noting the location, inventory selection, and service. In addition, the terms of express warranties must be disclosed prior to the purchase as a condition of the Magnuson-Moss Warranty Act of 1975. Consumers may now be more aware of warranty information and considering it in their purchase decisions.

The reasons a certificate of testing may not reduce perceived risk are (1) that the literature suggests consumers seldom consult third-party information sources before making a purchase (Beales, et al., 1981), (2) the certification seal may not be readily visible to the consumer (e.g., the Underwriter Laboratories tag may be taped to an electric cord), and (3) even if the seal is acknowledged, the consumer may not understand what it means.

The fact that price failed to exhibit a main effect on P-risk and F-risk reinforces the results of previous studies. Perhaps price only effects perceived risk only in the presence of extrinsic cues not included in this study or when no other extrinsic cues are present.

Possible marketing implications of the results of this study include the development of marketing communications and the selection of channel members. A high-quality warranty might be disclosed in a print advertisement or point-of-purchase display in an effort to reduce F- and P-risk. The print medium would be the most

appropriate vehicle since the amount of infor-
mation contained in a warranty would take a
considerable about of time for the consumer to
process. In terms of channel decisions, it is
important for the manufacturer to determine how
consumers view a particular store or chain before
selecting the store or chain as a distribution
outlet. The image of the store must be consis-
tent with the image the manufacturer is trying to
generate through the other elements of the mar-
keting mix. For example, a manufacturer may want
to use a high-quality warranty to differentiate
itself from the competition; thus, requiring
arrangements to be made with the store to service
the warranty. If consumers do not perceive the
store as being a reputable service provider, the
strategy may fail.

The evidence that warranties reduce perceived
risk may also influence efforts to develop theo-
ries that explain the purpose of warranties. One
such theory is the Market Signal Theory which
proposes consumers infer the reliability of a
product from its warranty. Perhaps this theory
might be modified to include warranties as redu-
cers of P-risk and F-risk.

From a public policy perspective, the fact that
warranty information could be relied on in making
purchase decisons reinforces the need for the
Magnuson-Moss Act. If consumers rely on warranty
information supplied by the marketer to reduce
the risk of purchasing a particular product, the
warranty information should be truthful and
disclosed prior to the purchase.

Conclusion

The present study is not without limitations
which affect the generalization of the results.
First, the experiment involved a homogeneous
sample and one product. Additional research is
needed to determine the extent these cues influ-
ence purchase decisions across a variety of
product classes and consumer segments. Second,
even though steps were taken to minimize demand
effects, no measure was included in the question-
naire that attempted to identify the presence of
such effects. Third, several extrinsic cues
(e.g., brand loyalty and brand name) were not
included in the study. It is conceivable that
different combinations of cues might yield some-
what different results. However, this would
require a more extensive study than the one
described in this paper.

Despite these limitations the study has contri-
buted to marketing's understanding of the ability
of selected extrinsic cues to reduce P-risk and
F-risk. Only through continued replication and
extension efforts will marketing decisions con-
cerning the cues used in this study become
clearer.

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TABLE 1

MANIPULATION CHECKS

Variable	Number of Items	T-Value	Probability	Alpha
Price	2	4.99	0.025	.80
Store Image	2	6.23	0.012	.77
Testing	2	4.89	0.027	.87
Warranty	1	13.54	0.000	---

TABLE 3

MANOVA RESULTS

Independent Variable	DF	Dependent Variable	ANOVA SS	F-Value	Probability
Price	(2,303)			2.96	.120
		F-Risk	87.15	4.49	.086
		P-Risk	8.77	0.31	.576
Store	(2,303)			6.91	.001*
		F-Risk	407.25	13.83	.000*
		P-Risk	169.65	6.05	.014*
Testing	(2,303)			1.33	.264
		F-Risk	63.90	2.17	.141
		P-Risk	7.50	0.26	.605
Warranty	(2,303)			13.09	.000*
		F-Risk	559.15	18.99	.000*
		P-Risk	693.25	24.75	.000*
Testing X Store	(2,303)			0.73	.479
		F-Risk	11.62	0.39	.530
		P-Risk	2.62	0.09	.759
Testing X Price	(2,303)			1.97	.140
		F-Risk	116.40	3.95	.047
		P-Risk	47.27	1.68	.194
Testing X Warranty	(2,303)			1.08	.338
		F-Risk	8.77	0.29	.585
		P-Risk	10.15	0.36	.547
Store X Price	(2,303)			0.53	.586
		F-Risk	1.95	0.06	.796
		P-Risk	22.57	0.80	.369
Store X Warranty	(2,303)			3.96	.019*
		F-Risk	14.02	0.47	.476
		P-Risk	116.75	6.95	.015*
Price X Warranty	(2,303)			0.56	.567
		F-Risk	14.87	0.50	.477
		P-Risk	31.87	1.13	.286
Testing X Store X Price	(2,303)			0.61	.543
		F-Risk	9.45	0.32	.571
		P-Risk	2.27	0.08	.771
Testing X Store X Warranty	(2,303)			0.02	.982
		F-Risk	0.90	0.03	.861
		P-Risk	0.15	0.10	.941
Texting X Price X Warranty	(2,303)			2.04	.131
		F-Risk	93.52	3.17	.075
		P-Risk	104.65	3.73	.054
Store X Price X Warranty	(2,303)			0.11	.888
		F-Risk	6.32	0.21	.643
		P-Risk	5.25	0.18	.665
Testing X Store X Price X Warranty	(2,303)			2.39	.092
		F-Risk	91.37	3.10	.079
		P-Risk	131.32	4.68	.031

Note: Wilks lambda was used to approximate the F-value.

TABLE 2

TREATMENT MEANS

Treatment	Testing	Store	Price	Warranty	P-Risk X	P-Risk SD	R-Risk X	R-Risk SD
1	Stereo Facts	Favorable	$ 49	Limited	18.5	5.6	16.2	5.1
2	"	"	"	Full	21.9	5.1	21.7	4.3
3	"	"	$249	Limited	19.2	5.8	18.8	5.4
4	"	"	"	Full	21.1	6.7	22.7	5.2
5	"	Unfavorable	$ 49	Limited	15.2	6.0	16.0	6.0
6	"	"	"	Full	19.5	4.5	20.6	4.5
7	"	"	$249	Limited	17.9	5.0	19.2	7.1
8	"	"	"	Full	17.6	4.4	18.3	5.1
9	Consumer Reports	Favorable	$ 49	Limited	19.5	4.4	18.0	4.9
10	"	"	"	Full	23.7	4.5	22.9	4.4
11	"	"	$249	Limited	19.4	5.0	18.8	5.9
12	"	"	"	Full	21.7	5.2	19.6	5.3
13	"	Unfavorable	$ 49	Limited	20.0	4.5	19.6	5.3
14	"	"	"	Full	20.4	6.3	18.6	5.2
15	"	"	$249	Limited	15.2	6.6	16.7	4.6
16	"	"	"	Full	19.7	5.6	19.9	5.4

Note: P-risk and F-risk range 5 (high risk) to 35 (low risk).

FIGURE 1

PLOT OF STORE BY WARRANTY INTERACTION

Store Image

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