

Risk-Reduction Strategy for New E-Retailers – A Signaling Theory Approach

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ABSTRACT

Building up the signal theory, this study examined the effects of brand ally, physical store, and warranty on reducing risk perception and enhancing purchase intention for new electronic retailers. A 2 x 2 x 2 experimental design was performed to test the impacts of the three risk-reduction strategies and to examine the effects of individual vs. combined signals. The analyses revealed significant effects of each strategy at reducing risk perception and boosting purchase intention. Also, the findings suggest that a combination of more signals is not necessary more effective risk-reduction practice, and the type of signals will determine the influence. The implications of the findings and future research directions were also discussed.

KEYWORDS: risk perception; risk-reduction strategy; warranty; brand credibility; physical store; signaling theory

INTRODUCTION

Despite of the increasing population of Internet users, consumers still associate a greater risk of online purchase. A recent survey of Internet users in Taiwan indicated that approximately 24% of the consumers chose not to shop online due to “lack of trust for the e-retailers’ credibility”, “the barriers of experiencing the product before purchasing”, and “preference for shopping in physical stores” (<http://mic.iilorg.tw/intelligence>). Compared with retailers that have expanded their presence on the Web, a brand-new electronic retailer could feature a typical condition of information asymmetry and place the shoppers in a highly risky shopping environment. Therefore, the capability to reduce risk perceptions appears particularly critical for brand-new e-retailers.

Strategy such as brand reputation and warranty has been proved to successfully reduce risk perception in marketing literature (Shimp and Bearden, 1982; Innis and Unnava, 1991; Boulding and Kirmani, 1993). These strategies taken by the sellers project become important cues to consumers when the product quality is unobservable by consumers. On the other hand, consumers may use these signals to make inferences of the firm’s trustworthiness. Although lack of trust may also derive from

the concern of transaction security, it is not focus of this study as increasing online retailers in Taiwan are providing shoppers the alternative to pay at the receipt of goods to ease this concern. Specifically, this study intends to address other issues that have prevented consumer from online purchasing. In the context of a new storefront on the Internet, not only the service/product quality but also other trust-related characteristics are not visible to the buyers. It will be interesting to study whether the seller can project certain signals to help consumer to make inference regarding the products and the trustworthiness, and to reduce consumers' perceived risk of purchasing. To address the concerns, this study focuses on the following two issues:

1. What are the effectiveness of projecting signals, such as brand alliance, warranties, and physical stores, at reducing consumers' risk perception and purchase intention in the context of a new e-retailer?
2. Whether use of multiple signals are more effective than using single signal for reducing perceived risk?

BACKGROUND

Signaling theory evolved from the study of information economics under conditions in which the different parties to a transaction possess asymmetric information regarding the market interaction (Boulding and Kirmani, 1993; Spence, 1973). Given the special and temporal boundaries between consumers and the e-retailers, the buyers hold a variety of concerns while shop on the new Web store. In addition to transaction security, consumers feel risky about shopping on a new e-retailer because they are rarely fully informed while the e-retailers own much more knowledge about their product and the firm. Kirmani and Rao (2000, p. 66) suggested, "when one party lacks information that the other party has, the first party may make inferences from the information provided by the second party, and this inference information should play a role in the information the second party chooses to provide". Therefore, consumers shopping on a brand-new e-retailer would try to look to the evidences to make inference regarding the sellers and the products/service quality.

A new Web store can be an additional channel used by the firm to supplement other methods of sales or the sole method to sell and distribute services and products. Consumers' evaluation of firms belonging to the former category may be based on a wider array of factors while many information cues are less available to consumers when the seller establishes its sole presence on the Web. In the latter case, firms can use signals to project cues regarding the character (competence, credibility, trustworthiness, etc.) and the business practices (e.g., reliability, efficiency, etc.) of the

e-retailers, or the output (e.g., products and service, level of quality, design characteristics, etc.) from the transaction.

According to the typology suggested by Kirmani and Rao (2000), signals can be default-independent or default-contingent. Signals are default-independent when monetary loss occurs independently of whether the firm defaults on its claim. Default-contingent signals refer to the situations in which monetary loss occurs only when the firm fails to fulfill its claim. Brand name has been used to signify unobservable product quality (Erdem and Swait, 1998), it represents a type of default-independent signals because it involves up-front expenditures regardless of whether the claim is true or not and must be recouped in the future. Therefore, sellers of low-quality products would avoid investing in brand name because future sales may reveal product message inconsistent with the reputation and result in irrevocable loss.

However, a new e-retailer may not have the chance to build its reputation and brand name becomes an infeasible signal. In the situation, the brand-new seller may borrow the reputation of a third party (Chu and Chu, 1994). Specifically, the new seller can form an alliance with a second brand that is capable of projecting information cues that the new seller cannot signal itself (Rao, Qu, and Ruckert, 1999). For example, the retailer may post information about strategic alliance with a name brand to signal its credibility. Although brand ally as a signal for online shopping has not been studied, it was found to enhance evaluation of product quality when the allied brand is perceived to be vulnerable to consumer sanctions. In line with the findings, it is argued that brand ally can be an informative cue to project the credibility of the new e-retailer quality. That is, consumers are expected to have a lower risk perception and a greater willingness to purchase when the new e-retailer is associated with a name brand, compared with the conditions when there is no brand ally. Hence, it is hypothesized that:

H1: *Brand ally will have a positive impact at reducing risk perception. That is, an new e-retailer allied with a reputable institute is more effective at reducing risk perception and enhancing purchase intention than a new e-retailer with no bran ally.*

Following the prior discussion, an Internet-based retailer that utilizes its Web storefront as the sole method to sell and distribute will need to place more efforts to build up credit for the firm and its products/services. An emerging phenomenon in Taiwan is that some Internet-based retailers are establishing physical stores, which can be considered as another signaling strategy to ease buyers' uncertainty for the product quality and concern about the seller's credibility. Due to the fact that Web is still the major method of sales and distribution for the Internet-based e-retailers, the number of

physical stores remains scarce and are located in major cities. The presence of physical stores makes the product more observable to consumers. By reducing the distance between consumers and the e-retailer through the presence of physical stores, more information may become more accessible to consumers. Therefore, posting the information regarding the physical stores may project cues to enhance the credibility of the new e-retailers and to reduce the risk perception of the consumers. It is therefore hypothesized that:

H2: *The presence of physical store will have a positive impact at reducing risk perception. That is, an e-retailer with the presence of physical store is more effective at reducing risk perception and enhancing purchase intention than an e-retailer with no physical store.*

To encourage purchase, many online retailers also utilize warranty to signal the product quality. The effects of warranty at signaling product quality and reducing perceived risk has been supported by the literature (Kelley, 1988; Wiener, 1985; Tan, 1999). However, some retailers choose to offer vague warranty in which exchange or return policies were unclear, which implies that the firms can escape from delivering high-quality product because no penalty of specified. A warranty composed of specific exchange and return policies may lead a rational consumer to infer high quality for the product compared to a vague warranty without clear information for exchange and return. The following hypothesis is formulated:

H3: *Warranty will have a positive effect at reducing risk perception. Providing a warranty with a clear exchange policy is more effective at reducing risk perception of purchasing on a brand-new electronic retailer than a general warranty containing no detail information.*

Companies may apply multiple cues to signal the credibility of the company, but empirical studies of consumer responses to multiple signals is sparse (Kirmani and Rao, 2000). Combining signals of different categories may be a beneficial strategy to the firms that can use the entire set of properties to project complementary signals rather than duplicating investment on properties signaling substitutable information. On the other hand, consumers may infer a greater loss for the firms to offer low-quality products or to exhibit conducts inconsistent with the signals when firms utilize multiple signals. Hence, it is hypothesized that:

H4: *The positive impact of risk-reducing strategy will increase as more signals are adopted by a brand-new e-retailer. That is, consumers will have lower perceived risk and higher willingness to purchase on the e-retailer as more risk-reduction strategies were applied by the e-retailer.*

METHODOLOGY

Overview

The hypothesized effects of the risk-reduction signals were tested with a 2 x 2 x 2 between-subjects experimental design. The three manipulated variables are warrantee (high/low), brand ally (yes/no), and presence of physical store (yes/no). Subjects participated in this study were told that this is a project investigating consumers' behavior of online shopping. The participants first read a randomly assigned scenario in which they were instructed to imagine themselves shopping on a newly established e-retailer to buy a sunscreen lotion. This shopping website is dot.com that sells product mainly through the Internet. After reading the assigned scenario, the participants filled up a questionnaire that measured his/her responses to the experimental condition.

Manipulations

Brand Ally Brand ally is manipulated by whether the website is endorsed by a reputable third-party. In the condition when brand ally is signaled, the new e-retailer was endorsed by Yahoo and was rated as one of the most recommended new electronic retailers. In the no brand ally condition, the website posted a message to express its gratitude to e-shoppers' support and stated their willingness to manage this website. However, no endorsement was provided by another brand name.

Physical Store. This manipulation refers to whether an e-retailer establishes physical channels. In the presence condition, the e-retailer posted information about the store information to indicate their strategy to establish physical presence of the retailers. E-retailer did not post any information about physical stores in the absence condition and suggests that this company is a retailer existing only on the Internet.

Warranty. The warranty with a free trial within a certain period and the product can be returned for an exchange is a common practice of guarantee in Taiwan. However, many other shops also choose to offer a promise for quality without providing details regarding product-exchange condition and the length of warranty. In the high warranty condition, the online store offers a free 7-day trial and product exchange when the consumer is not satisfied with the sunscreen lotion. Seven days was selected as the free-trial period based on observation of the policies used by most electronic retailers for similar products. In the low warranty condition, a description about the company's goal for pursuing high quality product and a warranty of no details for product return or exchange was posted.

Measures

Manipulation Check: Six questions were design to check if the participants perceived the manipulated variables correctly. These questions were rated with 6-point Liket scale.

Dependent Variables : This study examined the effects of risk-reducing strategies on consumers' perceived risk and purchase intention. Items were developed based on related research findings (e.g., Peter and Tarpey, 1975; Stone and Gronhaug) to assess subjects' perception of financial, performance, physical, social, psychological, and timing risks of buying the sunscreen lotion on this e-retailer. The subjects reported their perceived risk by estimating the likelihood of such an event resulting from shopping on this e-retailer on a 6-point Likert scale (1=very unlikely, 6=very likely) and the importance of the event (1=Not important at all, 6=Very Important). Subjects' perceived risk is the summation of the product of the likelihood and importance scores for the six types of risks for product purchasing. Intention to shop is assessed on a 6-point scale by taping the subjects' willingness to purchase the sunscreen lotion and their willingness to shop on this specific e-retailer with four items.

Sample

A total of 280 subjects participated this study and about 50 % of the subjects were undergraduate or graduate students. Approximately 52.5% of the subjects own experiences of online shopping. The subjects were randomly assigned to 1 of the 8 experimental conditions. Cell sizes for the 8 conditions were between 33 and 36.

RESULTS

Manipulation check results indicated that all three variables were successfully manipulated (mean difference of 2.976 [$p < .001$] for brand ally, 3.904 [$p < .001$] for physical store, 3.537 [$p < .001$] for warranty). In addition, t-tests computed for the effects of subject gender revealed a significant difference between female and male participants ($p \leq .5$). Men in general hold a lower level of risk perception and are more willing to purchase the product and shop on this e-retailer than women. Subjects with more online shopping experience tend to express greater willingness to buy the product and shop on the e-retailer, and showed a lower risk perception than subjects with less online shopping experiences. Therefore, the two personal characteristics are included as covariate for the following analyses.

The first three hypotheses predicted that brand ally, physical store, and a higher level of warranty will lead to lower risk perception, higher purchase intention and greater willingness to spread positive word-of-mouth. A 2 x 2 x 2 ANCOVA with

gender and prior online shopping experience as the covariats was performed to examine the hypotheses. As shown in Table 2 and 3, these predictions were all supported. In specific, the ANCOVA revealed significant main effects of brand ally, warranty, and physical store on all outcome variables. The findings regarding warranty and brand ally were consistent with the literature on signaling effects, although physical store as a signal has rarely discussed and empirically tested in prior research.

Hypothesis 4 posits that multiple signals will have a more positive impact on risk perceptions, purchase intentions, and willingness to spread positive WOM than single signal. The experimental conditions were treated as the independent variable to test different combinations of signals using ANOVA and the post-hoc test Bonferroni. The analyses showed significant effects of the different combination on risk perception ($F_{7,272}=8.89$, $p<.0001$), intention to purchase the product ($F_{7,272}=11.29$, $p<.0001$), and intention to shop on the e-retailer ($F_{7,272}=13.94$, $p<.0001$).

The Bonferroni tests performed between pairs of conditions were shown in Table 4. The results generally indicated that consumers' risk perceptions were not significantly different between conditions when one or more signals were provided, suggesting that multiple (i.e., three) signals were not more effective than single cue at reducing risk perception. The exception occurred when physical store was the only signal projected by the firm. Subjects in the condition reported significantly lower intentions to purchase the product and to purchase on the e-retailers than subjects who were exposed to two signals. The results also showed that projecting no signals was not significantly different from providing single signal at reducing risk perceptions and facilitate purchase intention, except when the single signal is warranty for free exchange.

DISCUSSION AND CONCLUSIONS

Building trust has been a major issue for operating and managing electronic retailers and most research have considered security as the major obstacle for online transaction. As some retailers start to offer the option of payment at receipt of goods, feeling uncertain about the products/service quality and the seller is still one of the unresolved concerns among consumers. Given that information is normally asymmetric in the context of online shopping, this study took the signaling approach and proposed that strategies such as brand ally, establishment of representative physical stores, and offering free-exchange warranty would be informative cues to reduce risk perception and to enhance purchase intention on a new e-retailer.

The current study provides supporting evidence for these three strategies and

suggests that they are effective signals to risk-reduction and purchase intention boosters. Also, the results seem to suggest that providing more signals are not necessary more effective, except when establishing representative physical stores was the only signal. Also, providing any combination of two signals were not more significantly more effective than the condition when warranty was the only signal provided.

In general, the results imply that providing signals like brand ally, warranty, and information about physical stores are effective risk-reduction strategies, and using more than one signal are not necessary more favorable depending on the signals. According to the current study, providing free-exchange warranty can be as informative as providing combination of any two signals for the purpose of reducing risk perception or encouraging online purchasing. On the other hand, simply posting the information about physical stores as an alternative shopping method alone is less persuasive.

While brand ally and physical store both involves investment (royalties to the second brand or expenditure for establishing physical stores), warranty is characterized as the type of cost-risking default-contingent signals (Kirmani and Rao, 2000). For companies that sell high-quality products but can not afford to invest in up-front expenditure, warranty will be a better choice because after sales costs is not very likely and won't happen unless the claim is not true.

Finally, it is notable that experimental approach to examining marketing phenomenon is vulnerable to the criticism of low external validity. Future research may consider to test the effects of these signals in a real business context. Also, it will be interesting to find out the contingent conditions moderating the effects of the three strategies.

REFERENCES

- Boulding, W. and Kirmani, A., "A Consumer-Side Experimental Examination of Signaling Theory : Do Consumers Perceive Warranties as Signals of Quality", *Journal of Consumer Research*, Vol. 20, June, 1993, pp.111-123.
- Chu, W. and Chu, W, "Signaling Quality by Selling Through a Reputable Retailer: An Example of Renting the Reputation of Another Agent," *Marketing Science*, Vol. 13 (2), 1994, pp. 177-189.
- Erdem, T. and Swait, J., "Brand Equity as a Signalin Phenomenon," *Journal of Consumer Psychology*, Vol. 7 (2), 1998, pp. 131-158.
- Innis, D. and Unnava, H. R., "The Usefulness of Product Warranties for Reputable and

- New Brands,” in *Advances in Consumer Research*, Vol. 18, Rebecca H. Holman and Michael R. Solomon (Eds.), Provo, UT: Association for Consumer Research, 1991, pp. 317-322.
- Kelley, C.A., “An Investigation of Consumer Product Warranties as Market Signals of Product Reliability,” *Journal of the Academy of Marketing Science*, Vol. 16 (2), 1988, pp. 72-78.
- Kirmani, A. and Rao, A.R., “No Pain, No Gain : A Critical Review of the Literature on Signaling Unobservable Product Quality,” *Journal of Marketing*, Vol. 64, April, 2000, pp.66-79.
- Peter, J. P. and Tarpey, L. X., 1975,“A Comparative Analysis of Three Consumer Decision Strategies,” *Journal of Consumer Research*, Vol. 2, June, 1975, pp.29-37.
- Rao, A., Qu, L., and Ruekert, R.W.,“Signaling Unobservable Product Quality Through a Brand Ally,” *Journal of Marketing Research*, Vol. 36, May, 1999, pp.258-268.
- Shimp, T.A. and Bearden, W.O., “Warranty and Other Extrinsic Cue Effects on Consumer Risks Percpetion,” *Journal of Consumer Research*, 9, 1982, pp. 38-46.
- Spence, M., “Job Marketing Signaling,” *Quarterly Journal of Economics*, Vol. 87, No. 3, 1973, pp.355-374.
- Stone, R. N. and Gronhaug, K., “Perceived Risk : Further Consideration for Marketing Discipline,” *European Journal of Marketing*, Vol. 27, 1993, pp.39-45.
- Tan, S.J.,“Strategies for Reducing Consumers’ Risk Aversion in Internet Shopping,” *Journal of Consumer Marketing*, Vol. 16, No. 2, 1999, pp.163-180.
- Wiener, J. L., “Are Warranties Accurate Signals of Product Reliabilities?” *Journal of Consumer Research*, Vol. 12, 1985, 245-250.

Table 1: Experimental Design and Conditions

Exp. Conditions	Brand Ally	Warranty	Physical Store
Condition 1	Yes	High	Yes
Condition 2	Yes	High	No
Condition 3	No	High	Yes
Condition 4	Yes	Low	Yes
Condition 5	No	Low	No
Condition 6	No	High	No
Condition 7	Yes	Low	No
Condition 8	No	Low	Yes

Table 2. ANCOVA Results (F-value)

Source	Perceived Risk	Purchase Intention (Product)	Purchase Intention (E-Retailer)
Gender (Covariate 1)	5.478*	9.741**	8.689**
Prior Online Shopping Experience (Covariate 2)	9.616**	13.823***	13.961***
Warranty (W)	31.977***	51.925***	50.935***
Brand Credibility (B)	16.031***	15.208***	25.711***
Physical Store (P)	15.320***	10.331***	24.207***
W * B	4.042*	8.119**	7.245**
W * P	0.405	0.894	0.061
B * P	0.139	3.316	1.044
W * B * P	0.195	0.415	0.607

Note: * p<.05; ** p<.01; *** p<.001

Table 3: Cell Means for the Three Independent Variables

	Warranty		Brand Credibility		Physical Store	
	High	Low	High	Low	High	Low
Perceived Risk	107.777	129.358	107.777	129.358	107.979	129.156
Purchase Intention (Product)	4.140	2.947	3.864	3.222	3.809	3.278
Purchase Intention (E-Retailer)	4.108	3.086	3.958	3.236	3.948	3.246

Table 4-1: Cell Means of the 8 Experimental Conditions

Exp. Condition	Perceived Risk	Purchase Intention (Product)	Purchase Intention (E-Retailer)
Condition 1	91.0000	4.2857	4.4476
Condition 2	107.8571	4.0429	3.9810
Condition 3	98.6667	4.1389	4.2500
Condition 4	108.6667	4.0694	4.1667
Condition 5	164.3429	2.1143	2.1905
Condition 6	118.7714	3.9571	3.6190
Condition 7	123.6571	3.0571	3.2286
Condition 8	135.5152	2.6818	2.8889

Table 4-2: Post-Hoc (Bonferroni) Tests of Cell Means

Condition		Mean Difference (A – B)		
A	B	Risk Perception	Purchase Intention (Product)	Purchase Intention (E-Retailer)
1	2	-18.1944	.2429	.4847
	3	-7.6667	.1468	.1976
	4	-16.3143	.2163	.2571
	5	-73.3429*	3.1714****	2.2571*
	6	-27.7714	.3286	.8286
	7	-32.6571	1.2286***	1.2190*
	8	-44.5152	1.6039	1.5587*
	2	3	10.5278	-.0960
4		1.8802	-.0694	-.2275
5		-55.1484*	1.9286***	1.7725*
6		-9.5770	.0857	.3439
7		-14.4627	.9857	.7344
8		-26.3207	1.3610**	1.0741*
3	4	-8.6476	.0694	5.952E-02
	5	-65.6762*	3.0246***	2.0595*
	6	-20.1048	.1817	.6310
	7	-24.9905	1.0817*	1.0214*
	8	-36.8485*	1.4571**	1.3611*
4	5	-57.0286*	1.9552***	2.0000*
	6	-11.4571	.1123	.5714
	7	-16.3429	1.0123 ^a	.9619*
	8	-28.2009	1.3876**	1.3016*
5	6	45.5714*	-1.8429***	-1.4286*
	7	40.6857	-.9429	-1.0381*
	8	28.8277	-.5675	-.6984
6	7	-4.8857	.9000	.3905
	8	-16.7437	1.2753**	.7302
7	8	-11.8580	.3753	.3397

Note: ^a p<.10; * p<.05; ** p<.01; *** p<.001