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Perceptions in Online Purchase**

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Abstract

This study explores the effect of price comparison sites on the online consumer behavior. Specifically this study examines whether and how price and value perception of online shoppers can be changed when they use a price comparison site. It is found that online consumers perceive relatively higher level of reference price when they are provided with alternatives' price information by a price-comparison site than when they are not. Contrary to the conventional expectations, price comparison site does not necessarily instigate online shoppers to lower their internal reference prices. These results appear to be contradicted to the conventional idea assuming that the price comparison sites may dampen price competition within the online retail market.

Keywords: Online shopping, Price comparison site, Price perception

JEL code: M31

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INTRODUCTION

Electronic retail market has been considered to bring a fundamentally new environment to consumers (Hoffman, Novak, and Chatterjee 1995). One of the most noticeable features is that buyers' search cost has been significantly reduced compared to in-person retail shopping (Brynjolfsson and Smith 2000). Although the Internet environment may save consumers effort to search and evaluate alternatives, they leave consumers with a problem of information overload (Suri et al. 2003). Since the Internet provides indefinite amount of information and too-much alternatives that none of the other retail format can provide, it becomes difficult and costly for buyers to identify and evaluate the relevant information. Therefore, consumers began to adopt intermediate channels that provide the aggregated information (Li, Kuo, and Russell 1999). Now consumers favor a small size of alternative set developed by 'Internet shopping agents' based on either the price level (Dodds, Monroe, and Grewal 1991) or the brand (Chang, Mendonca, and Im 2004).

In South Korea, over thirty numbers of price comparison service websites have been launched since the shopbinder.com first launched in 1998 (Metrix Corporation 2005). For the top two price comparison service websites (www.enuri.com and www.danawa.com), average number of weekly visitors is estimated to be around 0.7 millions (see Table 1). According to a KNP¹ report (2005), it is estimated that 29.8% of the Korean online consumers are using price-comparison websites for shopping (See Table 2).

Table 1. Top five price comparison service websites in South Korea

	Sites	Weekly visitors	Length of one's visit	Market Share
1	에누리닷컴	755,000	00:13:00	32.90
2	다나와	624,000	00:21:06	44.10
3	비비	406,000	00:10:58	14.94
4	마이마진	160,000	00:05:33	2.99
5	오미	139,000	00:08:09	3.81

Source: www.100hot.co.kr (2007.06.18 – 2007.06.24)

¹ Korea Netizen Profile

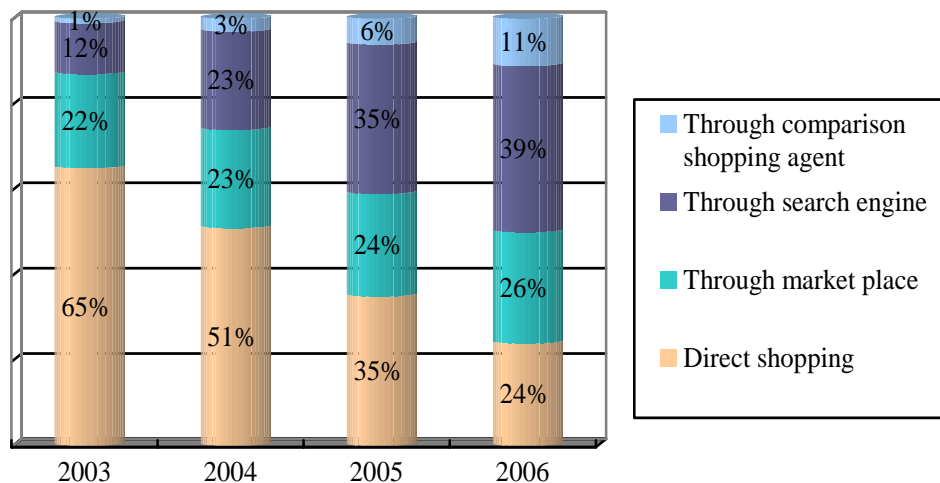
Table 2. Online Purchase Venue

Number of responses	Total (8855)	Male (4747)	Female (4108)
Directly to the Big Shopping mall		51.3	59.0
After Searching Price-Comparison Sites		35.1	23.6
After Searching Category-Special Mall		9.1	10.0
Shopping Section of big Portal Sites		2.6	5.2
Others		2.0	2.1
Total	100	100	100

Source: Korean Netizen Profile report 2005

Although a report by Jupiter Communications (2001) exhibits that 18% of respondents above the age of 16 in the United States are still unaware of the existence of any Internet shopping agent websites, it is clear that the number of visitors to the Internet shopping agents is increasing over time according to the 13-month panel dataset analysis by Waldfogel and Chen (2003). Besides, e-Consultancy (2007) has reported that the percentage of online retail sales derived from comparison sites is growing (see Figure 1).

Figure 1. Percentage of online retail sales deriving from each channel



Source: Channel Advisor, 2007 (Combined UK and US figures)

Literatures have termed these Internet shopping agents in various names such as Shopbots (Greenwald and Kephart 1999; Smith and Brynjolfsson 2001), Interactive Home Shopping (Alba et al. 1997), Informediaries (Hagel and Singer 1999), Interactive decision aids (Haubl and Trifts 2000), Internet shopping agents (Iyer and Pazgal 2003), and Price comparison sites (Waldfogel and Chen 2003). A key concept of Internet shopping agents is

that they automatically collate comprehensive information about price and product quality then distributes them to the customers at almost zero cost (Greenwald and Kephart 1999).

Table 3. Studies on the Internet Shopping Agents

Author (Year)	Method	Product	Finding
Alba et al. (1997)	Discussion		IHS (Interactive Home Shopping) would bring 'disintermediation' to the e-retail channel structure.
Smith, Bailey, and Brynjolfsson (1999)	Reviewing analysis		Intermediaries will not necessarily be totally removed in online. Rather Re-intermediation' will occur and take on new roles of 'Informediary'.
Shankar, Rangaswamy, and Pusateri (1999)	Survey (online/offline)		The online medium does not have a main effect on price importance, but it dampens price search.
Haubl and Trifts (2000)	Controlled Experiment	Tent, compact stereo	IDA (Interactive Decision Aid) allows consumers to make much better decisions while expending substantially less effort.
Lynch and Ariely (2000)	Experiment	wine	Increasing price usability (due to the lowered search costs) had no reliable effect, but increasing quality usability decreased price sensitivity.
Iyer and Pazgal (2003)	Time-series data	CD, book, Video	Inside the ISA (Interactive Shopping Agents) , the average price charged by retailers goes up with the number of joining retailers.
Waldfogel and Chen (2003)	13month panel data		Individuals who take up using price comparison sites reduce their shopping at branded retailers.
Oh (2001)	Survey	book	Adopting a price-comparison site is one of the variables lifting up consumers' price sensitivity (price importance & price search).
Smith and Brynjolfsson (2001)	4month panel data	book	Shopbot customers care a great deal about the brands of the retailers.

Many past studies on the Internet shopping agents on e-consumers attitude have focused on their influence on online shoppers' the price sensitivity. Some of the researchers argue that proliferation of Internet shopping agents would necessarily increase sellers' price competition and buyers' price sensitivity as well (Bakos 1997; Degeratu, Rangaswamy, and Wu 2001; Iyer

and Pazgal 2003; Shankar, Rangaswamy, and Pusateri 1999; Waldfogel and Chen 2003). Oh (2001) has discovered that the more a customer uses price comparison sites, the greater price sensitivity he shows. In addition, Greenwald and Kephart (1999) found that shoppers using Internet shopping agents made more purchase from low-price retailers than those who did not. Waldfogel and Chen (2003) also found that the frequency of purchasing at branded retailers was reduced by about 10 percent after using Internet shopping agents.

Although there are plenty of evidences supporting a relationship between the consumer price sensitivity and the price-comparison sites, it still remains unexplored whether the use of a price-comparison site would influence online shoppers' price perceptions including reference prices used and resulting value perceptions. One needs to note that e-consumers would not necessarily associate the highest value with the lowest price, even if they become highly sensitive to the price in online. Therefore this study aims to examine effects of the use of price comparison sites on e-consumers' price perception, value perception, and purchase intention.

CONCEPTUAL FRAMEWORK

A buyer's response to the prices is known to be a consequence of individual cognition or perception. This is based on the S-O-R (stimulus-organism-response) model proposed by Jacoby and Olson (1977) who proposition that external stimuli are first encoded, stored, or interpreted in an organism and then affect behavioral responses. In the same sense, what really affects a purchase decision making may be not the objective price but the interpreted prices (Monroe 1990; Zeithaml 1984).

According to Adaptation-Level Theory (Helson 1964), consumers carry with them an adaptation price level against which they evaluate offer prices. This anchor is called 'Reference Price' for which buyers judge given prices acceptable, too high, or too low (Monroe 1990). Buyers' judgments are influenced by the relative difference between offer price and reference price. Thus, one single price can be regarded as either expensive or cheap in accordance with the individual reference price.

Scholars have been recently argued that there are two types of reference such as External and Internal reference price (Chandrashekar 2004; Grewal et al. 1998; Han, Gupta, and Lehmann 2001; Monroe 1990). Internal reference prices are known to be influenced by external reference prices such as advertised selling prices as well as product quality perception. Price expectation or price memory have nominated as variables having substantial impact on consumers' internal reference prices (Jacob and Obermiller 1989; Kalwani and Yim 1992; Krishna 1992; Mela and Urbany 1997; Winer 1986).

It has been found that there is a positive relationship between buyer's certainty level on information and his (or her) internal reference price (Kosenko and Rahtz 1988). It is because

consumers having less certainty are more likely to depend on their memories which tend to keep internal reference prices at plausible or discounted level. Considering that the reliable information of price comparison sites could reduce the consumers' uncertainty level, online consumers may perceive relatively higher IRP when they employ price-comparison sites compared to when they don't. Assuming that uncertainty magnifies the impact of 'memory' on setting internal reference prices, online consumers in uncertain situation are supposed to set their IRP at lower level than consumers with high certainty are supposed to do (Bettman 1979; Monroe 1971; Rosch 1975; Zeithaml and Graham 1983).

Current study propositions that consumers provided simultaneous market information by a price-comparison site would have less uncertainty in the domain of prices therefore set their IRP at relatively high level compared to those who don't have such information.

Hypothesis 1: Internal Reference Prices of Buyers provided price information by Price-Comparison Sites would be higher compared to those of buyers who do not have such information.

Some scholars demonstrate that there is a latitude of reference price rather than a single point of it (Han, Gupta, and Lehmann 2001; Monroe and Petroschius 1981). The concept of Acceptable Price Range (APR) is based upon the social judgment theory and the assimilation-contrast effects (Sherif 1963; Sherif and Sherif 1967). The acceptable range is identified by upper and lower limit. The upper price limit captures the maximum price above which consumers would think it too expensive thus unfavorable, while the lower price limit identifies the price below which consumers would be suspicious of the quality of the product (Gabor and Granger 1966; Monroe and Venkatesan 1969).

Researchers have suggested that individual's acceptable price range is influenced by numerous factors, such as price consciousness and product involvement (Lichtenstein et al. 1988). Interestingly, it has been argued that uncertainty in prices magnifies the range of acceptable price ranges (Dickson and Sawyer 1990; Winer 1989). Mazumdar and Jun (1992) also affirmed that high price uncertainty widens a gap between the budget a consumer allocate for purchasing and the threshold from which he or she would perceive a loss while the uncertainty has no significant impact on the gap between the budget and the thresholds for gain. It is easy to assume that a buyer would narrow down the extent of acceptable prices as he or she is provided with more information about the extent of price dispersion in market.

In this consequence, assuming that a price comparison site reduces uncertainty in buyers' price judgment, it is proposed that the width of Acceptable Price Range of online buyers provided price information by a price comparison site would be narrower than that of buyers who are not provided such information.

Hypothesis 2: Acceptable Price Ranges of Buyers provided price information by Price-

Comparison Sites would be narrower compared to those of buyers who do not have such information.

Value perception is an important concept as much as the price perception in understanding and predicting buyers' purchase decision making behavior. Perceived value is defined as a customer's assessment on the net utility based upon a judging what would be received from and what would be given for the purchasing (Monroe and Petroschius 1981; Sweeney, Soutar, and Johnson 1999; Zeithaml 1988). Current study defines perceived value as a buyer's evaluation on the tradeoff between the perceived quality of a product and the price.

It is often demonstrated that the perceived value is composed with two independent concepts: (1) acquisition value (AV), and (2) transaction value (TV) (Grewal, Monroe and Krishnan 1998; Lichtenstein, Netemeyer and Burton 1990; Monroe 1990; Monroe and Chapman 1987; Thaler 1985). The acquisition value, by definition, means expected pleasure gained from using product less what is paid for getting it. Whereas the transaction value means psychological utility generated from a good buy independent of the product quality. Total perceived value is a weighted sum of the acquisition value and transaction value. Some earlier researches have validated this 'arithmetic model' to measure the perceived value constructs (Grewal, Monroe, and Krishnan 1998; Levin and Johnson 1984; White and Truly 1989).

Urbany, Bearden, and Weilbaker (1988) demonstrated that there's a positive relationship between buyers' internal reference prices and their perceived transaction values. Thaler (1985) and Monroe and Chapman (1987) have proposed that the perceived transaction value is a function of current deal price and buyers' internal reference price. It has been shown that if a consumer encounters a product at a price lower than his or her reference price, he or she perceives a gain. Conversely, a price higher than the reference price is perceived as a loss. From this gain or loss, do consumers perceive transaction utility (Han, Gupta, and Lehmann 2001; Kalwani and Yim 1992, Mayhew and Winer 1992, Thaler 1985). Accordingly PTV is positive if the actual price is less than the buyer's reference price, zero if they are equal, and negative otherwise (Monroe 1990 p.76). This conceptual demonstration has been empirically confirmed (Monroe and Chapman 1987; Thaler 1985; Urbany, Bearden, and Weilbaker 1988).

$$PTV = IRP - P$$

PTV : Perceived Transaction Value

IRP : Internal Reference Price

P : Offer Price

Grewal et al. (2003) demonstrate that the perceived transaction value, in online shopping context, is higher when a buyer has better ability or tool for searching out the best deal. Admitting that a price-comparison site provides buyers with better tool for searching

and evaluating the alternatives, current study assumes a relationship between buyers' employment of a price-comparison site and their perceived transaction value.

It is known to be influenced by consumers' perception on expected future price. Kwon and Schumann (2001) have demonstrated that there is a significant drop in buyers' transaction value when they expect the future price being lower than the current one. Besides Lai, Doong, and Yang (2006) have demonstrated that there is significant relationship between price dispersion and consumers' transaction utility in an Internet group-buying situation.

Since online consumers have witnessed frequent price promotion or discount in the Internet retail market, they are likely to set their future expected price at low level. Consequently online consumers are supposed to perceive lower transaction value against a normal price unless they are certain about all the other alternative prices. Therefore current study propositions that the perceived transaction value of a buyer who is provided comprehensive price information by a price-comparison site will be higher compared to that of a buyer without the information.

Hypothesis 3: Perceived Transaction Value of Buyers provided price information by Price-Comparison Sites would be higher compared to those of buyers who do not have such information.

Whereas Perceived Acquisition Value (PAV), by definition, is associated with the perceived benefit acquired from the product quality relative to the price. In economic theory, the value is equivalent to the reservation price or the maximum acceptable price the buyer would be willing to pay. Therefore Perceived Acquisition Value (PAV) can be determined by comparing buyer's maximum acceptable price to the current offer price as follows (Monroe 1990 p.76). PAV is positive if the actual price is less than the buyer's maximum acceptable price, zero if they are equal, and negative otherwise.

$$PAV = MAP - P$$

PAV : Perceived Acquisition Value

MAP : Maximum Acceptable Price

P : Offer Price

Since PAV is related to the given price and product quality, we cannot intuitively expect any direct effect of price-comparison site on buyer's PAV. However one can imagine that consumers might perceive enhanced PAV, for the same product, after visiting a price comparison site in which consumers' uncertainty about product quality are discarded to some extent and in which consumers get some positive influence about product qualification from the fact that wider domain of retailers are providing it.

Hypothesis 4: Perceived Acquisition Value of Buyers provided price information by Price-Comparison Sites would be higher than those of buyers who do not have such information.

It has been repeatedly demonstrated that buyer' willingness to buy is positively related to his (or her) perceived value. If a buyer perceives either a positive transaction value or a positive acquisition value for a product, he (or she) is highly likely to purchase it. For a certain product model, if a buyer perceives relatively higher value with price information of price-comparison sites, he or she would probably exhibit relatively higher purchase intention with price information of price-comparison sites than without it.

Hypothesis 5: Willingness to Buy of Buyers provided price information by Price-Comparison Sites would be higher than those of buyers who do not have such information.

METHOD

In order to examine the effects of adopting price-comparison site on online buyers' cognitive attitude independently of their individual shopping habits, current research employs an experimental method. A between-subject design was employed in this study by manipulating the availability of a price comparison site.

Two product categories- laptop computer and jeans- were selected from a pretest. Since the online consumer behavior is known to be variable along the level of perceived ease in judging product quality online (Cho and Ha 2004; Figueiredo 2000; Lal and Sarvary 1999), two product categories should be eligible for the followings: (1) both should be considered as viable to be bought online, and (2) two categories should be discriminated as to the easiness of quality-judging online. Based on a pretest result, laptop computer and jeans were chosen from the eight product categories that are nominated to the frequent-purchase product categories (Ernst & Young 2001).

All the subjects were recruited and provided experiment materials at the website of a professional online market research agency Embrain (www.embrain.com) in Korea. Among those who had experienced online purchasing within three months, eighty responses were collected after screening out some ineligible responses. A successful manipulation was identified that subjects perceived different level of awareness and familiarity across the well-known store names and new names.

Scales were borrowed from the previous literatures and then translated into Korean through the several back-translation so that scales could convey identical meaning used in previous studies as much as possible.

Internal Reference Price (IRP) was measured as the mean value of five items such as the normal price, the market (online) average price, the fair price, the maximum acceptable price, and the minimum acceptable price (Grewal et al. 2003). Acceptable Price Range (APR) was defined as the gap between the maximum acceptable price and the minimum acceptable price (Kosenko and Rahtz 1988, Lichtenstein, Bloch, and Black 1988; Lee and Lii 2005; Monroe 1971). Perceived Acquisition Value (PAV), Perceived Transaction Value (PTV), and Willingness to Buy (WB) were also measured with the scales borrowed from the study of Grewal et al. (1998) in order for the comparison to be viable. IRP and APR were measured in numeral terms (Korean won unit) and the others were measured using seven Likert scales. The Cronbach alphas of all variables are well above the reliability standard value of 0.7 for basic research suggested by Nunnally (1978) as seen in Table 4. It was confirmed that any demographic profile or Internet shopping experience does not pertain to the result.

Table 4. Scales and Measurement Properties

Scale	Number of items	Source of Measure	Reliability (coefficient alpha)	
			Jeans	Laptop
IRP	5	Grewal et al. (2003)	0.948	0.888
PAV	9	Grewal, Monroe, and Krishnan (1998)	0.948	0.958
PTV	3	Grewal, Monroe, and Krishnan (1998)	0.911	0.932
WB	3	Grewal, Monroe, and Krishnan (1998)	0.792	0.904

RESULTS

Effect on Price Perception

Table 5 provides the mean estimates of the internal reference price (IRP), the perceived acquisition value (PAV), the perceived transaction value (PTV), and the willingness to purchase (WP) of each group. Hypothesis 1 which propositions that buyer's mean IRP would be higher when they are provided with comprehensive price information by price-comparison sites is supported in both product sessions (Table 5). As independent T analyses results show, it is likely that consumers who explore price-comparison sites set their IRPs at a relatively high level than consumers who direct themselves to a retailer site would do. This result is consistent with the conventional findings that consumers who are less-knowledgeable (or more uncertain) about prices are likely to perceive lower prices than the more-knowledgeable consumers are likely to do for the same item. One can also confirm that online consumers without information about current market prices usually expect greater discounts based upon strong signals of frequent discount and promotions in online (Degeratu et al. 2001).

Table 5. Mean, Standard Deviation and t-values of Price Perception Measures

	Laptop		Jeans	
	Non-PCS condition	PCS condition	Non-PCS condition	PCS condition
Internal Reference Price (IRP)	1,499,553 (0.125)	1,619,046 (0.057)	50,503 (0.258)	56,308 (0.119)
	<i>10.69***</i>		<i>4.04**</i>	
Maximum Acceptable Price (MAP)	1,501,236 (0.129)	1, 652,706 (0.057)	50,697 (0.281)	57,792 (0.135)
	<i>15.93***</i>		<i>5.02**</i>	
Minimum Acceptable Price (LAP)	1,396,890 (0.144)	1,506,285 (0.077)	44,699 (0.290)	48,697 (0.130)
	<i>6.35**</i>		<i>1.49</i>	
Acceptable Price Range (APR) (MAP-LAP)	106,029 (0.067)	146,421 (0.075)	5,934 (0.095)	9,159 (0.101)
	<i>2.36</i>		<i>5.01**</i>	

* p < .10; ** p < .05; *** p < .01

Hypothesis 2 which propositions that the Acceptable Price Range would be smaller when the buyers are more knowledgeable about product prices through using a price-comparison

site is not supported in the current study (Table 5). Rather the Acceptable Price Range is observed to be greater in PCS-using group. This is explicable by the early study of Rao and Sieben (1992) that identified the inverted-U relationship between the amount of information that a buyer acquires and the width of his/her acceptable price range. According to their study, the width of acceptable price range first increases and then decreases as buyers get more knowledgeable about price. In this sense, it seems that the current research shows little significance regarding the APR study due to the limited manipulation regarding buyer's knowledge level.

Furthermore the current result shows that the APR is greater in jeans-purchasing situation. It might be because, as expected, consumers have difficulty in judging product quality and setting fair price when purchasing jeans in online. Noting that standard deviations of the IRP, MAP, and LAP are also greater in jeans compared to those in laptop, subjects seem to have been uncertain about the value of jeans product. In reality, there seems to be significant disparity among consumers in considering attributes of jeans. Some people consider jeans as high-involvement, heterogeneous goods and try to cautiously compare color, brand, or fit before purchasing while the others consider jeans as homogeneous goods and consider only prices. In addition, jeans prices are highly correlated to the brand names. Since the current research provides only fictitious names for product brands, it might have made subjects feel uncertain about proper price level for the given item and then recall a favorable price for unbranded product.

Responses were transitioned into RPDR²(Reservation Price Deviation Ratio, Simonin and Ruth 1995) so that the results of the two product sessions are to be compared (Table 6). From the RPDR measures, it is easy to assume how the response value is deviated from the given price regardless of product category or price level. For the same purpose, APR results were divided³ by the offer price which implies an offer price for the non-PCS respondents and the average prices of five retailers for the PCS respondents.

Furthermore Table 6 shows that the APR is greater in jeans-purchasing situation. It might be because consumers have difficulty in judging product quality and setting fair price when purchasing jeans in online. Noting that standard deviations of the IRP, MAP, and LAP are also greater in jeans compared to those in laptop, subjects seem to have been less certain about jeans value than they were about laptop value. In reality, there seems to be significant disparity in attribute perception among consumers when it comes to the jeans. Some people consider jeans as high-involvement, heterogeneous goods and try to cautiously compare color, brand, or fit before purchasing while the others consider jeans as homogeneous goods and

² RPDR = reference Price / market average price (offer price)- 1

Current analysis used the offer price of the target store identically given to all the subjects as the market average price in order to compute the RPDR.

³ APR ratio = APR / market average price (offer price)- 1

consider only prices. In addition, jeans product prices can be correlated to the brand names. Since the current research provides only fictitious names for product brands, it might have made subjects feel uncertain about proper price level for the given item and then recall a favorable price for unbranded product.

Table 6. Mean, Standard Deviation and t-values of Price Perception Measures in RPDR⁴

	Laptop		Jeans	
	Non-PCS condition	PCS condition	Non-PCS condition	PCS condition
IRP	-0.11 (0.125)	-0.04 (0.057)	-0.22 (0.258)	-0.13 (0.119)
	<i>10.69***</i>		<i>4.04**</i>	
MAP	-0.11 (0.129)	-0.02 (0.057)	-0.21 (0.281)	-0.10 (0.135)
	<i>15.93***</i>		<i>5.02**</i>	
LAP	-0.17 (0.144)	-0.11 (0.077)	-0.31 (0.290)	-0.25 (0.130)
	<i>6.35**</i>		<i>1.49</i>	
APR (MAP-LAP)	0.06 (0.067)	0.09 (0.075)	0.09 (0.095)	0.14 (0.101)
	<i>2.36</i>		<i>5.01**</i>	

* p <.10; ** p <.05; *** p <.01

Effect on Value Perception and Purchase Intention

Hypothesis 3 and 4 which argue that PCS group, compared to non-PCS group, would show higher Perceived Transaction Value and higher Perceived Acquisition Value respectively were examined by two methodologies.

First, based upon the linear functions mentioned above, hypothesis 3 and 4 were supported in this study (Table 7).

And then the measured PTV and PAV were tested whether they show identical results with the arithmetic value. As table 8 shows, scale-measured value seem to be supporting neither the hypotheses 3 nor 4. Hypothesis 5 is also not supported either. However, the mean values of PTV, PAV and WB intimate the possibility that these hypotheses can be supported

⁴ RPDR = [reference Price / market average price (offer price)] - 1

Current analysis used the offer price of the target store identically given to all the subjects as the market average price in order to compute the RPDR.

in a more refined experiment (Table 8).

Table 7. Mean, Standard Deviation and t-values of Perceived Transaction Value (PTV) and Perceived Acquisition Value (PAV) in Arithmetic Model Measures

	Laptop		Jeans	
	Non-PCS condition	PCS condition	Non-PCS condition	PCS condition
PTV (IRP-P)	-0.11 (0.125)	-0.04 (0.057)	-0.22 (0.258)	-0.13 (0.119)
	<i>10.69***</i>		<i>4.04**</i>	
PAV (MAP-P)	-0.11 (0.129)	-0.02 (0.057)	-0.21 (0.281)	-0.10 (0.135)
	<i>15.93***</i>		<i>5.02**</i>	

* p <.10; ** p <.05; *** p <.01

Table 8. Mean, Standard Deviation and t-values of Perceived Transaction Value (PTV), Perceived Acquisition Value (PAV) and Willingness to Buy (WB) in Scale Measures

	Laptop		Jeans	
	Non-PCS condition	PCS condition	Non-PCS condition	PCS condition
PTV (IRP-P)	3.22 (1.524)	3.31 (1.26)	2.80 (1.354)	2.70 (1.015)
	<i>-0.29</i>		<i>0.37</i>	
PAV (MAP-P)	3.48 (1.471)	4.10 (1.372)	3.08 (1.419)	3.28 (1.176)
	<i>-1.97</i>		<i>-0.72</i>	
WB	3.33 (1.430)	3.61 (1.426)	3.23 (1.025)	3.38 (1.261)
	<i>-0.86</i>		<i>-0.58</i>	

* p <.10; ** p <.05; *** p <.01

Asymmetric effect on loss /gain perception

Then one might wonder how the result of hypothesis 1 can be explained. Where did the increase of price perception come from? It is intriguing whether the increase in price/value perception ascribes to the enhanced perceived gain or to the reduced perceived loss. In other words, it is required to see whether a price comparison site drives buyers to have more

positive ideas about product quality or to be relieved from the loss related to poor quality or tricky price. This idea is driven by the argument that consumers can take either gain-maximizing strategy or loss-minimizing strategy (Peter and Tarpey 1975).

In order to make this query clear, data were split into two sets, one of which consisting gain-perceiver group and the other loss-perceiver group. Gain-perceiver group represents the responses having set IRPs ‘above the sale price’ while loss-perceiver group implies those having set IRPs ‘below the sale price’ (Kalyanaram and Little 1994). The ‘sale price’ designates the price at which respondents are expected to purchase the items in the given shopping store.

The proportions and the mean IRP of the two groups were compared (Table 9-1 and Table 9-2). Independent T analyses results show that, there is no significant difference between PCS group and non-PCS group in terms of proportion of the loss-perceivers and gain-perceivers.

Table 8-1 Effects of the Use of Price Comparison Site on Gain and Loss Perception: Jeans

		Non-PCS		PCS	
proportion		gain-perceiver	loss-perceiver	gain-perceiver	loss-perceiver
mean ratio ^a		0.06 (0.07)	-0.32 (0.22)	0.05 (0.03)	-0.18 (0.08)
IRP	T-value (loss)	T= -3.48 (p=0.00) ^{***}			
	T-value (gain)	T= 0.84 (p=0.41)			
mean ratio		0.09 (0.17)	-0.33 (0.22)	0.09 (0.07)	-0.16 (0.09)
MAP	T-value (loss)	T= -3.84 (p=0.00) ^{***}			
	T-value (gain)	T= -0.12 (p=0.91)			
mean ratio		-0.04 (0.24)	-0.41 (0.24)	-0.09 (0.12)	-0.29 (0.10)
LAP	T-value (loss)	T= -2.58 (p=0.01) ^{**}			
	T-value (gain)	T= 0.67 (p=0.51)			
mean ratio		0.12 (0.14)	0.08 (0.07)	0.19 (0.16)	0.13 (0.07)
APR	T-value (loss)	T= -2.49 (p=0.02) ^{**}			
	T-value (gain)	T= -0.96 (p=0.35)			

^a. (mean of IRP / sale price) -1

Table 9-1 Effects of the Use of Price Comparison Site on Gain and Loss Perception: Laptop

		Non-PCS		PCS	
		gain-perceiver	loss-perceiver	gain-perceiver	loss-perceiver
proportion		15.0%	85.0%	30.0%	70.0%
mean ratio		0.05 (0.05)	-0.14 (0.11)	0.02 (0.01)	-0.06 (0.05)
IRP	T-value (loss)	T= -3.26 (p=0.00)***			
	T-value (gain)	T= 2.27 (p=0.04)**			
mean ratio		0.05 (0.08)	-0.14 (0.12)	0.03 (0.03)	-0.04 (0.05)
MAP	T-value (loss)	T= -4.01 (p=0.00)***			
	T-value (gain)	T= 0.84 (p=0.42)			
mean ratio		-0.02 (0.03)	-0.20 (0.14)	-0.07 (0.05)	-0.12 (0.08)
LAP	T-value (loss)	T= -2.56 (p=0.01)**			
	T-value (gain)	T= 2.49 (p=0.02)**			
mean ratio		0.06 (0.06)	0.06 (0.07)	0.10 (0.06)	0.08 (0.08)
APR	T-value (loss)	T= -1.11 (p=0.27)			
	T-value (gain)	T= -1.03 (p=0.32)			

When we look at the mean values of only the gain-perceivers, we can see little difference between the PCS and non-PCS group. However when we look at the mean values of the loss-perceiver groups, we can see the significant difference in the mean values of IRP, MAP, and LAP between the PCS group and the non-PCS group. That is, the difference in the price perception between PCS group and non-PCS group is mainly due to the difference of responses of loss-perceivers rather than gain-perceivers. In other words, for a given item, consumers are likely to perceive relatively small loss when they have more information about the alternatives' prices compared to when they have less information. This result corresponds to the Prospect Theory in which the asymmetric result is observed between the responses to the negative stimuli and positive stimuli (Kahneman and Tversky 1979, Mayhew and Winer 1992). This is also consistent with the findings that intense price promotion makes consumers more sensitive to the losses but does not influence consumers' sensitivity to gains (Han, Gupta, and Lehmann 2001). This implies that consumers assume greater loss when they are not provided with price-comparison information either because they are suspicious about product quality or because they are afraid of missing better deal or paying unnecessary premiums. In conclusion, price-comparison sites seem to reduce consumers' anxiety about

expected loss. And this seems to be the primary motivation lifting up online buyers' internal reference prices in a price-comparison site.

CONCLUSIONS

The current research explored the effect of price comparison site on consumers' price perception, value perception, and willingness to purchase in online shopping context through a simulated experiment.

The experiment results demonstrate three major findings. First of all, contrary to the conventional expectations, it is confirmed that price comparison site does not necessarily instigate online shoppers to lower their internal reference prices. Second, a price comparison site does not have a significant influence on the buyers' acceptable price range. Third, it is found that there is asymmetric impact of price comparison sites on loss perception and gain perception. Buyers, after adopting a price-comparison site, do not seem to tune the perceived amount of expected gain whereas they seem to tune the perceived amount of expected loss. A price comparison site relieves buyers from anxiety about information asymmetry and consequential loss related to the price.

The current research provides several interesting implications and is expected to make a contribution in two main ways. First, the experiment results imply that e-tail managers should consider other effective marketing strategies than the simple bottom-price policies. Second, this study gives a meaningful implication that the growing popularity of the price comparison sites would not necessarily bring a convergence of online retail price.

Since this research focused on the impact of the price comparison sites on the consumer perception, it has tried to rule out the impact of product brand or retail brand. It would be fruitful to explore the combined impact of all those variables on online consumer perception.

And the current research simulated only two product categories therefore it needs to apply wider variety of product categories in terms of involvement, purchasing frequency, heterogeneity or the other features.

Recently online shoppers demand Internet shopping agents to facilitate not only the retailer-to-retailer prices but for more comprehensive information regarding product function, retailer reliability, and systematic comparison tool. In this sense, recent Internet shopping agents are equipped as interactive decision guides providing wide scope of information such as users' review, shipping costs, warranties, return policies, and merchant ratings (Kim 2005). It is strongly aspired to study the impact of such information in a price comparison site on buyers' perception and behavior.

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