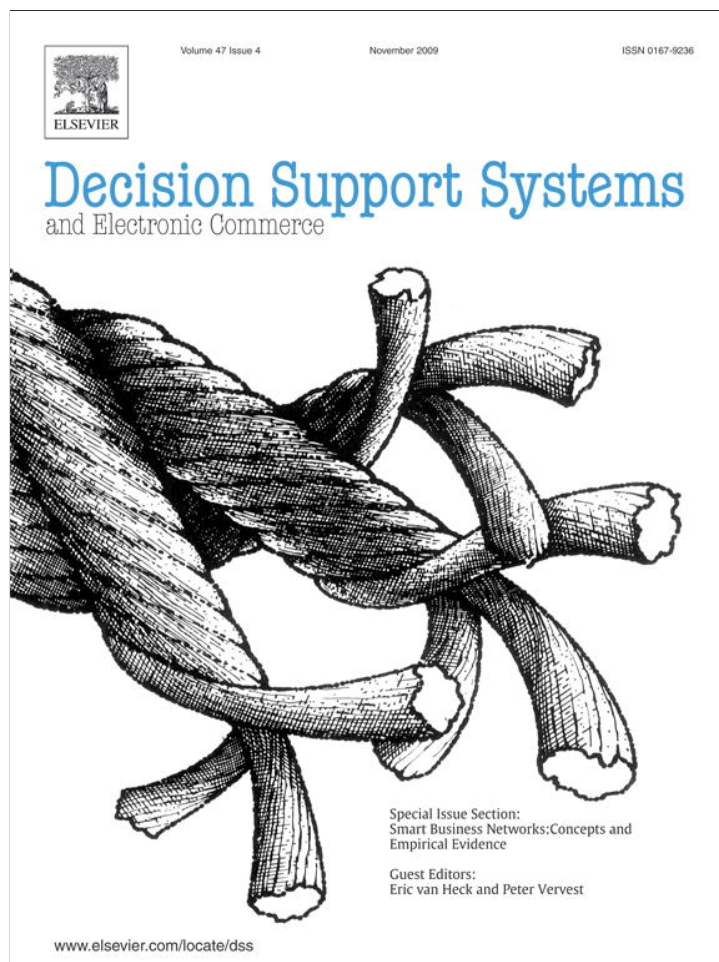


Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

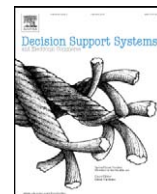
In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Contents lists available at ScienceDirect

Decision Support Systems

journal homepage: www.elsevier.com/locate/dss

A comparison of purchase decision calculus between potential and repeat customers of an online store

Hee-Woong Kim^{a,*}, Sumeet Gupta^{b,1}

^a Yonsei University, Graduate School of Information, New Millenium Hall, 134 Shinchon-Dong, Seodaemooon, Seoul, 120-746, Republic of Korea

^b Department of Business Administration, Shri Shankaracharya Institute of Management and Technology, Junwani, Bhillai, 490020, India

ARTICLE INFO

Article history:

Received 29 May 2007

Received in revised form 11 March 2009

Accepted 15 April 2009

Available online 24 April 2009

Keywords:

Electronic commerce

Purchase decision making

Mental accounting theory

Potential and repeat customers

Value and judgment

ABSTRACT

Potential and repeat customers of an online store possess different amount of information and use different criteria for making purchase decisions. Internet vendors should therefore adopt different sales strategies for creating initial sales and generating repeat sales. Yet little is known about the differences in online purchase decision making between the two customer groups. This study examines the differences between potential and repeat customers based on mental accounting theory and information processing theory. We found that value perception (of transactions made with the online vendor) as an overall judgment for decision making is more strongly influenced by the non-monetary (perceived risk) factor than by the monetary factor (perceived price) for potential customers, whereas it is more strongly influenced by the monetary factor than by the non-monetary factor for repeat customers. The findings of our study would help Internet vendors develop customized strategies for creating initial sales and repeat sales.

© 2009 Elsevier B.V. All rights reserved.

1. Introduction

With the increase in the number of Internet users, the number of clicks that Internet vendors receive at their web sites has risen considerably. However, Internet vendors experience disappointment in converting these clicks into purchases. It has been observed that only a few web site visitors (1.3–3.2%) return to make purchases [24]. Even when Internet vendors are successful in creating initial sales with the customers, they find it difficult to generate further sales. It has been observed that over 50% of customers stop visiting the web site of a store completely before their third anniversary of using the web site [44]. For Internet vendors, both initial sales from potential customers and repeat sales from repeat customers are essential for survival and long-term profitability.

This study classifies the customers of an online vendor into potential customers and repeat customers, depending on their transaction experience (number of transactions made with the online vendor) with the vendor. Potential customers are *those who have browsed the web site of the vendor but have not yet purchased from it*. Repeat customers are *those who have purchased from the vendor at least once*. Potential customers and repeat customers differ in the manner in which they process available information and make purchase decisions. They possess different amount of information

and use different criteria for making purchase decisions [2,37]. Therefore, Internet vendors should adopt different sales strategies for creating initial sales and generating repeat sales.

However, little attention has been given to the systematic examination of these differences. A number of previous studies [e.g., 9,10,12,13,36,41,55] have generalized the antecedents of purchase intention across customer types without considering the differences in their decision making. A clear understanding of these differences would help Internet vendors develop customized strategies for improving initial sales and repeat sales. For this reason, there is a call for research on the comparison of decision making between potential customers and repeat customers [19].

Based on the research needs outlined above, this study aims to examine the differences in online purchase decision making between potential customers and repeat customers of an Internet vendor. This study explains online purchase decision making from the value perspective based on mental accounting theory [52]. A number of studies on customer choice and decision making in the fields of economics (e.g., 30,52) and marketing [e.g., 9,10,13,58] have identified value (i.e., assessment of benefit against cost) as an important determinant of customer purchase. Mental accounting theory explains that there are two stages in conducting a transaction with a vendor: the judgment stage for evaluating potential transactions, and the decision stage for approving or disapproving each potential transaction. That is, customers may perceive value by assessing benefits and costs in the judgment stage and then determine their purchase in the decision stage. Based on this, we seek to answer two research questions: (1) *How do potential and repeat customers of an Internet vendor differ in perceiving value for purchase decisions with the vendor?*

* Corresponding author. Tel.: +82 2 2123 4195; fax: +82 2 2123 8654.

E-mail addresses: kimhw@yonsei.ac.kr (H.-W. Kim), sumeetguptadr@gmail.com (S. Gupta).

¹ Tel.: +91 788 2291607; fax: +91 788 2291606.

and (2) *How do potential and repeat customers differ in determining their purchase intention with the vendor?* The results of this study will help to advance our knowledge on customer decisions in the context of Internet shopping. In particular, the findings of this study should equip Internet vendors with the evidence to develop effective and customized strategies for initial sales and repeat sales.

The rest of the paper is organized as follows. We present the theoretical background of this research in the next section followed by the research model and hypotheses. We then present our research methodology and data analysis. After interpreting the empirical results, we offer theoretical and practical implications. Finally, the paper concludes with a summary of this study's contributions to research on customer decision making in Internet commerce.

2. Theoretical background

2.1. Mental accounting theory

Internet shopping is characterized by risk and uncertainty² on the part of customers. Therefore, theories that explain customer decision making under risk and uncertainty should shed light on customer decision making in the context of Internet shopping. Mental accounting theory [52] explains customer choice under risk and uncertainty. It suggests that people weigh positive outcomes that are considered certain more strongly than positive outcomes that are deemed probable. It is this certainty effect that causes people to be risk averse when making decisions involving gains, and it explains why people tend to prefer an option with a certain but lower benefit (e.g., winning \$1 million with certainty) to an option with an uncertain but higher benefit (e.g., winning \$2 million with a 50% chance). Indeed, risk aversion is considered one of the best-known generalizations about risky choices involving gains [30].

According to mental accounting theory, customers analyze transaction in two stages, the judgment stage and the decision-making stage. For evaluating potential transactions in the judgment stage, Thaler [52] proposed three types of utility: acquisition utility, transaction utility and total utility. Acquisition utility is *the value of the goods received compared to the outlay*. Transaction utility refers to *the perceived merits of a transaction or a deal*. It is based on the difference between the objective price and the reference price of the product. Reference price refers to the price that a customer expects to pay for the product. Total utility from a purchase is the sum of acquisition utility and transaction utility, which represents *the perceived total value derived from purchasing a product from a vendor*.

For making purchase decisions (i.e., decision stage), customers prefer conducting transactions with vendors whose products offer maximal value (i.e., maximum total utility). Previous empirical results [e.g., 9,10,13,33,54,58] also support that the subjective perception of total utility determines purchase decision making.

Acquisition utility is the net utility which is a function of the value of the product received and the objective price charged for the product. Since acquisition utility is generally coded as an integrated outcome, the cost of the good is not treated as a loss [52]. According to Thaler [52], it is hedonically inefficient to code costs as losses, especially for routine transactions as the loss function is steep near the reference point. Therefore, acquisition utility is same for purchasing the same product from any online store. Thaler [52] further argues for his assertion of acquisition utility being the same when the product

being purchased from two or more different stores is the same. Thaler [52] describes the following reasons for his assertion: (1) the ultimate consumption act (i.e., usage of the product) is the same, (2) there is no possibility of strategic behavior in stating the reservation price, and (3) no "atmosphere" is consumed by the respondent. Regarding comparison between potential and repeat customers, the enjoyment provided by the website is same for both potential and repeat customers and hence acquisition utility would be same for both potential and repeat customers. It is also difficult to make distinction between acquisition utility and transaction utility empirically because of the overlap in their roles through objective price [21]. For these two reasons, this study focuses on transaction utility and total utility, but not acquisition utility, in examining online purchase decision making. Focusing on transaction utility and not on acquisition utility would also prevent possible confounding effects due to IT artifact. In this research, we are focusing on the bookstore rather than the product provided by the bookstore and hence, focusing on transaction utility will prevent confounding effects that may result if we also include acquisition utility in our study.

2.2. Monetary and non-monetary determinants of value-driven internet shopping

Since in this study we are interested in Internet transactions with a vendor, we measure transaction utility with reference to a specific online store rather than for any individual product. Previous research [13,21] has concentrated mainly on the monetary aspect of transaction utility, whereby it is measured as a difference between the objective price and the customer's reference price. However, customers do not always purchase from online stores offering the lowest prices. According to Ehrlich and Fisher [14], customer consumption costs include the cost of disappointing purchases (i.e., uncertainty and risk) as well as monetary price. As customer deception by Internet vendors is becoming increasingly common, uncertainties and risks [31] become important considerations in Internet shopping. Therefore, we consider perceived risk (to represent risk and uncertainty in Internet shopping) from the non-monetary perspective and perceived price (to represent monetary gain or loss) from the monetary perspective.

We consider perceived price as a monetary aspect of acquisition utility. Since, perceived price is empirically measured as a difference between objective price and reference price [13,22] we define perceived price as *the perceived level of (monetary) price at a vendor (i.e., objective price) in comparison with the customer's reference price*. This concept of perceived price has been widely used in marketing [e.g., 13,27] and IS researches [31–33]. Customers are more likely to conceive reference price from the prices offered by other vendors. In practice, customers do not usually remember the actual price of a shopping object [58]. Instead, they mentally encode prices in ways that are meaningful to them, such as higher or lower than their reference price [13]. Therefore, in this study we focus on the subjective perception of price (i.e., the difference between objective price and reference price) and do not need to measure the exact amount of money paid (objective price). As a monetary sacrifice, an increase in prices of the current vendor as compared to other vendors would lower customers' transaction utility and thus total utility [56]. Thus, perceived price would negatively affect total utility.

As a non-monetary aspect of transaction utility, perceived risk is conceptualized as involving two components, uncertainty and consequences. In recent conceptualizations, perceived risk is defined in terms of expectation and importance of loss [40]. Perceived risk thus represents the subjective expectation of a loss or sacrifice in conducting transactions with an Internet vendor [51]. Following previous research [31], we define perceived risk as *a customer's perception of uncertainty and adverse consequences of conducting transactions with a vendor*. As a non-monetary sacrifice, an increase

² In this paper *risk* and *uncertainty* are used interchangeably.

in the perceived level of risk at the current vendor lowers transaction utility and then total utility [26]. Perceived risk should thus negatively affect total utility.

The judgment and decision-making stages are affected by the manner in which customers assess the attributes of an Internet transaction with a vendor. According to mental accounting theory [52,53], the attributes can be assessed either jointly (integration) or separately (segregation). Customers make their purchases only when they have all gains (i.e., they are in gain frame), or when they have larger gains on some attributes and smaller losses on other attributes. Therefore, they tend to prefer the segregation approach (i.e., decision making based on a separate assessment of each attribute) when all the attributes are favorable (gain frame) for decision making, and the integration approach (i.e., decision making based on the overall assessment, total utility) when the overall magnitude of mixed unfavorable (loss frame) and favorable attributes (gain frame) is favorable. In other words, when both perceived price and perceived risk are low, customers will prefer segregated evaluation and may decide their purchases directly based on perceived price. When either one of perceived price and perceived risk is low, customers would adopt integrated evaluation, provided the overall utility is greater than zero (i.e., gain frame).

2.3. Differences between potential customers and repeat customers of an online store

Mental accounting theory accounts for the difference in online purchase decision making between potential customers and repeat customers. Potential customers, who perceive high uncertainty and risk, may place more importance on gaining control in transactions with the vendor, allowing prospects of control rather than of gain to determine their behavior. This is consistent with risk aversion behavior as described by mental accounting theory. This explains why many online customers tend to prefer well-known vendors with certain but lower benefits (e.g., relatively higher price) to unknown vendors with uncertain but higher benefits. Potential customers would thus weigh minimizing losses more than maximizing monetary gains in transactions with a new vendor.

In contrast, direct transaction experience with an Internet vendor lowers uncertainty and risk in conducting transactions by increasing customer familiarity and knowledge about transactions with the vendor [9,45]. Therefore, repeat customers perceive a higher level of certainty in carrying out transactions with the vendor as compared to potential customers. According to mental accounting theory, certainty in transaction increases the desirability of gain from the transaction. Repeat customers would thus weigh maximizing monetary gains in transactions with the vendor.

The information processing theory of customer choice [2] and subsequent empirical studies [e.g., 1] additionally account for the differences in online purchase decision making between potential and repeat customers. Similar to mental accounting theory, information processing theory discusses decision making based on mental processing of attribute information. As customers gain experience, they differ from each other in terms of the type of processing, type of information processed, and the amount of information processed for decision making [2,4]. Consequently, prior experience with the product/service affects customers' decision processes. Information processing theory of customer choice [2] and subsequent empirical studies [1,3] discuss the effects of prior knowledge and experience on customer choice and decision over three activities: information analysis, evaluation, and information storage in memory. The effect of prior knowledge and experience is discussed here briefly.

First, regarding analysis of available information by customers, prior knowledge and experience increases the likelihood of analytical processing in general [1]. With increased analytic processing a customer becomes more selective in information search and deeper

in analysis of the available information. Repeat customers are better equipped to understand the meaning of transaction information as they have highly developed conceptual structures (such as beliefs and evaluation) through transaction experience with the vendor [1]. In contrast, potential customers are inferior in comprehending and evaluating information and attributes of Internet shopping as compared to repeat customers because they do not have any transaction experience with the vendor. Therefore, repeat customers are more selective in information processing by focusing on relevant and important information as compared to potential customers.

Second, regarding evaluative processing, customers use either category processing approach or attribute processing approach depending upon their knowledge about shopping object and its category [50]. In attribute processing approach, customers review the available information, evaluate each piece of information and through some attribute integration process arrive at a final judgment [50]. In category processing approach, customers use previous evaluations stored in memory, previous attitudes about similar category of shopping objects, or overall impressions of the shopping object [50]. Potential customers have a rudimentary knowledge structure regarding the shopping object. While, they may have some previous experience with the product, they lack experience of the service provided by the Internet vendor. Due to this rudimentary knowledge structure, potential customers prefer simplistic criteria in making judgment and choice than to process available information [4] and thus tend to process information using category processing approach [50]. In contrast, repeat customers have a deeper understanding of the attributes of shopping object in relation to their choice, which makes them selective in information processing and decision making [1,29,37], thus reducing cognitive effort in decision making. Therefore, they may use attribute processing approach in their choice decisions.

Third, regarding information storage in memory, prior experience and knowledge may also be relevant to a judgment. As customers have transaction experiences with the Internet vendor, their experiences and knowledge are accumulated in their memory. In case of repeat customers, the amount of information recalled depends upon the task for which the information is recalled [3]. When the task is regarding evaluating a shopping object, repeat customers recall most of the information needed for evaluation. When the task is to make a choice, they recall only the information relevant to decision making [29]. In contrast, potential customers rely on the available information or the information they obtain from external sources because of lack of purchase experience [1].

3. Research model and hypotheses

Based on the above discussion, we developed the research model (Fig. 1). Based on previous research [17,58], we define perceived value to represent the total utility as *the net benefits (perceived benefits vis-à-vis perceived sacrifices) of a transaction with an Internet vendor*. According to mental accounting theory, customers assess the value of alternatives as gains or losses relative to a reference rather than as final wealth states. Customers derive their reference points from their expectations, their buying objectives, the sales messages they receive, and their need for justification of the choice [42]. Thus, customers compare the net benefits resulting from the comparison between benefits and sacrifices with their reference points to derive total utility or perceived value.

As discussed already, perceived price and perceived risk would have a negative impact on perceived value in the judgment stage from the monetary perspective and non-monetary perspective respectively. In the decision stage, customers would decide to conduct transactions with a vendor if the transaction offers maximal value [9,13,30,52]. Perceived price and perceived risk would also exert direct effects on purchase intention in the decision stage through the segregated

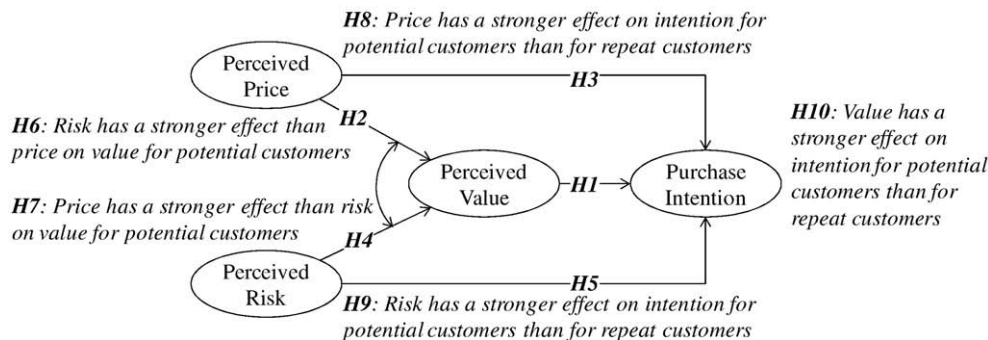


Fig. 1. Research model.

judgment. For the same product, a higher price at the current vendor as compared to other vendors brings monetary loss to customers, which should deter customers from conducting transactions with the vendor [13]. The risks associated with Internet shopping also inhibit customers from making purchases online [26,30]. These relationships are likely to apply to both potential and repeat customers. Hence, we hypothesize:

- H1.** Perceived value positively influences purchase intention.
- H2.** Perceived price negatively influences perceived value.
- H3.** Perceived price negatively influences purchase intention.
- H4.** Perceived risk negatively influences perceived value.
- H5.** Perceived risk negatively influences purchase intention.

The magnitude of the impact of perceived price on perceived value (H2) may differ from that of perceived risk on perceived value (H4) for potential customers and repeat customers. Potential customers face considerable uncertainty in purchasing from a vendor due to lack of transaction experience with the vendor. Under conditions of uncertainty, customers tend to be risk averse as explained by mental accounting theory [30,52]. That is, customers who perceive a relatively high level of uncertainty would weigh more an option with certain but lower benefits than an option with uncertain but higher benefits (e.g., monetary gain) in their value assessment to minimize loss in their transactions. Consistent with risk aversion, potential customers may place more importance on gaining control by reducing uncertainty and risk rather than by saving money on the transaction to minimize loss. From the perceived price based on price comparison, customers would estimate monetary savings [13]. In contrast, perceived risk is a reflection of uncertainty and loss [40] and loss of control [9,15]. Therefore, potential customers would weigh perceived risk more than perceived price in their value assessment. Hence, we hypothesize:

- H6.** Perceived risk has a stronger effect than perceived price on perceived value for potential customers.

Conversely, repeat customers have enough information about a vendor because of direct transaction experience with the vendor. With direct transaction experience, they would perceive a lower level of risk, and correspondingly a higher level of certainty in transactions with the vendor. According to mental accounting theory [30,52], increased certainty in transaction with a vendor increases the desirability of gain (e.g., monetary saving) from the transaction. That is, customers who perceive a higher level of certainty would weigh an option with higher benefit more than an option with lower benefit in their value assessment to maximize gain in their transactions. Repeat customers would thus weigh

perceived price than perceived risk in their value assessment. Hence, we hypothesize:

- H7.** Perceived price has a stronger effect than perceived risk on perceived value for repeat customers.

The impact of perceived price on purchase intention (H3) may differ for potential customers and repeat customers. From the information processing theory perspective, repeat customers would be more selective in information processing by focusing on relevant and important information as compared to potential customers, because prior knowledge and experience increase the likelihood of analytical processing in general [1]. In an empirical survey, Reibstein [43] found the top 10 factors that affect Internet transaction decisions of potential and repeat customers. Out of these 10 factors, he found price to be the dominating factor for potential customers. However, in the case of repeat customers, he found price to be the least important factor. Customer support and on-time delivery were found to be the two most important factors for repeat purchases. This finding explains that repeat customers consider convenience-related factors (e.g., customer support and on-time delivery) as much more relevant and important compared to price in their purchase decision making. That is, with transaction experience with the Internet vendor, customers become less sensitive to price in their purchase decision making [44,45]. Hence, we hypothesize:

- H8.** Perceived price has a stronger negative effect on purchase intention for potential customers than for repeat customers.

The impact of perceived risk on purchase intention (H5) may differ for potential customers and repeat customers of an Internet vendor. Risk is of greater concern to potential customers considering an online purchase [26]. For repeat customers, however, direct transaction experience allows them to build up a perception of higher certainty through learning effect [39]. Repeat customers would thus consider risk a less serious issue in their purchase decision making with the vendor. Information processing theory explains that repeat customers would be selective in information processing by focusing on important information and disregarding less relevant information. Based on this perception of a higher level of certainty, repeat customers would be less concerned about uncertainty and risk in their transactions with the online vendor. In contrast, potential customers would weigh risk perception more in their transactions because of risk aversion under conditions of uncertainty as explained by mental accounting theory. Hence, we hypothesize:

- H9.** Perceived risk has a stronger negative effect on purchase intention for potential customers than for repeat customers.

Potential customers perceive high level of uncertainty and risks and hence are keen for a complete and rational assessment. On the contrary, repeat customers perceive less uncertainty and risks through their direct transaction experience with the online store. Unlike

Table 1
Demographics of respondents.

Demographic variables		Potential customers	Repeat customers
Age (years)	Mean (S.D.)	28.9 (7.8)	30.2 (7.5)
Internet usage experience (years)	Mean (S.D.)	7.1 (3.38)	7.0 (2.3)
Purchase experience with the bookstore (times)	Mean (S.D.)	–	7.54 (5.54)
Gender	Female	65.14%	62.9%
	Male	34.86%	37.1%
Number of responses		218	810

potential customers, they are less inclined towards complete assessment [1–4] for making purchase decisions. For instance, some repeat customers would decide their purchases mainly based on habit (i.e., routine purchase) or other reasons (e.g., price) rather than complete value assessment. Bhattacharjee's [5] study provides crude support for this assertion by reporting a significant influence of satisfaction from previous purchases on customers' intention to continue purchasing from the online store. For this reason, the effect of perceived value on the purchase intention would be higher for potential customers than for repeat customers.

From the information processing theory perspective [1,2], customers tend to reduce cognitive effort in decision making with greater transaction experience. The impact of reduced cognitive effort on decision making would be that repeat customers recall their past experiences and evaluations for decision making. Apart from transaction experience, the amount and quality of information recalled for decision making also depends upon the task (judging the value of purchasing from an online store or making the decision to purchase from an online store). When the task is to judge the value of purchasing from an online store, the amount of information recalled increases with transaction experience [37]. In other words, in making judgment about value of purchasing from an online store, repeat customers recall a greater amount of information than potential customers when evaluating the value of Internet shopping.

On the other hand, when the task is to make a decision to purchase from an online store, customers tend to recall only the information relevant to purchase decision with increasing transaction experience. In other words, the evoked set of decision attributes decreases with transaction experience. Thus, in making purchase decision repeat customers would consider only decision-relevant attributes (such as price or monetary savings), whereas potential customers would consider both perceived price and perceived risk (which is reflected as their perceived value of purchasing from the online store).

In summary, while potential customers' purchase decisions would be based mainly on their overall evaluation (i.e., perceived value) of

multiple attributes of shopping from the current vendor, repeat customers' purchase decisions would be based mainly on the recall of the most discriminating attributes of Internet shopping, as well as the overall evaluation. This implies that the influence of perceived value on purchase intention would be higher for potential customers than for repeat customers. Hence, we hypothesize:

H10. Perceived value has a stronger positive effect on purchase intention for potential customers than for repeat customers.

4. Research methodology

4.1. Data collection

Most leading product categories in Internet shopping involve search products (e.g., books, tickets and CDs) [38]. We chose an Internet bookstore (a Korea based online bookstore) because books belong to the category of search products and vary less in quality as compared to experience products. For example, flowers are categorized as experience products and vary considerably in quality from one store to another. However, books do not vary in quality from one bookstore to another bookstore. A book of the same title (assuming that we are talking about new books and not used books) sold by Amazon.com and BarnesandNoble.com would be the same in quality. Product quality is subjective. Also, in case of experience products we would also need to include product quality as a construct which might bring an IT artifact issue. Since, value, perceived price and perceived risk in this study pertain to the online bookstore and not to the product, adding product quality as a construct would increase confounding effects in this study. Therefore, considering these facts and to prevent confounding effects due to experience products, we chose search products for this study for comparing online purchase decision between potential and repeat customers.

The chosen Internet bookstore has about 120,000 visits to its website everyday and sells about 1500 books daily. It is not a well-known bookstore with good reputation like Amazon.com and caters mainly to customers from South Korea. Alexa.com ranks it at 22,126 in terms of traffic which is much-much lower as compared to Amazon.com (33) and BarnesandNoble.com (1028). In terms of reach also it draws around 0.0045% of online users which is much below as compared to Amazon.com (1.96%) and BarnesandNoble.com (0.08%). It is ranked 272 in terms of traffic in South Korea and draws nearly 92.4% of its customers from South Korea.

The data for this study was collected through an Internet survey from people who visited the bookstore website to browse or purchase books. The marketing manager of the bookstore's website permitted us to place the banner at the bookstore's website for conducting the

Table 2
Measurement instrument.

Construct	Item	Description	Reference
Purchase intention	PINT1	If I were to buy a book, I would consider buying it from this store.	[13]
	PINT2	The likelihood of my purchasing a book from this store is high.	
	PINT3	My willingness to buy a book from this store is high.	
	PINT4	The probability that I would consider buying a book from this store is high.	
Perceived value	PVAL1	Considering the time and effort I spend on buying books at this store, Internet shopping here is worthwhile.	[46]
	PVAL2	Considering the risk I take in buying books at this store, Internet shopping here has value.	
	PVAL3	Considering the money I pay for buying books at this store, Internet shopping here is a good deal.	
	PVAL4	Considering all monetary and non-monetary costs I incur in buying books at this store, Internet shopping here is of good value.	
Perceived price	PRCE1	It may be possible to get a better discount from another online store than from this store.	[18]
	PRCE2	It may be cheaper to buy books at another online store than at this store.	
	PRCE3	I will probably save more money buying books at another online store than at this store.	
	PRCE4	I may need to pay more money buying books at this store than at another online store.	
Perceived risk	RISK1	Internet shopping at this store involves significant uncertainty.	[11]
	RISK2	There is a significant chance of loss in Internet shopping at this store.	
	RISK3	There would be negative outcomes in Internet shopping at this store.	
	RISK4	My credit card and personal information may not be secure with this store.	

Table 3
Results of confirmatory factor analysis.

Item	Potential customers					Repeat customers				
	Std. loading	t-value	AVE	CR	Alpha	Std. loading	t-value	AVE	CR	Alpha
PINT1	0.87	16.10	0.82	0.95	0.95	0.86	29.84	0.69	0.90	0.89
PINT2	0.93	17.96				0.89	31.45			
PINT3	0.92	17.53				0.88	31.16			
PINT4	0.90	17.11				0.68	21.29			
PVAL1	0.93	17.78	0.78	0.93	0.93	0.86	29.49	0.69	0.90	0.90
PVAL2	0.86	15.58				0.83	28.11			
PVAL3	0.88	16.12				0.79	25.90			
PVAL4	0.85	15.36				0.85	29.19			
PRCE1	0.60	8.52	0.52	0.76	0.82	0.55	15.56	0.56	0.78	0.84
PRCE3	0.85	12.23				0.82	25.52			
PRCE4	0.68	9.71				0.83	25.82			
RISK1	0.82	14.37	0.69	0.90	0.89	0.74	22.67	0.54	0.82	0.80
RISK2	0.87	15.86				0.79	24.83			
RISK3	0.90	16.59				0.82	26.28			
RISK4	0.71	11.65				0.55	15.89			

online survey. The online sample was chosen as it represents the potential customers and repeat customers of a real-life Internet bookstore. The data was collected over a period of 10 days. The banner placed on the homepage of the chosen Internet bookstore's website publicized the survey and directed respondents to the survey. Those customers who visited the website participated in the survey voluntarily by clicking the banner on the homepage. To ensure that all respondents actually had some knowledge of the Internet bookstore website, we asked them to find a book of their interest and note its price before answering the survey questions. The publicity banner stated that a payment of \$5 would be given to 200 respondents randomly via a lottery after the survey.

A total of 1028 valid responses were collected via the Internet survey (see Table 1). Out of these, 218 were from potential customers and 810 were from repeat customers. *t*-tests did not reveal any significant differences between the potential customers and repeat customers in terms of age and Internet usage experience. Mann-Whitney test revealed that gender ratio did not differ significantly between the potential customers and repeat customers. Hence, the samples of potential customers and repeat customers were comparable in terms of basic demographics.

4.2. Instrument development

We developed the survey instrument by adopting existing validated instruments wherever possible. Measurement items for purchase intention and perceived risk were adopted from Dodds et al. [13] and Cheung and Lee [11] respectively. Items for perceived value were adapted from Sirdeshmukh et al. [46]. An addition item on perceived risk was included to make the measure more complete. Items for perceived price were adapted from Gefen and Devine [18]. Because customers formed their perception of total price (including shipping cost) by making comparisons with reference prices [13], two

items using the prices of other bookstores were added to allow customers to make such comparisons. The variables were measured on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Two information systems researchers and one marketing scholar reviewed the face validity of the instrument. As a pre-test, the questionnaires were discussed in focus group interviews of 34 persons, with a few having prior Internet shopping experience. The final instrument used for data collection in this study is shown in Table 2.

5. Data analysis and results

5.1. Confirmatory factor analysis

We assessed the constructs for convergent validity and discriminant validity via confirmatory factor analysis (CFA). We first checked the uni-dimensionality in the measurement model. The purpose of this step is to purge items that obviously violate uni-dimensionality as suggested by Gefen et al. [20]. We dropped the second item of perceived price, PRCE2, because it violated uni-dimensionality by sharing a high degree of residual variance with other measurement items.

We then assessed convergent validity using the criteria suggested by Gefen et al. [20]. As shown in Table 3, the individual path loadings were all greater than twice their standard error. The standardized path loadings for all questions were statistically significant for both datasets. The composite reliability (CR) and Cronbach's α for all constructs exceeded 0.7 for both datasets. Also, the average variance extracted (AVE) for all constructs exceeded 0.5 for both datasets. Hence, the convergent validity for the constructs was supported.

Discriminant validity is established if the square root of a construct's AVE is larger than its correlation with any other construct [16]. As shown in Table 4, the square root of AVE for each construct exceeds the correlation between that construct and other constructs. Hence, discriminant validity is established.

5.2. Measurement invariance testing across subject groups

Since we have two subject groups, we have to verify the invariance of instrument interpretation between the subject groups. The most frequently used technique for testing measurement invariance is metric (factor loading) invariance. We first developed a joint model (Table 5: Model 2) by including the baseline (measurement) models for potential customer and repeat customer groups together. We found that χ^2/df ratio (2.80) was acceptable, the root mean square of approximation (RMSEA) of 0.059 indicated an acceptable fit, and the two other practical fit indices were above the commonly recommended 0.9 level (comparative fit index (CFI) = 0.98, goodness-of-fit index (GFI) = 0.95).

For establishing metric invariance, we constrained the matrix of factor loading to be invariant across the two subject groups in the joint model (Model 2). If the model fitting does not degenerate significantly even after constraining the factor loading matrix, we can assume that

Table 4
Correlations between latent variables.

Item	Potential customers					Repeat customers				
	Mean (SD)	PINT	PVAL	PRCE	RISK	Mean (SD)	PINT	PVAL	PRCE	RISK
PINT	5.72 (1.32)	0.91				5.81 (1.03)	0.83			
PVAL	5.51 (1.19)	0.62	0.88			5.64 (1.09)	0.51	0.83		
PRCE	3.65 (1.37)	-0.31	-0.35	0.72		3.28 (1.11)	-0.55	-0.54	0.75	
RISK	2.81 (1.24)	-0.41	-0.53	0.39	0.83	2.40 (1.00)	-0.27	-0.47	0.35	0.73

Note: The diagonal line shows the square root of AVE for each construct.

Table 5
Invariance tests between subject groups.

No.	Model	χ^2/df	RMSEA	CFI	GFI	Result
1	Baseline models					
1A	Potential customers	162.86/84 = 1.94	0.066	0.98	0.91	Acceptable
1B	Repeat customers	309.08/84 = 3.69	0.058	0.98	0.95	Acceptable
2	Joint model	471.95/168 = 2.81	0.059	0.98	0.95	Acceptable
3	Full metric invariance	493.62/179 = 2.76	0.059	0.98	0.95	$\Delta\chi^2(11) = 21.67$, p -value = 0.027
4	Partial metric invariance	484.49/178 = 2.72	0.058	0.98	0.95	$\Delta\chi^2(10) = 12.54$, p -value = 0.324

the factor structure is invariant across groups. The χ^2 difference between the joint model (Model 2) and the model of metric invariance (Model 3) was significant ($\Delta\chi^2(11) = 21.67$, p -value < 0.05), although the fit did not decrease much in terms of the alternative fit indices. Byrne et al. [8] argued that partial measurement invariance is enough for further tests and substantive analyses to be meaningful between the subject groups. Partial metric invariance requires cross-group invariance of some salient loadings, but not necessarily all.

We proceeded to establish partial metric invariance by constraining individual factor loadings [7,8] one by one to find out which items were causing variance across the groups. We found that the variance was due to PINT4, and hence we set this factor loading free across the two subject groups (Model 4). All other factor loadings were constrained across the two groups and we found that the difference between Model 4 and Model 2 was insignificant ($\Delta\chi^2(10) = 12.54$, p -value > 0.1). The measurement instrument thus exhibited partial metric invariance between the two subject groups.

We also tested for common method variance as described by Straub and Limayem [49] and Song and Zahedi [48]. The results of the tests suggests that the measurement model fits the data better than a single-factor model for the two subject groups respectively.

5.3. Hypotheses testing

The structural models for both potential customers ($\chi^2/df = 1.94$, GFI = 0.91, AGFI = 0.87, NFI = 0.98, CFI = 0.98, RMSEA = 0.066) and repeat customers had good fit indices ($\chi^2/df = 3.68$, GFI = 0.95, AGFI = 0.93, NFI = 0.98, CFI = 0.98, RMSEA = 0.058). The χ^2/df ratio, also known as normed chi-square is little higher (3.68) for repeat customers. The value < 3.0 is considered good whereas between 3.0 and 5.0 is considered acceptable [23]. Moreover, according to Hair et al. [23], normed chi-square, being somewhat unreliable, should always be combined with other goodness-of-fit measures [25,57]. As the structural model had good fit indices, the standardized path coefficients (see Fig. 2) could be used for testing the hypotheses. Thus, H1 (the effect of perceived value on purchase intention), H2 (the effect of perceived price on perceived value), and H4 (the effect of perceived risk on perceived value) were supported for both potential and repeat

Table 6
Results of constrained test within each sub-model.

Subject type	Base model		Constrained model		Difference		
	χ^2	df	χ^2	df	$\Delta\chi^2$	Δdf	p -value
Potential customers	162.86	84	170.23	85	7.37	1	0.007
Repeat customers	309.08	84	314.25	85	5.17	1	0.023

Constraint: the effect of perceived price on perceived value = the effect of perceived risk on perceived value.

customers. H3 (the effect of perceived price on purchase intention) was supported only for repeat customers. H5 (the effect of perceived risk on purchase intention) was not supported.

We examined the effects of control variables by adding demographic factors (Age, Gender, Profession, Internet Experience and Shopping Experience) as control variables. Taking purchase intention as dependent variable, we found that Gender and Profession were significant at 90% and 95% confidence level. The R^2 increase due to adding control variables was 1.5% which is again very insignificant increase.

To examine the comparative effects of perceived price and perceived risk on perceived value for potential customers (H6) and repeat customers (H7), we employed a two-step within-group constraint testing approach [7] for each dataset (i.e., we analyzed the data for potential customers and that for repeat customers separately). First, we created a base model using LISREL with the two hypothesized paths: the effect of perceived price on perceived value and the effect of perceived risk on perceived value. We then estimated it with the relevant datasets. Second, we imposed an equality constraint for the two paths to be compared. If the constrained model had a significantly different fit (in terms of χ^2) compared to the base model, then the coefficients of the two paths would be significantly different. Table 6 shows the constrained testing results. The results reveal that χ^2 difference was significant for potential customers ($\Delta\chi^2 = 7.37$, $\Delta df = 1$, p -value = 0.007). The path coefficients of the base model in this dataset indicated that perceived risk had a stronger effect than perceived price on perceived value for potential customers. The constrained testing results also reveal that χ^2 difference was significant for repeat customers ($\Delta\chi^2 = 5.17$, $\Delta df = 1$, p -value = 0.023). The path coefficients of the base model in this dataset indicated that perceived price had a stronger effect than perceived risk on perceived value for repeat customers. Thus, H6 and H7 were supported.

To examine the different effects of the same antecedents (perceived price, perceived risk, and perceived value) on purchase intention between the two customer groups, we employed a two-step between-group constraint testing approach [7]. First, we created a base model with three hypothesized paths using LISREL: effect of perceived price on purchase intention, effect of perceived risk on purchase intention, and effect of perceived value on purchase intention. With this base model, we jointly estimated the two sub-models (one for potential

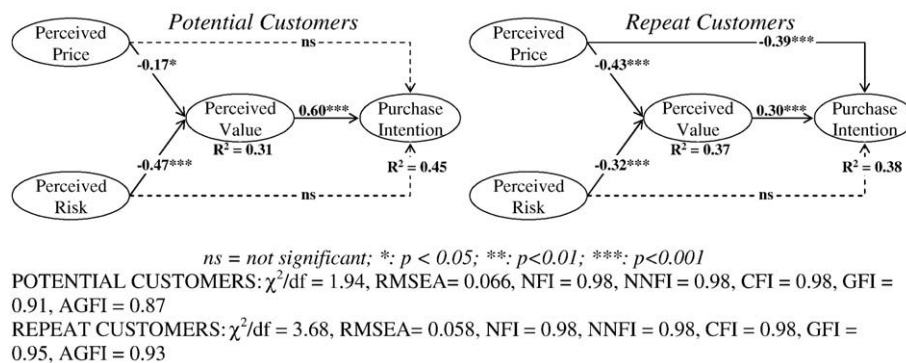


Fig. 2. Structural model.

Table 7
Results of constrained tests across sub-models.

Equality constraint imposed across two sub-models	Base model		Constrained model		Difference		
	χ^2	df	χ^2	df	$\Delta\chi^2$	Δdf	p-value
Perceived price to purchase intention	471.95	168	482.57	169	10.62	1	0.001
Perceived risk to purchase intention	471.95	168	471.81	169	-0.14	1	0.708
Perceived value to purchase intention	471.95	168	488.76	169	16.81	1	0.000

customers and one for repeat customers) with the respective datasets. Second, we imposed an equality constraint across both sub-models for the paths under study. If the constrained model had a significantly different fit (in terms of χ^2) compared to the base model, then the coefficient of the constrained path would be significantly different across the two sub-models.

Table 7 shows the constrained testing results. For perceived price, the χ^2 difference was significant ($\Delta\chi^2 = 10.62$, $\Delta df = 1$, $p = 0.001$). The path coefficients indicated that perceived price had a stronger influence on purchase intention for repeat customers than for potential customers. For perceived risk, the χ^2 difference was insignificant ($\Delta\chi^2 = -0.14$, $\Delta df = 1$, $p = 0.708$). For perceived value, χ^2 difference was significant ($\Delta\chi^2 = 16.81$, $\Delta df = 1$, $p = 0.000$). The path coefficients indicated that perceived value had a stronger influence on purchase intention for potential customers than for repeat customers. Therefore, H10 was supported while H9 was not supported. Regarding H8, the testing results show that perceived price has a stronger influence on purchase intention for repeat customers than for potential customers.

6. Discussion and implications

6.1. Discussion of findings

There are several interesting findings in this study as summarized in Table 8. We found that perceived risk has a stronger impact on perceived value than perceived price for potential customers, while perceived price has a stronger impact on perceived value than perceived risk for repeat customers. These findings lend empirical support to the proposition of mental accounting theory [30,52]. Potential customers perceive greater risk and uncertainty in carrying out transactions while repeat customers perceive greater certainty in transactions with the Internet vendor. According to the certainty effect and risk aversion of mental accounting theory, potential customers would put more weight on perceived risk than on perceived price in their value perception. Mental accounting theory also explains that with certainty in a transaction, the desirability of gain from a transaction increases. Thus, compared to potential customers, repeat customers would weigh perceived price more than perceived risk in their value perception as they perceive greater certainty in the transaction.

Table 8
Summary of key findings.

Research question	Findings (relevant hypotheses)
Research question 1: Differences in value perception between potential and repeat customers in the judgment stage	<ul style="list-style-type: none"> Perceived risk has a stronger effect than perceived price on perceived value for potential customers (H6) Perceived price has a stronger effect than perceived risk on perceived value for repeat customers (H7)
Research question 2: Differences in determining purchase intention between potential and repeat customers in the decision stage	<ul style="list-style-type: none"> Perceived price has a stronger negative effect on purchase intention for repeat customers than for potential customers (H8) Perceived value has a stronger positive effect on purchase intention for potential customers than for repeat customers (H10)

Contrary to our proposition H8, we found that the impact of perceived price on purchase intention is stronger for repeat customers than for potential customers. However, a number of studies [e.g., 43–45] have reported that repeat customers become less price sensitive as the number of purchases with a vendor increases. For this reason, we conducted post-hoc analysis of the moderating effect of transaction experience on the relationship between perceived price and purchase intention only for repeat customers. The results reveal that transaction experience significantly moderates the relationship ($\Delta R^2 = 0.022$, $F = 7.68$, $p < 0.001$): perceived price (coefficient = -0.44 , $p < 0.000$), perceived price*transaction experience (coefficient = 0.34 , $p < 0.01$), transaction experience (coefficient = -0.38 , $p > 0.1$). The results imply that more-experienced repeat customers are less sensitive to price in making purchase decisions compared to less-experienced repeat customers.

However, the hypothesis testing result shows that overall the impact of perceived price on purchase intention is stronger for repeat customers than for potential customers of an online vendor. This result could be partly explained by the ‘certainty effect’ of mental accounting theory. As discussed earlier, certainty in a transaction increases the desirability of gains from a transaction. The monetary gain is derived in the form of lower price as compared to that of other vendors [13]. Certainty effect thus increases customer sensitivity to monetary saving in the case of repeat customers, mainly less-experienced ones. The other possible explanation is that customer sensitivity is inverted U-shape [4] in maximizing monetary savings over transaction experience with an Internet vendor: potential customers and more-experienced customers have a lower level of sensitivity in maximizing monetary savings while less-experienced customers have a higher level of sensitivity to the same.

We also found that perceived price has a direct impact on purchase intention for repeat customers but not for potential customers. The finding of the insignificant direct effect of perceived price on purchase intention is similar to that of Urbany et al. [55]. Urbany et al. [55] found that transaction utility (akin to perceived price in this study) has no significant effect on purchase intention when customers are uncertain about product quality. When customers do not have enough information about product quality, they interpret price as a quality signal [58]. Lambert [34] also reported that customers tend to go for high price options when they are concerned about undesirable consequences arising from the purchase of unsatisfactory products. In our study, potential customers might be certain about product quality (i.e., books). However, they would be uncertain about vendor quality because they would not have prior transaction experience with the vendor. For this reason, perceived price might not have a significant effect on purchase intention for the potential customers in our study.

Another finding is that the impact of perceived value on purchase intention is stronger for potential customers than for repeat customers. Previous research [e.g., 50] posits that the potential customers, who have a rudimentary knowledge structure in carrying out transactions, would be inclined toward overall evaluation processing in their choice decision. In contrast, the repeat customers

would likely go through a process of selective encoding and retrieval, thus recalling only the most discriminating information needed for making purchase decisions with the vendor [29]. Repeat customers are susceptible to the key attributes of transactions with the vendor as well as to the overall perception of value in their decision making, which weakens the impact of perceived value on purchase intention more for repeat customers than for potential customers.

This study also found that perceived risk does not have a significant influence on purchase intention for both potential customers and repeat customers of an Internet vendor. This result is inconsistent with those of previous studies [e.g., 5,31,41,42], which noted perceived risk as a major barrier to Internet transactions. One of the reasons for this inconsistency is that these studies [e.g., 6] considered large internet retailers who are less risky in terms of online transactions. In the IS domain, Kim et al. [31] reported significant relationship between perceived risk and purchase intention for online comparison shoppers. However, in their study, 94% of the respondents had more than 3 years of Internet experience, and 90% of the respondents have previous purchase experience. Yet in another study by Lee and Rao [35] in IS domain, the relationship between perceived risk and intention to use e-government website was not reported to be significant. In this study, the bookstore was known to many online bookstore users but not known to general online users. Another reason for this inconsistency in our finding may be attributed to the greater Internet usage experience of the potential customers (Mean = 7.07 years, SD = 3.38) in our study. Moreover, most of the potential customers in this study (92.2%) had prior Internet shopping experience, which would alleviate their concern regarding uncertainty and risk in Internet shopping. Beyond prior Internet shopping experience, this study found that the effect of perceived risk on purchase intention is fully mediated by perceived value for both potential and repeat customers. Thus, our study extends the finding of previous research [28] by identifying that perceived risk influences purchase intention indirectly through perceived value.

6.2. Limitations and future research

The results of this study must be interpreted in the context of its limitations. First, we collected data from the customers of a single online bookstore in this study. Future studies could replicate this study with different Internet vendors and with different products, including experiential products such as flowers. Second, this study examined online purchase decision making from the value perspective. Regarding the antecedents of value perception, this study considered only two common factors, perceived price from the monetary perspective and perceived risk from the non-monetary perspective; this restriction maintained our focus on the comparison between potential customers and repeat customers. Although the objective in this study is not to identify the antecedents of value perception, there could be many other antecedents. Some antecedents (e.g., customer support and on-time delivery) are applicable only for repeat customers through direct experience. Future studies can identify other antecedents of value perception and examine their effects on value perception and purchase behavior. Third, this study classified the customers of an Internet vendor into potential customers and repeat customers. Future studies can classify repeat customers into various types, such as transactional customers and relational customers, and examine the differences in their online purchase decision making. Fourth, we defined potential customers as *those who have browsed the web site of the vendor but have yet to purchase from it* in this study. However, there could be another type of potential customers who do not even know the online bookstore. We did not include this group in our study because of difficulty in gathering data from such potential customers. It is highly likely that there would be differences in those potential customers who

do not even know the online store and those who are already aware of the online bookstore. These two groups might have different decision-making mechanisms regarding online shopping. Lastly, in this study the bookstore considered was not very popular among general online users. Popularity of an online store might have a confounding effect on the relationship between perceived risk and purchase intention.

6.3. Implications

This research offers several implications for theory and practice. From the theoretical perspective, this research examined the differences in online purchase decision making between potential and repeat customers at an online store. A number of studies [10,12,13,41] have identified the factors that lead to purchase intention. However, little has been said about how potential customers and repeat customers make purchase decisions differently. Drawing from mental accounting theory and information processing theory, this study has examined online purchase decision making from the value perspective and the differences between the two customer groups.

Going beyond the findings of previous studies, based on mental accounting theory, this study has shown that potential customers and repeat customers weigh price perception (monetary perspective) and risk perception (non-monetary perspective) differently towards overall value perception in the judgment stage. This study also shows that, in the decision stage, the impact of overall value perception and monetary price perception on purchase intention changes over customer type (potential customer and repeat customer), based on mental accounting theory and information processing theory. These results contribute toward theoretical advancements on the issue of customer decisions in the Internet shopping context.

From the practical perspective, this study affirms earlier suggestions [10,13,30,52,58] that value is one of the most important drivers of Internet transactions at a vendor. It is definitely worthwhile for Internet vendors to invest in enhancing the perceived value of transactions for customers. To enhance the perceived value, Internet vendors should increase benefits and decrease sacrifices. Examples of such efforts include improving service quality and web site quality, increasing shopping convenience, lowering the level of perceived risk in the transactions, and providing monetary gain.

Internet vendors also may want to adjust their efforts in enhancing the value perceived by customers according to customer type (potential customers and repeat customers). Given the importance of perceived risk over perceived price for potential customers in their value perception, Internet vendors have to put more emphasis on lowering the risk perceived by potential customers than on providing monetary gain (in the form of lower price compared to that of other vendors) to potential customers. To decrease the risk perception level, Internet vendors can consider improving their trustworthiness using TRUSTe, registering with reputed search engines such as Yahoo, and by providing customer reviews. In contrast, given the importance of perceived price over perceived risk for repeat customers in their value perception, vendors should put more emphasis on providing monetary gain derived from lower perceived price to repeat customers.

This study will also help Internet vendors develop different strategies for creating initial sales with their potential customers and generating repeat sales with their returning customers. To enhance initial sales with potential customers, Internet vendors should focus on maximizing overall value, as value perception dominates determining the initial purchase intention in the case of potential customers. In contrast, many Internet vendors tend to reduce prices to attract potential customers. It has been found that this strategy of offering lower prices is faulty because even price-sensitive customers do not always buy from the lowest-priced online stores

[47]. The results of this study suggest that an Internet vendor should enhance the overall value of the Internet shopping as perceived by their potential customers.

To generate repeat sales with returning customers, Internet vendors should focus on providing monetary gain as well as higher value to their repeat customers. Internet vendors should focus on targeting repeat customers on the basis of specific inducements that reduce perceived price. Examples include price discounts, frequency programs, and loyalty points. This study also suggests that repeat customers do not become less price sensitive with just a few transaction experiences at a vendor, although the impact of perceived price on purchase intention decreases as repeat customers conduct more transactions with the vendor.

7. Conclusion

This study has compared online purchase decision making between potential customers and repeat customers of an Internet vendor from the value perspective based on mental accounting theory and information processing theory across the judgment stage and the decision stage. This study presents important theoretical and practical contributions. On the theoretical side, based on mental accounting theory and information processing theory, this study offers a theoretical explanation of the differences in online purchase decision making between potential and repeat customers. The results of this study will help advance our knowledge of customer decision making in the context of Internet shopping. On the practical side, it offers insight for Internet vendors by explaining the differences in online purchase decision making between their potential and repeat customers. The findings of this study should equip Internet vendors with the evidence to develop effective and customized strategies for enhancing initial and repeat sales.

References

- [1] J. Alba, W. Hutchinson, Dimensions of consumer expertise, *Journal of Consumer Research* 13 (4) (1987).
- [2] J.R. Bettman, *An Information Processing Theory of Consumer Choice*, 1979 Reading, Addison-Wesley Publishing Company, Massachusetts.
- [3] J.R. Bettman, Consumer psychology, in: M.R. Rosenzweig, L.W. Porter (Eds.), *Annual Review of Psychology*, 1986, Palo Alto, California.
- [4] J.R. Bettman, C.W. Park, Effects of prior knowledge and experience and phase of the choice process on consumer decision processes: a protocol analysis, *Journal of Consumer Research* 7 (3) (1980).
- [5] A. Bhattacherjee, An empirical analysis of the antecedents of electronic commerce service continuance, *Decision Support Systems* 37 (2) (2001).
- [6] E. Brynjolfsson, M.D. Smith, Frictionless commerce? A comparison of internet and conventional retailers, *Management Science* 46 (4) (2000).
- [7] B.M. Byrne, *Structural Equation Modeling with LISREL, PRELIS, and SIMPLIS: Basic Concepts, Applications and Programming*, Lawrence Erlbaum Associates, New Jersey, 1998.
- [8] B.M. Byrne, R.J. Shavelson, B. Muthen, Testing for the equivalence of factor covariance and mean structures: the issue of partial measurement invariance, *Psychological Bulletin* 105 (3) (1989).
- [9] T.Z. Chang, A.R. Wildt, Price, product information, and purchase intention: an empirical study, *Journal of the Academy of Marketing Science* 22 (1) (1994).
- [10] Z. Chen, A.J. Dubinsky, A conceptual model of perceived customer value in e-commerce: a preliminary investigation, *Psychology and Marketing* 20 (4) (2003).
- [11] C.M.K. Cheung, M.K.O. Lee, Trust in internet shopping: instrument development and validation through classical and modern approaches, *Journal of Global Information Management* 9 (3) (2001).
- [12] T. Dinev, P. Hart, An extended privacy making model for e-commerce transactions, *Information Systems Research* 17 (1) (2006).
- [13] W.B. Dodds, K.B. Monroe, D. Grewal, Effects of price, brand and store information on buyers' product evaluations, *Journal of Marketing Research* 28 (3) (1991).
- [14] I. Ehrlich, L. Fisher, The derived demand for advertising: a theoretical and empirical investigation, *American Economic Review* 72 (3) (1982).
- [15] M.S. Featherman, P.A. Pavlou, Predicting e-services adoption: a perceived risk facets perspective, *International Journal of Human-Computer Studies*, 59 (4) (2003).
- [16] C. Fornell, D. Larcker, Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research* 18 (1) (1981).
- [17] C. Fornell, M.D. Johnson, E.W. Anderson, J. Cha, B.E. Bryant, The American customer satisfaction index: nature, purpose, and findings, *Journal of Marketing* 60 (7) (1996).
- [18] D. Gefen, P. Devine, Customer loyalty to an online store: the meaning of online service quality, *International Conference of Information Systems*, 2001, New Orleans, Louisiana.
- [19] D. Gefen, E. Karahanna, D.W. Straub, Inexperience and experience with online stores: the importance of TAM and trust, *IEEE Transactions on Engineering Management* 50 (3) (2003).
- [20] D. Gefen, D.W. Straub, M. Boudreau, Structural equation modeling and regression: guidelines for research practice, *Communications of the Association for Information Systems*, 4 (7) (2000).
- [21] D. Grewal, K.B. Monroe, R. Krishnan, The effects of price-comparison advertising on buyers' perceptions of acquisition value, transaction value and behavioral intentions, *Journal of Marketing* 62 (2) (1998).
- [22] K. Gurumurthy, S.W. Russell, Empirical generalizations from reference price research, *Marketing Science* 14 (3) (1995).
- [23] J.F. Hair Jr., R.E. Anderson, R.L. Tatham, W.C. Black, *Multivariate Data Analysis*, 5th ed., Prentice Hall, New Jersey, 1998.
- [24] L.C. Harris, M.M.H. Goode, The four levels of loyalty and the pivotal role of trust: a study of online service dynamics, *Journal of Retailing* 80 (2) (2004).
- [25] L.A. Hayduk, *Structural Equation Modeling with LISREL: Essentials and Advances*, John Hopkins University Press, Baltimore, 1987.
- [26] D.L. Hoffman, T.P. Novak, M. Peralta, Building consumer trust online, *Communications of the ACM* 42 (4) (1999).
- [27] J. Jacoby, J.C. Olson, Consumer response to price: an attitudinal, information processing perspective, in: Y. Wind, M. Greenberg (Eds.), *Moving Ahead with Attitude Research*, American Marketing Association, Chicago, 1977.
- [28] S.L. Jarvenpaa, P.A. Todd, Consumer reactions to electronic shopping on the World Wide Web, *International Journal of Electronic Commerce* 1 (2) (1997).
- [29] E.J. Johnson, J.E. Russo, Product familiarity and learning new information, *Advances in Consumer Research* 5 (1981).
- [30] D. Kahneman, A. Tversky, Prospect theory: an analysis of decision under risk, *Econometrica* 47 (2) (1979).
- [31] D.J. Kim, D.L. Ferrin, H.R. Rao, A trust-based consumer decision-making model in electronic commerce: the role of trust, perceived risk, and their antecedents, *Decision Support Systems* 44 (2) (2008).
- [32] H.W. Kim, Y. Xu, Internet shopping: is it a matter of perceived price or trust, *Twenty-Fifth International Conference on Information Systems*, Washington D.C., 2004.
- [33] H.W. Kim, H.C. Chan, S. Gupta, Value-based adoption of mobile internet: an empirical investigation, *Decision Support Systems* 43 (1) (2007).
- [34] Z.B. Lambert, Perceptual patterns, information handling, and innovativeness, *Journal of Marketing Research* 9 (4) (1972).
- [35] J.K. Lee, H.R. Rao, Perceived risks, counter-beliefs, and intentions to use anti-/counter-terrorism websites: an exploratory study of government-citizens online interactions in a turbulent environment, *Decision Support Systems* 43 (4) (2007).
- [36] D. Li, G.J. Browne, J.C. Wetherbe, Why do internet users stick with a specific web site? A relationship perspective, *International Journal of Electronic Commerce* 10 (4) (2006).
- [37] J.G. Lynch Jr., T.K. Srull, Memory and attentional factors in consumer choice: concepts and research methods, *Journal of Consumer Research* 9 (1) (1982).
- [38] P.D. Lynch, R.J. Kent, S.S. Srinivasan, The global internet shopper: evidence from shopping tasks in twelve countries, *Journal of Advertising Research* 41 (3) (2001).
- [39] V.W. Mitchell, G.S. Prince, Retailing to experienced and inexperienced consumers: a perceived risk approach, *International Journal of Retail & Distribution Management* 21 (5) (1993).
- [40] J.C. Mowen, The time and outcome valuation model: implications for understanding reactance and risky choices in consumer decision-making, *Advances in Consumer Research* 9 (1992).
- [41] P.A. Pavlou, M. Fygenon, Understanding and predicting electronic commerce adoption, *MIS Quarterly* 30 (1) (2006).
- [42] C.P. Puto, The framing of buying decisions, *Journal of Consumer Research* 14 (3) (1987).
- [43] D.J. Reibstein, What attracts customers to online stores and what keeps them coming back? *Journal of the Academy of Marketing Science* 30 (4) (2002).
- [44] F.F. Reichheld, P. Scheffer, E-loyalty: your secret weapon on the web, *Harvard Business Review* 78 (4) (2000).
- [45] F.F. Reichheld, T. Teal, *The Loyalty Effect*, Harvard Business School Press, Boston, 1996.
- [46] D. Sirdeshmukh, J. Singh, B. Sabol, Consumer trust, value and loyalty in relational exchanges, *Journal of Marketing* 66 (1) (2002).
- [47] M.D. Smith, E. Brynjolfsson, Consumer decision-making at an internet shopbot: brand still matters, *Journal of Industrial Economics* 49 (4) (2001).
- [48] J. Song, F.M. Zahedi, A theoretical approach to web design in e-commerce: a belief reinforcement model, *Management Science* 51 (8) (2005).
- [49] D. Straub, M. Limayem, E. Karahanna-Evaristo, Measuring system usage: implications for IS theory testing, *Management Science* 41 (8) (1995).
- [50] M. Sujjan, Consumer knowledge: effects on evaluation strategies mediating consumer judgments, *Journal of Consumer Research* 12 (1) (1985).
- [51] J.C. Sweeney, G.N. Soutar, L.W. Johnson, The role of perceived risk in the quality-value relationship: a study in a retail environment, *Journal of Retailing* 75 (1) (1999).
- [52] R. Thaler, Mental accounting and consumer choice, *Marketing Science* 4 (3) (1985).
- [53] R. Thaler, Mental accounting matters, *Journal of Behavioral Decision Making* 12 (1999).
- [54] O. Turel, A. Serenko, N. Bontis, User acceptance of wireless short messaging services: deconstructing perceived value, *Information & Management* 44 (2007).

- [55] J.E. Urbany, W.O. Bearden, A. Kaicker, M.S. Borrero, Transaction utility effects when quality is uncertain, *Journal of the Academy of Marketing Science* 25 (1) (1997).
- [56] J. Von-Neuman, O. Morgenstern, *Theory of Games and Economic Behavior*, Princeton, New Jersey, 1953.
- [57] B. Wheaton, Assessment of fit in over-identified models with latent variables, *Sociological Methods and Research* 16 (1987).
- [58] V.A. Zeithaml, Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence, *Journal of Marketing* 52 (3) (1988).

Hee-Woong Kim: Hee-Woong Kim is a professor in the Graduate School of Information at Yonsei University. Before joining Yonsei University, he worked at the National University of Singapore. He received his Ph.D. from KAIST. He has been a research fellow in the Sloan School of Management at MIT. He was a Doctoral Consortium Fellow at the 1997 International Conference on Information Systems. He also worked as a senior IS consultant at LG CNS. His research interests are in IT-induced organizational change and the application of IS for the success of electronic commerce. His research work has been published in *Communications of the ACM*, *European Journal of Operational Research*, *International Journal of Human Computer Studies*, *Journal of American Society for Information Systems and Technology*, *Journal of the Association for Information Systems*, and *Journal of Retailing*, and *MIS Quarterly*.

Sumeet Gupta: Dr. Sumeet Gupta is a Ph.D. and MBA from National University of Singapore. He was associated with The Logistics Institute–Asia Pacific, Singapore as a Research Fellow. Currently, he is affiliated with Shri Shankaracharya Institute of Management and Technology, India as an associate professor. His publications have appeared in several top International journals (DSS, IJEC, EJOR, IRMJ, P&M, EM, and Omega) and Conferences (ICIS, AMCIS, ECIS, PACIS, AOM and POMS). He has also published many book chapters for leading international books. He is also a reviewer for DSS, ICIS, PACIS, ICMB etc.