Which is more important in Internet shopping, perceived price or trust?

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A B S T R A C T

Price and trust are considered to be two important factors that influence customer purchasing decisions in Internet shopping. This paper examines the relative influence they have on online purchasing decisions for both potential and repeat customers. The knowledge of their relative impacts and changes in their relative roles over customer transaction experience is useful in developing customized sales strategies to target different groups of customers. The results of this study revealed that perceived trust exerted a stronger effect than perceived price on purchase intentions for both potential and repeat customers of an online store. The results also revealed that perceived price exerted a stronger influence on purchase decisions of repeat customers as compared to that of potential customers. Perceived trust exerted a stronger influence on purchase decisions of potential customers as compared to that of repeat customers.

1. Introduction

Product price has long been considered a key predictor of customer choice. Price has been regarded as either a monetary sacrifice for obtaining a product or a quality signal of a product (Lichtenstein et al. 1993, Zeithaml 1988). Most leading product categories in the context of Internet shopping (e.g., tickets, books, and music CDs) involve ‘low touch’ products and ‘no touch’ services (EIAA 2006, Lynch et al. 2001). When products are of a low touch nature (i.e., search products), product quality remains constant across vendors (Klein 1998), allowing customers to focus primarily on price minimization (Dodds et al. 1991, Garbarino and Maxwell 2010, Von Neumann and Morgenstern 1953, Zeithaml et al. 1988). The efforts of customers to seek out the vendors offering the best prices are facilitated in part by Internet shopbots or comparison websites (e.g., BizRate.com). Electronic markets thus allow customers to easily compare prices across vendors and find the cheapest possible alternative.

Conversely, because of the physical and temporal distance between buyer and seller in the electronic marketplace, Internet shopping incurs uncertainty and embodies risk, which arises from the time lapse between the purchase and the delivery of the products. In the presence of such risk and uncertainty, lack of trust in an Internet vendor has been identified as one of the greatest barriers inhibiting Internet transactions with the vendor (Hoffman et al. 1999, Pavlou et al. 2007). Many studies (e.g., Gefen et al. 2003, Grazioli and Jarvenpaa 2000, McKnight et al. 2002, Pavlou and Gefen 2004) have argued that trust in an online store has become a key predictor of customer decisions in Internet shopping. Indeed, trust is often regarded as one of the most important prerequisites for the success of e-commerce (Hoffman et al. 1999, Pavlou et al. 2007) as well as mobile commerce (Luo et al. 2010, Siau and Shen 2003). A popular press article (Vintone 2001) mentioned that trust is the top factor affecting the success of e-commerce.

Although previous research has delineated the importance of both price and trust in an online store, the synergy effect of these two factors on online purchase decision needs more attention. For Internet vendors, this is a critical strategy issue, because they need to decide whether to compete with others on the basis of price or trust. Based on the facts that price has long been considered a key predictor of customer choice and that customers can easily compare prices among Internet vendors and select cheaper alternatives, Internet vendors could consider developing price-oriented competition strategies. Conversely, based on the argument advocating trust proponents, Internet vendors could consider...
developing trust-oriented strategies. However, trust building requires additional investments, such as reputation building, service quality improvement, and customer satisfaction enhancement (Jarvenpaa et al. 2000, Kim and Benbasat 2006, Kim et al. 2004, Singh and SirdeShmukh 2000). Compromising between these two extremes, Internet vendors could try to achieve a balance between price and trust by putting different weights on the two factors in their strategies. In order to do this, Internet vendors need to know the relative importance of trust and price in the online purchase decision of customers. It would also be useful for Internet vendors to know how trust and price may influence initial sales for new customers and repeat sales for returning customers differently so as to appropriately market to these two customer groups. For example, (Reibstein 2002) found that price is the most important factor for initial online sales, but the least important factor for online repeat sales.

Based on the research needs outlined above, this study aims to examine the relative and differing importance of perceived trust (i.e., a set of beliefs about the trustworthiness of an Internet vendor) and perceived price (i.e., subjective perception of price at an Internet vendor in comparison with prices at other vendors) in customer decisions in the context of Internet shopping. Specifically, we seek to answer two research questions: (1) How would perceived price and perceived trust affect online purchase intention differently for potential and repeat customers at an Internet store? (2) Of the two factors, perceived trust and perceived price, which factor would exert a stronger effect on online purchase intention? In this study, potential customers are those who have browsed the website of an Internet vendor, but have yet to purchase from the vendor. They may have transaction experience with other Internet vendors, but not at the focal Internet vendor. Repeat customers are those who have purchased from the target Internet vendor at least once previously.

This study contributes to our knowledge on customer decisions in a number of ways. First, it examines the relative importance of perceived trust and perceived price when customers make purchase decisions with an Internet vendor. Second, it examines the changes in the effect of perceived trust and perceived price on customer purchase decisions over customer type (from being a potential customer to being a repeat customer) with an Internet vendor. Third, it offers practical insights for Internet vendors, explaining how potential and repeat customers weigh perceived trust and perceived price differently when making their purchase decisions.

The rest of the paper is organized as follows. In the next section we present the theoretical background, followed by the research model and hypotheses. We then describe the research methodology. After interpreting the empirical results, we discuss the theoretical and practical implications and conclude with a summary.

2. Theoretical background

Internet shopping is characterized by risk and uncertainty for customers. Therefore, theories that explain human behavior under conditions of risk and uncertainty can shed light on customer behavior in the context of Internet shopping. Two such theories are the prospect theory (Kahneman and Tversky 1979) and the mental accounting theory (Thaler 1985).

2.1. Theoretical foundation

Based on the assumption of rational choice and probabilistic consideration between options, the expected utility theory (Von Neumann and Morgenstern 1953) was developed for decision analysis. The term, “utility,” in the theory was originally used to describe the overall wealth or consumption, or net satisfaction derived from a particular commodity or choice alternative. It has been argued that this approach is of limited explanatory power when applied to customer choice under conditions of uncertainty (Kahneman and Tversky 1979). As a result, the prospect theory (Kahneman and Tversky 1979) was proposed as an alternative approach for explaining choices made by customers under conditions of uncertainty.

Prospect theory explains human decisions under conditions of risk and uncertainty from a value maximization perspective (Kahneman and Tversky 1979). This theory suggests that people put more weight on positive outcomes that are considered certain 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 this effect explains why people tend to prefer an option with certain but lower benefit over an option with uncertain but higher benefit. Prospect theory essentially highlights the fact that the certainty effect brings about risk-aversion in choices involving certain gains. Indeed, risk aversion is considered one of the best-known generalizations about risky choices involving gains (Kahneman and Tversky 1979).

Using prospect theory as a basis, Thaler (1985) proposed the mental accounting theory. Total utility, which is the sum of acquisition utility and transaction utility, represents the perceived total value derived from purchasing a product. Total utility plays a key role in predicting customer choice and decision making. High total utility leads to a high possibility of customer purchase. Acquisition utility is perceived based on a comparison between the equivalent value of a product and its objective price. Equivalent value is a measure of the benefit of having a product, as perceived by the customer. The objective price is the total amount that a customer has to pay to get the product. Intuitively, acquisition utility is the perception of whether the product being purchased is worth its price. Prior research has suggested that product quality enhances the equivalent value of a product (e.g., Chang and Wildt 1994, Dodds et al. 1991, Sweeney et al. 1999, Zeithaml 1988).

Transaction utility is perceived based on the difference between the objective price and the reference price of the product being purchased. Unlike objective price, the reference price is the price that customers expect to pay for a product (Thaler 1985). Customers derive reference prices from previous experience or sales messages (Puto 1987). Internet shopbots that facilitate price comparisons among Internet vendors also help customers derive reference prices. Intuitively, transaction utility represents the price advantage or disadvantage of a deal relative to the reference price.

While prior research (e.g., Chang and Wildt 1994, Dodds et al. 1991, Sweeney et al. 1999, Urbany et al. 1997, Zeithaml 1988) has focused on the monetary aspects of price, the non-monetary aspects may be critical (Zeithaml 1988). Examples of non-monetary aspects of price are time and effort (Downs 1961). For Internet shopping, risk is another important non-monetary aspect (Grewal et al. 2003) because customer deception by Internet vendors is becoming increasingly common. Risk is conceptualized as the probability of a future loss that reduces the equivalent value of a product at the time of purchase (Sweeney et al. 1999).

2.2. Perceived price and trust

The impact of the two key factors (i.e., price and trust) on customer decisions in the context of Internet shopping can be accounted for using mental accounting theory. Jacobby and Olson (1997) distinguished between the objective price of a product (which may include shipping costs in the context of Internet shopping) and the price encoded by customers. Zeithaml (1982) posited that customers usually do not remember the objective price of a product. Instead, customers encode prices in ways that are meaningful to them. For example, they compare objective prices
(e.g., price offered by the current vendor) with reference prices
(e.g., prices offered by the other vendors) (Dodds et al. 1991, Kahn-
eman and Tversky 1979) while shopping on the Internet, and then
encode the outcomes as either higher or lower than their refer-
ences. Such outcomes drive the price perceptions of customers,
which in turn influence their decisions (Jacoby and Olson 1997).
In this study, perceived price is considered to be the perceived level
of monetary price for one vendor in comparison with prices of
other vendors. Thus, based on a comparison between the objective
and reference price, perceived price has a direct impact on the
monetary aspect of transaction utility in mental accounting theory.
Perceived price may then affect customer purchase behavior
through total utility.

Trust as a social phenomenon has been studied in various disci-
plines. In marketing, trust has been defined as a psychological state
comprising intention to accept vulnerability based on positive
expectations of the intention of others (Singh and Sirdeshmukh
2000), or a willingness to rely on exchange partners (Ganesan
1994, McKnight et al. 2002) further differentiated trust beliefs
and trust intentions. Trust beliefs are the customer’s perceptions
of a specific Internet vendor’s attributes such as competence,
benevolence, and integrity. Trust intention is the intention to en-
gage in trust-related behaviors with a specific Internet vendor.
Trust beliefs thus indicate the perception that a specific vendor is
trustworthy. Building on this platform, research in e-commerce
has conceptualized and operationalized trust beliefs as a set of be-
liefs about the credibility, competence, benevolence, and integrity
of Internet vendors (e.g., Bhattacharjee 2002, Cho 2006, Dinev and

Based on the call for further studies on trust in new IT phenom-
ena, Luo et al. (2010) examined three dimensions of trust based on
the trust topology proposed by McKnight and Chervany (2002),
namely, disposition to trust, structural assurance and trust beliefs.
Disposition to trust is a general inclination in which people display
a trusting stance towards and show belief or faith in humanity
(McKnight et al. 2002). Structural assurance is the trust perception
about the institutional environment (McKnight et al. 2002). In the
context of this study, it would refer to the availability of legal and
technical infrastructure to carry out transaction over the online
store. Trust belief is the perception of the trustworthiness of the
vendor and consists of a set of specific beliefs about integrity,
benevolence, and competence (Gefen et al. 2003, McKnight et al.
2002). Disposition of trust is important for the formation of initial
trust and becomes less important for established trust relation-
ships. Since, last decade the volume of online transaction has
grown and thus increased customers’ trust on online transactions
and the platform provided for conducting these online transac-
tions. Therefore, disposition to trust and structural assurance are
not as important dimensions of trust in the context of this study.
Trust beliefs are important dimensions because there are number
of online vendors and therefore unless customer has not conducted
any transaction with the online vendor, there is an element of per-
ceived risk involved in conducting the transaction. Therefore,
building on previous research in e-commerce, this study adopts
the same definition of perceived trust as a set of beliefs about
the trustworthiness of an Internet vendor.

If an online vendor is perceived as trustworthy (e.g., it is ex-
pected to process online transactions honestly rather than deceiv-
ing customers), such perceived trust reduces risk perception in
the context of Internet shopping (Jarvenpaa et al. 2000, Kim et al.
2010). In addition, perceived trust can also lower the non-mone-
tary transaction price, such as the time and effort needed by cus-
tomers to choose Internet vendors (Chiles and McMackin 1996).
By reducing the non-monetary price, perceived trust may enhance
the acquisition utility and non-monetary aspects of transaction
utility. Perceived trust may then lead customers to purchasing behavior through total utility.

2.3. Potential customers and repeat customers

The differences between potential customers and repeat cus-
tomers of a same Internet vendor can be accounted for using pro-
spect theory. Compared to potential customers, repeat customers
usually perceive a higher level of certainty in a transaction with
a vendor because of direct transaction experience with the vendor.
According to prospect theory (Kahneman and Tversky 1979), cer-
tainty in a transaction with a vendor increases the aversion of
losses and the desirability of gains from the transaction. Thus, re-
peat customers attempt to achieve more gains (i.e., monetary sav-
ing) from a transaction with the same vendor than do potential
customers.

In contrast, perceptions of uncertainty and risk in Internet
transactions with an online store are higher for potential custom-
 ers than for repeat customers. Lambert (1972) reported that cus-
tomers tend to go for high price options when they experience
uncertainty in a transaction with a vendor. In particular, when cus-
tomers do not have enough product quality information, they may
select high price options by interpreting price as a quality signal
(Lichtenstein et al. 1993). In addition, potential customers who
perceive high uncertainty and risk may place more importance
on gaining control in the transaction, allowing prospects of control
rather than of gains (i.e., monetary saving) to determine their
behavior (Keller 1988), which confirms the risk aversion behavior
highlighted by prospect theory.

3. Hypotheses

The research model for this study is shown in Fig. 1. The
hypotheses are discussed in detail below.

With a focus on transactions, value has been conceptualized as
an assessment of benefit against cost when shopping with an Inter-
net vendor (Sweeney and Soutar 2001, Thaler 1985, Zeithaml
1988). In accordance with the concept of total utility from the
mental accounting theory, we define perceived value from the cus-
tomer’s perspective as the net benefit (perceived benefit relative
to perceived cost) from a transaction with an Internet vendor.

Past studies on consumer decisions (e.g., Zeithaml 1988) have
assumed that consumers seek value maximization, based on the
foundations of prospect theory (Kahneman and Tversky 1979)
and mental accounting theory (Thaler 1985). Consumers arguably
prefer conducting transactions with vendors whose products offer
maximal value. This view of consumers is consistent with the ra-
tional perspective. Indeed, empirical results have supported such
a perspective by demonstrating that perceived value leads to pur-
chase intention (e.g., Chang and Wildt 1994, Dodds et al. 1991).
These results are likely to apply to the context of Internet shopping
for both potential and repeat customers. Hence, we hypothesize:

![Fig. 1. Research model.](image-url)
**H1 (a, b).** Perceived value has a positive effect on purchase intention for potential customers$^a$ and repeat customers$^b$.

As discussed in the previous section, perceived trust may lower non-monetary transaction price, which includes factors such as the time and effort needed for customers to select an Internet vendor (Chiles and McMackin 1996) and the risk of shopping with the vendor (Jarvenpaa et al. 2000, Kim et al. 2010). For example, when customers perceive trust in an Internet vendor, they tend to expend less effort searching for information about the vendor and less cognitive effort when carrying out transactions with the vendor. By reducing such non-monetary price components, perceived trust in an Internet vendor may enhance acquisition utility and the non-monetary aspect of transaction utility, which in turn raise the perceived value as total utility when shopping with the Internet vendor. Perceived trust may also have a direct effect on purchase intention, as previous research (e.g., Chiu et al. 2010, Gefen et al. 2003, e.g., Grazioli and Jarvenpaa 2000, Jarvenpaa et al. 2000, Lu et al. 2010) has reported. In the context of Internet shopping, these relationships are likely to apply to both potential and repeat customers. Hence, we hypothesize:

**H2 (a, b).** Perceived trust in an Internet vendor has a positive effect on perceived value for potential customers$^a$ and repeat customers$^b$.

**H3 (a, b).** Perceived trust in an Internet vendor has a positive effect on purchase intention for potential customers$^a$ and repeat customers$^b$.

Price can be seen as a monetary sacrifice for obtaining a product or a signal of product quality (Lichtenstein et al. 1993, Zeithaml 1988). For Internet shopping, product quality tends to be comparable across vendors, and customers are generally familiar with product attributes; therefore, in this context, price is often considered to be a monetary sacrifice (Reibstein 2002). As a monetary sacrifice, an increase in price for the current vendor in comparison with prices of other vendors lowers acquisition utility when the equivalent value of the product remains constant. Furthermore, as was previously discussed, perceived price has a direct impact on the monetary aspect of transaction utility; an increase in perceived price lowers transaction utility. Thus, perceived price should negatively affect perceived value through acquisition utility and transaction utility. Perceived price may also have a direct effect on purchase intention. For the same product, a high perceived price creates a monetary loss for customers, which should deter customers from wanting to purchase the product (Dodds et al. 1991, Von Neumann and Morgenstern 1953). In the context of Internet shopping, these relationships are likely to apply to both potential and repeat customers. Hence, we hypothesize:

**H4 (a, b).** Perceived price has a negative effect on perceived value for potential customers$^a$ and repeat customers$^b$.

**H5 (a, b).** Perceived price has a negative effect on purchase intention for potential customers$^a$ and repeat customers$^b$.

The magnitude of the impact of perceived trust in an Internet vendor on purchase intention (H3) may differ between potential and repeat customers for the same vendor. Potential customers usually lack information about the target Internet vendor, because they have no direct transaction experience with the vendor. Hence, they perceive a higher risk in carrying out a transaction with the vendor. In this more risky transaction environment, the ability to control becomes important in determining customer behavior (Keller 1988). According to the theory of planned behavior (Ajzen 2002), the behavioral intentions of people are affected by their perceived behavioral control. Perceived behavioral control refers to beliefs about the presence of internal (e.g., personal knowledge) or external control factors (e.g., cooperation of others) (Ajzen 2002). Pavlou and Fygenson (2006) regarded trust belief as a perception of control over the exchange environment in which transactions occur. Gefen (2004) also posited that trust perception caters to the human desire to control the exchange environment. Since trust belief affects customer’s perceptions of their ability to control the exchange environment, perceived trust is likely to strongly impact the purchase intention of potential customers.

Conversely, repeat customers of the same Internet vendor have enough information about the vendor because of their prior direct transaction experience with the vendor. This reduces their level of perceived risk in carrying out transactions with the Internet vendor. Through a learning effect (Mitchell and Prince 1993), such experience allows customers to build up a perception that they have some control over the transaction environment. When customers perceive the importance of control less and desire less of the control in their choice, perceived trust may have a weaker impact on purchase intention. Previous research (Gefen et al. 2003, Kim et al. 2009, McKnight et al. 1998) posited that trust belief is especially critical in determining behavioral intention before actual transactions take place because of the perceived risk of Internet transactions. Hence, in the context of Internet shopping, we hypothesize:

**H6.** Perceived trust in an Internet vendor has a stronger positive effect on the purchase intention of potential customers than that of repeat customers.

The magnitude of the impact that perceived price has on purchase intention (H5) may differ between potential and repeat customers for the same Internet vendor. With direct transaction experience, repeat customers tend to perceive a lower level of risk and a corresponding higher level of certainty when conducting transactions with the Internet vendor. According to prospect theory, such transaction certainty may cause customers to be more sensitive to monetary gains from transactions. Given that perceived price (determined when customers compare the objective price with the reference price) is a reflection of gains in transactions (Dodds et al. 1991), perceived price should strongly affect the behavior of repeat customers. Therefore, perceived price is likely to strongly impact the purchase intention of repeat customers.

Conversely, due to a lack of direct transaction experience, potential customers of the same Internet vendor may perceive higher levels of risk and uncertainty when conducting transactions with the vendor. Such uncertainty in transactions may cause customers to be less sensitive to monetary gains from the transactions. Since perceived price is a reflection of gains in transactions (Dodds et al. 1991), perceived price may affect the behavior of potential customers to a lesser extent. Price advantage becomes a salient decision component when the level of certainty in a transaction is high. Therefore, perceived price may have a weaker impact on the purchase intention of potential customers compared to repeat customers of the same online vendor. Hence, in the context of Internet shopping, we hypothesize:

**H7.** Perceived price has a stronger negative effect on the purchase intention of repeat customers than that of potential customers.

The magnitude of the impact of perceived trust in an Internet vendor on purchase intention (H3) may differ from that of perceived price on purchase intention (H5). Given that customers may purchase products only when they expect to gain more benefit than sacrifice, prospect theory suggests that customers are likely to be risk averse and therefore opt for certain, but smaller, gains rather than probable, but larger, gains. Hence, in the context of Internet shopping, customers are likely to focus on maximizing certainty by alleviating risk rather than maximizing monetary benefit. When making purchases on the Internet, the elements of risk include disappointing purchases...
(Ehrlich and Fisher 1982) and future possible losses (e.g., loss of privacy and other security threats) (Grewal et al. 2003). With trust perception, such elements of risk are minimized (Jarvenpaa et al. 2000) because there is more certainty in the transaction environment (Gefen 2004, Koller 1988). Conversely, a lower perceived price may only serve to maximize monetary benefit (Dodd et al. 1991), a factor that is not the main focus of customers who perceive uncertainty and risk. Thus, perceived trust may be more salient than perceived price for customers making purchase decisions on the Internet. Given that the perceived risk of Internet shopping is likely to be higher for potential customers than for repeat customers, the aforementioned arguments are likely to be particularly important for potential customers.

We can also explain the relative importance of perceived trust and perceived price on purchase intention in terms of shopping convenience with consumption costs, especially for repeat customers. Shopping convenience means less time and effort are spent on shopping (Berry et al. 2002). Trust beliefs enhance shopping convenience by allowing customers to spend less time and effort on Internet shopping with the vendor (Chiles and McMackin 1996). In addition, most customers regard time and effort costs as more important than monetary cost when high-cost products (e.g., a house) are concerned, and monetary cost as more important than monetary cost when low-cost standard products (e.g., pencils) are concerned (Downs 1961). Most leading products in Internet shopping are low-cost, standard products such as books and CDs (Lynch et al. 2001). Furthermore, most online customers are more interested in shopping convenience and are willing to pay more for it (Reichheld and Schefter 2000). Hence, in the context of Internet shopping, we hypothesize:

H8 (a, b). Perceived trust in an Internet vendor has a stronger effect than perceived price on the purchase intention of potential customers and repeat customers.

4. Research methodology

Survey methodology was used to test the research hypotheses. This methodology was chosen because it enhances the generalizability of the results (Dooley 2001, McGrath 1982).

4.1. Instrument development

Measurement items for purchase intention were taken from Dodd et al. (1991). Items for perceived value were adapted from Sirdeshmukh et al. (2002) to fit the online context. Items for perceived trust were adapted from Grazzloli and Jarvenpaa (2000) because of their suitability to the context of this study. Two additional items were also included to make the measure more complete in terms of face validity. Items for perceived price were adapted from Gefen and Devine (2001). Two more items were added to measure customers’ comparisons of prices at the current online vendor with the prices of other vendors. All items were anchored on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Three information systems scholars and one marketing scholar reviewed the instrument for face validity. A focus group of ten people also reviewed the instrument and provided feedback pertaining to the length of the instrument, the clarity of the questions, and the completeness of coverage of the questions. Some of these members had previous Internet shopping experience, while others did not. Table 1 shows the final measurement instrument used for data collection.

4.2. Data collection

Since most of the products sold on the Internet are low touch products or search products (such as books and CDs), an online bookstore (“I-BOOKS”) in Korea was chosen to test the hypotheses presented in this study. This store has approximately 120,000 visits to its website every day and sells approximately 1,500 books daily. An online survey was developed and posted on the I-BOOKS website, and anyone who visited the website could respond to the survey. Such a sample best represents the potential and repeat customers of a real-life Internet bookstore.

A banner was placed on the home page of the I-BOOKS website linking the respondents to the survey site. The survey ran for 1 week. Customers who visited the website participated in the survey voluntarily by clicking on the banner on the home page. Voluntary participation in a survey introduces a self-selection bias whereby some distortion of statistics may occur because certain characteristics that correlate to the respondents’ willingness to participate are over-represented. To reduce this tendency, respondents were offered five dollars as an incentive to participate in the survey. Moreover, the self-selection tendency may only exert a marginal influence because a willingness to participate does not influence perceived price or perceived trust.

To further prevent biased answers, the survey page assured the respondents that there was no right or wrong answer and that their response would be kept confidential. For the purpose of

| Table 1 Measurement instrument. |
|-------------------------------|---------------------------------|-----------------------------|-----------------------------|
| Construct                  | Item                            | Wording                     | Reference                  |
| Purchase intention         | INT1                            | The probability that I would consider buying a book from this store is high | Dodd et al. (1991)          |
|                            | INT2                            | If I were to buy a book, I would consider buying it from this store |                             |
|                            | INT3                            | The likelihood of my purchasing a book from this store is high |                             |
|                            | INT4                            | My willingness to buy a book from this store is high |                             |
| Perceived value            | VAL1                            | Considering the money I pay for buying books at this store, Internet shopping here is a good deal | Sirdeshmukh et al. (2002) |
|                            | VAL2                            | Considering the effort I make in shopping at this store, Internet shopping here is worthwhile |                             |
|                            | VAL3                            | Considering the risk involved in shopping at this store, Internet shopping here is of value |                             |
|                            | VAL4                            | Overall, Internet shopping at this store delivers me good value |                             |
| Perceived trust            | TRS1                            | This store is capable of doing its job | Grazzioli and Jarvenpaa (2000) |
|                            | TRS2                            | This store keeps its promises and commitments |                             |
|                            | TRS3                            | This store cares about its customers |                             |
|                            | TRS4                            | This store fulfills its job |                             |
|                            | TRS5                            | This store is trustworthy |                             |
| Perceived price            | PRC1                            | Buying books at this store may be more expensive than at another store | Gefen and Devine (2001) |
|                            | PRC2                            | I will probably save more money buying books at another store than at this store |                             |
|                            | PRC3                            | It may be possible to get a better discount from another store than from this store |                             |
|                            | PRC4                            | It may be cheaper to buy books at this store than at another store (reverse) |                             |
classifying a respondent as a potential or a repeat customer, the survey page asked each respondent to indicate the number of transactions he or she had conducted with I-BOOKS. To ensure that a respondent was classified as a potential or a repeat customer, the question, "Have you shopped at the bookstore before?" Yes: 86.3% 100.0% No: 13.7% 0.0%

5. Data analysis and results

5.1. Instrument validation

The data for potential and repeat customers were separately subjected to Principal Component Analysis with Varimax rotation (see Table 3). For each dataset, four stable factors (with eigenvalue greater than 1) emerged. These factors explained 79.3% and 79.0% of the variance in the data for potential and repeat customers, respectively. All question loadings on the intended factor exceeded 0.5, except PRC4. Because PRC4 had low loading for its intended factor for potential customers, and PPC4 loaded on two factors for repeat customers, this question was dropped from further analysis.

The constructs were assessed for convergent and discriminant validity via confirmatory factory analysis (CFA) (Anderson and Gerbing 1988) using linear structural relations (LISREL). We first checked the unidimensionality of each construct. Following the recommended methodological procedures (Anderson and Gerbing 1988, Gefen et al. 2000), we revised the measurement model by dropping, one at a time, measurement items that shared a high degree of residual variance with other items. One item measuring perceived value, VAL3, was dropped because this question shared a high degree of residual variance with VAL1 and VAL2 for both datasets. After dropping this item, the CFA showed an acceptable model fit. For potential customers, the results were as follows: the goodness-of-fit index (GFI) = 0.91, the normed fit index (NFI) = 0.97, the adjusted goodness-of-fit index (AGFI) = 0.87, the comparative fit index (CFI) = 0.99 and the root mean square of approximation (RMSEA) = 0.055. For repeat customers, the results were: GFI = 0.92, NFI = 0.97, AGFI = 0.89, CFI = 0.99 and RMSEA = 0.065.

We then checked the convergent validity. As shown in Table 4, the standardized path loadings for all of the questions were statistically significant for both datasets. The composite reliability and the Cronbach’s α for all constructs exceeded 0.7 for both datasets. Furthermore, the average variance extracted for all constructs exceeded 0.5 for both datasets. Hence, the convergent validity for the constructs was established.

Discriminant validity is established if the square root of a construct’s AVE is larger than its correlation with any other construct. To test for discriminant validity, we calculated the square root of each construct’s AVE and compared it to the correlation coefficients. As shown in Table 5, the square root of AVE for each construct exceeded the correlation between that construct and other constructs. Hence, discriminant validity was established.

5.2. Common method variance

Method variance refers to the variance that is attributable to the measurement method rather than the construct of interest ( Podsakoff et al. 2003). It can result from various sources such as a common rater, a common measurement context, a common item context, or from the characteristics of the items themselves. Because the responses for this study were self-reported, it is important to test for common method variance. Harman’s single factor test (Podsakoff 1986) and the Bentler and Bonnet test (Bentler and Bonett 1980) are widely used tests in IS research.
The structural models showed good indices for both the potential customers (potential) and does not support the existence of a common method variance. Thus, the measurement model is better than a single factor model when the measurement model was tested. Following Straub et al. (1995), the $\chi^2$ values of three estimations were obtained, namely: the null model (MM0) that has no underlying factors; a common-factor measurement model (MM1), in which all items have one underlying factor; and the measurement model for potential and repeat customers (MM2). “If, for example, the $\chi^2$ of another competing model, MM1, is 20% of the $\chi^2$ of MM0, we can conclude that MM1 explains 80% of the total variation” (Straub et al. 1995). The findings of the three measurement models for potential and repeat customers are summarized in Table 6.

The results show that the variance explanation improved to 60.3% in the case of potential customers and 61.6% for repeat customers when a single variable was introduced. The explanation was 95.6% for potential customers and 95.4% for repeat customers when the measurement model was tested. Following Straub et al. (1995), a test of significance for the difference between the Chi-square values of MM1 and MM2 showed that the fit of MM2 was statistically superior to the fit of MM1 ($p < 0.001$) for both the potential and repeat customers. The results are also comparable to those found in Straub et al. (1995) and Song and Zahedi (2005). Thus, the measurement model is better than a single factor model or null model and does not support the existence of a common method variance in the data.

### 5.3. Hypotheses testing

The hypotheses were tested using the LISREL structural model. The structural models showed good indices for both the potential customers ($\chi^2$ to degree of freedom (Normed $\chi^2$) = 1.37, GFI = 0.91, NFI = 0.97, AGFI = 0.87, RMSEA = 0.05, and Root Mean-square Residual (RMR) = 0.04) and the repeat customers ($\chi^2$ = 2.17, GFI = 0.94, NFI = 0.98, AGFI = 0.91, RMSEA = 0.056 and RMR = 0.04). With good fit indices, the standardized path coefficients (see Fig. 2) can be used to test the hypotheses.

For potential customers, perceived trust (H2a) and perceived price (H4a) had a significant effect on perceived value, explaining 33% of the variance. Perceived trust (H3a) and perceived value (H1a) had a significant effect on purchase intention, explaining 48% of the variance. However, perceived price had an insignificant effect on purchase intention. Thus, H5a was not supported. For repeat customers, perceived trust (H2b) and perceived price (H4b) had a significant effect on perceived value, explaining 40% of the variance. Perceived value (H1b), perceived trust (H3b), and perceived price (H5b) all had a significant effect on purchase intention, explaining 43% of the variance.

To compare the corresponding path coefficients across both structural models (i.e., to test H6 of trust comparison and H7 of perceived price comparison), this study used a two-step constraint approach (Byrne 1998). First, we used LISREL to create a base model with the two hypothesized paths, H3 (the effect of perceived trust on purchase intention) and H5 (the effect of perceived price on purchase intention). With this base model, we jointly estimated the two sub-models (one for potential customers and one for repeat customers) using the respective datasets. Second, we imposed an equality constraint for the path being studied in both sub-models. For example, when testing H6, the path from perceived trust to purchase intention was constrained to have the same value for both potential and repeat customers. Likewise, when testing H7, the path from perceived price to purchase intention was constrained to have the same coefficient for both potential and repeat customers. Using this constrained model, two sub-models (one for potential customers and one for repeat customers) were estimated jointly with the respective datasets. If the constrained model had a significantly different fit (in terms of $\chi^2$) than the base model, the coefficient of the constrained path would be significantly different across the two sub-models.

Table 7 shows the results of applying the constrained approach. When testing H6, the change in the model fit was significant ($\Delta \chi^2 = 56.14, p < 0.01$). Thus, the coefficient of the path from perceived trust to purchase intention was significantly higher for potential customers than for repeat customers; H6 was supported. When testing H7, the change in the model fit was also significant ($\Delta \chi^2 = 4.86, p < 0.03$). Therefore, the coefficient of the path from

<table>
<thead>
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<th>Table 6</th>
<th>LISREL $\chi^2$ Comparisons.</th>
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<tr>
<td>Model</td>
<td>Potential customers</td>
</tr>
<tr>
<td></td>
<td>$\chi^2$</td>
</tr>
<tr>
<td>MM0</td>
<td>4471.33</td>
</tr>
<tr>
<td>MM1</td>
<td>1771.96</td>
</tr>
<tr>
<td>MM2</td>
<td>194.06</td>
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Leading diagonal shows the squared root of AVE of each construct.
perceived price to purchase intention was significantly higher for repeat customers than for potential customers; H7 was also supported.

To compare the coefficients of two paths within the same structural model (i.e., to test H8 of perceived trust and perceived price comparison), we adopted a two-step constraint approach (Byrne 1998) 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, H3 (the effect of perceived trust on purchase intention) and H5 (the effect of perceived price on purchase intention), and we estimated the two paths using the relevant dataset. Second, we imposed equality constraint for the two paths to be compared (i.e., the path from perceived trust to purchase intention and the path from perceived price to purchase intention), and we estimated the constrained model. Therefore, the influence of perceived price on purchase intention is stronger for repeat customers than for potential customers. These results are consistent with the certainty effect concept proposed by mental accounting theory. Because of risk aversion, customers are willing to forgo monetary gains for certainty in the transaction. Because potential customers have not previously conducted transactions with the online store, uncertainty about the success of the transaction prevails; therefore, customers prefer to conduct transactions with online stores that are considered trustworthy (even if these online stores charge premium prices). Koller (1988) also argues that in an uncertain environment, customers want to have some control over a transaction. The trust in an online store enables potential customers to transact with Internet vendors while some trust beliefs building factors were ranked low (e.g., customer service ranked seventh and privacy policies ranked ninth out of 10 factors). Our study shows that perceived trust is an even more important factor than perceived price in affecting customer shopping decisions.

6. Discussion and implications

The primary objective of this study was to examine the relative impact of perceived price and perceived trust on online purchase decision making. The results of this study show that customers in general (including both potential and repeat customers) tend to value perceived trust over perceived price when making shopping decisions at an online vendor. This finding can also be compared with previous study (Reibstein 2002). Reibstein (2002) found that price was the most important factor that could attract potential customers to transact with Internet vendors while some trust beliefs building factors were ranked low (e.g., customer service ranked seventh and privacy policies ranked ninth out of 10 factors). Our study shows that perceived trust is an even more important factor than perceived price in affecting customer shopping decisions.

6.1. Implications for research

The results of this study also revealed that perceived trust influences purchase intention more strongly in case of potential customers than in case of repeat customers. This result is consistent with the certainty effect concept proposed by mental accounting theory. Because of risk aversion, customers are willing to forgo monetary gains for certainty in the transaction. Because potential customers have not previously conducted transactions with the online store, uncertainty about the success of the transaction prevails; therefore, customers prefer to conduct transactions with online stores that are considered trustworthy (even if these online stores charge premium prices). Koller (1988) also argues that in an uncertain environment, customers want to have some control over a transaction. The trust in an online store enables potential customers to perceive some amount of control over their transactions. Conversely, repeat customers having conducted transactions with the online store, feel more in control of the environment. Therefore, the influence of trust on the purchase intention of repeat customers is not as strong as on the purchase intention of potential customers.

Regarding the relative impact of perceived price, our results revealed that its influence on purchase intention is stronger for repeat customers than for potential customers. These results are intuitive and conform to the certainty effect concept of mental accounting theory. As a customer gains control over the transaction, his desire for monetary gains in a transaction increases. However, a number of studies (e.g., Reibstein 2002, Reichheld and Schefter 2000) report that repeat customers become less price-sensitive when
purchasing products from an Internet vendor as the number of transactions made with that vendor increases. To test this further, a post hoc analysis was conducted taking customers' transaction experiences (i.e., the number of transactions conducted with the same online vendor) as a moderator of the relationship between perceived price and purchase intention for repeat customers. Fig. 3 shows the model for examining moderating effect of transaction experience.

The results revealed that transaction experience significantly moderates the relationship ($\Delta R^2 = 0.013, F = 5.92, p < 0.05$). The coefficients are: perceived price (coefficient = $-0.51, p < 0.0000$), perceived price * transaction experience (coefficient = 0.28, $p < 0.01$), and transaction experience (coefficient = $-0.03, p > 0.1$). These results imply that price sensitivity in a transaction decreases as the number of transactions conducted by repeat customers with the same vendor increases.

The hypothesis testing results, however, showed that repeat customers are overall more sensitive to perceived price in their purchase decision making than potential customers. The certainty effect of mental accounting theory can partially explain these results; the certainty in a transaction with a vendor increases the desirability of gains from the transaction. This perception of certainty should cause repeat customers to value gains in transactions. Such gains are often derived in the form of lower perceived price (Dodds et al. 1991). The certainty effect thus increases customer sensitivity to monetary savings in the case of repeat customers (particularly those who have conducted less number of transactions with the vendor).

Contrary to the expected results, our results show that the influence of perceived price on purchase intention is not significant in the case of potential customers. Although mental accounting theory favors trust over price in the case of potential customers, it is unlikely that the relationship between perceived price and purchase intention would not be significant. There could be a number of reasons for this. The online bookstore examined in this study was not a very well known vendor as compared to Amazon.com or Barnes&Noble.com. In such a case, customers rely on perceived trust and worry less about price. Even if the vendor is well known, price may not be important because of the nature of the product examined (books, in this case) is such that there is little variation in price. Therefore, trust becomes very important. The lack of significant direct effect of perceived price on purchase intention that was previously noted is similar to what was discovered in a prior study (Urbany et al. 1997). Urbany et al. (1997) 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 (Lichtenstein et al. 1993, Zeithaml 1988). Lambert (1972) also reported that customers tend to go for high-priced options when they are concerned about undesirable consequences arising from the purchase of unsatisfactory products. In our study, potential customers might have been certain about product quality (i.e., books), but they would have been uncertain about vendor quality because they did not have prior transaction experience with the Internet vendor. For this reason, perceived price might have no significant effect on purchase intention for the potential customers in our study. Had it been a flower shop or a shop selling luxurious goods, the results might have been different because the quality of flowers or luxurious goods varies from store to store. We also find support for this finding in previous studies.

6.2. Implications for practice

The results of this study are of importance to online vendors, as they affirm the earlier suggestion that trust is one of the most important drivers of Internet transactions (Hoffman et al. 1999). Although the lower search costs in the electronic marketplace enable customers to compare prices across vendors so as to find the cheapest possible alternative, the role of perceptions of trust in facilitating Internet transactions cannot be underestimated. Therefore, it is definitely worthwhile for Internet vendors to invest in enhancing their trustworthiness, as perceived by their potential and repeat customers. Amazon.com uses recommender agents and customer ratings to improve customer trust in the transactions, in addition to the products being purchased from its store.

The results of this study are also important because they suggest that online stores can charge premium prices from their customers if they improve their trustworthiness (Kim and Xu 2007); this explains how Amazon.com is successful in charging premium prices. Trustworthiness depends on how an online vendor establishes itself as a brand amongst customers in general, in addition to its customer service (including delivery, returns and handling complaints). For example, Barnes&Noble already had an established brand image before it started selling through Internet. In other words, it is worthwhile to establish one's brand image for increasing one's trustworthiness. To establish brand image, online vendors can open small retail outlets in various parts of the country. However, this could be an expensive strategy. Another way brand image can be improved is by advertising on standard channels like Television and Newspaper. Online vendors can also tie up with other established companies and provide discount coupons as a free gift on purchase of products of these established companies.

While enhancing trustworthiness is a generally useful strategy, Internet vendors may also want to adjust their strategy according to the number of transactions that a customer has conducted (potential customers versus repeat customers). This is also important for improving the retention of repeat customers. Online vendors should, for these cases, group practice customization strategies. Currently, the general practice is to give freebies or services for points accumulated by customers through previous transactions. This is a standard strategy used by most airlines, whereby they differentiate services provided to their customers depending upon the number of points that a customer has accumulated through previous travels. As repeat customers become less price-sensitive with an increased number of transactions, they can be offered premium services such as free delivery for larger or more expensive purchases. Because it is difficult to differentiate between less experienced and more experienced repeat customers based on price, additional accessories like gift wrapping or book wrapping services can be bundled and targeted to more experienced customers. This would not only enhance trustworthiness, but also improve the loyalty of the customers towards the online store.

Perceived trust influences the purchase decisions of potential customers more strongly than those of repeat customers. Therefore, to generate initial sales with potential customers Internet
vendors may focus on efforts to raise their trustworthiness rather than engaging in cut-throat competition with their competitors. Generally, online vendors tend to attract sales based on lower prices. However, for relatively new online stores, this could be a death knell because of the risk involved in online transactions. Therefore, online vendors should put effort on building their brand by tying-up with established vendors and offering discount coupon for their store as free gifts. They may also tie-up with schools which provide textbooks to the students. With such tie-ups schools can offer discount coupon as free gifts for specific purchases that students can benefit from. Perceived price influences the decisions of less experienced repeat customers more strongly than it does for potential customers and more experienced repeat customers. Therefore, to generate continuous sales, especially with less experienced repeat customers, Internet vendors may offer lower prices (in the form of bundled products or freebies because directly lower prices may signal discrimination between more experienced and less experienced repeat customers) for their products and improve their trustworthiness.

For example, Amazon.com emphasizes its reliable product delivery system (where customers can track their product orders online), and its product return policy attracts potential customers. It also offers product price discounts to repeat customers, giving them incentives to continue to do business with Amazon.com.

Given the general importance of perceived trust over perceived price in the context of Internet commerce, successful and trustworthy Internet vendors may charge premium prices, especially during initial sales with potential customers. Smith and Brynjolfsson’s (2001) reported that the three most reputable Internet bookstores, Amazon.com, Borders.com, and Barnes&Noble.com, command a multifold impact. McKinsey & Company found that, keeping the sales volume constant, a 1% increase in price produces an average increase in profitability of 7.4%.

6.3. Limitations and implications for future research

The results of this study must be interpreted in the context of its limitations. First, the data for this study was collected from the potential and repeat customers of an online bookstore whose products belong to a ‘low touch’ or search product category. Since the quality of books and their prices vary little across vendors, perceived price does not emerge as a very important factor for potential customers. EIAA (2006), however, reports that seven of the top ten products sold online belong to a search product category. Out of these seven products, four—cinema tickets, CDs, DVDs, and books—have similar characteristics (i.e., low/medium price, standard product, and no touch services required). Therefore, the findings in this study can be applied to other popular Internet shopping contexts. However, the results may vary if the product chosen is a ‘high touch’ or experience product, such as luxurious items, jewelry, flowers and so on where product quality is highly variable. It would be interesting to test the proposed hypotheses and compare them across search product categories and experience product categories, as well as across various online vendors.

Furthermore, the data in this study was collected through self-selection, which may introduce bias. To reduce this bias, respondents were provided with incentives to participate in the survey. Moreover, the self-selection tendency may not have affected this study, because a willingness to participate in the survey would not have any effect on perceived price or perceived trust.

Third, this study classified customers into either potential or repeat customers. Repeat customers could be further classified into transactional and relational customers. The relationship marketing literature (e.g., Reichheld and Schefter 2000) suggests that relational customers may be less sensitive to price because they are willing to pay more to conduct their business with familiar vendors; however, this may not be the case with transactional customers. It would be interesting to examine how the results for the repeat customers in this study change when transactional and relational repeat customers are examined separately.

The post hoc analysis conducted in this study to find the difference in customers’ purchase decisions based on the number of transactions conducted with the online vendor was based on cross-sectional data. Given the inherent difficulties in creating a panel and collecting data for unknown online customers, this study relied on cross-sectional data. Survey research is better for establishing generalizability and the researcher has to forgo some amount of realism, as argued by Dennis and Valacich (2001). To further establish the validity of these results and obtain accuracy (Dennis and Valacich 2001), a panel can be developed and data collected using a longitudinal design. Future studies could adopt different research methodology, such as experiments, depending on the research objectives because each method has its pros and cons (McGrath 1982). For example, a survey approach is advantageous in generalizing the findings, although it has several methodological limitations such as a self-selection bias and common method bias. In contrast, the experiment approach is advantageous in imparting control of the experimental context to the experimenter, although it is disadvantageous in reflecting real situations and generalizing the findings. A combination of different research methods could provide interesting implications.

This study focused on the relative impact of perceived price and perceived trust; therefore, other factors were not considered. Other factors, such as convenience and pleasure, also influence repeat customers’ purchase decisions (Gupta and Kim 2010). Convenience and pleasure are difficult to compare between potential and repeat customers because potential customers do not have any previous purchase experience with the online vendor. An interesting future study could examine how convenience and pleasure, along with price and trust, vary as the number of transactions increases.

This study considered trust and not risk. Risk and trust are complementary in the sense that if risk is high, then trust is low and if trust is high, then risk is low. Even if risk is not present in a transaction (such as in the case of repeat customers), trust is still required to conduct transactions.

As this study was a cross-sectional study, it did not examine the actual purchases of potential customers because behavior comes after perception and intention to behave in temporal dimension. The potential customers could return to the website and make purchases. Future studies could examine the actual purchases made by the potential customers and repeat customers using a longitudinal study and examine the effects of price and trust over their purchase decision.

Since the data was collected from Korean customers, culture may influence the results of this study. In collectivist cultures that Korea people are more risk averse than individualistic cultures as well as more adventurous, such as that in America. Future research may address the influence of culture on the results of this study.

Finally, a study could be conducted for a service-oriented store, such as sites that sell online tickets. Online tickets can be purchased through an agent (also an online website) or directly through the online store of the firm. Generally, these agents offer some price rebates but charge higher transaction fees thus exceeding the normal ticket cost. A study could compare how price and trust dynamics work when a person has the option of purchasing from an online vendor as well as an online agent of the same vendor. For example, flight tickets can be purchased both from the website of the flight company and also from an online agent.
The dynamics of price and trust could be interesting in this case because product quality does not play a role.

7. Conclusion

This study investigated the independent and combined impact of perceived trust and perceived price on the purchase intention of online customers. Building on previous research, it determined the significance of perceived trust over perceived price as a key factor affecting customer decisions in the context of Internet shopping, a finding contrary to what has been reported for traditional shopping (Von Neumann and Morgenstern 1953) and Internet commerce (Reibstein 2002). Furthermore, this study illustrates the differential importance of perceived trust and perceived price in affecting the decisions of potential and repeat customers at an Internet vendor. Based on the prospect and mental accounting theories, the results of this study help to advance our knowledge of customer decisions in the context of Internet shopping. In particular, the findings of this study should equip Internet vendors with an evidential basis for developing effective and customized strategies to make initial and repeat sales.

As the value of Internet commerce continues to grow (Pavlou et al. 2007, Siau and Shen 2003) competition among Internet vendors also becomes intense. As Internet vendors strive to attract increasingly sophisticated customers in their efforts to increase (or at least maintain) their market share, it is imperative that these vendors understand the decision calculus of customers. Research along the direction of this study serves to further such a cause.

References


