The joint moderating role of trust propensity and gender on consumers’ online shopping behavior

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\textbf{Abstract}

We built a research model based on a benefit–risk paradigm, and tested the moderating effects of trust propensity and gender in relationship to the impacts of perceived benefits and risks on user online behavior. Results showed that gender moderated the impact of perceived benefit on one’s intention to purchase. Trust propensity was found to moderate the relationship between perceived risk and overall satisfaction. In addition, we found that the interaction of trust propensity and gender played a significant joint moderating role in affecting the impact of perceived benefit on intention to purchase. Men with high trust propensity belief are the most benefit oriented consumer group. Implications for both research and practice are discussed.

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1. Introduction

Consumers’ purchasing decisions are personal, and often very complex, behaviors. Personality may account for differences in purchasing decisions by different people facing a similar situation (Hoyer & Ridgway, 1984; Kassarjian, 1971). One aspect of personality, exhibiting an attitude of trust in novel situations, can determine what action one takes when dealing with risk (Gefen, 2000; McKnight, Cummings, & Chervany, 1998). In an online environment, consumers often feel confused when facing a purchasing decision with possible risks and benefits. Though online shopping offers consumers more convenience and flexibility, it is also riskier than brick and mortar shopping. Even when product information can be obtained from textual descriptions or pictures, many purchases cannot be fully understood from online information. For instance, vacation packages suggest an experience difficult to convey online. Clothes, too, evoke a sense of emotion for which an online description may be inadequate. Thus, one’s disposition towards trust plays an important role in influencing his or her online shopping behavior. Trust Propensity (a disposition to trust) is the extent to which a person tends to be willing to accept the information provided by others (Gefen, Benbasat, & Pavlou, 2008). Accordingly, differences in trust propensity may produce differences in purchasing decisions and behavior.

Gender differences, too, influence attitudes toward online shopping that translate to purchasing behavior. For instance, males are more strongly motivated to buy because of products’ functional characteristics. Females are more strongly influenced by social and emotional associations to a product (Dittmar, Long, & Meek, 2004). Gender differences also account for different barriers to purchasing online. Men and women have different perceptions about the risks in online purchasing (Bartel Sheehan, 2000; Garbarino & Strahilevitz, 2004), and women experience much greater inconvenience from online shopping than do men (Dittmar et al., 2004).

In sum, both trust propensity and gender influence online purchasing behavior. But when and how these influences operate remains unclear. Hence, to better understand the influential mechanism of these two factors, this research used empirical test to examine these influences, both individually and jointly. The results will have both theoretical and practical significance. Theoretically, demonstrating trust-oriented gender differences in online purchasing will deepen our understanding of online consumer behavior. In practice, these results will offer guidance to Internet vendors as to whom and by which means they can encourage consumers’ online purchasing behavior.

Based on extensive prior research on gender and trust in the IS and consumer behavior literatures, we conjecture that trust propensity and gender both have individual, as well as joint,
moderating roles in affecting online purchasing behavior. Specifically, we employed existing theories to explore users’ intention to continue to use the Internet shopping (re-purchase intention) as impacted by their perceptions of benefits and risks as well as their satisfaction in having previously used the Internet to make purchases. We then extended the model to examine the moderating effects of trust propensity and gender. Our results show that gender and trust propensity individually influence consumers’ decisions to continue using the Internet for purchases, as do their interaction.

2. Theoretical background and hypothesis development

Fig. 1 presents the whole framework of investigating the moderating effects of trust propensity and gender. We next elaborate how these relationships, as shown in the research model, were proposed.

2.1. Satisfaction and re-purchase Intention

Consumer’s purchase behavior refers to the process by which individuals search for, select, purchase, use, and dispose of goods and services, in satisfaction of their needs and wants (Howard & Sheth, 1969). According to the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM), consumers’ attitudes and intention can effectively predict their actual behaviors (Ajzen, 1991; Davis, Bagozzi, & Warshaw, 1989). Satisfaction and intention to continue using the Internet for purchasing (re-purchase intention) are thus often used as dependent variables in consumer purchasing research (Ajzen, 1991; Davis et al., 1989; Hsu, Chang, Chu, & Lee, 2014). In this paper, we adopt these two variables as the outcome variables.

Customers’ satisfaction with transactions, including purchasing, can be viewed in various ways, e.g., comparing the costs one incurs from engaging in the transaction with the benefit he or she expects to receive (Churchill Jr & Surprenant, 1982); or evaluating whether a product or service meets expectations (Zeithaml & Bitner, 2003). The IS literature has emphasized satisfaction as important both for holding down costs through customer retention (versus more costly new customer acquisition) (Parthasarathy & Bhattacherjee, 1998) and for promoting customers’ loyalty and continued purchasing (Shankar, Smith, & Rangaswamy, 2003). The higher satisfaction is perceived, the higher re-purchase intention will be shown. Thus, we propose that:

H1. Consumers’ satisfaction positively affects re-purchase intention.

From a sociopolitical perspective, Social Exchange Theory (SET) suggests that exchange parties evaluate relationships in a behavioral context. Exchange partners look beyond short-run inequities or risks and concentrate on long-run mutual gains (Blau, 1964; Luo, 2002). According to SET, trust is the most precious asset any business has, the bedrock on which business is built (Benassi, 1999; Zucker, 1986). The Expectation–Confirmation Model (ECM) is widely used by IS researchers to investigate consumers’ satisfaction and their intention to continue using various IT products and services. ECM points out that consumers’ expectations about products or services, as well as whether these expectations are met, leads to post-purchase satisfaction and an intention to purchase again (Bhattacherjee, 2001; Khalifa & Liu, 2004). The more benefit is perceived, the more likely consumers’ expectations will be reached, and the higher level of satisfaction and re-purchase intention will be shown by consumers. Thus, we propose that:

H2. Consumers’ perceived benefit positively affects their satisfaction.

H3. Consumers’ perceived benefit positively affects their re-purchase intention.

H4. Consumers’ perceived risk negatively affects their satisfaction.

H5. Consumers’ perceived risk negatively affects their re-purchase intention.

2.2. Trust propensity and risk perception

Trust has been defined as “a willingness to rely on an exchange partner in whom one has confidence” (Moorman, Deshpande, & Zaltman, 1993) or “the perception of confidence in the exchange partner’s reliability and integrity” (Morgan & Hunt, 1994). It has been noted that consumers often hesitate to transact with Web-based vendors because of uncertainty about vendor behavior or the perceived risk of having personal information misused (Constantinides, 2004). In this process, trust plays a central role
in helping consumers overcome perceptions of risk and insecurity (McKnight, Choudhury, & Kacmar, 2002).

**Trust propensity** is a general, not situation specific, inclination to display faith in humanity and to adopt a trusting attitude toward others (McKnight et al., 1998). McKnight used two sub-constructs to depict trust propensity: faith in humanity and trusting stance. Faith in humanity means that one assumes others are usually upright, well-meaning and dependable. People with high faith in humanity tend to be less judgmental or critical of others, and are more tolerant of their mistakes (McKnight et al., 1998). Trusting stance means that, regardless of what one believes about people’s underlying nature, one assumes better outcomes result from dealing with people as though they are well meaning and reliable (McKnight & Chervany, 2001). Trusting stance derives from a calculative, economics-based trust stream of research. Research indicates that these two sub-constructs of trust propensity jointly deal with whether one enters a transaction with a sense of trust or distrust (Gefen, 2000) and their attitudes during such a transaction (Falcone, Singh, & Tan, 2001; McKnight & Chervany, 2001).

Meanwhile, trust is closely related to the concept of perceived risk (Mayer, Davis, & Schoorman, 1995). Glover and Benbasat (2010) argued that perceived risks were important determinants in some consumers’ reluctance to buy online. When consumers act in uncertain situations, trust comes into play (Kim, Ferrin, & Rao, 2008; Luhmann, 2000). Trust has also been found to have significant effects in social networks, where word of mouth from trusted sources can reduce risks and promote e-commerce (Kim & Park, 2012).

As the literature suggests, consumers with low trust propensity tend to have cautious or even negative views when faced with uncertain situations (Falcone et al., 2001; Graziano & Tobin, 2002), even without having specific reasons to explain them (Costa & MacCrae, 1992; Johnson, 2005). Such propensity dampens their desire and produces a reluctance to try new things. In contrast, consumers with high trust propensity, regardless of risks, tend to be more positive and accepting of things at the first sight (Graziano & Tobin, 2002). However, perceived risks do exist and are threats that will lower these consumers’ satisfaction and their intention to continue to purchasing online. Good feel from the first sight thus will fall quickly when risks are perceived, especially for the high trust propensity consumers, since they did not think through or be ready for bad result as the low trust propensity group did.

Taking these issues into account, we postulate that trust propensity exerts influence on consumers’ purchasing behavior, especially with respect to risk. More precisely, we postulate that consumers’ trust propensity has a moderating role in influencing the relationship between consumers’ perception of risk and their purchasing behavior. Hence, we propose:

**H6(a).** Trust propensity moderates the relationship between consumers’ perceived risk and their overall satisfaction. Specifically, the negative impacts of perceived risk on user satisfaction will be stronger for consumers with high trust propensity than those with low trust propensity.

**H6(b).** Trust propensity moderates the relationship between consumer’s perceived risk and their re-purchase intention: Specifically, the negative impacts of perceived risk on re-purchase intention will be stronger for consumers with high trust propensity than those with low trust propensity.

### 2.3. Gender differences in online purchasing behavior

Though a number of studies have shown that men and women have different attitudes toward online shopping and have different purchasing behavior (Rodgers & Harris, 2003; Slyke, Bélanger, Johnson, & Hightower, 2010; Weiser, 2000), few has looked in depth at the interaction between gender and other factors that influence online purchasing (Zhang, Cheung, & Lee, 2014). On both theoretical and practical grounds, it is important to understand how gender differences work in connection with other factors.

Gender differences in online commerce affect consumers’ overall attitudes and behavior and level of trust (Hwang, 2010; Liu & Yin, 2014). Van et al. found that men were more likely to use the Web to make purchases than women (Van Slyke, Comunale, & Belanger, 2002). They found that men’s perceptions of Web shopping were more favorable than women’s. Swaminathan, Lepkowski-White, and Rao (1999) found that online male buyers were more convenience-oriented and less motivated by social interaction than female buyers. Dittmar and Drury (2000) and Dittmar et al. (2004) found that both genders considered functional concerns relevant in online shopping, but men were more strongly influenced by these factors. For women, socio-psychological and emotional factors were more significant than functional aspects in conventional buying, but functional factors played the dominant roles when they buy online. This suggests that, online, women’s attitudes become more similar to men’s. For men, the importance of functional factors is amplified in shifting from brick-and-mortar buying to online shopping. For both sexes, financial considerations are more readily apparent than are emotional. Recently, Workman (Workman & Cho, 2013) found that Korean women had a greater preference for touch shopping channels than men. Taken together, these findings indicate that gender plays a role in how consumers experience online shopping. Generally, men are more function and benefit oriented than women.

As we have noted, consumers’ experiences with online shopping are reflected in their overall satisfaction and their intention to purchase online again, and both of these are influenced by the benefits they perceive from the transaction. Based on existing confirmed differences, we propose that gender has moderating effects on these benefit oriented behavior, and we extend our original model by proposing:

**H7(a).** Gender moderates the relationship between online consumers’ perceived benefit and their overall satisfaction. Specifically, the positive relationship between perceived benefit and their overall satisfaction is stronger for male consumers than female consumers.

**H7(b).** Gender moderates the relationship between online consumers’ perceived benefit and their re-purchase intention. Specifically, the positive relationship between perceived benefit and their re-purchase intention is stronger for male consumers than female consumers.

### 2.4. Interaction effects

Various studies considered gender and trust-related factors on satisfaction, purchasing behavior and their antecedents, though few to the extent we do here. Trust (along with emotion and convenience) interacts with gender to predict men’s satisfaction and women’s dissatisfaction with online shopping (Rodgers & Harris, 2003). In studies investigating risk in online shopping, women were found to perceive significantly higher likelihood of negative outcomes than men and also anticipate more severe consequences from negative events (Garbarino & Strahilevitz, 2004). Thus, we can interpret these results as meaning that women, in general, have a higher level of perceived risk in online purchasing than men do. Similar results have also been obtained in other research.
(Bartel Sheehan, 2000; Dittmar et al., 2004; Van Slyke et al., 2002). Meanwhile, a study investigating online customer loyalty toward an Internet service provider found that the influence of trust on commitment, and that of commitment on loyalty, were significantly stronger for women than men; while the effects of satisfaction on commitment and of trust on loyalty were significantly stronger for men (Sanchez-Franco, 2006). A study investigating the relationship between online word-of-mouth quality and trust revealed that the effect of trust on intention to buy online was stronger for women than for men (Awad & Ragowsky, 2008). Current research using fMRI demonstrated that dominant brain areas that encode trustworthiness differed between women and men (Riedl, Hubert, & Kenning, 2010).

Given these findings, it is reasonable to speculate that gender and trust propensity have interactive effects in moderating the relationships between consumers’ perceptions of risks or benefits and their level of satisfaction, as well as their intention to re-purchase online. Yet, there are different ways in which the joint effects might operate. For instance, trust propensity might be gender oriented; or trust propensity may have different effects depending on one’s gender.

In the absence of theory about these moderating effects, we propose:

H8(a). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived benefit and their overall satisfaction.

H8(b). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived benefit and their re-purchase intention.

H8(c). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived risk and their overall satisfaction.

H8(d). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived risk and their re-purchase intention.

Graphically, Fig. 1, shown at the beginning of this section, presents the whole research model.

3. Methodology

3.1. Instrument development

To verify our proposed hypotheses, a questionnaire survey was used to gather research data. A thorough review of the relevant literature was conducted to ensure survey content validity. The questionnaire was pilot tested by having a panel of IS and Marketing experts review it, after which necessary changes were made to improve both the content and clarity of the questionnaire. Then, a sample of respondents (n = 40) separate from those included in the pilot test was asked to check the questionnaire. (All pilot and test respondents were subsequently excluded from the main sample used for reliability testing, construct validation, and hypothesis testing.) The principal constructs were developed based on existing measures, using similar scales when possible. All measures comprised Likert-type statements, measured on seven-point scales. Some used qualitative anchors such as (1) “totally disagree” to (7) “fully agree”. For other items, respondents provided integer ratings on a 1–7 scale.

The constructs “re-purchase intention”, “overall satisfaction”, and “trust propensity” were measured by reflective indicators, while “perceived risk” and “perceived benefit” were measured by formative indicators (see Table 1). An observable, reflective indicator can be seen as a function of a latent variable (or construct), whereby changes in the latent variable are reflected in changes in observable indicators. However, in many cases, changes in indicators determine changes in the value of the latent variable (construct) (Jarvis, MacKenzie, & Podsakoff, 2003; MacCallum & Browne, 1993). Formative construct is often called ‘causal’ indicators and the construct is often termed as a combination variable or composite variable. Here, formative representation is preferred over reflective to the construct of perceived risk because the increase in one risk dimension such as perceived social risk does not necessarily cause an increase in other types of perceived risks (performance risk, financial risk, etc.). Similar situation applies to perceived benefit.

A review of past studies shows that researchers have identified nine main dimensions of risk: financial, performance, social, physical, psychological, time loss, personal, privacy, and source (Jacoby & Kaplan, 1972; Luo, Li, Zhang, & Shim, 2010). Risks associated with source have been broken down further in relation to online shopping (Lim, 2003). Together, these led to the indicators we used for perceived risk shown in Table 1. Perceived benefits from online shopping were measured based on consumers’ perceptions of price, selection, and convenience (Forsythe, Liu, Shannon, & Gardner, 2006). Consumer satisfaction has been studied extensively and is often considered an important construct in determining consumers’ subsequent behavior (Oliver, 1999). We used two items with Likert scales responses to measure consumers’ overall satisfaction (Murray & Howat, 2002; Shim & Mahoney, 1992).

Given these findings, it is reasonable to speculate that gender and trust propensity have interactive effects in moderating the relationships between consumers’ perceptions of risks or benefits and their overall satisfaction. The effect of trust on intention to buy online was significantly stronger for women than for men (Sanchez-Franco, 2006). A study investigating the relationship between online word-of-mouth quality and trust revealed that the effect of trust on intention to buy online was stronger for women than for men (Awad & Ragowsky, 2008). Current research using fMRI demonstrated that dominant brain areas that encode trustworthiness differed between women and men (Riedl, Hubert, & Kenning, 2010).

In the absence of theory about these moderating effects, we propose:

H8(a). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived benefit and their overall satisfaction.

H8(b). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived benefit and their re-purchase intention.

H8(c). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived risk and their overall satisfaction.

H8(d). Trust propensity and gender have an interactive effect in moderating the relationship between online consumers’ perceived risk and their re-purchase intention.

Graphically, Fig. 1, shown at the beginning of this section, presents the whole research model.

3.2. Data collection

The survey was conducted in a major university in a large city of China. Both online and offline questionnaire data were collected. Subjects were randomly recruited at several major events on campus. A total of 582 subjects were surveyed, with all subjects responding. After deleting responses with missing data, the resulting sample size was 484. Missing data were spread randomly across questions, a pattern which confirmed that lack of systematic error. The remaining data were used in the structural equation model we developed.

We ensured that our sample size was adequate for this approach based on the power analysis technique using the “A Priori Sample Size Calculator for Structural Equation Models”, (Christopher Westland, 2010). The calculator returns both the minimum sample size required given the structural complexity of the model based on the number of observable indicators and latent variables, as well as the minimum sample size required to detect an effect of the anticipated size. For our proposed conceptual model and a low anticipated effect size ($1 - \beta = 0.8$, $\alpha = 0.05$, $\rho = 0.1$), the required sample size is 387 for detecting the specified effect and 116 for model structure, respectively. Thus our sample size is sufficient for meeting the criteria set forth for using SEM via partial least squares.

Survey respondents included slightly more males (53.7%) than females; respondents were predominantly young (88.5% under 30-years with the majority in their twenties) and generally well
educated (86.3% have attained or will attain at least an undergraduate diploma). One third of respondents were new online consumers, with less than two years experiences in online shopping. We attribute this relative high percent to the samples collected in campus—portion of the respondents are students who are in lower grades and just got disposable money. 4 years and below online shopping experience respondents take up majority of the whole samples (87.4%). It is in accordance with the massive growth of Chinese online shoppers in recent years—many of whom are thus new in online purchase. The sample population strongly resembles the university population and overall online shopping population. Table 2 shows the demographic profile of respondents.

4. Results

Data analysis proceeded in three stages. First, the conceptual model was tested, assessing both constructs measurement and the overall model. By confirming the suitability of the proposed model to depict online purchase (basic model), the provided construct scores were collected for further analysis. Next, MANOVA was used to explore whether significant differences existed among segmented consumer groups. Finally, the moderating effects of trust propensity, gender, and their interaction were explored to test the main arguments we proposed.

4.1. Conceptual model test

4.1.1. Measurement test

To test the proposed research model, analyses of both the measurement model and structural model were performed using a Partial Least Squares (PLS) algorithm. PLS is appropriate for analyzing structural equation models, including measurement and structural models with multi-item variables that contain direct, indirect and interaction effects (Chin, 1998b). It handles both reflective and formative indicators. PLS provides a powerful method for assessing a structural model and measurement model because of minimal demands on measurement scales, sample size, and residual distributions (Chin, 1998a). SmartPLS (Ringle, Wende, & Will, 2005) software was used in our calculations.

For the formative constructs perceived risk and perceived benefit, we first assessed the strength of the relationships between constructs and their dimensions. All dimensions except price risk and social pressure risk were found to have significant path coefficients (or PLS weights) (see Table 3). The variance inflation factor (VIF) was then computed for these dimensions to assess multicollinearity. VIF values above 10 would suggest the existence of excessive multicollinearity and raise doubts about the validity of the formative measurement (Diamantopoulos & Winklhofer, 2001). The VIF values varied from 1.1 to 2.2 for all these items, indicating that multicollinearity was not a concern in this study.
According to Mathieson, Peacock, and Chin (2001), formative constructs are allowed to contain non-significant indicators, especially in the absence of multicollinearity. Dropping insignificant indicators may omit a unique part of the content domain (Bollen & Lennox, 1991; MacKenzie, Podsakoff, & Jarvis, 2005). Therefore, to ensure the content domain of the perceived risk and perceived benefit, we kept all existing dimensions, including non-significant ones, in the following data analysis. For estimating constructs derived from formative indicators, scholars suggest that one way of obtaining identification would be to link the formative construct to two reflective constructs (Freeze & Raschke, 2007; Podsakoff, MacKenzie, Podsakoff, & Lee, 2003). In our model, this requirement is satisfied, given that the formative constructs perceived risk and perceived benefit are both assumed to have direct impact on the reflective constructs satisfaction and re-purchase intention. Thus, construct estimation for both of these constructs will be conducted with the model test (Jarvis et al., 2003).

The assessment of the measurement model for reflective constructs included an estimation of internal consistency for reliability, as well as tests for convergent and discriminant validity (Fornell & Larcker, 1981). Internal consistency was calculated using Cronbach’s alpha and Fornell’s composite reliability (CR). It is suggested that Cronbach reliability coefficients be higher than a minimum cutoff score of 0.70. Composite reliability higher than 0.7 is considered adequate. Average variance extracted (AVE) greater than 0.5 indicates that more than 50% of the variance of the measurement items can be accounted for by the constructs (Nunnally, 1967). Discriminant validity was checked by examining whether the correlations between the variables were lower than the square root of the average variance extracted. As can be seen in Table 3, these constructs fit the requirements for internal consistency, with all composite reliability and Cronbach’s alpha higher than 0.7. Bold face numbers are the loadings of items to their respective constructs. The magnitude is much higher than for non-constructs, indicating high internal consistency. These high loadings to constructs suggest that convergent validity is of an acceptable level. Our test results also indicate that the square root of each AVE value is greater than the off-diagonal elements, guaranteeing discriminant validity among variables.

### 4.1.2. Model test

A bootstrapping procedure was used to generate t-statistics and standard errors to test the proposed conceptual model. As shown in Fig. 2, all the correlations proposed in the basic model were confirmed. Perceived benefit and perceived risk are strong predictors of consumers’ overall satisfaction, with path loadings of 0.381 (p < 0.01) and −0.278 (p < 0.01), respectively (H2 and H4 are supported). These two factors are also significantly correlated with consumers’ re-purchase intention, as coefficients are 0.089 (p < 0.05) and −0.239 (p < 0.01), respectively (H3 and H5 are supported). Consumers’ satisfaction and re-purchase intention are also proved to be strongly correlated, with coefficient of 0.472 (p < 0.01) (H1 is supported). All these test results are in accordance with existing research findings, indicating that the conceptual model employed and the data collected meet the demands of conducting a significant examination of online purchasing behavior. Satisfaction was also proved to be a partial mediating variable between perceived benefit/perceived risk and re-purchase intention.

### 4.2. MANOVA examination

By confirming the basic research model, we next used the construct scores provided by SmartPLS do further examination. MANOVA, with gender and trust propensity fixed, was used to test whether purchasing behavior varied among people in segmented consumer groups. In this examination, consumers’ re-purchase intention, overall satisfaction, perceived risk and perceived benefit were analyzed as outcome (dependent) variables, while gender and trust propensity were chosen as fixed (independent) variables. GLM in SPSS 16.0 was used for the calculation. The results of

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**Table 3**

<table>
<thead>
<tr>
<th>Formative constructs</th>
<th>Items weights</th>
<th>VIF</th>
<th>Reflective construct</th>
<th>Items loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1: Price</td>
<td>0.042</td>
<td>1.235</td>
<td>Overall satisfaction</td>
<td>0.880</td>
</tr>
<tr>
<td>R2: Time loss</td>
<td>0.272</td>
<td>1.315</td>
<td>Recognition</td>
<td>0.898</td>
</tr>
<tr>
<td>R3: Quality</td>
<td>0.160</td>
<td>1.787</td>
<td>Re-purchase willingness</td>
<td>0.605</td>
</tr>
<tr>
<td>R4: Lack of contact</td>
<td>0.367</td>
<td>1.741</td>
<td>Word of mouth</td>
<td>0.264</td>
</tr>
<tr>
<td>R5: After-sale service</td>
<td>0.211</td>
<td>1.444</td>
<td>Cronbach’s α</td>
<td>0.702</td>
</tr>
<tr>
<td>R6: Value</td>
<td>0.385</td>
<td>2.062</td>
<td>CR</td>
<td>0.852</td>
</tr>
<tr>
<td>R7: Health</td>
<td>0.418</td>
<td>2.207</td>
<td>AVE</td>
<td>0.743</td>
</tr>
<tr>
<td>R8: Privacy</td>
<td>0.568</td>
<td>1.262</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R9: Social pressure</td>
<td>0.046</td>
<td>1.547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1: Low price</td>
<td>0.151</td>
<td>1.102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B2: Wide selection</td>
<td>0.849</td>
<td>1.100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3: Convenience</td>
<td>0.341</td>
<td>1.091</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**

**Significant at 0.01 level.**

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**Fig. 2.** Test of the conceptual model in Fig. 1. (**” significant at the 0.01 level; “significant at the 0.05 level; t-value is shown in ()).
In other words, re-purchase intention differs between male and female customers. When trust propensity was tested as the fixed variable, there was a significant difference in consumers’ overall satisfaction. As Table 4 shows, the differences exist in both re-purchase intention and trust propensity. As Table 4 shows, the differences exist in both re-purchase intention and trust propensity.

MANOVA analysis is presented in Table 4. As can be seen, when gender was chosen as the fixed variable, there was a significant difference in re-purchase intention, with F-value of 4.295 (p < 0.05). In other words, re-purchase intention differs between male and female customers. When trust propensity was tested as the fixed variable, there was a significant difference in consumers’ overall satisfaction (F-value = 4.914, p < 0.05). This means that consumers who hold different trust propensities report different levels of satisfaction.

We also tested the interaction effects of gender and trust propensity. As Table 4 shows, the differences exist in both re-purchase intention and perceived risk, with F-values of 8.710 (p < 0.01) and 4.697 (p < 0.05), respectively. These results indicate that when gender and trust propensity are taken into consideration jointly, they add to our understanding of consumers’ online purchasing.

T-tests were then conducted to see detailed differences in each fixed group based on the MANOVA results. Table 5 shows that, in the comparison of re-purchase intention, male consumers report lower intention than female consumers, with respective means of 0.0868 and 0.0920 (p < 0.05). Table 6 shows the comparison results of satisfaction in high and low trust propensity groups. The high trust propensity group reported higher satisfaction than the low trust propensity group, with means of 0.0868 and −0.102 (p < 0.05), respectively. It indicates that a higher level of satisfaction might come with consumers’ high trust propensity.

4.3. Examining moderating effects

As we have seen, gender and trust propensity might affect consumers’ online purchasing behavior individually and jointly. Here, we explore how they do so in more detail. To begin, we first examined if trust propensity is gender determined. If so, purchasing behavior could be all explained from the perspective of gender. A Chi-square test was used to check whether trust propensity and gender were statistically independent (see Table 7). Results show that the Chi-square (2.034) is much higher than Asymp. or Fisher’s p value (0.154, 0.170, respectively), indicating that the two variables are statistically independent. Thus the effects of trust propensity and gender on purchasing should be examined independently.

MANOVA results indicated that the level of trust propensity influences satisfaction. Similarly, gender was shown to influence re-purchase intention. Since each of these effects might arise, in part, by moderating the effect of another relationship, we conducted tests to check these possibilities.

Table 8 shows the results from testing trust propensity as moderator, and Table 9 does the same for gender. A moderating effect exists if the coefficient of the product term (independent variable by moderator) is significant. From the tables, we see that the coefficients of risk × trust propensity and benefit × gender were significant at the 0.05 level, indicating that trust propensity and gender moderated the relationships of risk → satisfaction and benefit → intention, respectively. Thus, the moderating roles of trust propensity and gender were confirmed.

To further verify our hypotheses, we conducted group regression analyses (see Tables 10 and 11, Figs. 3 and 4). In comparing the effect that perceived risk plays on satisfaction, we see that this negative effect was stronger on high trust propensity group than on low trust propensity group, with correlations of −0.418 and −0.09 and 0.109 (p < 0.05). Table 6 shows the comparison results of satisfaction in high and low trust propensity groups. The high trust propensity group reported higher satisfaction than the low trust propensity group, with means of 0.0868 and −0.102 (p < 0.05), respectively. It indicates that a higher level of satisfaction might come with consumers’ high trust propensity.

Table 4
MANOVA results.

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent variable</th>
<th>Mean square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Perceived benefit</td>
<td>0.190</td>
<td>0.189</td>
<td>0.664</td>
</tr>
<tr>
<td></td>
<td>Re-purchase intention</td>
<td>4.208</td>
<td>4.295</td>
<td>0.039</td>
</tr>
<tr>
<td></td>
<td>Perceived risk</td>
<td>0.739</td>
<td>0.738</td>
<td>0.391</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td>0.780</td>
<td>0.785</td>
<td>0.376</td>
</tr>
<tr>
<td>Trust</td>
<td>Perceived benefit</td>
<td>0.844</td>
<td>0.841</td>
<td>0.359</td>
</tr>
<tr>
<td></td>
<td>Re-purchase intention</td>
<td>0.347</td>
<td>0.354</td>
<td>0.552</td>
</tr>
<tr>
<td></td>
<td>Perceived risk</td>
<td>0.013</td>
<td>0.013</td>
<td>0.910</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td>4.883</td>
<td>4.914</td>
<td>0.027</td>
</tr>
<tr>
<td>Gender + trust</td>
<td>Perceived benefit</td>
<td>1.227</td>
<td>1.222</td>
<td>0.269</td>
</tr>
<tr>
<td></td>
<td>Re-purchase intention</td>
<td>8.533</td>
<td>8.710</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Perceived risk</td>
<td>4.703</td>
<td>4.697</td>
<td>0.031</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td>1.787</td>
<td>1.799</td>
<td>0.181</td>
</tr>
</tbody>
</table>

Table 5
T-test between genders.

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-purchase intention</td>
<td>Male</td>
<td>259</td>
<td>−0.09</td>
<td>1.061</td>
<td>−2.283</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>225</td>
<td>0.109</td>
<td>0.917</td>
<td></td>
</tr>
</tbody>
</table>

Table 6
T-test between trust propensity.

<table>
<thead>
<tr>
<th>Trust propensity</th>
<th>N</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>High</td>
<td>262</td>
<td>0.0868</td>
<td>1.063</td>
<td>2.079</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>222</td>
<td>−0.102</td>
<td>0.915</td>
<td></td>
</tr>
</tbody>
</table>

Table 7
Gender + trust cross tabulation and Chi-square tests.

<table>
<thead>
<tr>
<th>Gender</th>
<th>M</th>
<th>Count</th>
<th>Expected count</th>
<th>Count</th>
<th>Expected count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square statistic</td>
<td>Pearson chi-square</td>
<td>2.034</td>
<td>0.154</td>
<td>Fisher’s exact test</td>
<td>0.170</td>
</tr>
</tbody>
</table>

Table 8
Moderating effect test for trust propensity.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Std. error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td>−0.629</td>
<td>0.130</td>
<td>−0.631</td>
<td>−4.847</td>
</tr>
<tr>
<td>Trust propensity</td>
<td>−0.195</td>
<td>0.085</td>
<td>−0.097</td>
<td>−2.296</td>
</tr>
<tr>
<td>Risk × trust propensity</td>
<td>0.191</td>
<td>0.085</td>
<td>0.293</td>
<td>2.254</td>
</tr>
</tbody>
</table>

Dependent variable: satisfaction.
Table 9
Moderating effect test for gender.

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized coefficients</th>
<th>Standardized</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Std. error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Benefit</td>
<td>0.595</td>
<td>0.130</td>
<td>0.595</td>
<td>4.587</td>
</tr>
<tr>
<td>Gender</td>
<td>0.214</td>
<td>0.085</td>
<td>0.107</td>
<td>2.526</td>
</tr>
<tr>
<td>Benefit + gender</td>
<td>-0.169</td>
<td>0.085</td>
<td>-0.257</td>
<td>-1.979</td>
</tr>
</tbody>
</table>

Dependent variable: re-purchase intention.

Table 10
Moderating effect test—group regression by trust propensity.

<table>
<thead>
<tr>
<th>Trust ANOVA</th>
<th>Model change statistics</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>$R^2$ change</td>
</tr>
<tr>
<td>1</td>
<td>55.033</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>17.130</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Predictors: benefit dependent variable: re-purchase intention.

Table 11
Moderating effect test—group regression by gender.

<table>
<thead>
<tr>
<th>Gender ANOVA</th>
<th>Model change statistics</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>$R^2$ change</td>
</tr>
<tr>
<td>1 (M)</td>
<td>52.594</td>
<td>0.000</td>
</tr>
<tr>
<td>2 (F)</td>
<td>18.015</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Predictors: benefit dependent variable: re-purchase intention.

Fig. 3. Moderating effect of trust propensity.

Fig. 4. Moderating effect of gender.

MANOVA results showed that both gender and gender × trust influence re-purchase intention. Here we consider in more detail these influences. To begin, we consider the regression equation:

\[ B = b_0 + b_1 \times A + b_2 \times C + b_3 \times D + b_4 \times A \times C + b_5 \times A \times D + b_6 \times C \times D + b_7 \times A \times C \times D, \]

where \( B \) = re-purchase intention, \( A \) = perceived benefit, and \( C \) and \( D \) are the possible moderators gender and trust propensity, respectively.

Note that the coefficients \( b_6 \) and \( b_7 \) are associated with distinct joint moderation effects. Note as well that \( A \), the independent variable, can also be chosen to be risk or satisfaction.

The test results are shown in Table 12: no matter what factor was chosen as independent variable, both gender and gender × trust significantly influence re-purchase intention in each model (\( p < 0.05 \)). But only when perceived benefit was taken as the independent variable was the three-way interaction of benefit × gender × trust significant. H8(b) was thus supported.

These results show the various ways that gender and trust, separately and in combination, modify different paths leading to increases in re-purchase intention.

To further investigate these joint moderating effects, additionally a chart of marginal means and group regressions were given out to present the findings. As can be seen in Fig. 5, for the high trust propensity group, female consumers report a much higher re-purchase intention than male consumers, but in the low trust propensity group the difference is reversed and narrower, with males’ re-purchase intention being slightly greater. The intersection of the two lines also indicates that a strong interactive effect exists. Table 13 shows the regression results for segmented customers (trust × gender). For the group with high trust propensity, there is a significant positive relationship between re-purchase intention and perceived benefit for males (\( b_{21} = 0.525, p < 0.01 \)), but not for females. For the low trust propensity group, the connection was stronger for females (\( b_{22} = 0.385, p < 0.01 \)) than males (\( b_{23} = 0.252, p < 0.01 \)) (\( b_{xy} \) refers to coefficient \( b_1 \) in the regression equation for segment trust = x, gender = y).

In addition, results indicated that perceived risk was significantly different in segmented consumer groups split by gender and trust propensity. We conducted ANOVA with these two fixed factors.
factors, and Table 14 and Fig. 6 present the findings. The results show that, in the high trust propensity group, male consumers perceive higher risk than women; in the low trust propensity group, women report higher level of perceived risk than men. However, these differences were not supported when considering each moderator individually.

Since MANOVA results can only tell whether there are significant differences in sample means, but cannot detect moderating effects, we further examined potential moderating effects on relationships which did not show significant differences in MANOVA. No other moderating effects of gender and trust propensity were uncovered.

To be clear, Table 15 summarized the results of all proposed hypotheses. All of the proposed relationships in basic research model were supported, and three of the proposed moderating effects were supported by our survey data.

5. Conclusion and discussion

5.1. Research findings

Using collected data, this research first confirmed that consumers’ perception of perceived benefit, perceived risk and overall satisfaction are main determinants of their intention to re-purchase. Given the results were consistent with existing theories, the conceptual model we used to depict consumers’ online purchase behaviors was appropriate. Building on this model, we then explored the moderating effects of trust propensity and gender, with the following findings.
Gender and trust propensity were found not to be correlated, even though there was a slightly higher, statistically insignificant, percentage of male respondents reporting a sense of trust. Hence, trust propensity should be considered similar between genders. We suggest that factors other than gender account for one’s trust propensity.

Trust propensity was found to moderate the relationship between perceived risk and consumers’ overall satisfaction. High trust propensity participants reported stronger satisfaction than those with low trust propensity, but only until risk was perceived as relatively high. At that point, high trust participants experience lower levels of satisfaction.

Gender was found to have a moderating effect on the relationship between perceived benefit and re-purchase intention. Test results showed that re-purchase intention was significantly different between male and female groups. Using within-gender regressions, the positive coefficient of perceived benefit to re-purchase intention was found to be higher for male customers than female ones. This finding agrees with Wolin and Korgaonkar (2003) that women often surf shopping sites before purchasing whereas men have more direct online shopping objectives.

Gender and trust propensity were found to have interactive effects in moderating the relationship between perceived benefit and re-purchase intention. This joint moderating effect is more powerful in distinguishing different levels of re-purchase intention than is gender alone. Female customers with high trust propensity present the highest re-purchase intention. To our surprise, male consumers with high trust propensity report the lowest re-purchase intention.

In a detailed comparison of trust × gender groups, perceived benefit was found to have the strongest predictive power with respect to re-purchase intention for male consumers with high trust propensity, while being lower for male consumers with low trust propensity. However, it has almost no predictive power for female consumers with high trust propensity. Explanations for this are left for future studies.

Additionally, though perceived risk was not found to differ when gender or trust propensity were considered alone, significant difference appeared when the two factors were investigated together. Perceived risk was highest in male consumers with high trust propensity and lowest in male consumers with low trust propensity. The result runs counter to some existing research where women perceive a greater risk than men in online shopping (Bartel Sheehan, 2000; Garbarino & Strahilevitz, 2004). We ascribe this result to our respondents’ profiles. Most of the participants in our research were students in a university setting, whose disposable income was typically low. It is possible that, in this group, females purchase more frequently than males but target lower value products, for which risk is also lower.

**5.2. Implications and limitation**

In contrast to previous research, this study not only confirms the moderating effects of trust and gender by showing different responses in segmented groups, but also explains these differences as other factors change. Our findings thus provide a clearer picture as to how differences in purchasing behavior develop rather than simply comparing the means of responses in different segmented groups. Finally, this study helps extend existing theories by including gender and trust propensity, and helps provide clearer understanding of the mediating role of satisfaction.

From a practical perspective, this study shows that perceived risks outweigh perceived benefits in online shopping. This suggests that vendors should pay significant attention to alleviating customers’ anxiety around online shopping so that they will continue to buy online. Second, trust propensity was shown to moderate users' purchasing behavior. To the degree that trust propensity develops over time and is, in part, a function of social influences, it follows that market development condition may affect e-commerce adoption. Indeed, the present study, for which data was collected in China, should be regarded in that light. Different market development conditions may mean that online trust-building mechanisms may be more necessary in one situation than another. Gender differences concerning perceived risks and benefits in online shopping suggest that different online marketing approaches should be used with males and females.

One limitation of this study was the income level of sample-respondents. Most were college students with low overall and disposable income. Further investigations can examine the moderating effects of trust propensity and gender on online shoppers with different income levels.

**Acknowledgements**

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**Appendix A:. Questionnaire items**

**A.1. Trust propensity**

**A.1.1. Which of the following description fit your trust propensity?**

1. When facing a new thing (or person), I always tend to trust it (or him), unless something occurs to make me feel otherwise (high trust propensity, optimistic).
2. When facing a new thing (or person), I always tend to distrust it (or him), unless something occurs to make me feel otherwise (low trust propensity, cautious) (reverse coded).

**A.2. Perceived benefit**

**A.2.1. Please indicate your perception of online shopping benefits (1–7, from low to high)**

B1: I think online shopping can help me easily find lower price.
B2: I think online shopping has the advantage of wide selection of products.
B3: I think online shopping is more convenient than bricks-and-mortar shopping.

**A.3. Perceived risk**

**A.3.1. Please indicate your perception of the following aspects of online purchasing risk (1–7, from not worried at all to completely worried)**

R1: I am worried that the price online may be higher than in the mall (price).
R2: I am worried that purchasing online may take me too much time, including choosing products from wide selection and delay in shipment (time loss).
R3: I am worried that the commodity sold online is a fake, smuggled, or reprocessed product (quality).
R4: I am worried that the products I bought online do not meet my expectations due to being unable to touch it or give it a trial (lack of good feel of product).
R5: I am worried about after-sale services (after-sale service).
R6: I am worried about the value of the product I received does not meet its price (value).
R7: I am worried that online shopping does harm to my physical and psychological health (health).
R8: I am worried that my private information will be leaked (privacy).
R9: I am worried that online shopping may affect my personal image in others’ minds (social pressure).

A.4. Satisfaction
1. Based on my prior experience, I am satisfied with my online shopping (1–7, from absolutely dissatisfied to fully satisfied).
2. Based on my prior experience, I think purchasing online is a wise choice (1–7, from totally disagree to fully agree).

A.5. Re-purchase intention
1. Based on your prior experience, please indicate the possibility of purchasing online in the future (1–7, from absolutely no to be certain will).
2. Based on a successful online purchase experience, will you consider recommending it to your friends or do re-purchase in future? (1–7, from absolutely no to be certain will).

References


