

## ANTECEDENTS AND DISTINCTIONS BETWEEN ONLINE TRUST AND DISTRUST: PREDICTING HIGH- AND LOW-RISK INTERNET BEHAVIORS

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### ABSTRACT

While previous studies have investigated the determinants and consequences of online trust, online distrust has seldom been studied. Assuming that the positive antecedents of online trust are necessarily negative antecedents of online distrust or that positive consequences of online trust are necessarily negatively affected by online distrust is inappropriate. This study examines the different antecedents of online trust and distrust in relation to consumer and website characteristics. Moreover, this study further examines whether online trust and distrust asymmetrically affect behaviors with different risk levels. A model is developed and tested using a survey of 1,153 online consumers. LISREL was employed to test the proposed model. Overall, different consumer and website characteristics influence online trust and distrust, and online trust engenders different behavioral outcomes to online distrust. The authors also discuss the theoretical and managerial implications of the study findings.

Keywords: trust, distrust, prospect theory, low- and high-risk Internet behaviors

### 1. Introduction

Trust is a vital relationship concept but requires clarification because its definition varies in different disciplines, including psychology, sociology, social psychology, and economics [Lewicki et al. 1998; Luo 2002; McKnight and Chervany 2001]. However, all definitions of trust agree that it is important for fostering successful relationships, reducing uncertainty and risk, and increasing willingness to purchase. This critical role of trust has been the focus of numerous studies in recent decades [e.g., Cho 2006; Doney & Cannon 1997; Grabner-Kräuter & Kaluscha, 2003; Jap & Anderson 2003; Palmatier et al. 2006; Shankar et al. 2002], which primarily emphasize understanding antecedents, consequences, and exchange mechanisms. Several parameters have been proposed with the potential to affect trust, including advice [Urban et al. 2000], community features [Muniz & O'Guinn 2001], absence of errors [Bart et al. 2005], and fairness [Chen & Chou 2012]. Trust also affects other parameters such as consumer satisfaction and loyalty [Lu et al. 2012; Sirdeshmukh et al. 2002] as well as information disclosure [Zimmer et al. 2010].

While the extant literature on trust has revealed how trust can be developed and maintained, it has relatively neglected the topic of distrust. The lack of investigation is largely due to a commonly held assumption that trust and distrust are two sides of the same coin. Consequently, evidence of high trust has typically been regarded as equivalent to low distrust, and the antecedents and outcomes of trust have been regarded as the opposite of those of distrust. In previous academic studies, distrust was implicitly assumed to be the opposite end of the same conceptual spectrum as trust. For example, sociologists describe trust as cooperative conduct and distrust as noncooperative conduct in a complex exchange relationship [Coleman 1990]. Moreover, scholars analyze both trust and distrust as mechanisms for coping with social complexity and consider them functional equivalents, substitutes, or simply antonyms [Lewis & Weigert 1985]. According to this definition, high trust equals low distrust, and low trust equals high distrust.

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However, recently scholars have identified distrust as a distinct construct different from trust [Cho 2006; Dimoka 2010; Kramer 1999; Lewicki et al. 1998; Ou & Sia 2010]. Therefore, trust and distrust must be reexamined to determine whether they have different antecedents and whether they have diverse consequences. Besides examining the distinction between trust and distrust, this study presents a comprehensive empirical account of the possible coexistence of trust and distrust.

Although this study defines online trust and distrust in reciprocal terms, it views them as distinct and separate constructs. This study defines online trust as positive expectations regarding beneficial conduct of an e-vendor, characterized as reliance, confidence, and assurance. Online distrust is conceptualized as the negative expectations of a consumer resulting from the injurious conduct of an e-vendor, which is characterized as suspicion, wariness, and fear of transactions. If trust and distrust are separate, efforts to build trust do not always eliminate distrust. Therefore, concurrent analysis of trust and distrust is needed to provide e-vendors with a robust picture of relationship management. This study also applies prospect theory to test the hypothesis that trust and distrust engender asymmetric effects. A key assumption of prospect theory is loss aversion bias, which argues that people tend to be more sensitive to changes perceived as losses than to equally strong changes perceived as gains [Ho et al. 2006; Wagner et al. 2009]. That is, consumers with distrust are less likely to engage in high-risk behavior than are those with trust. If trust and distrust are genuine and distinct constructs, they may affect perceptions of the risk of Internet behaviors. Therefore, this study examined how consumer characteristics and website characteristics affect consumer trust or distrust of e-vendors.

Few studies have integrated both trust and distrust in the same empirical research as distinct concepts [Cho 2006; McKnight et al. 2004; Ou & Sia 2010]. To address this gap, our study attempts to simultaneously integrate trust and distrust constructs into the online shopping context. Specifically, this study aims to provide new perspectives explaining how the formation of online trust and distrust is significant. This study then attempts to understand the asymmetric behavioral outcomes generated by online trust and distrust, as well as to present empirical evidence supporting the assertion that online trust and distrust are two distinct and coexisting constructs.

This study makes three noteworthy theoretical contributions. First, research findings provide support for verifying that online trust and distrust are affected by different antecedents. Specifically, the positive effects of consumer and website characteristics in enhancing online trust dissent from their negative effects in generating online distrust and vice versa. Second, this study contributes to prospect theory by demonstrating that online trust and distrust have asymmetric effects on consumers' behavioral intentions. Third, this study contributes to the literature on trust in B2C e-commerce. This study empirically validates the contention that online trust and distrust are not two ends of a single bipolar construct, but are two distinct and coexisting constructs [e.g., Dimoka 2010; Ou & Sia 2010].

The remainder of this paper is organized as follows: section one develops a theoretical framework, and then discusses the research framework and hypotheses. Section two then describes the model testing and hypotheses using a convenient sample of consumers. Finally, section three discusses the study findings and explores managerial implications, and also discusses limitations and future research directions.

## **2. Literature Review**

### **2.1. Trust and Distrust as Distinct and Separate Constructs**

Although scholars have delineated trust/distrust in various ways (Table 1), most agree that distrust is not only the absence of trust, but also the active expectation that the behaviors of other actors jeopardize personal security [Chan 2003; Darke & Ritchie 2007; Darke et al. 2008; Lewicki et al. 1998 2006; McKnight et al. 2002; Ou & Sia 2009 2010]. Prior research has focused on customer's distrust in vendor behavior; this can severely damage a vendor's relationship quality with its customers [Dimoka 2010; Zhang et al. 2011]. Some researchers contend that distrust does not merely involve a reduced level of trust, but its opposite [Lewicki et al. 1998]. Distrust is a distinct construct based on different emotions to trust [McKnight & Chervany 2001], probably because distrust reflects human desire for survival and protection from harm. Distrust is thus likely to have a direct effect on choices and behaviors perceived as high risk.

Based on the normative perspective, traditionally scholars see trust and distrust as mutually exclusive and opposite conditions, with trust being "good" and distrust "bad". Scholars thus have paid limited attention to the social context of trust relationships [Lewicki et al. 1998]. That is, scholars simplify the social context of trust relationships, and compress the constructs of trust and distrust into a unidimensional relationship. Therefore, given the evolution of social relationships, this study challenges this simplistic perspective, argues that both trust and distrust can simultaneously exist within multiple relationships, and applies this argument to the relationship between consumers and e-vendors.

The satisfaction literature presents a similar argument, presenting satisfaction and dissatisfaction two separate

constructs rather than a single construct along the same continuum [Herzberg et al. 1959]. Satisfaction and dissatisfaction are distinct constructs motivated by different elements (i.e., motivators and hygiene factors). Motivators are satisfaction-inducing factors because their positive performance increases satisfaction more than their negative performance engenders dissatisfaction. Meanwhile, hygiene factors are dissatisfaction-avoiding factors because their negative performance causes dissatisfaction more than their positive performance leads to satisfaction. Likewise, Ou and Sia [2009] adopted two-factor theory to examine the effects of motivators and hygiene factors on trust and distrust, in turn affecting buying intention. They found that distrust influences buying intention more than trust does.

Table 1: Concepts of Trust and Distrust

Study	Concepts of trust and distrust	Research methods
Gurtman [1992]	Opposite constructs	Empirical study
Sitkin and Roth [1993]	Different constructs	Conceptual paper
Lewicki et al. [1998]	Separate but linked dimensions	Conceptual paper
Singh and Sirdeshmukh [2000]	Linear continuum	Conceptual paper
McKnight et al. [2002]	Trust and distrust (web risk) are two distinct construct	Empirical study
Chan [2003]	Separate and distinct constructs	Conceptual paper
McKnight et al. [2004]	Separate and co-existence constructs	Empirical study
Schul et al. [2004]	Different dependent measures	Experimental design
Komiak et al. [2005]	Positive and negative ends of a continuum scale	Empirical study
Cho [2006]	Distinct entities	Empirical study
Lewicki et al. [2006]	Two-dimensional model	Conceptual paper
Darke and Ritchie [2007] Darke et al. [2008]	Heuristic cue (trust) vs. ulterior motives (distrust)	Experimental design
Ou and Sia [2009]	Distinct and separate constructs	Field study
Dimoka [2010]	Distinct constructs	Behavioral study
Ou and Sia [2010]	Distinct and separate constructs	Empirical study

## 2.2. Definitions of Online Trust and Distrust

Instead of closely focusing on the role of trust, scholars have begun researching trust- and distrust-related issues in various contexts [Bigley & Pearce 1998; Cho 2006; Govier 1994; Lewicki et al. 1998; McKnight et al. 2004; Sitkin & Roth 1993]. This study recognizes that trust has various definitions, as researchers conceptualize it according to their own disciplinary perspectives. In the management and organization literature, Mayer et al. [1995] defined trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party (p. 712).” The well-accepted definition of trust in the relationship marketing domain: “when one party has confidence in an exchange partner’s reliability and integrity” [Morgan & Hunt 1994, p. 23]. In the e-commerce research domain, McKnight and Chervany [2001] stressed that trust is when one party believes that the other party has characteristics beneficial to itself. These characteristics imply that e-vendor will act in the consumer’s interest, and may include traits such as being capable of and being predictable in delivering as promised.

While trust is regarded as a positive expectation of a partner’s beneficial conduct, distrust is a “positive expectation of injurious action” [Luhmann 1979, p. 72]. In the organization and management field, Lewicki et al. [1998, p. 439] define distrust as “confident negative expectations regarding another’s conduct.” Moreover, distrust is the expectation that others will not act in one’s best interests, perhaps even performing injurious behavior [Govier

1994]. In the e-commerce research field, McKnight et al. [2004, p. 41] argued that “distrust means a tendency to not be willing to depend on or become vulnerable to general others, accompanied by feelings of worry, fear, or concern.”

The failure to incorporate distrust as a distinct construct appears to have resulted in a simplistic perspective on the nature of distrust. Furthermore, studies on trust and distrust have not clearly distinguished these concepts, in terms of either antecedents or consequences. Consequently, this study views trust and distrust as distinct constructs, and investigates their different and asymmetric effects.

### 2.3. Antecedents of Online Trust and Distrust

#### 2.3.1. Consumer Characteristics

Although online trust and distrust have several possible antecedents, the antecedents analyzed in this study were consumer characteristics such as propensity to trust, propensity to distrust, and online expertise. Lewicki et al. [1998] proposed that trust or distrust accumulated in prior relationships and personality factors can influence configurations of trust and distrust within a given relationship. Moreover, studies of information systems show that that propensity to trust is an important personality trait in concerned consumers and an important variable in online shopping contexts [Bart et al. 2005; Lee & Turban 2001; Yoon 2002].

Propensity to trust and distrust are distinctive coexisting concepts involving different combinations of emotions [McKnight et al. 2004]. Past studies on online consumer behavior discuss aspects of both trust and distrust propensity in their studies but do not delineate these concepts clearly. If disposition to trust and distrust are indeed distinct constructs, then focusing solely on propensity to trust may only partly explicate this online consumer behavior. This tendency is based not on experience with or knowledge of a specific trusted party, but rather on continually accumulating lifetime experience [McKnight et al. 2004]. As an antecedent of trust, propensity to trust is an effective contributor in early stages of a relationship when the parties are still unfamiliar with each other [Gefen 2000]. Thus, based on the above discussion, this study proposes that propensity to trust and distrust are separate factors because they are incarnations of different emotional content.

In accordance with McKnight et al. [2004], this study defines propensity to trust as the general willingness to depend on or to become vulnerable to others. Propensity to trust is a general inclination to display faith in humanity and to take a trusting stance toward others. However, propensity to distrust refers to a general unwillingness to depend on or to become vulnerable to others. The former represents a belief that better outcomes will be achieved by trusting people, regardless of the reliability of others; meanwhile, the latter denotes individual belief that others are not benevolent and reliable [Gefen 2000].

Another interesting question is whether consumers trust or distrust a website based on their personal characteristics or on their knowledge of the website [Eid 2011]. The Internet expertise of consumers may affect their trust of websites. For example, an expert consumer of the Internet may/may not have greater confidence on the Internet than a novice consumer [Bart et al. 2005]. Moreover, recent studies show that the perceived credibility of a website depends on the user in terms of reliance on the Internet and experience in using the Internet. Internet experience has shown positive associations with the perceived credibility of other web-based information [Flanagin & Metzger 2003]. Flanagin & Metzger [2003] suggested that the most experienced or Internet-savvy consumers tend to rate the credibility of websites higher compared to less experienced users. However, experienced Internet users also recognize the limitations of websites and tend to validate information obtained from the website more strictly. Indeed, as their experience in using the Internet increases, consumers tend to increase their scrutiny of information obtained from the Internet.

Online expertise refers to consumer knowledge about and ability to use the Internet. The experience and knowledge of consumers in the online environment is important for determining their behavior when visiting a website [Novak et al. 2000]. Trust operates in different ways depending on a consumer's state of knowledge about products and services. Milne and Boza [1999] argued that consumers who are knowledgeable about the rules and practices of online transactions tend to be more trusting and are more likely to have feelings of control compared to less knowledgeable consumers. Similarly, consumers who are experts in online shopping are most likely to avoid purchasing from websites they distrust and are most likely to give negative word-of-mouth reviews for websites they distrust.

#### 2.3.2. Website Characteristics

The following discusses five different characteristics stressed by different website categories [Bart et al. 2005]. First, navigation and presentation refer to the ease of use in browsing websites and the design attributes that offer quality, including layout and appearance. The functionality of website design is a critical factor in consumer evaluations and subsequent satisfaction [Song & Zinkhan 2008]. Moreover, when consumers navigate websites with high information content, they may perceive websites with good layout and appearance and capable of rapidly taking consumers where they wish to go, as trustworthy [Bart et al. 2005].

Second, usefulness and accuracy of information indicates whether the information presented on the website is correct and helpful to consumers. If the information on the website is accurate and useful, consumers are more likely to trust the e-vendor [Hsu & Wang 2008; Park et al. 2005; Song & Zinkhan 2008]. When consumers find evidence of unreliable service or online performance, such as provision of inaccurate information and missing graphics, they will often leave the website and be disappointed with the online service [Goode & Harris 2006].

Third, brand strength refers to the reputation associated with the brand name of the website. There is evidence that online consumers use cues like brand to reduce the risks involved in purchasing decisions, and employ brand name as a surrogate indicator of quality [Keller 1993; Sääksjärvi & Samiee 2007]. Given the unavailability of all relevant information for comparison, brands can provide a persuasive signal and give consumers more comfort in the online environment than the offline one [Yoon 2002]. On the other hand, a brand also serves as a governance mechanism capable of assuring trustworthy behavior [Standifird 2001]. Therefore, additional costs to the consumer are not incurred when relying on a reputable brand as an intermediary, thus making the brand an important mechanism for reducing the risk associated with online transactions [Sääksjärvi & Samiee 2007].

Fourth, order fulfillment describes the website mechanism that delivers a product or service when a transaction is made. Order fulfillment is an essential evaluation of websites with transactional ability. When consumers do not know whether to trust the e-vendor, they may track the order fulfillment records on the website to assess their trustworthiness [Bart et al. 2005; Shankar et al. 2002].

Fifth, privacy refers to the protection of individual confidential and private information stored on the website. This includes the detailed explanation, adoption, and implementation of a privacy policy. Security denotes the presentation of seals of approval on the website which are verified by a powerful third-party. Hoffman et al. [1999] indicate that the risk of fraud deters consumers from using the Internet to purchase goods and services, encouraging many Internet companies to adopt encryption methods to protect consumer privacy and security on their sites [Goode & Harris 2006; Lu et al. 2012; Luo 2002].

#### 2.4. Low- and High-Risk Internet Behaviors

Based on the suggestions and categorizations in the literature, this study proposes that the risk of Internet behaviors can be categorized as high, low, or none [Bart et al. 2005; McKnight et al. 2004]. High-risk Internet behaviors include activities such as purchasing a product online or providing personal information to an e-vendor. Such behaviors are risky because the product and information offered by the e-vendor may be inaccurate, or personal data may be leaked or stolen, with catastrophic and harmful consequences for consumers [McKnight & Chervany 2001]. Repeated visits to the site, recommendations to others, and bookmarking are rated as low or no risk because they have few harmful consequences to the consumer.

This study proposes that online trust and distrust influence variations in the level of risk behavior. Since trust and distrust are on the basis of different emotions, they are likely involved in different levels of risk of activities. Specifically, when a consumer engages in a lower risk Internet behavior, they place more weight on trust than on distrust; conversely, when a consumer engages in a higher risk Internet behavior, they place more weight on distrust than on trust [Tversky & Kahneman 1986]. This argument regarding asymmetric effects is consistent with the prospect theory, which explains the framing effect in terms of the value function for goods perceived as gains and losses from a reference point [Kahneman & Tversky 1979; Tversky & Kahneman 1986]. The value function yields the preference value assigned to outcomes and is concave for gains, convex for losses, and steeper for losses than for gains. This functional form shows that actors are more sensitive to losses than to gains and display a diminishing marginal sensitivity to both. Thus, consumers tend to choose a sure alternative perceived as a gain rather than a risky alternative of equal expected value.

The phenomenon of asymmetric behaviors occurs because in high-risk situations consumers rely more on fear and worry to assess the situation and its consequences [McKnight et al. 2004]. Consequently, for engaging online behaviors involving minimal perceived risk, consumer trusting belief will dominate their distrusting belief.

### 3. Conceptual Framework and Research Hypotheses

#### 3.1. Conceptual Framework

One purpose of this study is to empirically investigate differences between the formation of online trust and distrust. Moreover, this study further argues that online trust and distrust may generate asymmetric behavioral outcomes. Because this study has no a priori expectations regarding how potential antecedents affect online trust and distrust, and how online trust and distrust influence different consequences, it treats these different and asymmetric effects as an empirical issue. The conceptual framework is shown below (Figure 1).

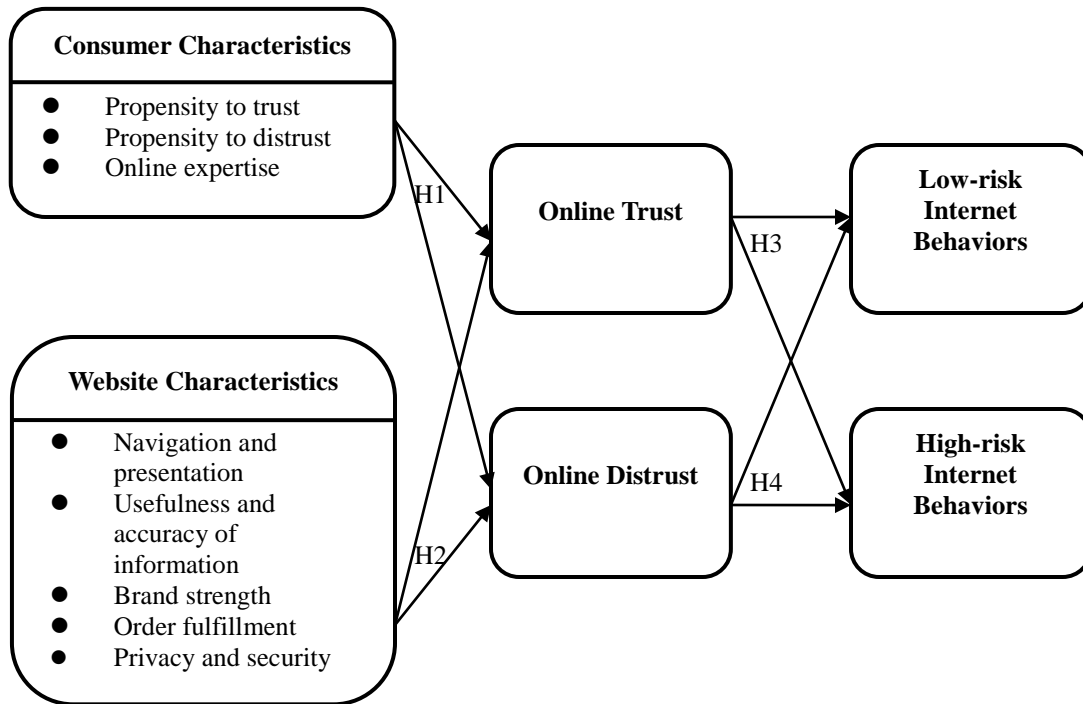


Figure 1: Conceptual Model of the Antecedents and Consequences of Online Trust and Distrust

### 3.2. Different Effects of Consumer and Website Characteristics on Online Trust and Distrust

Shankar et al. [2002] indicated that consumer characteristics such as personality traits and prior transacting experience may affect online trust and distrust. Previous research has shown that propensity to trust is a general willingness based on ongoing socialization to depend on others [McKnight et al. 1998], and is related to trust [Gefen 2000; Ridings et al. 2002]. Consumers with superior Internet knowledge and ability tend to have the most confidence in online commerce transactions and are most likely to trust e-vendors [Bart et al. 2005; Eid 2011]. This study thus argues that a consumer with superior Internet knowledge and abilities is likely to have reduced distrust.

Website characteristics are also among the most important elements affecting online trust and distrust [Bart et al. 2005; Cho 2006; Hsu & Wang 2008]. For example, navigation and presentation influence trustworthiness in e-retailing [Yoon 2002]. A brand is a symbolic resource which provides a mechanism for buyer and seller to engage in a long-term relationship, and also contributes to the development of trust [Davis et al. 1999]. Consumers are more willing to trust e-vendors associated with websites that contain accurate information [Park et al. 2005]. Hoffman et al. [1999] demonstrated that privacy and security are the key drivers of online trust.

Moreover, Lewicki et al. [1998, p. 448] argued that “it would be extremely misleading to assume either that the positive predictors of trust would necessarily be negative predictors of distrust or that the positive consequences of trust would necessarily be influenced negatively by increased distrust”. While these studies show that each characteristic potentially has different effects (i.e., positive or negative) on trust and distrust, the paths by which such differences influence trust and distrust are difficult to delineate given the limited empirical work on this area [Cho 2006]. Therefore, this study hypothesizes the following:

**H1:** Consumer characteristics will affect online trust and distrust toward the e-vendor.

*H1a:* Propensity to trust will affect online trust and distrust toward the e-vendor.

*H1b:* Propensity to distrust will affect online trust and distrust toward the e-vendor.

*H1c:* Online expertise will affect online trust and distrust toward the e-vendor.

**H2:** Website characteristics will affect online trust and distrust toward the e-vendor.

*H2a:* Navigation and presentation will affect online trust and distrust toward the e-vendor.

*H2b:* Usefulness and accuracy of information will affect online trust and distrust toward the e-vendor.

*H2c:* Brand strength will affect online trust and distrust toward the e-vendor.

*H2d: Order fulfillment will affect online trust and distrust toward the e-vendor.*

*H2e: Privacy and security will affect online trust and distrust toward the e-vendor.*

### 3.3. Asymmetric Effects of Online Trust and Distrust on Internet Behaviors with Different Levels of Risk

Several researchers have examined the asymmetric effects of various variables. For example, Cheung & Lee [2005] demonstrate the asymmetric effects of negative and positive website attribute performance on web satisfaction. The results show that negative performance in information reliability and usefulness influenced satisfaction more than did positive performance. On the other hand, positive performance in information understandability and system navigation influenced satisfaction more than did negative performance in those areas. Cho [2006] used self-disclosure and willingness to commit as consequences of trust and distrust, and proved that the effect of distrust in reducing self-disclosure is greater than that of trust in enhancing it. Indeed, distrust is likely to affect high risk behaviors.

In the online shopping environment, which contains high levels of risk and uncertainty, the lack of trust may suppress consumers' transaction intentions; however, distrust may hinder transaction intention even further [Ou & Sia 2010]. Distrust can cause consumers to stop making online transactions or even stop visiting a website. Thus, owing to loss aversion being stated in prospect theory, distrust appears to more strongly affect the perception of high-risk Internet behaviors than trust [Darke & Ritchie 2007; McKnight et al. 2004]. Because of the feelings of fear and worry that accompany high distrust, consumers may perceive a high risk of potential betrayal. Accordingly, distrust should be better than trust as an antecedent of high-risk Internet behaviors. In contrast, studies have corroborated the links between trust and behavior intention [Gefen 2000; McKnight et al. 1998]. Thus, this study argues that distrust has a greater effect than trust when consumers are considering high-risk Internet behaviors, while trust outweighs distrust when consumers are considering low-risk Internet behaviors.

*H3: Online trust has a more significant effect on enhancing low-risk Internet behaviors than online distrust does on lowering it.*

*H4: Online distrust has a more significant effect on lowering high-risk Internet behaviors than online trust does on enhancing it.*

### 3.4. Coexistence of Online Trust and Distrust

Social relationships are complex and cannot be oversimplified. For example, it is possible to simultaneously experience liking and disliking [Nicholson et al. 2001] and cooperation and noncooperation [Coleman 1990]; similarly, it may be possible to simultaneously both trust and distrust others. As interpersonal relationships become more complex, and as the transaction context shifts from the physical (i.e., face to face) to the virtual (i.e., computer-mediated environment), considerable potential exists for trust and distrust to emerge and coexist. Lewicki et al. [1998] argue that trust and distrust coexist, and challenge the traditional assumption that parties who experience tension, inconsistency, and dissonance in relationships will be motivated to resolve the inconsistency. They propose that balance and consistency are merely a temporary state and should be considered snapshots of a dynamic time-series process. Therefore, this study argues that a significant proportion of trust and distrust coexist in an imbalanced condition (i.e., low online trust/distrust or high online trust/distrust) when consumers shop online.

*H5: This study assumes that online trust and distrust are two distinct (i.e., online trust and distrust have significant negative interacting effects on high- and low-risk Internet behaviors) and coexisting (i.e., significant numbers (>0) of respondents are classified in the imbalanced conditions) constructs.*

## 4. Method

### 4.1. Pretest, sample, and data collection

This study employed a web-based survey to target online consumers. The survey banner was posted in various online shopping website communities (such as Yahoo & PChome) and BBS (such as PTT, the largest online community in Taiwan). To increase the response rate, respondents were offered the chance to win prizes and a report summarizing the final results.

Before actual data collection, this study conducted a pretest on five webmasters of online purchasing virtual communities, ten academic experts, and 15 consumers with over five years experience of online shopping, to test the understandability and accuracy of the measurement items. Respondent feedback revealed that the survey instrument was adequate, and there was no need to modify any scale items. The pretested respondents were excluded from the formal survey.

The questionnaire consisted of an instruction page asking individual respondents to provide the name of an online shopping mall that they have recently used, and which could serve as a representative site in answering the questionnaire. Respondents were deterred from filling out multiple questionnaires by being told prize winners would have to undergo identification.

A total of 1,193 responses were gathered during the first two weeks of June 2011. Ten winners were selected

during the draw and offered a gift certificate. The sample was free of missing values since respondents could only submit complete responses. After checking the Internet Protocol (IP) addresses of each respondent, 25 respondents were deleted owing to redundancy, while a further 15 were eliminated due to repeatedly clicking a single perception. A total of 1,153 valid questionnaires thus remained for analysis. Tests for nonresponse bias are based on a comparison of early and late respondents in terms of the mean values of construct items and descriptive statistics [Armstrong & Overton 1977]. No significant differences were detected in the *t*-test, suggesting that nonresponse bias may not be a serious problem for this study.

Table 2 shows the demographic characteristics of the sample. There were approximately equal percentages of male and female. No significant differences were observed along gender lines ( $t = 1.47, p > 0.1$ ), indicating that the study results are not gender-specific.

Table 2: Demographic Data and the Representativeness of the Sample

Category	Items	Percentage (%)
Gender	Male	50.3
	Female	49.7
Education	Junior school or below	0.7
	Senior high/technical school	0.6
	Undergraduate	51.2
	Postgraduate/master or above	47.5
Monthly household income (US\$1 = TWD\$30)	< TWD\$30 K	32.5
	TWD\$30-50 K	34.2
	TWD\$50-70 K	30.6
	> TWD\$70 K	2.7
Age	16-20	2.1
	21-25	30.7
	26-30	42.8
	31-35	18.6
	36-40	3.6
	41 or above	2.2
Occupation	Civil servants	7.2
	Managerial and professional	14.5
	Worker and shop assistant	30.3
	Self employed	12.3
	Retired and unemployed	5.6
	Students	30.1
Online purchases in the past one year (# of times)	≤ 1	10.4
	2-6	48.5
	7-11	32.1
	≥ 12	9.0

Due to concerns regarding information coming from a single source, this study used Harman's single-factor test where all items were subjected to a single factor analysis [Podsakoff & Organ 1986]. Common method variance is high if a single factor can be extracted or if one factor explains a majority of the variance. Using this approach, six factors were extracted with eigenvalues greater than 1, explaining 72% of the variance. The first factor accounted for 21% of the variance, the second factor 17%, and the remaining four factors, 38%. Therefore, common method variance does not appear to pose a serious problem.



#### 4.2. Measures

This study followed the procedures suggested by Churchill [1979] in scale development. First, the domain of each construct was clearly defined in terms of what would be included or excluded. Second, the literature was searched to locate any relevant scales. Measures were adopted or adapted from the existing literature where appropriate. A pretest was performed to substantiate the content validity of the survey instrument. Table 3 lists the scale items. All items used 7-point Likert scales with endpoints of 1 (strongly disagree) and 7 (strongly agree).

This study conceptualized consumer characteristics as a multidimensional construct comprising propensity to trust, propensity to distrust, and online expertise. Measures of propensity to trust (4 items), propensity to distrust (3 items), and online expertise (3 items) were adapted from previous research [Bart et al. 2005; McKnight et al. 2004].

Web characteristics were conceptualized as a multidimensional construct, including navigation and presentation (4 items), usefulness and accuracy of information (3 items), brand strength (2 items), order fulfillment (5 items), and privacy and security (4 items) adopted from previous studies [Bart et al. 2005].

Online trust and distrust were conceptualized as a unidimensional construct and measured using 4 and 3 items, respectively. Each item was adapted from previous studies [Cho 2006].

Low-risk and high-risk Internet behaviors were conceptualized as a unidimensional construct and measured with 3 and 4 items, respectively. Each item was adapted from past research [Bart et al. 2005].

Finally, risk preference and gender were included as control variables to avoid model misspecification. These control variables are included because they played a role in other trust studies [Cho 2006; McKnight et al. 2004]. Risk preference denotes individual inclination toward risk [Brockhaus 1980], which was measured by the extent to which respondents perceive themselves as risk-averse. The two item measure of risk preference was adopted from prior research [Cho 2006]. Risk preference significantly and negatively influences high-risk Internet behaviors ( $\gamma = -0.19, p < 0.05$ ).

### 5. Analyses and Results

#### 5.1. Measure Assessment

This study performed confirmatory factor analysis (CFA) to examine the measurement characteristics of multi-item constructs using LISREL 8.5 [Jöreskog & Sörbom 1996]. The measurement model provided good fit to the data:  $\chi^2(753) = 7196.55, p < 0.00$ , comparative fit index (CFI) = 0.90, goodness-of-fit index (GFI) = 0.86, Tucker-Lewis index (TLI) = 0.85, root mean square error of approximation (RMSEA) = 0.07. Table 3 shows that all coefficient alphas of the multi-item variables are above 0.70, indicating adequate internal consistency [Nunnally 1978].

Construct validity was checked in terms of convergent and discriminant validity. Convergent validity, which examines whether items of a specific construct converge or share a high proportion of variance in common, was assessed using three indicators recommended by Hair et al. [2006]. First, the factor loading of each item on their respective constructs should be significant (i.e.,  $t$ -values  $> 2$ ), at 0.60 or higher. Second, the construct reliability (CR) for adequate convergence or internal consistency should be 0.70 or higher. Third, average variance extracted (AVE) of each construct of 0.50 or higher suggests adequate convergence. All three criteria for convergent validity were met.

Furthermore, the square root of AVE was greater than all corresponding correlations [Fornell & Larcker 1981], demonstrating that the constructs had adequate discriminant validity. Table 4 lists the means, standard deviations, correlations, and square root of AVEs among the variables used in this study.

Table 3: Results of Measurement Model

Construct	Factor loading	t-value
Propensity to trust ( $\alpha = 0.91$ , CR = 0.94, AVE = 0.79) [McKnight et al. 2004]		
1. I believe that people really do care about the well-being of others.	0.88 <sup>a</sup>	—
2. I believe that people generally try to back up their words with their actions.	0.93	18.98
3. I believe that most people are honest in their dealings with others.	0.92	18.45
4. I believe that people care enough to try to be helpful, rather than just looking out for themselves.	0.83	13.87
Propensity to distrust ( $\alpha = 0.80$ , CR = 0.88, AVE = 0.72) [McKnight et al. 2004]		
1. I believe that most people would tell a lie if they could gain by it.	0.82 <sup>a</sup>	—
2. I believe that people pretend to care more about one another than they really do.	0.89	14.91
3. I believe that most people inwardly dislike putting themselves out to help other people.	0.83	15.40
Online expertise ( $\alpha = 0.91$ , CR = 0.94, AVE = 0.84) [Bart et al. 2005]		
1. I consider myself to be quite knowledgeable about Internet sites in general.	0.86 <sup>a</sup>	—
2. I am confident in my ability to assess trustworthiness of websites.	0.94	23.97
3. I am confident in my ability to assess the quality of a site.	0.94	23.88
Navigation and presentation ( $\alpha = 0.88$ , CR = 0.92, AVE = 0.73) [Bart et al. 2005]		
1. The site is easy to use.	0.84 <sup>a</sup>	—
2. Overall layout of the site is clear.	0.88	22.36
3. Information on the site can be obtained quickly.	0.87	21.68
4. The visual appearance and manner of the site is professional.	0.83	19.83
Usefulness and accuracy of information ( $\alpha = 0.89$ , CR = 0.93, AVE = 0.82) [Bart et al. 2005]		
1. The information provided from this site is up-to-date.	0.88 <sup>a</sup>	—
2. The site provides accurate and relevant information.	0.92	15.32
3. The site provides me with useful information to make a purchase decision.	0.91	14.86
Brand strength ( $\alpha = 0.82$ , CR = 0.92, AVE = 0.85) [Bart et al. 2005]		
1. The site represents a quality company or organization.	0.92 <sup>a</sup>	—
2. The site carries products or services with reputable brand names.	0.93	15.21
Order fulfillment ( $\alpha = 0.76$ , CR = 0.85, AVE = 0.54) [Bart et al. 2005]		
1. There is a search tool to help find information on the site.	0.72 <sup>a</sup>	—
2. It is possible to contact a shopping assistant through e-mail.	0.71	7.29
3. Easy ordering and payment mechanisms exist.	0.83	8.46
4. Return policies or other measures of accountability are present.	0.71	7.68
5. Order confirmation is given via e-mail.	0.70	6.29
Privacy and security ( $\alpha = 0.84$ , CR = 0.90, AVE = 0.69) [Bart et al. 2005]		
1. The general privacy policy is easy to find on the site.	0.74 <sup>a</sup>	—
2. The site clearly explains how user information is used.	0.86	9.39
3. Information regarding security of payments is clearly presented.	0.87	9.82
4. There were signs or symbols on the site placed there by third-party companies indicating that the site had been reviewed or audited for sound business practices.	0.84	9.46
Online trust ( $\alpha = 0.87$ , CR = 0.91, AVE = 0.72) [Cho 2006]		
1. This e-vendor will operate its business in a highly dependable and reliable manner.	0.90 <sup>a</sup>	—
2. This e-vendor will promote customers' benefits as well as its own.	0.84	14.12
3. This e-vendor will not engage in any kinds of exploitive and damaging behavior to customers.	0.85	13.97
4. When browsing this site, I feel confident and assured.	0.81	13.33
Online distrust ( $\alpha = 0.75$ , CR = 0.86, AVE = 0.67) [Cho 2006]		
1. This e-vendor looks suspicious and distrustful.	0.78 <sup>a</sup>	—
2. I must be very watchful wary when dealing with this e-vendor.	0.83	12.47
3. When browsing this site, I feel skeptical and fearful.	0.84	12.30
Low-risk Internet behaviors ( $\alpha = 0.89$ , CR = 0.94, AVE = 0.83) [Bart et al. 2005]		
1. I would recommend this site to a friend.	0.90 <sup>a</sup>	—
2. I would bookmark this site.	0.94	27.65
3. I would visit this site again.	0.90	25.35
High-risk Internet behaviors ( $\alpha = 0.80$ , CR = 0.86, AVE = 0.62) [Bart et al. 2005]		
1. I would purchase an item at this site.	0.70 <sup>a</sup>	—
2. I am comfortable providing financial and personal information on this site.	0.87	12.76
3. I would register at this site.	0.77	12.35
4. I would provide even more sensitive personal information to this site.	0.79	11.51
Risk preference ( $\alpha = 0.80$ , CR = 0.80, AVE = 0.66) [Cho 2006]		
1. I have a high tendency to avoid uncertainty compared to others.	0.80 <sup>a</sup>	—
2. I consider myself to be risk averse.	0.83	14.32

Note: <sup>a</sup> Fixed parameter.

Table 4: Descriptive Statistics, Correlations, and Square Root of AVEs (N = 1,153)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PTT	<b>0.89</b>												
2. PTD	-0.34**	<b>0.85</b>											
3. EXP	0.35**	-0.06	<b>0.92</b>										
4. NAV	0.38**	-0.11*	0.26**	<b>0.85</b>									
5. INF	0.33**	-0.03	0.25**	0.26**	<b>0.91</b>								
6. BRA	0.30**	-0.08*	0.24**	0.22**	0.33**	<b>0.92</b>							
7. ORD	0.37**	-0.06	0.21**	0.25**	0.37**	0.35**	<b>0.73</b>						
8. PRI	0.36**	0.04	0.24**	0.21**	0.37**	0.30**	0.33**	<b>0.83</b>					
9. ONT	0.39**	-0.29**	0.38**	0.35**	0.39**	0.36**	0.34**	0.35**	<b>0.85</b>				
10. OND	-0.16**	0.27**	-0.12*	-0.15*	-0.15*	-0.16*	-0.14*	-0.20**	-0.29**	<b>0.82</b>			
11. LRB	0.38**	-0.17**	0.33**	0.38**	0.32**	0.39**	0.34**	0.32**	0.31**	-0.13*	<b>0.91</b>		
12. HRB	0.37**	-0.18**	0.35**	0.36**	0.31**	0.34**	0.30**	0.27**	0.30**	-0.15*	0.38**	<b>0.79</b>	
13. RIP	0.06	0.12*	0.07*	0.04	0.08*	0.02	0.11*	0.13*	-0.10*	0.14*	0.07*	-0.15*	<b>0.81</b>
Mean	4.80	3.87	4.82	5.39	5.08	4.77	5.15	4.87	4.53	4.55	5.53	4.59	4.77
S.D.	1.24	1.34	1.09	1.16	1.30	1.38	1.27	1.25	1.17	1.25	1.23	1.33	1.31

Note: Numbers in bold denote the square root of average variance extracted.

PTT = propensity to trust; PTD = propensity to distrust; EXP = online expertise; NAV = navigation and presentation; INF = usefulness and accuracy of information; BRA = brand strength; ORD = order fulfillment; PRI = privacy and security; ONT = online trust; OND = online distrust; LRB = low-risk Internet behaviors; HRB = high-risk Internet behaviors; RIP = risk preference.

\* $p < 0.05$ ; \*\* $p < 0.01$

5.2. Hypotheses Testing Results

Table 5 lists the results of path analysis. The structural model fit the data well ( $\chi^2(18) = 862.90, p < 0.00, CFI = 0.93, GFI = 0.90, TLI = 0.91, RMSEA = 0.08$ ). Research results indicate that the propensity to trust ( $\gamma = 0.47, p < 0.001$ ) significantly and positively affects online trust, which is consistent with H1a. Propensity to distrust ( $\gamma = 0.31, p < 0.001$ ) has a significant positive effect on online distrust, which supports H1b. Online expertise ( $\gamma = 0.27, p < 0.01$ ) has positive and significant effect on online trust, providing support for H1c.

Table 5: Parameter Estimates for Figure 1

Independent variables	Dependent variables							
	Online trust		Online distrust		Low risk Internet behaviors		High risk Internet behaviors	
	$\gamma$	s.e.	$\gamma$	s.e.	$\beta$	s.e.	$\beta$	s.e.
Propensity to trust	0.47***	0.10	-0.06	0.03				
Propensity to distrust	-0.10	0.07	0.31***	0.04				
Online expertise	0.27**	0.08	-0.10	0.07				
Navigation and presentation	0.11	0.09	0.13	0.08				
Usefulness and accuracy of information	0.21**	0.11	0.09	0.06				
Brand strength	0.12	0.10	-0.36***	0.07				
Order fulfillment	0.18*	0.09	0.12	0.05				
Privacy and security	0.08	0.04	-0.09	0.06				
Online trust					0.42***	0.12	0.15*	0.06
Online distrust					-0.17*	0.09	-0.34***	0.10

Note: s.e. = standard error.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Furthermore, as for the construct of website characteristics, navigation and presentation has no significant effect on either online trust ( $\gamma = 0.11, ns$ ) or distrust ( $\gamma = 0.13, ns$ ). Therefore, H2a was unsupported. Usefulness and accuracy of information ( $\gamma = 0.21, p < 0.01$ ) significantly and positively affected online trust, which supported H2b. Brand strength ( $\gamma = -0.36, p < 0.001$ ) has negative and significant effect on online distrust, providing support for H2c. Order fulfillment ( $\gamma = 0.18, p < 0.05$ ) has positive and significant effect on online trust, providing support for H2d. Privacy and security did not significantly affect either online trust ( $\gamma = 0.08, ns$ ) or distrust ( $\gamma = -0.09, ns$ ). Thus, H2e was unsupported. The above research findings partially support H1 and H2, in which consumer characteristics and website characteristics have different effects on online trust and distrust. In the structural model, the explained variance of online trust is ( $R^2 = 0.52$ ) and that of online distrust is ( $R^2 = 0.48$ ). Such a high degree of explained variance indicates that the model has sufficient predictive power.

The proposed asymmetric effects were tested by imposing an equality constraint on the structural model. This study compared the absolute magnitude of positive and negative estimates to examine the relative strength of coefficients. In the alternative models developed in this study, the equality constraint for a particular set of two coefficients was set to equal. Model fit was then compared between models with and without the constraint. The difference in the  $\chi^2$  was used as a criterion to evaluate the deterioration of the model fit due to the equality constraint. Research results derived from these tests are presented in Table 6. Moreover, empirical results of structural model show that online distrust significantly attenuates high-risk Internet behaviors ( $\beta = -0.34, p < 0.001$ ) whereas online trust contributes significantly to high-risk Internet behaviors ( $\beta = 0.15, p < 0.05$ ). Specifically, the comparison between the absolute value of path coefficients of online trust ( $\beta = 0.15$ ) and distrust ( $\beta = -0.34$ ) demonstrates the differential roles that online trust and distrust play in relational outcomes. This implies that the effect of online distrust on lowering high-risk Internet behaviors is greater than the enhancing influence of online trust on high-risk Internet behaviors. Furthermore, online trust significantly enhances low-risk Internet behaviors ( $\beta = 0.42, p < 0.001$ ) while online distrust significantly decreases low-risk Internet behaviors ( $\beta = -0.17, p < 0.05$ ). The study results of  $\chi^2$  difference test and absolute value comparisons provide support for H3 and H4, which state online trust and distrust have asymmetric behavioral consequences. It is important to stress the high degree of explained variance in low-risk Internet behaviors ( $R^2 = 0.53$ ) and high-risk Internet behaviors ( $R^2 = 0.51$ ).

Table 6: Model Test of Coefficient Equality

Equality constraint	Structural model: $\chi^2(18) = 862.90$	
	$\chi^2(19)$	$\Delta\chi^2$
Effects of online trust/distrust on behavioral outcomes		
$\beta_{\text{online trust}} \times \text{LRB} = \beta_{\text{online distrust}} \times \text{LRB}$	894.13	31.23***
$\beta_{\text{online trust}} \times \text{HRB} = \beta_{\text{online distrust}} \times \text{HRB}$	886.07	23.17***

Note: LRB = low-risk Internet behaviors; HRB = high-risk Internet behaviors.

\*\*\* $p < 0.001$

The online trust and distrust measures show strong convergent and discriminant validities, suggesting that trust and distrust are two distinct and separate constructs. In addition, in order to examine the coexistence and distinction of online trust and distrust, this study employs two methods including cross-table procedures and interaction effects, respectively. First, cross-table procedure was used to compare different combinations of high and low trust versus distrust. Their coexistence can serve as further evidence of the distinctiveness of trust and distrust. Table 7 splits online trust and distrust based on median score into high and low cases [McKnight et al. 2004]. In order to confirm whether the numbers in quadrants 1 and 4 are significant, a difference test was conducted. A significance ( $\chi^2(1) = 971.68, p < 0.001$ ) of 555 cases out of 1,153 was found. Clearly, 48.13% (555) of the cases belong to cognitively inconsistent groups and 51.87% (598) belong to cognitively consistent groups.

Table 7: Coexistence of Online Trust and Distrust

	Low online distrust	High online distrust	Total
High online trust	quadrant [2] n = 300 (26.02%)	quadrant [4] n = 265 (22.98%)	n = 565 (49.00%)
Low online trust	quadrant [1] n = 290 (25.15%)	quadrant [3] n = 298 (25.85%)	n = 588 (51.00%)
Total	n = 590 (51.17%)	n = 563 (48.83%)	N = 1,153 (100%)

Second, to examine whether online trust and distrust are distinct constructs, the procedure recommended by Cho [2006] was used to test the interacting effects of online trust and distrust on behavioral intentions. The interaction effects were negative and significant for both low-risk ( $\beta = -0.23, p < 0.01$ ) and high-risk ( $\beta = -0.17, p < 0.05$ ) Internet behaviors, consistent with the proposition that online trust is distinct from online distrust. Consistent with the H5, the key assumption in this study that online trust and distrust are two distinct and coexisting constructs receives significant empirical support from the data. Table 8 summarizes the hypothesis testing results.

Table 8: Summary of the Hypotheses Testing

Hypotheses	Conclusion
<b>H1:</b> Consumer characteristics will affect online trust and distrust toward the e-vendor.	Supported
H1a: Propensity to trust will affect online trust and distrust toward the e-vendor.	Supported
H1b: Propensity to distrust will affect online trust and distrust toward the e-vendor.	Supported
H1c: Online expertise will affect online trust and distrust toward the e-vendor.	Supported
<b>H2:</b> Website characteristics will affect online trust and distrust toward the e-vendor.	Partially
H2a: Navigation and presentation will affect online trust and distrust toward the e-vendor.	Supported
H2b: Usefulness and accuracy of information will affect online trust and distrust toward the e-vendor.	Not supported
H2c: Brand strength will affect online trust and distrust toward the e-vendor.	Supported
H2d: Order fulfillment will affect online trust and distrust toward the e-vendor.	Supported
H2e: Privacy and security will affect online trust and distrust toward the e-vendor.	Not supported
<b>H3:</b> Online trust has a more significant effect on enhancing low-risk Internet behaviors than online distrust does on lowering it.	Supported
<b>H4:</b> Online distrust has a more significant effect on lowering high-risk Internet behaviors than online trust does on enhancing it.	Supported
<b>H5:</b> This study assumes that online trust and distrust are two distinct (i.e., online trust and distrust have significant negative interacting effects on high- and low-risk Internet behaviors) and coexisting (i.e., significant numbers (>0) of respondents are classified in the imbalanced conditions) constructs.	Supported

Moreover, this study (see Figure 1) posits that online trust and distrust fully mediate the effects of consumer and website characteristics on behaviors. This study used Baron and Kenny's [1986] tests of mediation to verify

this claim. With the entry of online trust and distrust, the effects of consumer characteristics ( $b = 0.39, p < 0.001$ ) and website characteristics ( $b = 0.41, p < 0.001$ ) on low-risk Internet behaviors are reduced (but remain significant): consumer characteristics ( $b = 0.20, p < 0.05$ ) and website characteristics ( $b = 0.26, p < 0.01$ ). This suggests partial mediation. Similarly, with the entry of online trust and distrust, the effects of consumer characteristics ( $b = 0.33, p < 0.001$ ) and website characteristics ( $b = 0.37, p < 0.001$ ) on high-risk Internet behaviors are reduced (but remain significant): consumer characteristics ( $b = 0.14, p < 0.05$ ) and website characteristics ( $b = 0.19, p < 0.05$ ). Thus, the partially mediating proposition is supported.

## 6. Discussion and Implications

### 6.1. Theoretical Implications

This study has proposed a framework explaining the formation of online trust and distrust and how they affect high- and low-risk Internet behaviors. Specifically, this study empirically validates the asymmetric influence of online trust and distrust on shaping consumers' behavioral intentions, suggesting the differential roles that online trust and distrust play in relational outcomes. Online distrust in consumers' relational decisions is in fact more critical than online trust, a phenomenon often explicated by the prospect theory. Moreover, this study contributes to the growing body of research on trust in B2C e-commerce, clarifying the roles of online trust and distrust, and thus offering a more complete view of how best to establish and sustain the relationship between consumers and e-vendors.

First, an important theoretical contribution of this study lies in corroborating the different effects of online trust and distrust. Restated, the positive effects of consumer and website characteristics in enhancing online trust differ from their negative effects in generating online distrust and vice versa. The results show that propensity to trust, online expertise, usefulness and accuracy of information, and order fulfillment tend to be trust-inducing factors whose positive effects significantly affect online trust. Furthermore, propensity to distrust and brand strength significantly influence online distrust. Brand strength is likely to be a distrust-avoiding factor. Notably, consumer perceptions that e-vendors have a reputable brand may not generate a sense of trust. Instead, a reputable brand appears to significantly reduce the sense of distrust.

However, some relationships exhibit unexpected directions. We can speculate about the reasons for these findings, but further research is necessary to address these issues. Navigation and presentation do not significantly influence online trust and distrust, contradicting previous studies [Bart et al. 2005; Shankar et al. 2002]. Consumers likely lack deep involvement when browsing websites, and thus lack sufficient interaction with the websites to generate positive or negative perceptions (e.g., trust and distrust) toward the e-vendor [Hoffman & Novak 1996].

Past research indicates that privacy is a key driver of online trust, and may influence trust differently across website categories [Bart et al. 2005; Hoffman et al. 1999; Lu et al. 2012; Milne & Boza 1999; Shankar et al. 2002]. Additionally, consumers consider security important in purchasing goods or services on the Internet [Bart et al. 2005]. Numerous websites adopt seals of approval, such as SOSA, Better Business Bureau and TRUSTe, to indicate security, and these seals positively affect trust [Tan & Thoen 2000]. Surprisingly, privacy and security is not a significant determinant of online trust and distrust. One speculative explanation for this phenomenon may be that the security level offered by each online shopping-mall site exceeds a threshold level for consumers, and thus does not significantly influence consumer trust and distrust. Another possible explanation is that the construct items cause this insignificant result. Future studies should analyze privacy and security separately rather than in a combined construct.

Second, this study clarifies the distinct role of online trust and distrust in behavioral intentions. Specifically, the research results support the argument that online trust affects low-risk Internet behaviors more than does online distrust, while online distrust affects high-risk Internet behaviors more than does online trust. Thus, when consumers distrust a website, their intention to purchase from it may fall dramatically.

Prior research indicates that consumer response to losses is more extreme than the responses to gains [Kahneman & Tversky 1979; Tversky & Kahneman 1986]. Restated, high-risk Internet behavior is assigned more weight by consumers and induces a stronger response than low-risk Internet behavior. Consistent with the argument of prospect theory, the research results show that the relative dominance of online trust and distrust may vary among behaviors with different risk levels. The effect of online distrust on reducing high-risk Internet behaviors exceeds that of online trust on increasing it. In contrast, online trust is more critical in determining low-risk Internet behaviors than a lack of online distrust.

Third, this study further validates the contention of the recent trust literature [Lewicki et al. 1998] that trust and distrust are not two ends of a single bipolar construct, but rather are two distinct bipolar constructs. The study findings demonstrate that online trust and distrust form separately with a correlation of  $r = -0.29$  ( $p < 0.01$ ) (see Table 4), and their interaction effects were negatively and significantly correlated with both low-risk ( $\beta = -0.23, p < 0.01$ ) and high-risk ( $\beta = -0.17, p < 0.05$ ) Internet behaviors. Moreover, the coexistence of online trust and distrust is shown since numerous respondents (48.13%) exhibit significantly inconsistent conduct, possessing either high online trust/high online distrust or low online trust/low online distrust.

## 6.2. Managerial implications

The distinct nature of trust and distrust attitudes, along with their differential antecedents and consequences, has important implications for practitioners. This study suggests that online trust/distrust 2×2 matrix (Table 7) represents a potentially valuable trust attitude segmentation within the e-commerce population. Analytical results demonstrate that e-vendors who treat the four segments of trust/distrust attitude alike may have difficulty attracting and retaining more segments of potential online consumers. Therefore, e-vendors can obtain a competitive advantage by understanding individual consumers better, including their trust and distrust attitude.

E-vendors seeking to encourage consumers to shop online must develop a strategy for reducing distrust and increasing trust. Propensity to trust and distrust significantly influence consumer trust or distrust toward e-vendors, implying that propensity to trust and distrust are not amenable to e-vendor actions, because they are determined by personality factors outside the control of the e-vendor. Therefore, e-vendors must target different market segments based on different personality factors. Furthermore, consumer online expertise facilitates enhancement of online trust toward the e-vendor, but this does not necessarily mean that having expertise reduces online distrust. Consumer online expertise may be exploited by the website offering more useful information and advantageous connections (e.g., providing references from past and present consumers), to enhance online trust [Shankar et al. 2002].

Website characteristics affect consumer trust and distrust. Website that provide useful and accurate information and maintain a reliable order fulfillment track record will be perceived as having high online trust. In the online purchasing context, attention should focus on enhancing brand strength, a key distrust-avoiding factor. The empirical results of this study show that a reputable brand may not enhance sense of trust, but can significantly reduce sense of distrust. A reputable brand attenuates perceived risk, particularly among individuals inexperienced in online shopping [Tan & Thoen 2000]. Practitioners can become involved in operating the brand website and community. These business models are designed to cultivate consumer goodwill, collect consumer feedback, promote information exchange and knowledge sharing, and supplement other sales channels, rather than to directly sell company products [Bart et al. 2005; Muniz & O'Guinn 2001]. These models typically offer varied information and other features to answer consumer questions, build closer consumer relationships, and generate excitement regarding a company or brand.

Due to the loss aversion hypothesized by prospect theory [Tversky & Kahneman 1986], online distrust becomes more influential than online trust in determining consumer involvement in high-risk Internet activities. While online trust and distrust simultaneously influence high-risk Internet behaviors, engagement in high-risk Internet behaviors induced by the absence of online distrust is higher than that driven by the presence of online trust. Possibly, only when a consumer has lower distrust will she/he be more willing to purchase or share information via a website. On the other hand, low-risk Internet behaviors induced by online trust are not necessarily promoted by reducing online distrust. This asymmetry should be kept in mind when trying to manage website performance and when engaging in website design. Managers thus should redesign websites to subtly capture distinctions in consumer trust/distrust attitude and then dynamically reconfigure marketing strategies for individual consumer types.

## 6.3. Limitations and Future Research Directions

While contributing to the trust literature, this study has several limitations that future research should address. First, the conclusions are based on cross-sectional data, though online trust and distrust are implicitly dynamic. Second, multidimensional measures of online trust and distrust could contribute to a more robust view of the potential antecedents of online trust and distrust. Prior research suggests that trust and distrust have several dimensions such as benevolence, integrity, and competence, and that these dimensions may ultimately influence consumers' perception of trust and distrust [Cho 2006]. Thus, identifying distinct dimensions and antecedents of distrust from those of trust would provide diverse insights and aid in understanding consumer behavior. Third, analytical results revealed that numerous respondents simultaneously hold apparently conflicting trust perceptions. The reasons for this apparent conflict should be discussed further. This may result from psychological and cognitive differences [McKnight et al. 2004], or consumers acquiring different pieces of information. For example, consumers with extensive information may reside in quadrant 1, while those with limited information may occupy quadrant 4 (see Table 7). Fourth, it might be interesting to propose an experimental research agenda whereby various website factors could be controlled or manipulated to examine some of the new hypotheses. Finally, to enrich the literature on trust and distrust, further studies are needed to investigate the potential moderating role of propensity on the association between website characteristics and online trust/distrust. Future studies may also consider different sets of antecedents, such as personality, experience, and other perception-based factors [Eid 2011].

## REFERENCES

- Armstrong, J.S. and T.S. Overton, "Estimating Nonresponse Bias in Mail Surveys," *Journal of Marketing Research*, Vol. 14, No. 3:396-402, 1977.
- Baron, R.M. and D.A. Kenny, "The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual and Statistical Considerations," *Journal of Personality and Social Psychology*, Vol. 51, No.6:1173-1182, 1986.
- Bart, Y., V. Shankar, F. Sultan, and G.L. Urban, "Are the Drivers and Role of Online Trust the Same for All Web Sites and Consumers? A Large-Scale Exploratory Empirical Study," *Journal of Marketing*, Vol. 69, No. 4:133-152, 2005.
- Bigley, G.A. and J.L. Pearce, "Straining for Shared Meaning in Organization Science: Problems of Trust and Distrust," *Academy of Management Review*, Vol. 23, No. 3:405-421, 1998.
- Brockhaus, R.H., "Risk Taking Propensity of Entrepreneurs," *Academy of Management Journal*, Vol. 23, No. 3:509-520, 1980.
- Chan, M., "Corporate Espionage and Workplace Trust/Distrust," *Journal of Business Ethics*, Vol. 42:45-58, 2003.
- Chen, Y.T. and T.Y. Chou, "Exploring the Continuance Intentions of Consumers for B2C Online Shopping: Perspectives of Fairness and Trust," *Online Information Review*, Vol. 36, No. 1:104-125, 2012.
- Cheung, C.M.K. and M.K.O. Lee, "The Asymmetric Effect of Web Site Attribute Performance on Web Satisfaction: An Empirical Study," *e-Service Journal*, Vol. 3, No. 3:65-86, 2005.
- Cho, J., "The Mechanism of Trust and Distrust Formation and Their Relational Outcomes," *Journal of Retailing*, Vol. 82, No. 1:25-35, 2006.
- Churchill, G.A. Jr., "A Paradigm for Developing Better Measures of Marketing Constructs," *Journal of Marketing Research*, Vol. 16, No. 1:64-73, 1979.
- Coleman, J.S., *Foundations of Social Theory*, Harvard University Press, Cambridge, MA, 1990.
- Darke, P.R. and R.J.B. Ritchie, "The Defensive Consumer: Advertising Deception, Defensive Processing, and Distrust," *Journal of Marketing Research*, Vol. 44, No. 1:114-127, 2007.
- Darke, P.R., L. Ashworth, and R.J.B. Ritchie, "Damage from Corrective Advertising: Causes and Cures," *Journal of Marketing*, Vol. 72, No. 6:81-97, 2008.
- Davis, R., M. Buchanan-Oliver, and R. Brodie, "Relationship Marketing in Electronic Commerce Environments," *Journal of Information Technology*, Vol. 14, No. 4:319-331, 1999.
- Dimoka, A., "What Does the Brain Tell Us about Trust and Distrust? Evidence from a Functional Neuroimaging Study," *MIS Quarterly*, Vol. 34, No. 2:373-396, 2010.
- Doney, P.M. and J.P. Cannon, "An Examination of the Nature of Trust in Buyer-Seller Relationships," *Journal of Marketing*, Vol. 61, No. 2:35-51, 1997.
- Eid, M. I., "Determinants of E-Commerce Customer Satisfaction, Trust, and Loyalty in Saudi Arabia," *Journal of Electronic Commerce Research*, Vol. 12, No. 1, 2011.
- Flanagin, A.J. and M.J. Metzger, "The Perceived Credibility of Personal Webpage Information as Influenced by the Sex of the Source," *Computers in Human Behavior*, Vol. 19, No. 6:683-701, 2003.
- Fornell, C. and D.F. Larcker, "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, Vol. 18, No. 1:39-50, 1981.
- Gefen, D., "E-Commerce: The Role of Familiarity and Trust," *Omega: The International Journal of Management Science*, Vol. 28, No. 6:725-737, 2000.
- Goode, M.M.H. and L.C. Harris, "Online Behavioral Intentions: An Empirical Investigation of Antecedents and Moderators," *European Journal of Marketing*, Vol. 41, No. 5/6:512-536, 2006.
- Govier, T., "Is It a Jungle Out There? Trust, Distrust, and the Construction of Social Reality," *Dialogue*, Vol. 33:237-252, 1994.
- Grabner-Kräuter, S. and E.A. Kaluscha, "Empirical Research in On-line Trust: A Review and Critical Assessment," *International Journal of Human-Computer Studies*, Vol. 58, No. 6:783-812, 2003.
- Gurtman, M.B., "Trust, Distrust, and Interpersonal Problems: A Circumplex Analysis," *Journal of Personality and Social Psychology*, Vol. 62, No. 6:989-1002, 1992.
- Hair, J.F. Jr., W.C. Black, B.J. Babin, R.E. Anderson, and R.L. Tatham, *Multivariate Data Analysis*, 6th ed., Pearson Education, Upper Saddle River, NJ, 2006.
- Herzberg, F., B. Mausner, and B.B. Snyderman, *The Motivation to Work*, 2nd ed., John Wiley & Sons, New York, NY, 1959.
- Ho, T.H., N. Lim, and C.F. Camerer, "Modeling the Psychology of Consumer and Firm Behavior with Behavioral Economics," *Journal of Marketing Research*, Vol. 43, No. 3:307-331, 2006.
- Hoffman, D.L. and T.P. Novak, "Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations," *Journal of Marketing*, Vol. 60, No. 3:50-68, 1996.
- Hoffman, D.L., T.P. Novak, and M. Peralta, "Building Consumer Trust Online," *Communications of the ACM*, Vol. 42, No. 4:80-85, 1999.



- Hsu, L. C. and C. H. Wang, "A Study of E-Trust in Online Auctions," *Journal of Electronic Commerce Research*, Vol. 9, No. 4:310-321, 2008.
- Jap, S.D. and E. Anderson, "Safeguarding Interorganizational Performance and Continuity under Ex Post Opportunism," *Management Science*, Vol. 49, No. 12:1684-1701, 2003.
- Jöreskog, K.G. and D. Sörbom, *LISREL 8: User's Reference Guide*, Scientific Software International, Chicago, 1996.
- Kahneman, D. and A. Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica*, Vol. 47, No. 2:263-291, 1979.
- Keller, K.L., "Conceptualizing, Measuring, and Managing Customer-Based Brand Equity," *Journal of Marketing*, Vol. 57, No. 1:1-22, 1993.
- Komiak, S.Y.X., W. Wang, and I. Benbasat, "Trust Building in Virtual Salespersons versus in Human Salespersons: Similarities and Differences," *e-Service Journal*, Vol. 3, No. 3:49-63, 2005.
- Kramer, R.M. "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions," *Annual Review of Psychology*, Vol. 50, No. 1:569-598, 1999.
- Lee, M.K.O. and E. Turban, "A Trust Model for Consumer Internet Shopping," *International Journal of Electronic Commerce*, Vol. 6, No. 1:75-91, 2001.
- Lewicki, R.J., D.J. McAllister, and R.J. Bies, "Trust and Distrust: New Relationships and Realities," *Academy of Management Review*, Vol. 23, No. 3:438-458, 1998.
- Lewicki, R.J., E.C. Tomlinson, and N. Gillespie, "Models of Interpersonal Trust Development: Theoretical Approaches, Empirical Evidence, and Future Directions," *Journal of Management*, Vol. 32, No. 6:991-1022, 2006.
- Lewis, J.D. and A. Weigert, "Trust as a Social Reality," *Social Forces*, Vol. 63, No. 4:967-985, 1985.
- Luhmann, N., *Trust and Power*, John Wiley, New York, NY, 1979.
- Lu, J., L. Wang, L.A. Hayes, "How Do Technology Readiness, Platform Functionality and Trust Influence C2C User Satisfaction?" *Journal of Electronic Commerce Research*, Vol. 13, No. 1:50-69, 2012.
- Luo, X., "Trust Production and Privacy Concerns on the Internet: A Framework Based on Relationship Marketing and Social Exchange Theory," *Industrial Marketing Management*, Vol. 31, No. 2:111-118, 2002.
- Mayer, R.C., J.H. Davis, and F.D. Schoorman, "An Integrative Model of Organizational Trust," *Academy of Management Review*, Vol. 20, No. 3:709-734, 1995.
- McKnight, D.H. and N.L. Chervany, "What Trust Means in E-Commerce Customer Relationships: An Interdisciplinary Conceptual Typology," *International Journal of Electronic Commerce*, Vol. 6, No. 2:35-59, 2001.
- McKnight, D.H., C.J. Kacmar, and V. Choudhury, "Dispositional Trust and Distrust Distinctions in Predicting High- and Low-Risk Internet Expert Advice Site Perceptions," *e-Service Journal*, Vol. 3, No. 2:35-58, 2004.
- McKnight, D.H., L.L. Cummings, and N.L. Chervany, "Initial Trust Formation in New Organizational Relationships," *Academy of Management Review*, Vol. 23, No. 3:473-490, 1998.
- McKnight, D.H., V. Choudhury, and C. Kacmar, "The Impact of Initial Consumer Trust on Intentions to Transact with a Web Site: A Trust Building Model," *Journal of Strategic Information Systems*, Vol. 11, No. 3/4:297-323, 2002.
- Milne, G.R. and M. Boza, "Trust and Concern in Consumers' Perceptions of Marketing Information Management Practices," *Journal of Interactive Marketing*, Vol. 13, No. 1:5-24, 1999.
- Morgan, R.M. and S.D. Hunt, "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing*, Vol. 58, No. 3:20-38, 1994.
- Muniz, A.M. Jr. and T.C. O'Guinn, "Brand Community," *Journal of Consumer Research*, Vol. 27, No. 4:412-432, 2001.
- Nicholson, C.Y., L.D. Compeau, and R. Sethi, "The Role of Interpersonal Liking in Building Trust in Long-Term Channel Relationships," *Journal of the Academy of Marketing Science*, Vol. 29, No. 1:3-15, 2001.
- Novak, T.P., D.L. Hoffman, and Y.F. Yung, "Measuring the Customer Experience in Online Environments: A Structural Modeling Approach," *Marketing Science*, Vol. 19, No. 1:22-42, 2000.
- Nunnally, J.C., *Psychometric Theory*, 2nd ed., McGraw-Hill, New York, NY, 1978.
- Ou, C.X. and C.L. Sia, "Consumer Trust and Distrust: An Issue of Website Design," *International Journal of Human-Computer Studies*, Vol. 68, No. 12:913-934, 2010.
- Ou, C.X. and C.L. Sia, "To Trust or to Distrust, That is the Question—Investigating the Trust-Distrust Paradox," *Communications of the ACM*, Vol. 52, No. 5:135-139, 2009.
- Palmatier, R.W., R.P. Dant, D. Grewal, and K.R. Evans, "Factors Influencing the Effectiveness of Relationship Marketing: A Meta-Analysis," *Journal of Marketing*, Vol. 70, No. 4:136-153, 2006.
- Park, J., S.J. Lennon, and L. Stoel, "On-Line Product Presentation: Effects on Mood, Perceived Risk, and Purchase Intention," *Psychology & Marketing*, Vol. 22, No. 9:695-719, 2005.
- Podsakoff, P.M. and D.W. Organ, "Self-Reports in Organizational Research: Problem and Prospects," *Journal of*

- Management, Vol. 12, No. 4:531-544, 1986.
- Ridings, C.M., D. Gefen, and B. Arinze, "Some Antecedents and Effects of Trust in Virtual Communities," *Journal of Strategic Information Systems*, Vol. 11, No. 3/4:271-295, 2002.
- Sääksjärvi, M. and S. Samiee, "Nonprice Antecedents of Consumer Preference for Cyber and Extension Brands," *Journal of Interactive Marketing*, Vol. 21, No. 1:22-35, 2007.
- Schul, Y., R. Mayo, and E. Burnstein, "Encoding under Trust and Distrust: The Spontaneous Activation of Incongruent Cognitions," *Journal of Personality and Social Psychology*, Vol. 86, No. 5:668-679, 2004.
- Shankar, V., G.L. Urban, and F. Sultan, "Online Trust: A Stakeholder Perspective, Concepts, Implications, and Future Directions," *Journal of Strategic Information Systems*, Vol. 11, No. 3/4:325-344, 2002.
- Singh, J. and D. Sirdeshmukh, "Agency and Trust Mechanisms in Consumer Satisfaction and Loyalty Judgments," *Journal of the Academy of Marketing Science*, Vol. 28, No. 1:150-167, 2000.
- Sirdeshmukh, D., J. Singh, and B. Sabol, "Consumer Trust, Value, and Loyalty in Relational Exchanges," *Journal of Marketing*, Vol. 66, No. 1:15-37, 2002.
- Sitkin, S.B. and N.L. Roth, "Explaining the Limited Effectiveness of Legalistic 'Remedies' for Trust/Distrust," *Organization Science*, Vol. 4, No. 3:367-392, 1993.
- Song, J.H. and G.M. Zinkhan, "Determinants of Perceived Web Site Interactivity," *Journal of Marketing*, Vol. 72, No. 2:99-113, 2008.
- Standifird, S.S., "Reputation and E-Commerce: eBay Auctions and the Asymmetrical Impact of Positive and Negative Ratings," *Journal of Management*, Vol. 27, No. 3:279-295, 2001.
- Tan, Y.H. and W. Thoen, "Toward a Generic Model of Trust for Electronic Commerce," *International Journal of Electronic Commerce*, Vol. 5, No. 5:61-74, 2000.
- Tversky, A. and D. Kahneman, "Rational Choice and the Framing of Decisions," *Journal of Business*, Vol. 59, No. 4:S251-S278, 1986.
- Urban, G.L., F. Sultan, and W. Qualls, "Placing Trust at the Center of Your Internet Strategy," *Sloan Management Review*, Vol. 42, No. 1:39-48, 2000.
- Wagner, T., T. Hennig-Thurau, and T. Rudolph, "Does Customer Demotion Jeopardize Loyalty?" *Journal of Marketing*, Vol. 73, No. 3:69-85, 2009.
- Yoon, S.J., "The Antecedents and Consequences of Trust in Online-Purchase Decisions," *Journal of Interactive Marketing*, Vol. 16, No. 2:47-63, 2002.
- Zhang, Y., Y. Fang, K.K. Wei, E. Ramsey, P. McCole, and H. Chen, "Repurchase Intention in B2C E-Commerce—A Relationship Quality Perspective," *Information & Management*, Vol. 48, No. 6:192-200, 2011.
- Zimmer, J.C., R.E. Aarsal, M. Al-Marzouq, and V. Grover, "Investigating Online Information Disclosure: Effects of Information Relevance, Trust and Risk," *Information & Management*, Vol. 47, No. 2:115-123, 2010.