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The causal relationship between risk and trust in the online marketplace: A bidirectional perspective

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A B S T R A C T

Trust and perceived risk have been identified as the two primary factors affecting engagement in online transactions. However, earlier studies have conceptualized the directionality of the causal link between these two factors differently. Some researchers have conceptualized trust as an antecedent to risk, while others see it as a consequence. To resolve this issue, we develop a bidirectional model in which trust and perceived risk mutually influence each other. We then test the ability of the bidirectional model to provide a more realistic explanation of buyers' decision-making than previously offered unidirectional models. In a sample of 747 experienced buyers in the online marketplace, we find a reciprocal and nearly equal effect of trust and perceived risk. The results of the study reveal that the direct effect of trust on transaction intention is highly significant, whereas that of perceived risk is insignificant. Based on these empirical findings, we discuss the implications of our research, including the appropriateness of our research question and several paradoxes identified in prior studies.

1. Introduction

Buyers' online decision-making (e.g., purchasing, information sharing) has been the long-standing focus of research in information systems (Gefen, Karahanna, & Straub, 2003; van der Heijden, Verhagen, & Creemers, 2003). Recognizing that decision-making in online transactions involves a much higher degree of uncertainty and risk than in offline transactions (Pavlou, 2003), scholars contributing to the trust-risk literature have reached the general consensus that trust and risk are the two primary determinants of online purchasing behavior (e.g., Gefen, Karahanna, et al., 2003, Gefen, Rao, Tractinsky 2003; van der Heijden et al., 2003; Jarvenpaa, Tractinsky, & Vitale, 2000; Pavlou, 2003; Verhagen, Meents, & Tan, 2006) and the most important variables (Gefen & Pavlou, 2012; Kim, Ferrin, & Rao, 2008) influencing buyers to engage in online transactions.

Conceptualizing the directionality of the causal link between trust and risk has caused considerable confusion (Gefen, Rao, et al., 2003). Studies in the trust-risk literature seem to be divided into completely opposite camps: one group of researchers conceptualizes trust as an antecedent to risk (e.g., Kim, Ferrin, & Rao, 2009), and the other group sees it as a consequence (e.g., Dinev & Hart, 2006). This contradiction has frequently been recognized (e.g., Dinev & Hart, 2006; Egea & González, 2011; Kim et al., 2008). In addition, empirical results have been provided for one side or the other in most studies without clear justification (Gefen, Rao, et al., 2003; Kim et al., 2008).

We aim to contribute to the trust-risk literature not by jumping to the conclusion that one view of causal directionality is more appropriate than another. In this study, we take a neutral and/or complementary stance, investigating the idea that two variables, trust and risk, influence each other reciprocally. This bidirectional conceptualization may provide a more realistic representation of the decision-making process than unidirectional conceptualization. As Gefen, Rao, et al. (2003, p. 2) mentioned, "….continued divergence in thinking without any attempt to examine why such differences [competing conceptualizations] exist can lead to chaos and thwart any attempt to do cumulative research." Divergent opinions about the causal directionality between these two theoretically important constructs must be reconciled for information systems research to go forward in the right direction.

In Fig. 1, we provide a visual representation of the competing models that will be theoretically and empirically compared in this

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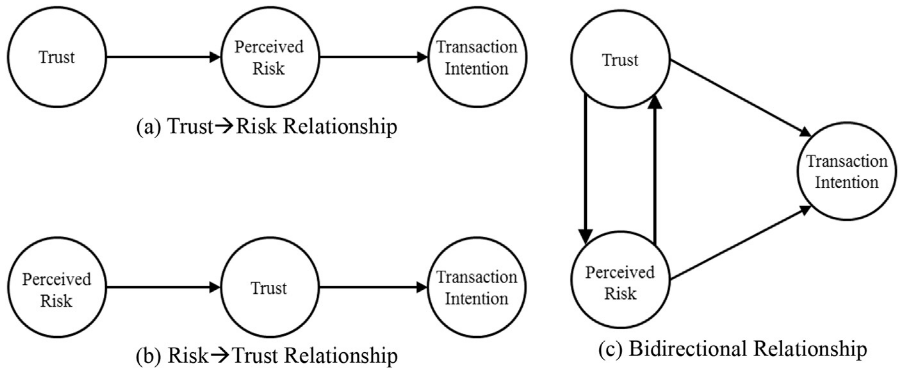

Fig. 1. Competing models.

paper. Fig. 1a and b depict the two unidirectional models suggested by Gefen, Rao, et al. (2003) to be included in a comparative study about the causal directionality between trust and risk. Fig. 1c illustrates the bidirectional model proposed in this research.

Although the trust-risk literature encompasses a wide range of research contexts, the online marketplace is the domain included in this study. The online marketplace is an intermediary that provides the procedures, routines, and information systems necessary for buyers and sellers to exchange the information, merchandise, and services that allow them to engage in financial transactions (Verhagen et al., 2006). The intermediary plays a role as the owner of the online marketplace who has certain responsibilities related to buyers' transactions, including monitoring sellers' performance (Pavlou, 2003). The online marketplace is a useful context in which to conduct this research because it provides abundant data in terms of user and trade volume (Hong & Cho, 2011) and it is complicated with various inherent risk factors (Pavlou & Gefen, 2004).

The results of our tests support the bidirectional relationship between trust and perceived risk (Fig. 1c). The subsequent sections are devoted to demonstrate how and why we get to it in a systematic way. This paper is organized as follows. In the next section, we discuss the theoretical foundations of the causal directionality between trust and risk. Then, the research methodology and results of our empirical analysis are presented, followed by a discussion of the findings, contributions, and implications of our study.

2. Theoretical foundations

Scholars and practitioners have reached the broad consensus that trust and risk are the two most critical factors affecting buyers' decision-making in the online marketplace (Gefen & Pavlou, 2012; Kim et al., 2008). Moreover, the direct influence of trust and risk on transaction activity has been clearly demonstrated in a number of empirical studies (e.g., McKnight, Choudhury, & Kacmar, 2002). The most widely accepted definition of trust in many disciplines including information systems (LePine & Wilcox-King, 2010), was proposed by Mayer, Davis, and Schoorman (1995, p. 712): “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.” Based on this definition, numerous researchers in information systems have regarded trust as an essential ingredient for modeling the exchange relationships involved in most online transactions (Pavlou, 2003). In addition to trust, perceived risk has been considered a major barrier against engagement in online transactions (Gefen & Pavlou, 2012). Because objective measurement of risk is difficult and it is the perception of risk rather than actual risk that affects behavior, research has focused mainly on perceived risk (Dinev & Hart, 2006).

As stated, many studies on trust and risk have recognized the confusion about the directionality of the causal relationship between trust and risk. However, the cause of this confusion remains unclear. A literature review revealed that opinion on the directionality of the causal relationship between trust and risk differs depending on the type of uncertainty being examined. To clarify this tendency, we elucidate two forms of uncertainty here (Pavlou, 2003).

Pavlou (2003) divides uncertainty related to online transactions into environmental uncertainty and behavioral uncertainty. Environmental uncertainty is related to the unpredictable nature of the Internet. Although vendors have responsibility for the security of the transaction environment (e.g., by providing encryption, authentication, and firewalls), third parties may still compromise the transaction process. Examples of environmental uncertainty include theft of credit card information, breach of privacy, and theft of personal information by hackers. Environmental uncertainty may cause economic risk (because of the opportunity for monetary losses) and privacy risk (because of the possibility of theft of private information or illegal disclosure). Behavioral uncertainty includes the opportunistic behaviors of Web vendors such as product misrepresentation, false identities, private information leaks, misleading advertising, and failure to honor warranties. Vendors frequently exploit the distant and impersonal nature of e-commerce and the inability of consumers to monitor all transactions adequately. Behavioral uncertainty increases economic risk (because of the possibility of monetary loss), safety risk (because of potentially unsafe products and services), seller performance risk (because of imperfect monitoring), and privacy risk (because of the opportunity for private consumer information to be disclosed).

When engaging in online commerce, consumers perceive the inherent risks involved in every transaction based on the limited information available to them (Dinev & Hart, 2006). Most consumers have certain overall expectations regarding vendors' behavior and ability to keep critical information secure during the transaction process. Therefore, behavioral and environmental uncertainty should be considered together (Ring & Van de Ven, 1994). In this study, perceived risk in online transactions is considered to encompass both forms of uncertainty (Pavlou, 2003).

Although perceived risk reflects both behavioral and environmental uncertainty, most studies tend to focus on one specific type of uncertainty. Some studies give more weight to behavioral uncertainty than environmental uncertainty, or vice versa. In the