



Exploring consumer perceived risk and trust for online payments: An empirical study in China's younger generation



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ARTICLE INFO

Article history:

Keywords:

Online payment
Perceived risk
Trust
Trust beliefs

ABSTRACT

The uncertainties of transaction handling and consumer perception toward risk have been identified as some of the major problems causing consumers' hesitance toward taking advantage of online payments. With the ever-growing implementation of trusting mechanisms for online payments, consumer confidence has greatly increased. This research explores the elements of perceived risk and trust – the two most vital factors influencing consumer behavior of online payment – in the relatively mature stage of China's online payment environment. It also analyzes and classifies perceived risks of different nature into two categories: systematic perceived risk and transactional perceived risk according to their different roles in affecting consumer trust. Specifically, we propose a conceptual model of trust and specific risk facets as well as two new constructs of comparison and evaluation, based on the framework of TRA, TPB, TAM and DTPB. The proposed model was empirically tested using data gathered from 870 respondents in Shanghai and Macao, China, most of whom belong to the younger generation. The results show that in the current stage of China's online payment, consumers have built up trust first as an antecedent of their perceived risks. Moreover, perceived total risk is negatively related to trust while perceived risks can be classified into two types: system dependent risk which is positively related to trust and transactional risk which is negatively related to trust. This article concludes with implications for academia and practitioners.

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1. Introduction

In its e-Commerce and Development Report 2001, the United Nations Conference on Trade and Development (UNCTAD) defines online payment as “the process of finance or payment mainly using the medium of the Internet” (UNCTAD, 2001). According to iResearch's 2010 Online Payments in China Development Report (www.iresearch.cn), online payments in China reached 10.1 trillion RMB (or 160.3 billion USD) in 2010, which was more than double from 2009. Online payments in China were predicted to be more than 20 trillion RMB (or 292 billion USD) by 2012. The future success of e-commerce in China depends not only on the integration of e-business models and services delivery, but also on the

effectiveness and security of online payments. However, the process of growth for online payments may involve uncertainty and the sensitive subjects of security, privacy, and dependency, which challenge consumers' behaviors in the developing e-commerce environment. Therefore, a comprehensive model describing factors that either drive or restrain consumers to accept online payments will offer insights to both academics and practitioners.

In the context of e-commerce, many researchers have spent considerable effort trying to advance theoretical specifications by studying possible predictors of consumer behavior. Researchers argued that factors like intentions, attitudes, trust, and perceived risk are critical in influencing consumer decisions in online shopping (Bélanger & Carter, 2008; Dinev & Hart, 2006; Featherman & Pavlou, 2003; Kim & Benbasat, 2006; Lopez-Nicolas & Molina-Castillo, 2008; McKnight & Chervany, 2002; Shen & Chiou, 2010; Teo & Liu, 2007). It is natural to assume that these factors will apply in the area of online payment as well, considering that online payment is a key part of e-commerce. Although e-trust and

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perceived risk in some studies are investigated separately (Cunningham, Gerlach, & Harper, 2005), the elements of trust and perceived risk are probably the most important components in past research. According to Aladwani (2001), internet security and customer trust are the two most important challenges of online banking. Hoffman, Novak, and Peralta (1999) focused on security and privacy as the key drivers of online trust and Pavlou (2003) combined two main streams of literature on TAM – e-trust and risk. With the exceptions of some studies on online banking (Yousafzai, Pallister, & Foxall, 2003), literature in the area of trust and online payments is minimal and more focused on issues of e-commerce from the standpoint of banks rather than of consumers (Corbitt, Thanasankit, & Yi, 2003; Crespo & Rodríguez, 2008; Teo & Liu, 2007). Thus, financial service sectors will need more multidimensional and specific analyses on the key underlying factors affecting consumer behavior in order to increase their market shares, which is the prime objective of our research.

Ho and Ng (1994) investigated consumer risk perception of electronic payment systems, which mainly involved the Electronic Fund Transfer (EFT) systems such as Point-of-Sales (POS) and Automatic Teller Machine (ATM). Pavlou (2003) and Featherman and Pavlou (2003) discussed perceived risk facets in e-services adoption by combining risk and TAM without involving e-trust. Yousafzai et al. (2003) gave merely a conceptual model of trust with two main antecedents – perceived security and perceived privacy – that were deemed to influence customer trust in e-banking. Nicolaou and McKnight (2006) examined only the effect of perceived information quality on total perceived risk and trusting beliefs in interorganizational data exchange. Featherman, Valacich, and Wells (2006) manipulated the risk of e-payments within a controlled laboratory experiment but did not test the effect of e-trust. Bélanger and Carter (2008) studied the impact of trust and risk perceptions on one's willingness to use e-government services and defined trust as an exogenous variable to affect negatively perceived risk, although it may be an endogenous variable.

This study attempts to build on previous literature by proposing a model comprised of detailed factors to better understand the mechanism of consumer reaction and behavior, which has the following three objectives:

- To propose a model comprising the interactive and complex relationship between consumer perceived risk, trust, intention, comparison and evaluation behavior in the context of online payments based on the basic models and theories of consumer behavior such as TRA, TPB, TAM and DTPB.
- To find the key perceived risk facets and types influencing consumer trusting beliefs and behavior in online payments.
- To test the conceptual model of online payments to support the antecedents and consequences of consumer trust and perceived risk in online payments with samples from Shanghai and Macao, China, which consist mostly of the younger generation.

This article is organized as follows: Section 2 provides literature review and theoretical foundation. The research model is proposed and the hypotheses are developed in Section 3. The research method and data collection are discussed in Section 4, and data and results analyses are elaborated in Section 5. The last section provides the conclusions and implications of the study as well as the research limitations and future studies.

2. Literature review and theoretical foundation

The fundamental stream of literature on consumer behavior consists of the Theory of Reasoned Action (TRA) Ajzen &

Fishbein, 1980; Fishbein & Ajzen, 1975 and Theory of Planned Behavior (TPB) Ajzen, 1991. Both are based on human intentions, which helps lay down a solid theoretical basis for the Technology Acceptance Model (TAM) widely studied by researchers since Davis, Bagozzi, and Warshaw (1989) in the technology-driven context of e-commerce study areas. Thereafter, Taylor and Todd (1995) suggested the Decomposed Theory of Planned Behavior (DTPB) to specify a technology adoption model in e-commerce.

TRA assumes that consumers be rational and not influenced by unconscious inducement, so that they can unquestionably control their own behavior. As a general basic behavior model, TRA proposes that a consumer's Actual Behavior (AB) is decided by his or her Behavior Intention (BI), both of which are influenced by personal Attitude toward Behavior (AT) and Subjective Norm (SN) Dinev & Hart, 2006. However, TRA does not involve objective constraint variables such as self-control and situational variables from outside of the system, which is a logical necessity because consumer behavior will be obliged by the outside environment. Thus, Ajzen (1991) added the extrinsic variable of Perceived Behavioral Control (PBC) – including the broken line – into TRA to represent consumer perception of required resources and opportunities to perform the behavior of interest. This also influences consumer behavior intention and indirectly determines the individual behavior, thus resulting in the Theory of Planned Behavior (TPB). The causal relations among variables are depicted in Fig. 1.

Technology Acceptance Model (TAM) states that consumer behavioral intention (BI) is determined by the attitude toward using (AT) which is influenced by innovation characteristics such as Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) together Davis, 1989. As shown in Fig. 2, Davis (1989) eliminated the constructs of subjective norm, as well as beliefs and motivations of TRA, while keeping the constructs of perceived behavior control in TPB. PBC is represented by PU from the construct of perceived use-performance of Expectation theory (Schultz & Slevin, 1975) and PEOU from the construct of self-performance in Bandura's (1986) self-performance theory. Meanwhile, the parallel relation between attitude and perceived behavior control in TPB is replaced by the serial relation between attitude and PU or PEOU.

Although TAM is widely used in the context of e-commerce, Legris, Ingham, and Colletette (2003) reported that it only interpreted 40–60% of consumer behavior intention, with nearly half of the relative factors not explained. The main reason is that TAM does not consider the subjective norm of TRA, even though it is obvious that consumers will be impacted by their surroundings when they accept a new means of payment. Aiming to solve the problem, scholars developed various forms of extended TAM (Sun, 2007; Venkatesh & Davis, 2000). For instance, Yi, Jackson, Park, and Probst (2006) suggested improving TAM by considering Innovation Diffusion Theory, exterior and control variables, and evaluation in the mature stage of e-commerce. There was also a recent trial by Crespo and Rodríguez (2008) involving the innovation diffusion process.

Combining TAM and TPB, Lee (2009) synthesized five specific risk facets drawing from perceived risk theory – financial, security/privacy, performance, social, and time risk – with the perceived benefit of online banking and concluded that the intention to use online banking is adversely affected mainly by the security/privacy and financial risks and positively affected mainly by perceived benefit, attitude, and usefulness. In terms of DTPB, it combines TAM and TPB for the specific technology adoption model (Taylor & Todd, 1995) since the overall TPB, with perceived usefulness and ease of use added into TAM, is integrated with the third factor of Perceived Compatibility (PCOM), which stands as the antecedent of attitude toward technology (Fig. 3).

Based on theories of consumer behavior such as TRA, TPB and DTPB, SN and PBC, consumers' self-identity and behavior are

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