

Antecedents and Consequences of Trust in Using Mobile Banking

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ABSTRACT: *Because large amount of literature identifies trust as a crucial factor in the success of mobile banking, this study aims to illuminate the link from trust's precursors, itself, to its outcome in the context of mobile banking. After surveying 356 potential customers and 247 current customers, the empirical results indicate that trust significantly influences potential users' intention to use mobile banking and current users' commitment to use mobile banking. Regarding current customers, the results reveal that situational normality, structural assurance, knowledge-incurred trust, personal-incurred trust, and calculative-incurred trust, in that order of relative power, considerably affect trust belief in mobile banking. As for potential customers, the results reveal that personal-incurred trust, knowledge-incurred trust, structural assurance and situational normality, in that order of relative influences, considerably affect trust belief in mobile banking. Given that the level of influence of trust's antecedents in generating consumers trust varies across potential customers and current customers, banks are advised to strengthen different trust resources to meet the main concerns of different customer groups.*

KEYWORDS: *Trust, Mobile Banking, Trust Antecedents, Trust Consequences, Mobile Services.*

1. Introduction

With the rapid growth and advances in smartphone, tablet computer, and telecommunication technology, businesses have forged substantial commercial opportunities by offering mobile financial services to customers. Motivated by such trends, banks have committed large investment to providing mobile banking services for their customers in recent years. However, the growth and usage of mobile banking services depends not only on technological advances but also on consumer confidence in the provided services (Weber & Darbellay, 2010). This requisite confidence explains why many academic studies and industry reports have discussed and determined the essential of trust for people considering the use of mobile banking (Akhlap & Ahmed, 2013; Dimitriadis & Kyrezis, 2008; Grabner-Krauter & Faullant, 2008; Luo et al., 2010; Munoz-Leiva et al., 2010; Sanchez-Franco, 2009; Yap et al., 2010; Yousafzai et al., 2005, 2009; Zhao et al., 2010; Zhou, 2012a, 2012b).

An extensive review of the literature indicated that current research predominantly uses technology adoption theories such as technology acceptance model (TAM), innovation diffusion theory (IDT), and the unified theory of acceptance and use of technology (UTAUT) to examine the adoption of mobile banking (Zhou, 2011). By contrast, studies focusing on trust to explore the usage of mobile banking are relatively few. Based on literature review, only seven papers focusing on trust in the context of mobile banking. In other words, although considerable research has identified trust as a crucial factor that affects individual willingness to use mobile banking (Akhlap & Ahmed, 2013; Munoz-Leiva et al., 2010; Yousafzai et al., 2005, 2009; Zhao et al., 2010; Zhou, 2012a, 2012b), relevant research mostly focuses on the consumer's adoption of mobile banking rather than on the consumer's trust for using mobile banking. Moreover, these few studies focusing on consumer trust in mobile banking examined the precursors, outcomes, and dimensions of trust, separately, without taking a holistic view.

Therefore, to address this deficiency, the study investigated the connection amongst antecedents, dimensions, and consequences of trust within a single research structure. This deficiency exists not only in mobile banking but also within the wider context of e-commerce, making the findings culled from this empirical study applicable to other e-commerce services. The remainder of the paper is organized as follows: Section 2 reviews the related literature; Section 3 presents hypothesis proceeding from the literature review; Section 4 describes the survey design and sampling; Section 5 is dedicated to data analysis and hypothesis testing; Section 6 discusses the academic and practical implications derived from the study; and, finally, Section 7 presents the conclusion and addresses the limitations of this study.

2. Literature review

Through reviewing challenges associated with mobile banking development in Korea, Kim et al. (2009) hypothesized that trust will significantly affect individual intention to use mobile banking and a person's trust is significantly shaped by four types of trust-inducing forces: structural assurances, perceived relative benefits, personal propensity to trust, and firm reputation. Kim et al. (2009) considered the level of initial trust is a function of diverse forces. After gathering 192 valid samples from cellular-phone users of three large mobile telecoms in South Korea, Kim et al. (2009) performed a two-step analysis and discovered that relative benefits, personal propensity to trust and structural assurances significantly influence initial trust, which in turn considerably affects usage intention in mobile banking.

Considering that extensive literature used technology adoption model (TAM) to

explain a consumer's acceptance of new information technology and services, Gu et al. (2009) reviewed TAM-based research and trust-based TAM research. By referring to the study of Gefen et al. (2003), they then integrated the extended TAM and the trust-based TAM to construct a theoretical framework. Using a web-based survey to collect 910 usable samples from a private Bank in South Korea, Gu et al. (2009) empirically identified situational normality, structural assurances, and calculative-based trust as salient predecessors of trust, and found that trust significantly affects both the perceived usefulness and intention to use mobile banking.

By incorporating the integral role of trust and risk into TAM and theory of planned behavior (TPB), Luo et al. (2010) followed up on the work of McKnight et al. (2002) to present a theory-based research structure in which trust was distinguished from antecedents of trust. They considered disposition to trust as an antecedent of structural assurance, structural assurance is an antecedent of perceived risk, and trust is an antecedent of performance expectancy, and behavioral intention. By surveying 122 undergraduate students at an U.S. university in 2008, they empirically concluded that disposition to trust considerably influences structural assurance, which in turn significantly affects perceived risk. Notably, their empirical results revealed that trust have not a positive effect on consumer intention to adopt mobile banking, which is inconsistent to other literature.

Considering that mobile banking is a technological innovation and relatively new electronic delivery channel, Lin (2011) presented a research structure based on IDT and trust research. After obtaining 368 respondents from a questionnaire-based survey, Lin (2011) divided them into two groups: potential customers and repeat customers. For both types of customers, her study empirically revealed that two of three aspects of knowledge-based trust significantly affect consumer attitudes toward mobile banking. These two aspects are perceived competence and perceived integrity. Another aspect, named perceived benevolence, not significantly influences consumer attitudes. Notably, Lin (2011) simply considered knowledge-based trust as trust itself rather than its predecessors. That is, in contrast to other literature that deems knowledge-based trust as an antecedent of trust which contains perceived competence, integrity and benevolence, Lin (2011) did not distinguish trust itself from its antecedents. Additionally, her study relied heavily on IDT rather than on an investigation of the links between trust's antecedents and its consequences regarding the adoption of mobile banking.

Concerning previous research not solely highlighting on trust, Zhou (2011) conducted a study focusing on the effect of trust in the adoption of mobile banking. Through literature review, Zhou (2011) discovered that predecessors of initial trust regarding electronic commerce can be grouped into three categories. The first category

is related to mobile banking website (i.e., information quality and system quality), the second category is associated with the consumers (i.e., their propensities to trust), and the third category is associated with the bank itself (i.e., reputation, image, and the scale). By adopting the concept of Siau and Shen (2003), who divided mobile trust into initial trust and continuous trust, Zhou (2011) posited that antecedents of initial trust on mobile banking consist of information quality, system quality, trust propensity, and structural assurance, and that the consequences of initial trust are perceived usefulness and usage intention. Zhou (2011) then collected 210 valid responses at two service halls of China Mobile and empirically concluded that hypotheses in his study are all supported.

In addition to considering the factor of trust, Zhou (2012a) argued that people may be reluctant to adopt mobile banking because it does not possess a flow experience. In his study, flow experience is defined as a holistic sensation that people feel when they are completely involved in an activity. Thus, even when customers believe that mobile banking is safe, they may still be unwilling to use mobile banking due to lacking of an engaging experience (Zhou, 2012a). Thus, by integrating both a trust and flow experience, Zhou (2012a) posited that antecedents of trust are structural assurance, ubiquity, perceived ease of use, and personal innovativeness, whereas the outcomes of trust are flow experience and usage intention, in which flow experience impacts usage intention. Through randomly collecting 200 valid responses at two service halls of two main mobile telecom operators in China, Zhou (2012a) identified that, among four antecedents of trust, only personal innovativeness does not significantly impact trust. Additionally, trust considerably influences flow experience and the intention to use mobile banking. By adapting research from Lee et al. (2007), Zhou (2012a) characterized the flow experience in terms of focus, control, and pleasure.

Through reviewing extant research on mobile banking, Zhou (2012b) found that existing research is often based on information technology adoption theories and the process of trust development has seldom been explored. Considering the high perceived risk on mobile banking, Zhou (2012b) contended that trust is crucial to facilitate the adoption and usage of mobile banking. Accordingly, Zhou (2012b) put efforts on studied trust and hypothesized six factors as the antecedents of trust. By collecting 240 student respondents from a university located in an eastern China city, Zhou (2012b) empirically concluded that information quality, service quality, system quality, reputation, structural assurance, and self-efficacy considerably influence the trust development.

Building on the above literature review, this study discovered that to date only seven studies related to trust in mobile banking exist, and each study investigated trust from different disciplines and no consistent research structure existed among them. The

literature review also indicated that the findings of some studies were inconsistent with those of others, and the antecedents of trust were posited in different ways. However, five of seven studies consistently considered usage intention as a consequence of trust. Table 1 summarizes the empirical findings of seven mobile banking studies on precursors and outcomes of trust.

Table 1 The Summary of Trust Research on Mobile Banking

Authors (Study in which Country)	Sample Size	Empirically Verified Antecedents of Trust	Empirically Verified Consequences of Trust
Kim et al. (2009) (South Korea)	192	Perceived Relative Benefits, Propensity to Trust, Structural Assurance	Perceived Usefulness, Usage Intention
Gu et al. (2009) (South Korea)	910	Situational Normality, Structural Assurance, Calculative-based Trust	Usage Intention
Luo et al. (2010) (U.S.)	122	None	None
Lin (2011) (Taiwan)	368	None	Attitude toward Using mobile banking
Zhou (2011) (China)	210	Information Quality, System Quality, Propensity to Trust, Structural Assurance	Perceived Usefulness, Usage Intention
Zhou (2012a) (China)	200	Structural Assurance, Ubiquity, Perceived Ease-of-use	Flow, Usage Intention
Zhou (2012b) (China)	240	Information Quality, Service Quality, System Quality, Reputation, Structural Assurance, and Self-efficacy	None

In contrast to mobile banking that enables users to access banking services by using mobile devices without temporal and spatial constraints, online banking, also known as Internet banking, enables users to access banking services by logging on to a bank Web site via an Internet network without time limitation. Accordingly, both mobile banking and online banking are regarded as subsets of e-banking (Maroofi et al., 2013), both achieve similar purposes and provide similar functions (Laforet & Li, 2005; Laukkanen, 2007; Sripalawat et al., 2011; Suoranta & Mattila, 2004), and mobile banking is typically considered as an extension of online banking (Maroofi et al., 2013; Yao & Zhong, 2011). Given that trust research on mobile banking is limited, this study further reviewed such research on Internet banking. Table 2 summarizes the empirical findings of 17 online banking studies on precursors and outcomes of trust.

Table 2 The Summary of Trust Research on Internet Banking

Authors (Study in which Country)	Sample Size	Empirically Verified Antecedents of Trust	Empirically Verified Consequences of Trust
Mukherjee and Nath (2003) (India)	510	Shared Values, Communication, Opportunistic Behavior	Commitment
Kim and Prabhakar (2004) (U.S.)	266	Propensity to Trust, Structural Assurance, Word- of-mouth Referrals	Adoption of Internet Banking
Yousafzai et al. (2005) (U.K.)	64	Structural Assurance	None
Kassim and Abdulla (2006) (Qatar)	276	Shared Values, Communication, Opportunistic Behavior	Commitment
Flavian et al. (2006) (Spain)	633	Bank image	Adoption of Internet Banking
Vatanasombut et al. (2008) (U.S.)	4,667	Shared values, communication, perceived security, perceived quality	Customer Retention
Grabner-Krauter and Faullant (2008) (Austria)	381	Propensity to trust, Familiarity with the Internet	Consumer Attitude to Use e-banking
Dimitriadis and Kyrezi (2008) (Greece)	762	Disposition to Trust, and Reputation	None
Sanchez-Franco (2009) (Spain)	456	Satisfaction	Commitment
Yousafzai et al. (2009) (U.K.)	441	Perceived Trustworthiness, Perceived Security, Perceived Privacy	Perceived Risk, Intentions to Banking Online
Zhao et al. (2010) (China)	540	None	Perceived Risk Perceived Competence
Munoz-Leiva et al. (2010) (Spain)	1,983	Institution-based Trust, Situational Normality	None
Yap et al. (2010) (Australia)	202	Bank Reputation, Website Quality and Security	Willingness to Use e-banking
Kantsperger and Kunz (2010) (Germany)	232	Propensity to Trust, Satisfaction	Loyalty
Aldas-Manzano et al. (2011) (Spain)	330	None	Loyalty

Table 2 The Summary of Trust Research on Internet Banking (continued)

Saeednia and Abdollahi (2012) (Iran)	130	Bank Reputation, Perceived Security, Perceived Usability	Commitment
Akhlaq and Ahmed (2013) (Pakistan)	190	Intrinsic Motivation	Intention to Use

3. Hypothesis development

The previous literature review reveals that a variety of terms are used as trust's antecedents shown in Tables 1 and 2, different studies used different names and perspectives to define the antecedents of trust, and no consistent research structure exists. By contrast, the common points among literature are that precursors of trust can be categorized on the basis of consumers and banks. Table 1 shows that precursors related to the bank comprise structural assurance, situational normality, information quality, system quality, service quality, and bank reputation. Table 2 shows that antecedents of trust related to the bank involve opportunistic behavior, structural assurance, bank image, institution-based trust, situational normality, and website quality and security.

As for the antecedents related to consumers, Table 1 reveals perceived relative benefits, propensity to trust, calculative-based trust, perceived ubiquity, and perceived ease-of-use; and Table 2 reveals shared values, communication, word-of-mouth referrals, perceived security and quality, propensity to trust, familiarity with the Internet, disposition to trust, satisfaction, and intrinsic motivation. As noted, regarding the consequences of trust, both Tables 1 and 2 indicate that commitment, adoption, and intention to use have often been verified as the outcomes of trust. Building in the above, the following eight hypotheses are developed.

3.1 Knowledge-incurred trust

Knowledge-incurred trust, also known as familiarity-based trust, means that trust is created when one party has sufficient knowledge about the other to allow him or her to predict the behavior of that other party. Robert, Dennis and Hung (2009) contended that knowledge-incurred trust derives from personal knowledge of an individual's past behavior. In other words, trust develops over time with the accumulation of trust-relevant knowledge resulting from experiences with the other party. Previous literature review has revealed that a bank's reputation; a customer's familiarity with the Internet or mobile device; a customer's perceptions of website attributes such as security, privacy, and ease-of-use; and the communication experience between customers and the bank considerably influences consumers' trust belief in mobile banking. Therefore, familiarity-based trust requires time and interaction between parties.

Grabner-Krauter and Faullant (2008) showed that familiarity with the Internet exerted a marked effect on consumer attitude toward using Internet banking. Dimitriadis and Kyeris (2008) and Yap et al. (2010) concluded that consumer perception of a bank's reputation significantly influenced their willingness to use the bank's e-banking services. Moreover, Sanchez-Franco (2009) and Yap et al. (2010) also found that the satisfaction or quality learning from consumers' past experience exerts a considerable influence on their commitment to use e-banking services. Given that trust develops gradually over time based on how two parties assess each other, customers might not adopt mobile banking because they lack knowledge-based trust regarding mobile banking. Accordingly, this study operationalized Knowledge-incurred trust by requesting the respondents to indicate their level of trust based on their past experiences in communicating with their banks and using mobile phones or mobile services. The following hypothesis is posited:

H₁: Knowledge-incurred trust considerably affects customers' trust in using mobile banking.

3.2 Calculative-incurred trust

Calculative-incurred trust is based on rational choice (Kim & Prabhakar, 2004). Rousseau et al. (1998) and Kim and Prabhakar (2004) considered that trust emerges from a calculated weighting of expected gains and losses. In line of this thinking, trust is derived from an economic analysis of ongoing relationships and is based on the assumption that people are rational and calculative, act in their own best self-interest, and refrain from inflicting harm upon themselves. Therefore, calculative-incurred trust results from the rational calculation of costs and benefits when individuals make trust-based choices (Gefen et al., 2003; Williamson, 1993).

In a study involving 910 respondents, Gu et al. (2009) showed that calculative-incurred trust has a considerable effect on consumer trust in the context of mobile banking. Skandrani et al. (2011) contended that calculative-based trust expresses a sense of calculation and rational optimization. Hence, calculative-based logic posits that consumers evaluate their potential losses and damages that could from using mobile banking. Therefore, this study assumed that customers trust mobile banking services when they believe that the bank would lose more than it would gain by cheating customers or by violating their trust. Accordingly, we operationalized calculative-incurred trust by asking respondents to indicate the level at which their bank could benefit them or cause injury by violating consumer trust in the context of mobile banking. The following hypothesis is thus posited:

H₂: Calculative-incurred trust considerably affects customers' trust in using mobile banking.

3.3 Cognition-incurred trust

In contrast to the previous two types of trust, cognition-incurred trust states that trust is built on first impressions rather than through personal interactions (Gefen et al., 2003; Meyerson et al., 1996). Cognition-incurred trust is grounded in individual beliefs about peer reliability and is formed through the two dimensions of categorization processes and illusion of control. Categorization processes are based on the idea that individuals place more trust in people who are similar to themselves and assess trustworthiness based on second-hand information and on stereotypes (Gefen et al., 2003; Morgan & Hunt, 1994). Illusion of control describes how, in the absence of first-hand information, trusting beliefs can be over-inflated.

Considering that trust and distrust exist objectively in the process of user adoption of mobile banking services, Yao et al. (2013) contended that cognition-incurred trust is critical for individual interests in mobile banking. Previous literature on online banking (Kassim & Abdulla, 2006; Kim & Prabhakar, 2004; Mukherjee & Nath, 2003; Vatanasombut et al., 2008) has revealed that shared values, word-of-mouth referrals, and perceived ease-of-use are salient factors affecting trust. By operationalizing cognition-incurred trust, we asked the respondents indicate the extent to which they agreed with their friends and peers, positive or negative comments from experienced mobile banking users, and their impression or expectation about using mobile banking. This study assumed that when consumers deciding whether to use mobile banking services, they are influenced considerably by cognition-incurred trust. Accordingly, the hypothesis H_3 is posited as follows:

H_3 : Cognition-incurred trust considerably affects customers' trust in using mobile banking.

3.4 Personality-incurred trust

Since the study by Mayer et al. (1995), many researches explicitly separated trust antecedents from trust itself. By considering trust within these different perspectives, psychologists tend to believe that trust develops during childhood when an infant seeks and receives help from a parent (Kim & Prabhakar, 2004), thus resulting in a general tendency to believe or not to believe in others. This is called personality-incurred trust (Gefen et al., 2003; Mayer et al., 1995; McKnight et al., 1998, 2002). Personality-incurred trust, also known as a disposition to trust, propensity to trust, or emotion-based trust, has been reveals as a noticeable factor that influences trust in online banking (Dimitriadis & Kyrezis, 2008; Grabner-Krauter & Faullant, 2008; Kantsperger & Kunz, 2010) and mobile banking (Kim et al., 2009; Zhou, 2011).

Through 192 valid samples from three large mobile telecommunications companies in South Korea, Kim et al. (2009) showed that personal propensity to trust influence initial trust considerably, which subsequently immensely affects usage intention in mobile

banking. By dividing mobile trust into initial trust and continuous trust, Zhou (2011) showed that individual trust propensity markedly affects whether consumers use mobile banking based on the response of 210 China Mobile users. Similarly, previous literature review on online banking (Dimitriadis & Kyrezis, 2008; Grabner-Krauter & Faullant, 2008; Kantsperger & Kunz, 2010) indicated that propensity to trust considerably impacts the consumer willingness to use e-banking. Accordingly, this study operationalized personality-incurred trust by requesting respondents to express the extent to which they agreed with trust statements related to banks, people, and new mobile services. The following hypothesis is thus posited.

H₄: Personality-incurred trust considerably affects customers' trust in using mobile banking.

3.5 institution-incurred trust

By contrast to that psychologists' preference for personality-incurred trust, sociologists generally prefer to an institution-incurred trust and analyze how it creates an environment in which a person feels safe and secure to participate in its activities (Pavlou & Gefen, 2004; Yousafzai et al., 2005). Structural assurance is one of types of institution-incurred trust that originates from sociological theory and is defined as the willingness of individuals to conduct online transactions based on rules and regulations. Structural assurance, also known as structural safeguards, involves legal protections, regulations, and third-party certifications (Gefen et al., 2003; McKnight et al., 2002). As examined in previous literature on both mobile and online banking, structural assurance is commonly deemed as a critical antecedent of forming trust belief (Gu et al., 2009; Kim & Prabhakar, 2004; Kim et al., 2009; Yousafzai et al., 2005; Zhou, 2011, 2012a).

The literature on online banking (Kim & Prabhakar, 2004; Yousafzai et al., 2005) empirically showed that structure assurance substantially affects the adoption of Internet banking. Moreover, the literature on mobile banking (Gu et al., 2009; Kim et al., 2009; Zhou, 2011, 2012a) consistently revealed that structure assurance plays a salient role in determining consumer intentions to use mobile banking. Therefore, we operationalized structure assurance by asking the respondents to indicate the extent to which they agreed with statements related to security mechanism, mobile technologies, and legal commitment. The hypothesis H₅ is presented as follows:

H₅: Structural assurance considerably affects customers' trust in using mobile banking.

Situational normality is another type of institution-incurred trust. McKnight et al. (1998) described situational normality as an appropriately ordered setting that appears likely to facilitate successful interactions. In this study, situational normality is defined as

the notion that a banking environment is trustworthy because the “situation” (e.g., a mobile banking interface) looks and behaves in a normal and appropriate manner. Yousafzai et al. (2005) conducted a field experiment and discovered that situational normality significantly affected consumer perceptions of trustworthiness. In a survey of 910 respondents, Gu et al. (2009) suggested that the presence of any abnormal icons, symbols or information, as well as any awkward interface, unusual procedures, or requirements could markedly influence customer trust when using mobile banking services. Munoz-Leiva et al. (2010) identified situational normality as a major antecedents of forming trust. If a banking environment process features an awkward or suspicious interface and customers are required to perform unexpected or unwanted procedures or to provide atypical information, they (based on experience) typically do not trust the banking environment. Therefore, we operationalized situational normality by asking respondents to indicate the extent to which they agreed with the steps, information, and interactions they were required to perform when using mobile banking services. The hypothesis H_6 is then presented as follows:

H_6 : Situational normality considerably affects customers’ trust in using mobile banking.

3.6 Consequences of trust

By reviewing prior research on trust, Mayer et al. (1995) distinguished the trust’s consequences from the trust. They considered that the consequence of trust involves, on the one hand, a willingness to be vulnerable and, on the other hand, an actual action that puts oneself in a possible vulnerable situation (Kim & Prabhakar, 2004). As shown in Table 1, four out of seven studies on mobile banking conclude that usage intention is the consequence of trust (Gu et al., 2009; Kim et al., 2009; Zhou, 2011, 2012a). As shown in Table 2, six out of 17 works concluded that trust significantly influences usage intention. As for other studies in Tables 1 and 2, researchers have employed different terms, such as attitude toward using mobile banking, adoption of online banking, attitude to use, intention to use and willingness to use. Although these terms are different, the meaning behind these terms is very similar. Therefore, based on the prior literature and the concept of Mayer et al. (1995), this study assumed that customers intend to use mobile banking once they have trust beliefs regarding mobile banking. Therefore, the following hypothesis is posited:

H_7 : Trust considerably affects potential customers’ intention to use mobile banking.

Mukherjee and Nath (2003) provided both the earliest theory-based research on trust in e-banking and the first study on the consequence of trust in e-banking. By surveying 510 banking clients in India, they discovered that trust considerably affects commitment. Based on the literature review and two focus group interviews in Qatar, Kassim and Abdulla (2006) hypothesized that trust positively and considerably influences

commitment. After sampling 276 respondents, they empirically uncovered that trust positively influences consumer commitment at the significant level of p -value $< .01$. As shown in Table 2, four of 17 studies indicate that commitment is a salient outcome of trust (Kassim & Abdulla, 2006; Mukherjee & Nath, 2003; Saeednia & Abdollahi, 2012; Sanchez-Franco, 2009).

Referring to Oliver (1999), who defined loyalty as a deeply commitment, Sanchez-Franco (2009) considered customer loyalty and commitment as having a very similar meaning, and defined customer commitment as an enduring desire to maintain a valued relationship. By surveying 456 e-banking users in Spain and using the satisfaction-trust-commitment model, Sanchez-Franco (2009) empirically showed that commitment is a consequence of trust. Therefore, considering that the commitment, loyalty, and customer retention have similar meaning, Vatanasombut et al. (2008), Kantsperger and Kunz (2010), and Aldas-Manzano et al. (2011) consistently supported that commitment is a considerable consequence of trust. Hypothesis 8 is therefore proposed as follows:

H₈: Trust considerably affects current customers' commitment to use mobile banking

4. Survey design and sampling

A review of the literature has indicated that trust is a cross-disciplinary concept and the construct of trust has been defined in various ways (Kantsperger & Kunz, 2010). Since the literature describes a different aspect of trust (Grabner-Krauter & Faullant, 2008) across a variety of fields including philosophy, psychology, sociology, economics, management, marketing, communication, organization behavior, and information systems (Du et al., 2010; Mukherjee & Nath, 2003), numerous definitions for trust exist in literature (Dimitriadis et al., 2011; Kim & Prabhakar, 2004) and no universal definition of trust exists (Dimitriadis et al., 2011). Referring to Kantsperger and Kunz (2010), who tabulated the trust definition during 1985-2009, this study defines trust in mobile banking as a belief that a bank can be relied on through the use of mobile devices and that a variety of financial services can be obtained through a mobile interface.

Based on 32 articles and books on trust, McKnight et al. (2002) conceptually summarized prior findings and categorized 15 types of trusting beliefs from the findings. They then grouped 15 types into four constructs: integrity, benevolence, competence, and an indefinable "other." By examining the role of trust in 504 university students, Zhao et al. (2010) defined trust as a concept composing of three elements: integrity, benevolence, and competence, and used these three elements to assess trust. Likewise, Sanchez-Franco

(2009) and Luo et al. (2010) also used the three dimensions of integrity, benevolence, and competence to measure trust. Building in the above, this study applied integrity, benevolence and competence to assess the construct of trust.

Items used to assess integrity, benevolence, competence, knowledge-incurred trust, calculative-incurred trust, cognition-incurred trust, personality-incurred trust, structural assurance, situational normality, intention to use mobile banking, and commitment to mobile banking in the survey instrument were adapted from literature and converted to fit the context of mobile banking. Two pretests were performed to ensure that the questionnaire was verified and that it effectively reflected the research purpose and design. In the first pre-test, three scholars were invited to review the research structure, hypotheses, and methodology. Following their suggestions, some items, terms and sentences have been revised. The final items were summarized in Table 3. All the variables were measured on a 5-point Likert scale ranging from 1 (strong disagree) to 5 (strong agree).

Table 3 Constructs and Corresponding Items

Construct	Items	Item Sources
Competence	CPT1: I believe that the mobile banking provides me required services;	Adapted from Yousafzai et al. (2005), Dimitriadis and Kyrezis (2008), Sanchez-Franco (2009), Luo et al. (2010), Zhao et al. (2010), and Dimitriadis et al. (2011)
	CPT2: I believe that the mobile banking processes my transactions accurately;	
	CPT3: I believe that the mobile banking fulfills my needs on time.	
Trust Integrity	INT1: I believe that the mobile banking has consistent practices and policies as the bank does in its physical branch office;	
	INT2: I believe that the mobile banking provides me same quality services as the bank does in its physical branch office;	
	INT3: I believe that the mobile banking fairly treats customers as the bank does in its physical branch office.	
Benevolence	BEN1: I believe that the mobile banking has policies that respect the customer;	
	BEN2: I believe that the mobile banking has policies that favor the customer's best interest;	
	BEN3: I believe that the mobile banking has policies that act in the customer's needs.	

Table 3 Constructs and Corresponding Items (continued)

Knowledge-Incurred Trust	<p>KNO_Trust1: My past experience with the bank is trustworthy;</p> <p>KNO_Trust2: My past experience with the mobile phone is trustworthy;</p> <p>KNO_Trust3: My past experience with the mobile service is trustworthy.</p>	Adapted from Gefen et al. (2003) and Dimitriadis et al. (2011)
Calculative-Incurred Trust	<p>CAL_Trust1: The bank has nothing gain by being dishonest when I am using mobile banking;</p> <p>CAL_Trust2: The bank have something lose by not caring about me when I am using mobile banking;</p> <p>CAL_Trust3: The bank has a penalty if it violates customer trust.</p>	Adapted from Gefen et al. (2003) and Gu et al. (2009)
Cognition-incurred trust	<p>COG_Trust1: I feel trust about using mobile banking;</p> <p>COG_Trust2: I feel trust since most of my peers have used mobile banking;</p> <p>COG_Trust3: I feel trust since I have heard many positive comments about using mobile banking.</p>	Adapted from Gefen et al. (2003) and Dimitriadis et al. (2011)
Personality-Incurred Trust	<p>PER_Trust1: I usually trust people until they prove I should not trust them.</p> <p>PER_Trust2: I usually trust banks until they prove I should not trust them.</p> <p>PER_Trust3: I usually trust new mobile services until they prove I should not trust them.</p>	Adapted from McKnight et al. (2002), Gefen et al. (2003), Kim and Prabhakar (2004), Dimitriadis et al. (2011), and Zhou (2011)
Structural Assurance	<p>STR_Trust1: I feel safe using mobile banking services because the bank has sufficient security mechanism to protect me.</p> <p>STR_Trust2: I feel safe using mobile banking services because the advances on communication technologies can adequately protect me.</p> <p>STR_Trust3: I feel safe using mobile banking services because the legal and bank will commit their obligation to protect me.</p>	Adapted from McKnight et al. (2002), Gefen et al. (2003), Kim and Prabhakar (2004), and Zhou (2011)
Situational Normality	<p>SIT_Trust1: I feel safe using mobile banking services because the steps required in mobile banking are typical of most mobile websites;</p> <p>SIT_Trust2: I feel safe using mobile banking services because the information requested in mobile banking is typical information of most mobile websites request;</p> <p>SIT_Trust3: I feel safe using mobile banking services because the interaction with mobile banking is typical of most mobile websites.</p>	Adapted from Gefen et al. (2003) and Munoz-Leiva et al. (2010)

Table 3 Constructs and Corresponding Items (continued)

Intention to Use Mobile Banking	Trust_INT1: I intend to use banking services via mobile banking;	Adapted from Lee (2005), Kim et al. (2009), Gu et al. (2009), and Zhou (2011, 2012a, 2012b)
	Trust_INT2: I intend to check account, conduct payment or transfer money via mobile banking;	
	Trust_INT3: Given the chance, I intend to use mobile banking.	
Commitment to Mobile Banking	Trust_COM1: I am very committed to continuously use mobile banking;	Adapted from Sanchez-Franco (2009)
	Trust_COM2: I will recommend others to use mobile banking;	
	Trust_COM3: Mobile banking is very important to me.	

Based on the above, the questionnaire contains two sections with a total of 43 questions. In the first section, the first question asks respondents “Have you used mobile banking?” Based on their self-reported use of mobile banking, the respondents were split between potential customers and current customers. Potential customers were those who have not yet used mobile banking, whereas current customers were those who have used mobile banking. The following five questions in the first section were used to collect basic data such as the gender, age, occupation, education level and annual income of the respondents. The second section contains 36 questions, as shown in Table 3, used to assess respondents’ constructs related to mobile banking. Notably, both potential and current customers were asked the same questions except with respect to the last three questions in the second section. For potential customers, these last three questions were used to assess the construct of their intention to use mobile banking, whereas current customers were asked to evaluate their commitment to mobile banking.

Because respondents in most online surveys are young students possessing low income, this study tried to diversify the population of respondents through using the mall intercept method. The mall intercept method has emerged as one of popular survey methods and can be used to collect more representative respondents than online surveys by intercepting respondents in shopping malls or other public space. The research assistants first screened potential respondents for appropriateness (i.e., age distribution and gender ratio), and then invited them to fill out the paper-based questionnaires with prize incentives. To remove potential sampling biases in accordance with previous research suggestions (De Bruwer & Haydam, 1996), four part-time research assistants were trained and dispatched to interview the respondents in several urban areas during the morning, afternoon, and evening of ten weekdays and three weekends. The profile of respondents is summarized in Table 4.

Table 4 The Profile of Samples

Categories		Number and Percentage for Potential Users		Number and Percentage for Current Users	
Gender	Male	173	48.6%	134	54.3%
	Female	183	51.4%	113	45.7%
Age	Less than 20-year-old	21	5.9%	2	0.8%
	20 ~ 25 years old	121	34.0%	26	10.5%
	25 ~ 30 years old	68	19.1%	61	24.7%
	30 ~ 35 years old	40	11.2%	54	21.9%
	35 ~ 40 years old	24	6.7%	50	20.2%
	40 ~ 45 years old	22	6.2%	32	13.0%
	45 ~ 50 years old	26	7.3%	8	3.2%
	50 ~ 55 years old	17	4.8%	8	3.2%
	55 ~ 60 years old	10	2.8%	3	1.2%
	60 ~ 65 years old	3	0.8%	2	0.8%
	above 65 years old	4	1.1%	1	0.4%
Occupation	Banking/Finance/Insurance	8	2.2%	43	17.4%
	ICT/Electronics	15	4.2%	35	14.2%
	Biomedical/Hospital	8	2.2%	10	4.0%
	Construction/Real Estate	14	3.9%	17	6.9%
	Culture/Media/Tourism	23	6.5%	21	8.5%
	General Manufacturing	32	9.0%	12	4.9%
	General Service	49	13.8%	13	5.3%
	Education	35	9.8%	19	7.7%
	Police/Military Service	22	6.2%	7	2.8%
	Government Employees	27	7.6%	24	9.7%
	Student	78	21.9%	26	10.5%
	House Keeper	24	6.7%	4	1.6%
	Others or Self-Employed (i.e., lawyer, accountant, designer)	21	5.9%	16	6.5%
	Education	Senior High Diploma or Below	30	8.4%	13
Associate Bachelor Degree		53	14.9%	37	15.0%
Bachelor Degree		211	59.3%	133	53.8%
Master Degree		55	15.4%	52	21.1%
Ph.D. Degree		7	2.0%	12	4.9%

Table 4 The Profile of Sample (continued)

Annual Income	Less than NT\$ 250,000	86	24.2%	39	15.8%
	NT\$ 250,000 ~ 500,000	131	36.8%	73	29.6%
	NT\$ 500,000 ~ 750,000	68	19.1%	82	33.2%
	NT\$ 750,000 ~ 1,000,000	48	13.5%	37	15.0%
	Over NT\$ 1,000,000	23	6.5%	16	6.5%

Among a total of 687 participants, 356 potential customers and 247 current customers were interviewed during the summer of 2013. For respondents who have not used mobile banking, Table 4 shows that 173 (48.6%) were men and 183 (51.4%) were women, and approximately 76.6% of respondents had a bachelor degree or higher. The top five occupations of those respondents were student (21.9%), general service (13.8%), education (9.8%), general manufacturing (9.1%), and government employees (7.6%). Of the total respondents, who not yet use mobile banking, 39.9% were younger than 25 years, 30.3% were 25 ~ 35 years of age, and 29.8% were older than 35. By the contrast, of the total respondents who have used mobile banking, 11.3% were younger than 25 years, 46.6% were 25 ~ 35 years of age, and 42.1% were older than 35. For respondents who have used mobile banking, Table 4 shows that 134 (54.3%) were men and 113 (45.7%) were women, and approximately 79.8% of respondents had a bachelor degree or higher. The top five occupations were 17.4% in the banking/finance/insurance sector, 14.2% in the ICT/electronics sector, 10.5% were students, 9.7% were government employees, and 8.5% in the culture/media/tourism sector.

5. Data analysis and hypothesis testing

By following the concept of Lin (2011), this study separated the respondents into potential customers and current customers based on their self-reported use of mobile banking. After running the partial least squares (PLS) regression, the data was generated and summarized in Tables 5 ~ 6 and depicted graphically in Figures 1 ~ 2. The advantages and limitation of the PLS regression were examined by literature (Geladi & Kowalski, 1986). As suggested by Yu (2011) and Zhou (2012b), factor loadings, composite reliability, and the average variance extracted (AVE) were used to assess the reliability and convergent validities, whereas the discriminant validity was assessed by examining whether or not the squared roots of AVE exceeded the correlations between constructs, as suggested by Venkataesh and Zhang (2010) and Zhou (2012b). As Table 5 shows, all factors in the measurement model possessed adequate reliability and convergent validity

because all factor loadings were greater than 0.7, the composite reliabilities exceeded acceptable criteria of 0.6, and the AVEs were greater than the threshold value of 0.5 in all cases. Table 6 is constructed to show that the diagonal elements are the square roots of AVE and off-diagonal elements are correlations between constructs. Because Table 6 indicates that all diagonal elements were higher than the off-diagonal elements in the corresponding rows and columns, the discriminant validity was supported.

Table 5 Reliability and Convergent Validity Examination of the Constructs

Constructs	Items	Factor Loading	Composite Reliability	AVE
Knowledge-incurred Trust	KNO_Trust1	0.827	0.874	0.850
	KNO_Trust2	0.908		
	KNO_Trust3	0.869		
Calculative-incurred Trust	CAL_Trust1	0.853	0.909	0.811
	CAL_Trust2	0.867		
	CAL_Trust3	0.857		
Cognitive-incurred Trust	COG_Trust1	0.841	0.834	0.753
	COG_Trust2	0.825		
	COG_Trust3	0.755		
Personal-incurred Trust	PER_Trust1	0.893	0.850	0.777
	PER_Trust2	0.840		
	PER_Trust3	0.762		
Structural Assurance	STR_Trust1	0.816	0.812	0.783
	STR_Trust2	0.865		
	STR_Trust3	0.770		
Situational Normality	SIT_Trust1	0.774	0.824	0.795
	SIT_Trust2	0.816		
	SIT_Trust3	0.801		
Competence	Com1	0.862	0.862	
	Com2	0.828		
	Com3	0.802		
Trust Integrity	Int1	0.800	0.838	0.836
	Int2	0.816		
	Int3	0.743		
Benevolence	Ben1	0.719	0.815	
	Ben2	0.840		
	Ben3	0.789		
Intention to Use Mobile Banking	Trust_INT1	0.798	0.853	0.784
	Trust_INT2	0.759		
	Trust_INT3	0.784		

Table 5 Reliability and Convergent Validity Examination of the Constructs (continued)

	Trust_COM1	0.775		
Commitment to Mobile Banking	Trust_COM2	0.757	0.814	0.743
	Trust_COM3	0.748		

Table 6 Discriminant Examination of the Constructs

	KNO	CAL	COL	PER	STR	SIT	Trust
KNO	0.922						
CAL	0.304	0.901					
COL	0.570	0.463	0.868				
PER	0.509	0.269	0.421	0.881			
STR	0.552	0.412	0.674	0.461	0.885		
SIT	0.577	0.380	0.608	0.563	0.758	0.892	
Trust	0.664	0.398	0.607	0.544	0.680	0.699	0.914

Figure 1 shows that the generated R^2_{adjusted} values of .673 and .532 accounted for the variances explained in trust and intention to use mobile banking, respectively, among the potential customers. Figure 2 shows that the generated R^2_{adjusted} values of .678 and .624 accounted for the variances explained in trust and commitment to mobile banking, respectively, among the current customers. Given that * stands for p -value < .05, ** stands for p -value < .01, and *** stands for p -value < .001, Figure 1 illustrates that trust extremely significantly influences intention to use mobile banking for nonusers, and Figure 2 demonstrates that trust extremely significantly influences commitment to mobile banking among users.

Regarding antecedents of trust, the empirical results of potential customers reveal that personal-incurred trust, knowledge-incurred trust, structural assurance and situational normality, in that order of relative influences, considerably affect trust belief in mobile banking. By contrast, the empirical results of current customers reveal that situational normality, structural assurance, knowledge-incurred trust, personal-incurred trust, and calculative-incurred trust, in that order of relative power, considerably affect trust belief in mobile banking. The knowledge-incurred trust, personal-incurred trust, structural assurance and situational normality are four commonly major antecedents of trust for both potential and current customers, although some differences regarding the order of relative strength exist. The major difference between potential and current users lies in calculative-incurred trust, which is a significant factor (p -value < .05) in creating current customers' trust, whereas it is not significant in generating potential customers' trust.

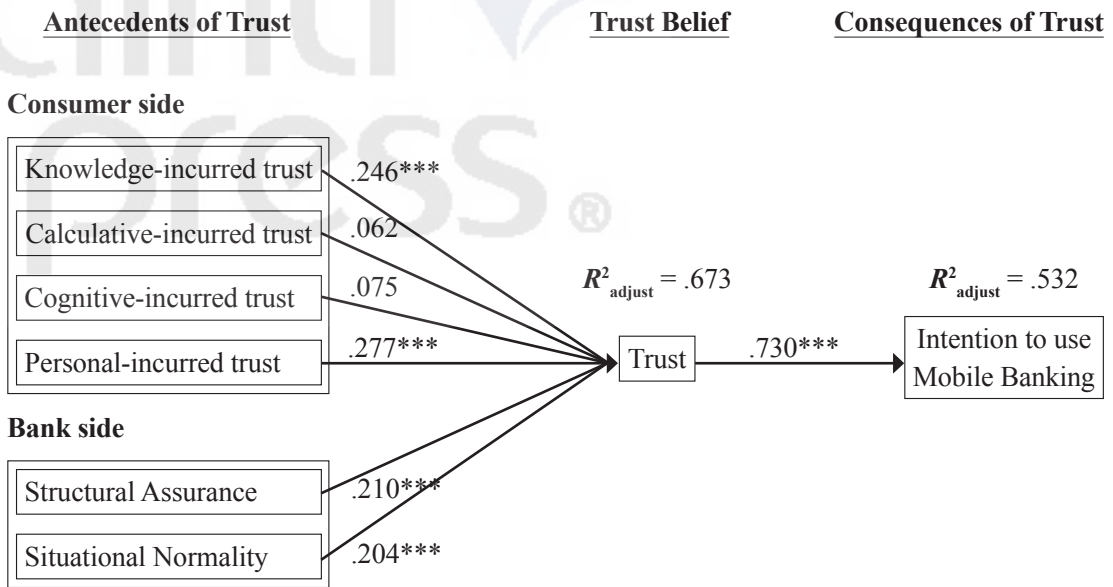


Figure 1 The Results of PLS for Potential Customers

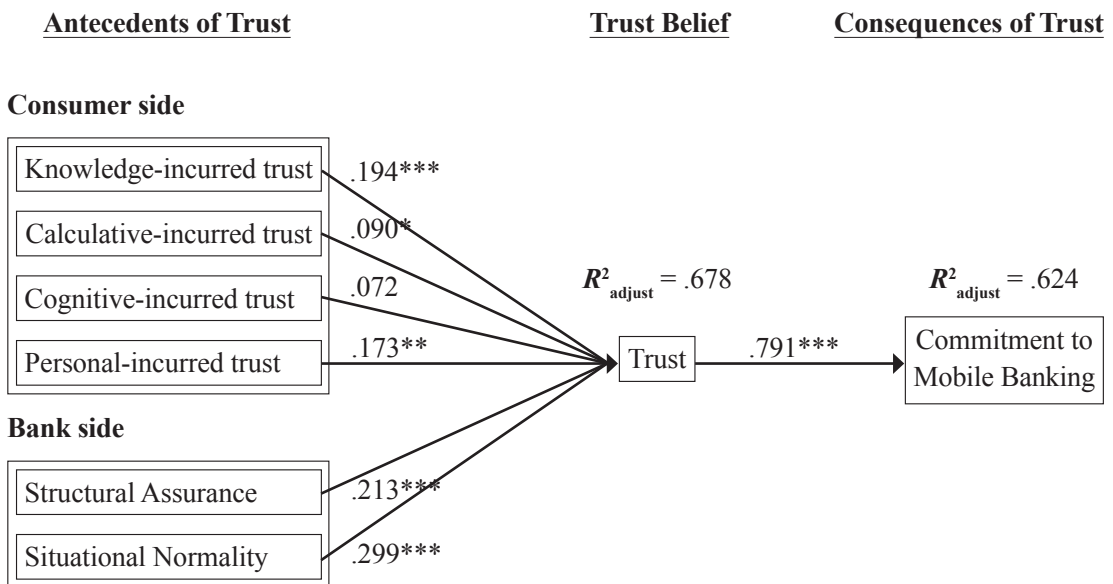


Figure 2 The Results of PLS for Current Customers

In summary, after performing a survey of 603 respondents (356 potential users and 247 current users), this study used the PLS regression to examine the posited hypothesis. The empirical results indicate, firstly, that not all the antecedents considerably influence the generation of consumers' trust beliefs and, secondly, that the level of influence of these antecedents of trust vary across potential customers and current customers. Regarding the consequences of trust, trust significantly influences potential customers' intention to use mobile banking, and considerably affects current customers' commitment to mobile banking. Therefore, Hypotheses 1, 4, 5, 6, 7 and 8 were empirically supported, whereas Hypothesis 3 was rejected. Hypothesis 2 was rejected for potential customers but supported for current customers.

6. Implication and discussion

Figures 1 and 2 show consistent results with respect to knowledge-incurred trust, personal-incurred trust, structural assurance, and situational normality, and these factors significantly influence the formation of consumer trust, whereas cognition-incurred trust does not yield considerable influence. Knowledge-incurred trust is also called familiarity-based trust because it is based on the accumulation of trust-relevant knowledge over time. Because knowledge-incurred trust highly correlates with the ability to predict behavior based on previous experience (Lin, 2011) or personal knowledge (Robert et al., 2009), familiarity-based trust captures the customer's knowledge and experience in mobile banking. Thus, for current users, their positive experience with the mobile banking is extremely important for forming their trust, which subsequently causes them to commit to using mobile banking. For potential users, their positive knowledge about the mobile banking is extremely important for generating their trust, which in turn affects their intention to use mobile banking. The following implications can therefore be derived.

First, knowledge-incurred trust requires time and interaction between parties. Thus, for current customers, increasing trust requires long-term care for their using experience and immediate response for their feedback. Banks are advised to give current customers considerably truthful and reliable interactions whenever they use mobile banking services. By contrast, people may choose not to use mobile banking because of a lack of knowledge-incurred trust about mobile banking, especially once those people have established more traditional banking practices. Hence, for potential customers, experiential marketing is useful for building their trust because it offers customers opportunities to gain experience and knowledge on using mobile banking. Similarly, incentive programs are useful because such programs offer customers incentives to use mobile banking. Once they have used mobile banking, their experience and knowledge increase. Additionally, to increase potential users' trust, banks are advised to demonstrate the advantages of

mobile banking through advertisements and marketing events. Such efforts can enhance customers' positive impression, which can motivate potential customers to try mobile banking. Once they have a successful experience, their trust beliefs increase.

Both Figures 1 and 2 also show that cognition-incurred trust does not possess significant influence. Because cognition-based trust is grounded in individual beliefs about peer comments for the strengthening or weakening of trust, executing testimonial strategy is ineffective in building customer trust on mobile banking. The reason may be attributed to the fact that using mobile banking is a private interest and an unobserved personal behavior. Therefore, although noted figure and customer testimonials are popular and have been widely used in the advertisements of many brands (i.e., Nokia and Samsung) or product recommendation (i.e., healthy food and organic drinks), testimonial strategy does not exert a significant effect on building trust in the use of mobile banking.

Personal-incurred trust has been studied in a variety of technological context and is one of the most studied precursors related to trust in Internet and mobile banking studies (Zhou, 2011). Given that this study has identified personality-incurred trust as an important source of trust, which is also concluded in other literature (Castelfranchi & Falcone, 2010; Du et al., 2010), banks must place attention on those people who possess a personal propensity to trust. For example, banks may cluster potential consumers by their personal characteristics in term of disposition to trust, and then divide them into first priority potential users, second priority potential users, and so on, based on the level of their personality-incurred trust. Thereafter, banks may execute different strategies that favor different consumer clusters. Because the empirical results illustrate that personal-based trust considerably influences the trust of both potential and current consumers, banks may also cluster current customers by their level of disposition to trust. In this respect, banks are advised to offer advanced and profitable services to those users who have a higher disposition to trust.

The generated figures also show that not all factors related to consumers hold statistical significance and the level of influence of these factors in generating consumers trust varies across potential customers and current customers. Accordingly, instead of a single trust building strategy, banks are advised to strengthen different trust resources to meet the main concerns of different customer groups (such as current users vs. potential users, young consumers vs. old consumers, and nonusers vs. heavily users). For example, calculative-incurred trust is a salient factor for current customers, but not a significant factor for potential customers. As previous literature reveals, calculative-incurred trust is the result of a rational calculation of the cost and benefit when individuals make trust choices (Gefen et al., 2003; Williamson, 1993). Because current users' trust are considerably affected by calculative-incurred trust, banks may execute a trust-building strategy based on economic calculation (for instance, customers can receive rewards if

they discover the bank is cheating them, the bank incurs a penalty if it violates customer trust, and the like). Based on the above, the derived implication is that banks are better to execute different trust-building strategies to appropriately reduce main concerns of different customer groups rather than single trust-building strategy.

After discussing the implications from the consumer-side constructs, this study now shift to a discussion for the bank-side constructs. Because structural assurance is a salient factor, it is critical for banks to provide reliable, state-of-the-art technology for mobile banking platforms to enhance people's trust in mobile banking. Hence, the implication is that communications and advertisements must emphasize that banks have sufficient security mechanisms and are committed to protecting mobile banking users, which further enhance both the willingness of potential customers and the commitment of current customers to use mobile banking. Additionally, given that situational normality is an extremely significant factor influencing consumers' trust belief (regardless of whether they are potential or current consumers), banks should pay their greatest attentions to situational normality. In other words, procedures and policies required to deliver services and information to complete banking transactions should be reasonable and expected. The derived implication is that customer trust can be enhanced by offering benchmarking practices and standardizing banking processes through mobile devices.

Because both structural assurance and situational normality are aspects of institution-incurred trust, another implication derived from the study is that banks should focus on building institution-incurred trust when delivering innovative services (i.e., mobile banking services). In other words, before banks shift their focus to trust resources on consumer side, banks are advised to create customer trust from the mobile banking side such as situational normality and structural assurance. Accordingly, the following points are provided for bank managers:

- (1) Banks should convince consumers that the mobile banking services they offered are strictly protected by the government and laws.
- (2) Banks should clearly display and demonstrate security mechanisms (such as laws of data privacy protection, secure socket layer protocol, secure infrastructure, and the like) related to mobile banking.
- (3) Banks should deliver and communicate accurate and reliable information though the mobile interface to bank clients.
- (4) Banks should ensure that all procedures related to mobile banking are seen as normal and logical.

7. Concluding remarks

Although the adoption of mobile banking has been extensively studied based on technology adoption theories as commented by Zhou (2011), current literature indicates that research focusing on trust into mobile banking is rare. Although banks invest heavily in mobile banking services that allow people to conduct daily business and financial tasks anytime, anywhere, and faster compared to traditional banking, the adoption rate of mobile banking is rising slowly and lower than the expected. Considerable literature has indicated that mobile banking operates in an impersonal and technology-enabled environment that might cause customers to feel uncertainty and risk which create a lack of trust for using mobile banking. Consequently, investigating the links from trust's antecedents to trust and from trust to trust's consequences on mobile banking becomes necessary and very important, which can assist banks to devise trust-building strategies. Therefore, this study attempted to rectify this deficiency.

After surveying 356 nonusers (potential customers) and 247 users (current customers), the empirical results of current customers reveal that situational normality, structural assurance, knowledge-incurred trust, personal-incurred trust, and calculative-incurred trust, in that order of relative power, considerably affect trust belief in mobile banking. The empirical results of potential customers reveal that personal-incurred trust, knowledge-incurred trust, structural assurance and situational normality, in that order of relative influences, considerably affect trust belief in mobile banking. Trust significantly influences nonuser intention to use mobile banking, and trust considerably influences user commitment to use mobile banking. Anyway, this study merely represents a pioneer work. To provide banks with more useful clues, further elaborate research is required.

Numerous trust determinants and consequences were identified and empirically tested, but current research on trust lacks clarity, remains fragmented, and is context specific (Sirdeshmukh et al., 2002; Skandrani et al., 2011). None of the studies adopted a holistic viewpoint to investigate the link among antecedents of trust, trust itself, and consequences of trust in a single research framework. Therefore, this study may not only advance current knowledge on trust in the context of mobile banking, but also contribute to pave a way of understanding how the trust incurs, develops, and fosters. Particularly, mobile banking is an application of mobile commerce, which a subset of e-commerce (Kim et al., 2009). Therefore, the findings of this study may be applicable to other mobile commerce and e-commerce. However, caution is still necessary when generating the results to other mobile service or e-commerce fields.

Besides, Table 4 shows that age and occupation may have positive correlation with consumer willingness to use mobile banking. However, only using physiological

and sociological variables may yield cursory findings and simplistic profile (Yu, 2011). As literature suggests that trust is an accumulated belief and considered as a strategic variable in marketing practices (Flavian et al., 2005; Selnes, 1998), the future research is encouraged to incorporate trust with marketing theories. Since the level of telecom infrastructure, the level of maturity of cell phone usage, culture, and governmental regulation may differ across countries, generalizing the findings and implications to other countries must be executed cautiously.

As with most research, some limitations exist in this study. First, because the respondents were surveyed in Taiwan, future studies are encouraged to conduct in different countries to compare the results. Second, this study merely represents a preliminary work. Therefore, to verify and generalize the methodology, more elaborated researches are necessary. Third, because of limited manpower and resources, this study used the mall intercept method to collect respondent data. Bias naturally exists in any questionnaire-based survey. Banks could conduct face-to-face interviews to collect more in-depth data that is more comprehensive to find effective trust strategies for different customers.

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