

An Investigation of Initial Trust in Mobile Banking

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ABSTRACT

A global explosion in the use of electronic commerce has been witnessed in recent times with the monetary value of products and services. This Research has investigate the factors adoption of an initial trust in electronic banking. The purpose of this research is to examine the effect of initial trust on mobile banking user adoption in Kermanshah province of Iran. Based on the valid responses collected from a survey questionnaire, structural equation modeling (SEM) technology was employed to examine the research model. The sample was mainly composed of users having rich mobile Internet experience, which may affect their trust in mobile banking. Future research needs to generalize these results to other samples, such as those users without much mobile Internet experience.

Keywords: Mobile banking, technology acceptance model (TAM).

1. INTRODUCTION

Developments in information technology have an enormous effect on the banking sector, creating continually ever more flexible payment methods and user-friendly banking services. Since the 1980s major technology-enhanced products and services from automated teller machines (ATMs) to e-banking have become available everywhere 24/7 (Liao & Cheung, 2002). More than ten years ago it was clearly recognized that the internet promised nothing less than a revolution in retail banking, Business Week categorically stating that “banking is essential to a modern economy, banks are not” (Tan & Teo, 2000).

In recent years profound technological changes among which is the advent of e-commerce or the exchange of products and services and payments through telecommunication systems have been witnessed. Most industries have been influenced in different ways by e-commerce and

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that the banking industry has been subject to this technological change (Bradley & Stewart, 2003). It is evident that banks and other financial institutions in developed and emerging markets are embracing e-banking such as mobile banking. Today mobile banking applications are evolving as a new retail channel for banks. Mobile banking is a focal point of growth strategies for both the banking and mobile carrier industries (Goswami & Raghavendran, 2009). Banks, through mobile banking applications, provide a combination of payments, banking, real-time two-way data transmission, and ubiquitous access to financial information and services (Jacob, 2007). It is now taken for granted that the mobile phone as a channel for service consumption offers enormous potential in banking (Laukkanen & Lauronen, 2005). Previous studies indicate the factors contributing to the adoption of mobile banking include convenience, access to the service regardless of time and place, privacy and savings in time and effort (Laukkanen, 2007). Therefore, consumers assume and expect that through a phone they can readily attain fast, convenient and compatible service on demand. Mobile banking means that users adopt mobile terminals to conduct payment such as balance enquiry, transference and bill payment at anytime from anywhere (Dahlberg, Mallat, Ondrus & Zmijewska, 2008). Mobile banking frees users from spatial and temporal limitations, and enables them to conduct ubiquitous payment. This provides great convenience to users. However, due to the virtually and lack of control, mobile banking involves great uncertainty and risk. Thus users need to build trust in order to adopt and use mobile banking. Initial trust develops when users interact with mobile banking for the first time (McKnight, Choudhury & Kacmar, 2002a). Establishing users' initial trust is critical for mobile service providers. On one hand, due to the lack of previous experience, users will perceive great uncertainty and risk when they adopt mobile banking for the first time. They need to build initial trust to overcome perceived risk. On the other hand, the switching cost is low. Users may switch back to online banking if they cannot build initial trust in mobile banking. Thus mobile service providers need to engender users' initial trust to acquire and retain them. The purpose of this research is to identify the factors affecting initial trust in mobile banking. We draw on two factors including information quality and system quality from information system success model. In addition, structural assurance and trust propensity are also included as the determinants of initial trust.

2. RESEARCH LITERATURE

2.1. MOBILE BANKING

Mobile banking is defined as "a channel whereby the consumer interacts with a bank via a mobile device, such as a mobile phone or personal digital assistant. In that sense it can be seen as a subset of electronic banking and an extension of internet banking with its own unique characteristics" (Laukkanen & Passane, 2008, p. 87). Today mobile banking applications are evolving as a new retail channel for banks.

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the adoption of mobile banking include convenience, access to the service regardless of time and place, privacy and savings in time and effort (Laukkanen, 2007). Therefore, consumers assume and expect that through a phone they can readily attain fast, convenient and compatible service on demand.

As an emerging service, mobile banking has not been widely adopted by users. Thus researchers have paid attention to identify the factors affecting user adoption. Information technology adoption theories such as TAM, IDT and UTAUT are often used as the theoretical bases. Gu, Lee, and Suh (2009) found that structural assurance and perceived ease of use affect trust in mobile banking. Lin (2011) drew on IDT and trust theory to examine the effects of innovation attributes and knowledge-based trust on mobile banking adoption. Innovation attributes include relative advantage, compatibility and perceived ease of use. Knowledge-based trust includes perceived competence, benevolence and integrity. Kim, Shin, and Lee (2009) reported that structural assurance, relative benefits and personal propensity to trust affect initial trust in mobile banking. Zhou, Lu and Wang (2010) integrated UTAUT and task technology fit theory to examine user adoption of mobile banking. Luo, Li, Zhang and Shim (2010) found that performance expectancy and perceived risk have significant effects on the intention to use mobile banking services.

2.2. TECHNOLOGY ACCEPTANCE MODEL (TAM)

The technology acceptance model (TAM), introduced by Davis (1989), and is used for modeling user acceptance of information systems. The goal of TAM is to provide an explanation of the determinants of computer acceptance (Davis, 1989). TAM posits that two particular beliefs – i.e. perceived usefulness and perceived ease of use – are of primary relevance for computer acceptance behaviors. In general, TAM examines the mediating role of perceived ease of use and perceived usefulness on the probability of system use (Legris, Ingham & Collette, 2003). Perceived usefulness (PU) is defined as “the prospective user’s subjective probability that using a specific application system will increase his or her job performance within an organizational context”. Perceived ease of use (PEoU) refers to “the degree to which the prospective user expects the target system to be free of effort (Davis, 1989, p. 985).

2.3. STRUCTURAL ASSURANCE

Structural assurance means that there exist legal and technological structures to ensure payment security. Compared to online banking, mobile banking is built on mobile networks and may be more vulnerable to hacker attack and information interception. Viruses and Trojan horses may also exist in mobile terminals. These problems will incur users’ concern on their account and payment security. Structural assurance as an institution-based trust mechanism has been found to affect users’ initial trust (McKnight, Choudhury & Kacmar, 2002b). Especially, due to the lack of direct experience, users may rely much on these structural assurances to build their trust in mobile banking. According to trust transference mechanism, users will transfer their trust in third parties to mobile banking (Pavlou & Gefen, 2004).

2.4. INITIAL TRUST AND PERCEIVED USEFULNESS

Trust reflects a willingness to be in vulnerability based on the positive expectations towards another party’s future behavior (Mayer, Davis & Schoorman, 1995). Trust often includes three

dimensions: ability, integrity and benevolence (Benamati, Fuller, Serva & Baroudi, 2010). Ability means that mobile service providers have enough knowledge and skills to fulfill their tasks. Integrity means that mobile service providers keep their promises and do not deceive users. Benevolence means that mobile service providers will concern users' interests, not just their own interests. Perceived usefulness reflects the utility derived from using mobile banking. Initial trust will affect perceived usefulness. Trust provides a guarantee that users will acquire future positive outcomes (Gefen, Karahanna & Straub 2003). In other words, trust enables users to believe that mobile service providers have enough ability and benevolence to provide useful services to them.

2.5. INITIAL TRUST AND PERCEIVED EASE OF USE

Due to the great uncertainty and risk involved in online transactions, trust has received considerable attention in the electronic commerce context. Trust has been found to affect user adoption of various services, such as online news services (Chen & Corkindale, 2008), Internet banking (Flavian, Guinaliu & Torres, 2005), health web sites (Fisher, Burstein, Lynch & Lazarenko, 2008), and mobile shopping (Lu & Su, 2009).

Trust includes initial trust and continuance trust. As the first stage of trust development, initial trust is significant for user behavior and various factors have been identified to affect initial trust. The first category of factors is associated with website. Due to the lack of previous experience, users will rely on their perception of website quality to build initial trust (Lowry, Vance, Moody, Beckman & Read, 2008). In addition, information quality has been found to affect initial trust in health infomediaries (Zahedi & Song, 2008). Other factors such as website appeal and usability also affect online consumers' initial trust (Hampton-Sosa & Koufaris, 2005).

2.6. USAGE INTENTION

According to the theory of reasoned action (TRA), initial trust and perceived usefulness as beliefs will affect behavioral intention (Fishbein & Ajzen, 1975). In addition, initial trust can help mitigate perceived uncertainty and risk, and promote usage intention. Perceived usefulness has been found to be a significant factor affecting initial usage and continuance usage (Venkatesh & Davis, 2000). Much research has reported the effects of initial trust and perceived usefulness on behavioral intention (Chen & Barnes, 2007; Shin, Lee, Shin & Lee, 2010).

3. HYPOTHESES

Based on the literature review, we thus develop the following hypotheses:

H1. Perceived usefulness positively affects initial trust.

H2. Perceived ease of use positively affects initial trust.

H3. Structural assurance positively affects initial trust.

H4. Initial trust positively affects usage intention.

H5. Perceived usefulness positively affects usage intention.

H6. Perceived ease of use positively affects usage intention.

Theoretical framework is a conceptual model based on theoretical relationship among a number of factors which are considered important in relation to problems under study. This theoretical framework is circulated by reviewing research records in the subject reasonably. Figure 1 shows the model proposed by this study.

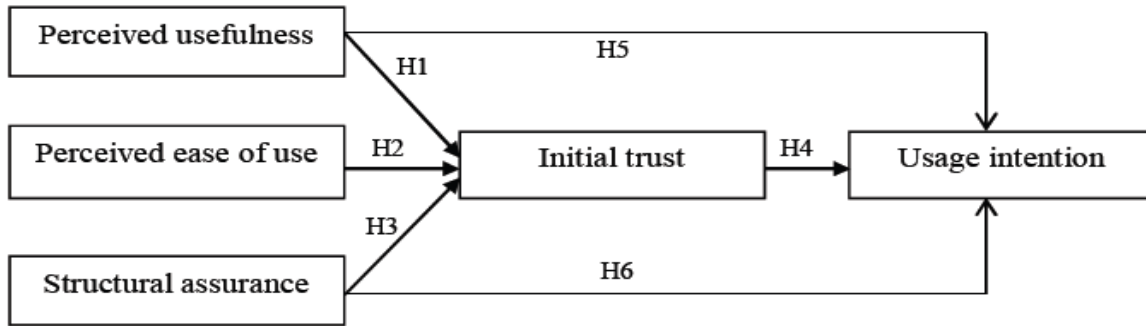


Figure1. Conceptual model of the research

4. RESEARCH METHODOLOGY

This research is an applied one in terms of its aim and descriptive- survey in terms of the type of data, in which relationship by using correlation test and especially based on structural equations model. Using SPSS software, Spearman's correlation coefficient was used to examine relationships between independent and dependent variables and to test research hypothesis. Multiple regression models were used to test the set of cause-and-effect relationships between variables and components studied. And, finally, in order to identify optimal model, the relationships between variables were modeled by structural equations AMOS software. In order to know how well a model performs, especially in comparison with other possible models, in terms of explaining a set of observed data, values of normalized fitness index (NFI), relative fitness index(RFI), increasing fitness index(IFI) and comparative fitness index (CFI) were used.

The research model includes five factors and each factor is measured with multiple items. All items were adapted from extant literature to improve content validity (Straub et al., 2004). These items were first translated into Persian by a researcher. Then another researcher translated them back into English to ensure consistency. When the instrument was developed, it was tested among ten users with mobile banking usage experience. Then according to their comments, we revised some items to improve the clarity and understandability.

A questionnaire is the information source used to test said hypotheses, therefore, research method is based on field research. Data required testing questionnaire research hypotheses by using method of scoring on 1-20 scale. Items of structural assurance were adapted from McKnight, Choudhury and Kacmar (2002) to reflect the effect of legal and technological structures. Items of initial trust and usage intention were adapted from Lee (2005). Items of initial trust measure mobile service providers' ability, integrity and benevolence. Items of usage intention reflect users' intention to use and continue using mobile banking. Items of perceived usefulness were adapted from Agarwal and Karahanna (2000) to reflect the improvement of living and working performance and effectiveness associated with using mobile banking.

In this research, statistical population consists of customers of Mellat bank from Kermanshah province. We randomly contacted users and enquired of them whether they had mobile banking usage experience. Then we asked those with negative answers to experience mobile banking via the mobile phone provided by us. This was to ensure that it was the first time for them to use mobile banking as we focused on initial trust in this research. These mobile phones had installed mobile banking software developed by Mellat bank. The respondents were asked

to use mobile banking for five to ten minutes. They can access various services, such as account balance enquiry, transference and bill payment. Then they were asked to fill the questionnaires based on this initial usage experience. We scrutinized all questionnaires and dropped those with too many missing values. As a result, we obtained 210 valid responses.

5. FINDINGS

Among them, 80.6 percent were male and 19.4 percent were female. In terms of education, over half of them (45.1 percent) held bachelor degree. Most of them (85.7 percent) used mobile Internet for over five times each week. About 62.9 percent of respondents have been the clients of the investigated bank for three years.

6. DATA ANALYSIS

Spearman's correlation coefficient was used to test hypotheses. Results shown in table 1 suggest that at signification level (0.000), correlation coefficient between perceived usefulness and initial trust is 0.565 for which calculated significance level is less than 0.05, therefore, there is a significantly positive correlation between these 2 variables, that is, among mobile banking users, initial trust increases as perceived usefulness increases. Results obtained from the first and second hypotheses show that, at significance level (0.000). Coefficient of correlation among variables ranges from 0.455 to 0.565. Therefore there is a significantly positive correlation between perceived ease of use and initial trust, that is, increased actions of perceived ease of use lead to an increase in initial trust. Results from the third hypothesis show that, at significance level (0.000), coefficient of correlation among variables is 0.627. The fourth, fifth and sixth hypotheses indicate that, at significance levels (0.000), coefficients of correlation between variables are 0.530, 0.455 and 0.711. In general, results and finding obtained from the research hypotheses testing are summarized in table1.

Table1.Results of testing research hypotheses

Hypotheses	Research hypotheses text	Sig	The correlation coefficient	Results
Hypothesis1	Perceived usefulness positively affects initial trust.	0.000	0.565	Confirmed
Hypothesis2	Perceived ease of use positively affects initial trust.	0.000	0.455	Confirmed
Hypothesis3	Structural assurance positively affects initial trust	0.000	0.627	Confirmed
Hypothesis4	Initial trust positively affects usage intention.	0.000	0.530	Confirmed
Hypothesis5	Perceived usefulness positively affects usage intention.	0.000	0.455	Confirmed
Hypothesis6	Perceived ease of use positively affects usage intention.	0.000	0.711	Confirmed

7. ANALYSIS OF ORIGINAL MODEL COURSE AND GENERAL FITNESS OF RESEARCH MODEL

In present model, we are going to study relationship among independent variables with dependent variable of intention to use. To this end, we use multiple regression model, therefore, our targeted model is as follows in figure 2.

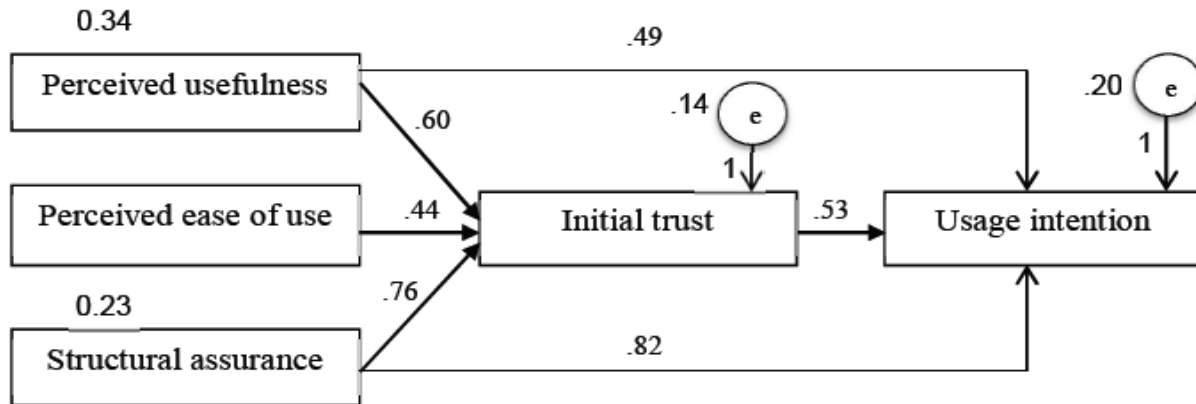


Figure2. Final model of research

The outputs of AMOS to conduct the fitness of model are as follows:

Table2. Measure of final model fitness

RMR	AGFI	GFI	NFI	RFI	IFI	CFI	RMSEA
0/002	0/945	0/995	0/994	0/956	0/998	0/998	0/056

For this model, statistic χ^2 equals 3.31, freedom degree is 2 and significance level is 0.000. Since significance level is less than 0.05, it is concluded that regression model fitted among independent and dependent variables is significant and appropriate. Following criteria are used to examine appropriateness of the model:

NFI: this index compares independent model (one in which there is no relationship among variables, also known as basic model) with the model we provided; RFI: it is relative fitness index examining appropriateness of model provided; IFI: this is the measure of increasing fitness index; CFI: this is the measure of comparative fitness index. The closer the values are to 1, the more appropriate the model the model is. As observed in table 2, the model fitted to data is highly appropriate.

DISCUSSION

The mobile phone has become an indispensable tool for consumers since they carry it all over the places, as important as a purse or a wallet. Perhaps in the near future, the wallet will be replaced by a mobile phone for all transactions purposes. From a theoretical perspective, this research examined the effect of initial trust on mobile banking user adoption. As noted in the literature review, although initial trust has received considerable attention in the electronic commerce context, it has seldom been examined in the mobile commerce context, especially with mobile banking that involves great risk. Thus we need to extend extant findings to mobile banking context. On the other hand, extant research has mainly adopted information technology adoption theories such as TAM, IDT and UTAUT to explain mobile user behavior (Mallat, 2007) and has seldom examined the effect of initial trust on mobile banking user adoption. However, the high perceived risk and low switching cost highlight the necessity to build initial trust to facilitate user behavior. Thus it is necessary to identify the factors affecting initial trust in mobile banking. We find that structural assurance is one of the main factors

affecting initial trust. This advances our understanding of mobile banking user behavior. The results indicate that initial trust affects perceived usefulness, and both factors have mediation effects on usage intention. Thus initial trust and perceived usefulness act as enablers of user behavior. Perceived usefulness is closely related to the subjective probability that using mobile banking is advantageous and will make banking easier. At that point, when consumers perceive that using mobile banking will enable them to accomplish their tasks more quickly, make it easier to carry out their banking-related tasks and is advantageous overall, they develop a positive attitude towards mobile banking. The usefulness perception of consumers is affected by the ease of use perception. Perceived ease of use refers to the expectation that using mobile banking will be free of effort. When consumers perceive that learning and using mobile banking is easy, their positive perceptions of usefulness increase. Future research can examine the effect of inhibitors such as switching cost on user behavior.

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