Factors Effective on the Adoption of Internet Banking (A Case Study of Ilam Province Banks)

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ABSTRACT: One of the institutional changes of financial industry which occurred due to prodigious growth of Internet and, is developing increasingly is the promotion of e-banking, and as a result, the emergence of virtual or Internet-based banks. This study follows a correlational survey methodology and its statistical sample is comprised of the customers of Ilam province banks. The Sample size was computed by Cochran formula and 400 questionnaires were distributed. The data of the study were collected using a questionnaire, the first part of which was about demographical questions and the second section, based on Likert scale, was used to assess the respective variables. Its Content validity has been confirmed by experts and reliability was computed by α - Cronbach method. Furthermore, using AMOS software, factor analysis method and structural equations were used and the results of factor analysis confirmed the appropriate reliability of this model. Research findings show that attitude and perceived behavior control have a positive effect on the intention of customers to use the Internet-based banking, while subjective norm does not have any effect on the customers intention to use Internet-based banking. Perceived usefulness, perceived ease of use, security, privacy and compatibility affect on customers attitude. Self-efficiency, government support and technical support impact on the perceive behavior control.

Keywords: Attitude, Perceived behavior control, Structural equation modeling, Subjective norm, Technology acceptance model, theory of planned behavior.

INTRODUCTION

Assessment of technology innovation has a fundamental effect on the banking industry. This assessment of Internet-based banking has been confirmed by means of changes in distribution channels like ATM, telephone-bank, PC Banking and recently mostly through Internet-based Banking (Change, 2003). One of the biggest challenges and opportunities that modern organizations are faced with is using web-based technologies. As a new channel to perform economic transactions, Internet provides new sources of income and opportunities for organizations. The rate of exchanges over the Internet is increasing on a daily basis and those firms that do not use this technology will be vanished in the market place in a short time. (SeyedJavadin, Yazdani, 2005). The most important feature of these banks is that the physical location of the bank or the customer does not have a role in the relationship between them. In addition to changing the competition context between banks and obliterating the role of spatial distance from the bank in the final costs of providing bank services for customers, this lack of dependence on physical situation has two main consequences: first, it provides the possibility of exchange of financial services in small markets of various countries; secondly, virtual banks could change their physical location without altering their relationship with customers. Therefore, compared to traditional banks, virtual banks are more flexible, show rapid reaction to changes of economic conditions or legal rules and could move from one country to another (Qasemizadeh, Bita). Totally, competitive pressure that non-bank institutions enforce on the financial markets by means of providing financial services, has affected so many banks to accept Internet-based banking, and, in other words, remain competitive (Mols, 1998, Sathye, 1999). A lot of bank managers have perceived technology as the main solution to manage costs (Kallner, Dannehberg, 1998). Studies show that customer acceptance is a key factor in developing the electronic Structures of providing services (Byers, Lederer, 2001).

Accepting technology has so many advantages, including more productivity, more profitability and efficiency, more rapid services and customers' satisfaction, easiness, flexibility and saving space and costs. Banks have confirmed the importance of e-banking to distinguish themselves from other financial institutions through new kinds of distribution channel. This has lead to the development of banks and the use of new
options of distribution mediums to access customers (Daniel, Thorenton, White, 2001). Therefore the purpose of managers of on-line banks to utilize these benefits is to increase the rate of acceptance of on-line banking (C. Lee 2009). As enterprises, such as banks, have invested heavily in developing Information systems and utilizing Information Technology to provide better services, the most important factors in the context of IT research are understanding factors that bring about acceptance of technology, and developing situations under which the respective IT would be accepted (Money, Turner, 2004). Therefore, it is necessary to understand effective factors in intention to use Internet-based banking. However, this study has identified those factors effective on bank customers' decision to accept internet based banking and their importance has been clarified.

Literature review

Significance of the problem

Electronic banking system is one of the required tools to achieve and promote e-commerce. Electronic banking system act synchronously with global monetary and financial systems and facilitates those activities related to e-commerce. Actually, it could be said that fulfillment of e-commerce requires the achievement of e-banking (Sharifi, Islamieh, 2009, 267). It's possible to consider the benefits of e-banking with respect to customers and financial institutions. For customers, these benefits are: saving costs and time, and access to various channels to perform bank-based options. From the viewpoint of financial institutions, e-banking results in making and increasing the prominence of banks in introducing innovation, conserving customers regardless of transfer or displacement of banks, making opportunities to seek new customers in target market, extending the geographical domain of activity and establishing conditions of complete competition (Sharifi, Islamieh, 2009, 274). Other benefits of e-banking are: improvement of management and relations, unlimited markets with respect to their place, very close relationship between banks and reducing the environmental pollution (Kolodinsky et al, 2004).

Like other innovations, Internet-based banking has encountered a lot of problems regarding its acceptance. As success or failure of this technology depends on the extent of customers acceptance, it's necessary to consider factors effective on the acceptance of Internet-based banking (Pearson, Abushanab, 2007). Increasing use of Internet and financial innovation in the e-banking has attracted the attention of researchers to Internet-based banking. In recent years, Internet-based banking has progressed hugely as a means to preserve customers and increase market share (Lajevardi, HajiAsgari, 2012).

Banks around the world are increasing the use of IT in order to improve service delivery. Through the use of telecommunication and IT systems, banks could provide better services to their customers and make it possible for customers to do bank transactions interactively (Compeau, Higgins, 1995). Identification of the factors affecting the intention of individuals to use the services of Internet-based banking would help banks to show proper reaction to various factors and utilize their specific marketing strategy to improve Internet-based banking that meets the needs of customers (Wang et al, 2003).

The technology acceptance model (TAM)

The technology acceptance model introduced by Davis (1986) is one of the said theoretical frameworks to predict the acceptance and use of new information technology within organizations. This model express that individuals attitude influence the intention to use information technology. Also, Perceived usefulness and perceived ease of use are the foremost elements in establishing the attitude and intention to adoption IT. Attitudes and perceived usefulness are also affected by perceived ease of use (Bagozzi, & Warshaw, 1989).

The theory of planned behavior (TPB)

The theory of planned behavior was present by Ajzen (1985) and extended the theory of reasoned action (TRA). In this theory, an additional factor, perceived behavior control is added as a determinant of attitude and behavior. The theory of planned behavior hold that behavioral intention and perceived behavior control are direct determinants of actual behavioral. Behavioral intention is formed by one's attitude, subjective norm and perceived behavior control which reflects perceptions of internal and external constraints on behavior (Teo, Pok, 2003).

Research Model and Hypotheses

Main Hypotheses

1. Attitude has a positive effect on the intention to using Internet-based banking.
2. Subjective norm has a positive effect on the intention to using Internet-based banking.
3. Perceived behavior control has an opposite effect on the intention to using Internet-based banking.

Corollary Hypotheses
1. Perceived usefulness (advantage) has a positive effect on attitude of customers toward using Internet-based banking.
2. Perceived usefulness has a positive effect on intention to using Internet-based banking.
3. The perceived ease of use has a positive effect on the attitude of customers toward using Internet-based banking.
4. The perceived ease of use has a positive effect on the customers’ perceived usefulness to use Internet-based banking.
5. Security and privacy have a positive effect on the attitude of customers to use Internet-based banking.
6. Compatibility has a positive effect on the attitude of customers to use Internet-based banking.
7. Self-efficacy has a positive effect on the perceived behavior control to use the Internet-based banking.
8. Government support has a positive effect on the perceived behavior control to use Internet-based banking.
9. Technical support has a positive effect on the perceived behavior control to use Internet-based banking.

![Conceptual Research Model](image)

**Methodology**

The purpose of this investigation is to study those factors effective on the acceptance of Internet-based banking. Correlational survey method of research has been used and it is an applied research regarding its purpose. The sample of the study includes all customers having electronic cards special for bank services in Ilam province banks. The sampling method is random-cluster method and among customers of Ilam province banks, the customers of banks of Ilam city were selected. Then, customers were selected by simple random method and all members have an equal chance to be selected. In order to determine the sample size, it Cochran formula was used which is normally used in conditions where the sample size is not clear.

\[ n = \frac{Z^2pq}{d^2} \]  

By considering %5 for the value of feature ratio in society \((p=0.5)\), deviation is \(d=0.05\) and the amount or value of standard variable in confidence level \(95\%\) equals 1.96, sample volume was 385 subjects. 400 questionnaires were handed out in person in order to ensure their return.

**Reliability and Validity of This Research**

To determine the reliability of the questionnaire, \(\alpha\)-Cronbach method was used whose value must be more than 0.6. Total \(\alpha\)-Cronbach equals 0.964 that indicates the proper reliability of this research.

Since the questionnaire used in this research is a standard, one it has been confirmed by experts and it has content validity. Also, the validity of questions has been considered by means of factor analysis method.
Data Analysis
In order to analyse descriptive statistics and features of the study sample, SPSS software was utilized. AMOS was used to analyse data and test the model. Data analysis was performed in two stages of structural equation modeling and confirmatory factors analysis. At first, convergence and validity of this model were tested. Then a structural model was used to determine the strength of relationship between variables and goodness-of-fit. The measurement model determines how final variables or hypothetical (supposed) structures would be assessed based on observable variables and their validity and reliability is measured. On the other hand, structural equations model will determine the causal relations between hidden variables and explain the causal effects and the obtained variance rate.

Findings
The Test of Goodness of Fit
After determining a model, there are several methods to estimate its total goodness of fit based on the observed data. Generally, several indices are used to assess goodness of fit, but normally 3-5 indices would suffice (Qazi Tabatabai, 2002). Based on a rule of thumb, a default model has goodness of fit supposed model is goodness when the computed indices are in the permissible domain. If any computed index is outside this domain, it means that the index has a weak fitting. The table 1 shows the indices of model fitting.

<table>
<thead>
<tr>
<th>The model's computed indices</th>
<th>Permissible domain</th>
<th>Indices</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>less than 0.08</td>
<td>RMSEA</td>
</tr>
<tr>
<td>0.03</td>
<td>near to zero</td>
<td>RMR</td>
</tr>
<tr>
<td>0.94</td>
<td>more than 0.9</td>
<td>GIF</td>
</tr>
<tr>
<td>0.94</td>
<td>more than 0.9</td>
<td>NFI</td>
</tr>
<tr>
<td>0.95</td>
<td>more than 0.9</td>
<td>IFI</td>
</tr>
<tr>
<td>0.95</td>
<td>more than 0.9</td>
<td>CFI</td>
</tr>
</tbody>
</table>

Based on the obtained values in table 1, it can be said that the model has a relatively proper fitting.

Hypotheses Test
In order to investigate the main research hypotheses, Structural Equations Model (SEM) was used. In this model, the effect of concealed concepts of attitude, subjective norm and perceived behavior control on the concealed concept of intention to use Internet banking was explored. Actually, in one part, the effect of independent variables (attitude, subjective norm and perceived behavior control) on the dependant variable (intention to use Internet banking) will be explored. Table 2 shows the significance of coefficients and obtained parameters of the whole measurement model of this research. If significance test of all parameters is more than 1.96 and less than -1.96, then obtained coefficients are significant. Significance of these values indicates the significance of the model. In other words, every one of these elements arranged in the frame work of every significance factors. With respect to Table 2, all hypotheses, except the second main hypothesis, have been confirmed.

Figure 2. Results of structural modeling analysis
DISCUSSION AND CONCLUSION

The purpose of the present research is to identify effective factors on the acceptance of Internet-based banking by banks.

Table 2. Results of Hypotheses Test

<table>
<thead>
<tr>
<th>Test Result</th>
<th>Dependant Variable</th>
<th>Independent Variable</th>
<th>significance Level</th>
<th>Standard coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 accepted</td>
<td>Intention to use</td>
<td>Attitude</td>
<td>26.750</td>
<td>%99</td>
</tr>
<tr>
<td>H1 rejected</td>
<td>Intention to use</td>
<td>Subjective norm</td>
<td>-0.151</td>
<td>%7</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Intention to use</td>
<td>Behavior control</td>
<td>7.511</td>
<td>%15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Perceived usefulness</td>
<td>2.404</td>
<td>%28</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Attitude</td>
<td>Perceived usefulness</td>
<td>3.382</td>
<td>%64</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Attitude</td>
<td>Perceive ease of use</td>
<td>11.541</td>
<td>%52</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Perceived usefulness</td>
<td>Perceive ease of use</td>
<td>6.563</td>
<td>%70</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Attitude</td>
<td>Security and privacy</td>
<td>12.766</td>
<td>%58</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Attitude</td>
<td>Compatibility</td>
<td>15.438</td>
<td>%1.03</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Behavior control</td>
<td>Self- efficacy</td>
<td>9.509</td>
<td>%58</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Behavior control</td>
<td>Government support</td>
<td>11.735</td>
<td>%76</td>
</tr>
<tr>
<td>H1 accepted</td>
<td>Behavior control</td>
<td>Technical support</td>
<td>12.045</td>
<td>%86</td>
</tr>
</tbody>
</table>

customers. The obtained results support the technology acceptance model. These results correspond with the technology acceptance model which implies that perceived usefulness directly affects the intention to using Internet banking, while perceived ease of use has an indirect effect on the intention to use Internet banking via attitude and perceived usefulness. It means that along with the increase in perceived usefulness and ease of use, the attitude of customers becomes more positive. By promoting customers' understanding of benefits of Internet banking, their intention to Internet-based banking will increase. Chang and Park (2005) concluded that perceived usefulness positively affects the intention of customers towards online purchasing which is also confirmed by the present study results. In addition, the more the customers' understanding of ease, the more their understanding of usefulness will be.

In addition to perceived usefulness and perceived ease of use, both factors of security and compatibility affect the attitude of customers of Ilam province banks. According to Howcroft et al. (2002), security and privacy are important barriers to accept on-line banking. Based on the obtained results, it could be concluded that the more understanding of customers about security and privacy, the more positive their attitude, and the more compatible banking with customers' work and life styles, the more positive customers' attitude and; therefore, their intention to using Internet banking will be increased.

Tio (2000) Shai and Fang (2004) studies showed an important relationship between perceived behavior control and establishment of Internet banking. Therefore, perceived behavior control is another effective factor to accept Internet banking. Based on the obtained results, the three factors of self-efficacy, government support and technical support affect the customers' behavior control. It means that if an individual has a more precise judgment about his ability to use computer, they have more control on the perceived behavior; thus the intention of customers to using Internet banking will be more. Also, the more government and technical support of service delivery, the more perceived behavior control, then the more intention of customers to using Internet banking.

Totally, it could be concluded that among Ilam province banks' customers, two factors affect the acceptance of Internet banking: attitude and perceived behavior control. Subjective norm does not have any effect on intention to Internet banking.

Therefore, in order to motivate customers to use Internet banking, attitude and perceived behavior control must be taken into consideration. Compared to previous research that had only studied attitude and believed that perceived behavior control doesn't affect intention to using Internet-based banking, the results of this research rejected this belief and confirmed its effect.

Implications

Recommendations obtained from the results of testing first main hypothesis

With respect to the obtained results, it is suggested that various banks promote service diversity by means of Internet banking and services be provided in a way that their benefits and advantages are perceived by customers.
It is suggested that Internet banking services and websites designed as such thire learning and using be easy and facile for customers.

It is suggested that websites would be designed as such that confidential and financial information of customers will be preserved with high security.

It is suggested that Internet banking services and websites designed in a way that being compatibility to work and life style of customers and they perceive this case.

**Recommendations obtained from the results of testing second main hypothesis**

With respect to this fact that the subjective norm doesn't affect the intention of customers of Ilam province banks, it is suggested to concentrate less on this factor and no costs paid to motivate customers to use Internet banking by means of this factor.

**Recommendations obtained from testing third main hypothesis**

It is suggested that Internet ratebeimproved and its precision and security be increased as such that of doing transactions be increased and less time be spend to do these transactions.

It is suggested that government supports be increased to deliver these services and more attempts be performed to improve substructures necessary to deliver services.

It is suggested that government have more attempts to improve the security of Internetbanking services.

Government could help to motivate users to use Internet- based banking.

It is suggested to improve the quality of Internet and banking services.

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