

“The analysis of effective factors on E-banking acceptance from customers’ viewpoint in the Refah kargaran Bank branches at Guilan Province”

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ABSTRACT

Customers’ acceptance and trust are one of the important and effective factors on internet banking. The present research is aimed at exploring into the effective factors on E-banking acceptance by the customers and interpretation of behavioral difference in customers of Refah Bank. Hence, 6 effective factors on E-banking were investigated by the aid of Pikkarainen Model [1]. The variables of perceived usefulness of internet banking services, the perceived ease of use, the perceived enjoyment, having information about internet banking, the perceived security and privacy, and also the perceived quality of internet connection were tested. The results have shown that among six independent variables in this study, five variables had significant relationship with variable of internet banking acceptance and only the relationship among two variables of the perceived ease of use of electronic service and internet banking acceptance was renounced. The values of path standard coefficients indicate that the variables of having information about internet, and the perceived usefulness along with path standard coefficients (0.245 and 0.238, respectively) play the highest role in prediction of dependent variable of internet banking acceptance. Similarly, among 6 independent variables, the lowest path coefficient with value of 0.131 belongs to variable of the perceived ease of use of internet banking shows that this variable plays the least role in prediction of variable of E-banking acceptance variable.

KEYWORDS

Pikkarainen Model, E-banking, Refah kargaran Bank, Perceived Usefulness, Perceived Security

INTRODUCTION

The Internet banking acceptance is one of the issues, which have been noticed by many researchers during the recent

that while the previous studies were mainly focused on development of technology, recently the orientation of many researches has returned toward customer- based studies approaches. The results of the former researches indicate that achievement in internet banking is not realized only by supporting from the government and banks, but it necessitates customers’ acceptance as well. Therefore, it can be interpreted that the customers play crucial role in success of e-banking since the conducted measures and efforts in expansion and developing e-banking services will not succeed regardless acceptance of these services by the customers [2]. It is obvious that if e-banking systems are not welcomed by the customers so proposing such services will fail [3].

But the fact is that the ratio of investments, which are made in informatics sector and infrastructures in banks for internet banking, does not proportional to people’s utilization from these modern services in our country [2]. Thus, it requires conducting study on the effective factors on acceptance of e-banking by the customers. Accordingly, the effect of each of these factors will be determined in this study in addition to identifying the effective factors on acceptance of e-banking services from customers’ view as well.

Whereas this study explores customers’ viewpoint thus it can play essential role in deepening the level of awareness of public and private banks and financial institutes regarding the planning for attraction of customers and their encouragement for use of banking modern services and perceiving of customers’ concerns about acceptance of modern services and finally taking appropriate policies and strategies for marketing by the given banks.

SUBJECT INTERPRETATION

introduction of IT and especially internet in banking industry has changed the competitive environment in this industry. With respect to wide changes in world markets and growing severe competition, experiencing interaction with

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customers at world level in online system is a distinctive strategy[4]. Under such circumstances, banks need to modern competitive strategies and customer's behavior is one of the factors, which affect on competitive strategies of banks. Thus, it is crucially important to study on customer's behavior and effective factors in acceptance of internet banking[5]. Of the existing major barriers against the customers' behavior in the path of developing e-banking one can refer to lack of acceptance of the aforesaid technology by the customers and their inclination to procedures of traditional banking[6].

Hence, the present research is mainly intended to examine the effective factors on acceptance of internet banking by the customers and expressing behavioral difference in customers of Refah Bank. Thus, the researcher(s) has tried to identify the reasons for rejection of e-banking and customers' resistance versus its use. In fact, the main problem in this study is that with respect to necessity for use of e-banking tools and their positive effect on performance of bank and rising productivity and possibility for given services to more customers with the existing manpower and requisite for giving services to the new customers who enter in the bank so that customers in this bank highly prefer traditional banking to e-banking and this has increased the operational costs for this bank. To fulfill this goal, Pikkarainen model is employed and according to this model, the effective factors on acceptance of internet banking include usefulness, ease of use, enjoyment, having information about e-banking, security and privacy, and quality of internet contact so that thereby one could identify and prioritize the effective factors on acceptance and use of e-banking and finally propose some suggestions for rising profitability by reducing bank operational costs.

NECESSITY AND IMPORTANCE OF RESEARCH

cyberspace has entirely transformed dramatically the role and position of consumers in the trade world. The undeniable advantages of IT in increasing accuracy and speed in trend of activities, rising world quality, lowering costs, and further satisfaction of customers have caused the organizations to welcome quickly to establishment and use of information systems. Similarly, entering IT and particularly internet into banking industry have changed the competitive environment in this industry. With respect to wide changes in global markets and growing severe competition, the experience of interaction with the customer at world level and online is converted into a distinctive strategy. Really, e-banking is a path toward lowering costs and maintenance in competition compared to traditional banking. Under such conditions, banks need to take new competitive strategies and one of the factors, which affect on competitive strategies in banks is customer's behavior. Thus, it is crucially important to examine customer's behavior and the effective factors on acceptance of e-banking since developing of internet banking is subjected to its acceptance by the customer [5]. To succeed in competitive industry of internet banking, the banks are required for presentation of high quality services to their

customers and this necessitates determining parameters, which have been considered by the customers for evaluation of quality in e-banking service giving systems so that by taking these parameters into consideration the needed step may be taken toward upgrading and improving the proposed services and enhancing the systems of giving internet banking services [7].

Unfortunately, the information systems, which can analyze way of customers' behavior and propose the needed information to the related directors for analysis of customers' behavior, have not yet established. Thus, directors of banks encounter many bottlenecks in acquisition of information and it is difficult for them to identify the environment and especially the customers. The banks only give e-banking services in a competitive climate and they propose these services via different technologies and incur many costs in this path while they pay less attention to this point that why and for what reason they propose these services and how much the people welcome to such technology and they try to remove the defects in their technologies by taking trial and error [8].

In any case, today banking industry is changed quickly. Banks have been also influenced by international economic development and competitiveness of markets. Technology is the main power in this environment that breaks the geographical and industrial [8]. With proposing Iran's membership in World Trade Organization (ETO) and arrival of foreign rivals into financial market of the country, Iranian banks also need to develop their services in line with technological changes.

Alternately, before giving any new service, the studies should be carried out about cost-effectiveness of the aforesaid services, compliance of the modern services with requirements of community, and this point that which system may give these services well to the customers. In developing countries, the banks usually imitate from the developed countries with analysis on the services proposed by banking systems of those countries and they give services and due to lack of conducting the needed researches and studies they provide these services partially for their [9].

RESEARCH QUESTIONS

Major question:

Can the given independent variables in this study affect on changes in rate of use of internet banking?

Minor questions:

- Does variable of the perceived usefulness of e-services affect on acceptance of internet banking?
- Does variable of the ease of use of e-services affect on acceptance of internet banking?
- Does variable of the perceived enjoyment of e-services affect on acceptance of internet banking?
- Does variable of the having information about e-services affect on acceptance of internet banking?
- Does variable of the perceived security and privacy of e-services affect on acceptance of internet banking?
- Does variable of the perceived internet connection in e-services affect on acceptance of internet banking?

RESEARCH HYPOTHESES

- Tested hypothesis: At least one of the independent variables of this study may affect on changes of variable of rate of using e-banking.
- Minor hypotheses:
 - The perceived usefulness of e-services significantly affects on acceptance of internet banking.
 - The perceived ease of use of e-services significantly affects on acceptance of internet banking.
 - The perceived enjoyment of e-services significantly affects on acceptance of internet banking.
 - Having information about e-services significantly affects on acceptance of internet banking.
 - The perceived security and privacy of e-services significantly affects on acceptance of internet banking.
 - The perceived quality of internet connection in e-services significantly affects on acceptance of internet banking.

A REVIEW ON RESEARCH LITERATURE

Many models are trying to predict and describe way of acceptance of technology. Each of these models presents different groups of behavioral and attitudinal parameters out of the existing most prevalent models one can refer to Theory of Rational Action TRA, theory of planned behavior and theory of Technology Acceptance Model TAM (Davis, 1989), and also Unified Theory of Acceptance and Use of Technology UTAUT.

With respect to above models, Pikkarainen model was selected as theoretical model since this model has been designed and tested for internet banking acceptance and on the other hand it is based on Davis' famous Technology Acceptance Model and Davis and Pikkarainen models have been examined under various situations.

Several previous cases of study about this issue are given in the following:

Research of Al- Nahian Riyadh et al (2009) [9]:

This investigation is aimed at effective factors on acceptance of e-banking system by Small and Medium Size Enterprises (SMEs) in Bangladesh and they express that despite of availability and potential benefits of e-banking services, this system is slowly accepted among the customers. In order to identify the effective factors on acceptance of internet banking by small and medium-size enterprises, Technology Organization Environment (TOE) model, Technology Acceptance Model (TAM), institutional theory and organizational intervention have been utilized. Finally, 7 effective factors on acceptance of e-banking have been identified by SMEs including: Organizational capability, interests, reliability, perceived regulation, support, ICT readiness in industries, and lack of readiness in financial and organizational institutes.

Ali Divandari [10] proposed some suggestions about way of designing internet banking service providing systems so that by considering customers' need in process of designing these systems this possibility is provided for acquisition of competitive advantage by the banks, which provide internet services. The effective factors on customers' attitude toward internet banking have been explored in this study. The data

have been collected by means of electronic questionnaire and by conducting case study for customers of Mellat Bank internet services. So the results of this study showed that among the effective factors on quality of internet banking service providing systems, the variable of ease of use of these systems is correlated with quality of internet banking service providing systems at highest level (0.64). After this variable, the other variables are ranked respectively as follows: attraction and usefulness of application of systems (0.62) by sharing, speed of systems in giving services (0.61), consistency of systems (0.52), and finally security of systems (0.51).

In an essay titled 'review of effective factors on internet banking acceptance by integration of theory of planned behavior into the perceived risk by the user',

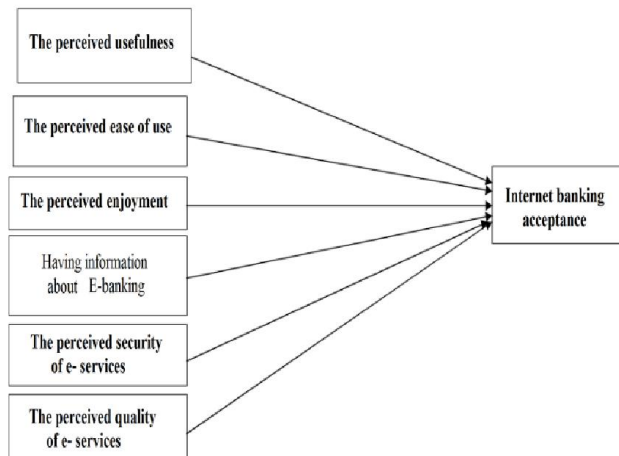
Rastegar and Agha Mohammadi [11] have adopted Technology Acceptance Model (TAM) by aiming at analysis of the effective factors. The used methodology is of survey- correlation type in this study. In this study, statistical population includes a group of customers of Mellat Bank, which they had account in this bank and used e-banking services. The research model has been evaluated by a sample comprising of 384 customers and by means of clustered sampling technique. The effect of variables of awareness of services and benefits, security, quality of internet connection, the perceived usefulness, ease of use and trust in e-banking acceptance were explored in this survey.

The research findings indicate that the information about services and benefits, security, quality of internet connection, ease of use, and the perceived usefulness are effective in internet banking acceptance. Similarly, these findings show that the trust does not affect on customers' attitude toward e-banking.

Rezaee [12] has used Davis' model to recognize the effective factors on rate of using e-banking technologies in his thesis titled 'the analysis of relation among the perceived factors by the customers and rate of using e-banking technologies'. This investigation has been carried out among customers of Melli Bank at Kerman city in 2011 and the findings indicate that there is a direct relationship among the perceived factors derived from Davis' TAM model including the perceived use, the perceived ease of use, and perceived trust with the rate of using e-banking technologies within dimensions of acquisition of information and doing financial operation in e-banking technologies comprising of ATM, POS, Internet-bank, phone-bank, and cellular bank.

RESEARCH THEORETICAL FRAMEWORK

Various models have been adapted to study on effective factors in acceptance of modern ITs. The Pikkarainen model has been used in the current study and according to this model the effective factors on internet banking acceptance are as follows: The perceived usefulness, the perceived ease of use, the perceived enjoyment, having information about e-banking, the perceived security and privacy, and quality of internet connection. The Pikkarainen conceptual model is as follows:



Source: Pikkarainen, Tero, Pikkarainen Kari, Karjaluoto, Heikki & Pahnia, Seppo (2004)

METHODOLOGY

This study is of causal researches in terms of methodology. The present survey is considered as descriptive study based on way of acquisition of the needed data and in terms of classification of studies with respect to their objective. This study is deemed as applied research and it is of descriptive- survey type in terms of method.

DATA COLLECTION TOOLS

Due to type of research as well as wide range of statistical population and thus complexity of statistical sample and for faster access to the comments from the respondents in this study, questionnaire was considered the best technique of data collection in study.

In order to acquire the given results and implementation of methodology appropriately, the following techniques were utilized:

Librarian studies

The library sources were employed to codify fundamentals, definitions, and theoretical concepts out of which the foremost and most useful sources were the internet search engine, banks and information sources, and libraries in national universities.

Field studies

To gather the needed data and to evaluate the rate of measured parameters in this study before they are polled within the format of the questionnaire, they were exposed to judgment by a few experts and specialists from universities and banks and eventually the agreed questionnaire was employed as a tool for data collection. Questionnaire has been utilized in other researches as well.

POPULATION AND STATISTICAL SAMPLE

The statistical population of the current study includes customers of Refah Bank in Guilan Province and 371 questionnaire forms were gathered among total 400 distributed questionnaires.

SAMPLING METHOD

Given that there are totally 42 branches of Refah Bank throughout the Guilan province, 16 branches were randomly selected and also 25 questionnaire forms were distributed in any branch and after their collection among them 371 questionnaire forms were recognized as appropriate for the analysis. Thus, clustered sampling technique has been available for this purpose.

FITNESS OF MEASUREMENT TOOL (QUESTIONNAIRE)

The SMART PLS software has been used to measure the potential of reliability and validity of measurement tool (questionnaire) in which three criteria of reliability (Cronbach Alpha, hybrid reliability, measurement of factorial loads), convergent validity, and divergent validity were calculated so their results can be seen in the following tables. The values of Cronbach alpha coefficients are derived greater than 0.7 for all of research variables and this indicates the reliability and appropriate internal consistency for the mentioned questions in this study. Likewise, the related values for the hybrid reliability were higher than 0.7 in all of research variables so this shows the goodness of the hybrid reliability and thus good fitness of research measurement model. As it seen, the value of factorial loads is greater than 0.7 for all of questions and this reflects the fitness of questions for measurement of the given variable. Similarly, with respect to this point that all mean values for the extracted variances are greater than 0.5 as boundary value for any variable the convergent validity is confirmed for measurement model.

Table(1): Cronbach Alpha, hybrid reliability, measurement of factorial loads

Title of variable	Question	Factorial load	Title of variable	Question	Factorial load
The perceived internet connection	Question 1	0.840850	The perceived ease of use	Question 11:	0.849048
	Question 2	0.0908166		Question 12:	0.808113
				Question 13:	0.799971
Alpha coefficient: 0.698			Alpha coefficient : 0.877	Question 14:	0.848679
Hybrid reliability: 0.862			Hybrid reliability: 0.911	Question 15:	0.890916
Mean variance: 0.765			Mean variance: 0.671		
Having information	Question 3:	0.893063	The perceived enjoyment	Question 16:	0.801464
	Question 4:	0.917337		Question 17:	0.831697

Alpha coefficient: 0.840	Question 5:	0.801133	Alpha coefficient : 0.812	Question 18:	0.815196		
				Question 19:	0.74866		
Hybrid reliability: 0.904			Hybrid reliability: 0.867				
Mean variance: 0.639							
Mean variance: 0.760			The perceived security	Question 20	0.848303		
				Question 21	0.879089		
Alpha coefficient : 0.873			Question 22	0.876081			
The perceived usefulness	Question 6:	0.787597	Hybrid reliability: 0.907	Question 23	0.739968		
	Question 7:	0.875323	Mean variance: 0.664	Question 24	0.718285		
Alpha coefficient: 0.901	Question 8:	0.866350	Internet banking acceptance	Question 25	0.899179		
	Question 9:	0.861915		Question 26	0.896055		
	Question 10:	0.843198	Alpha coefficient : 0.938	Question 27	0.880749		
Hybrid reliability: 0.927			Hybrid reliability: 0.952	Question 28	0.888872		
Mean variance: 0.718			Mean variance: 0.801	Question 29	0.911012		

Divergent validity: The divergent validity means that the items or referents related to a variable only measures the same variable.

In PLS analysis according to view of Fornell and Locker (1981) [13], the mean square root of a variable should be greater than rate of correlation of that variable with other research variables. At this step, we should initially calculate the mean square roots (AVE) and then we substitute the given values on diameter of latent variable correlation.

It is observed that mean square roots (AVE) are greater than correlation values of that variable than other variables so this indicates fitness of divergent validity of the model.

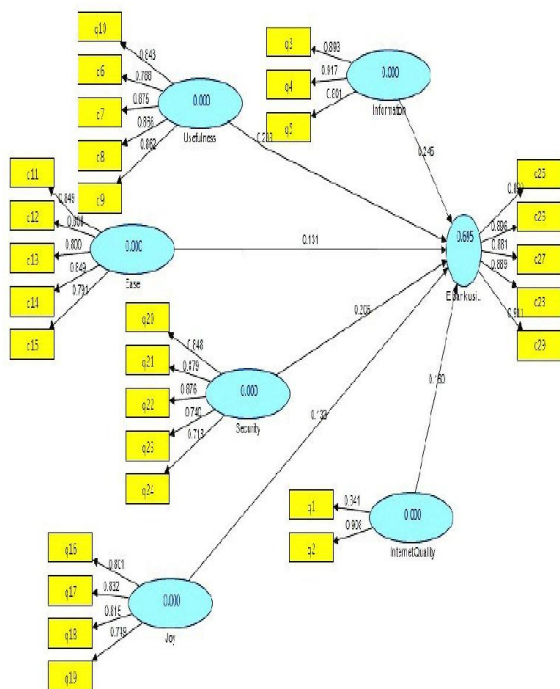
Table(2):latent variable correlation

	Internet banking acceptance	The perceived ease of use	Having information	The perceived quality of internet connection	The perceived enjoyment	The perceived security and privacy	The perceived usefulness
Internet banking acceptance	0.895						
The perceived ease of use	0.647	0.819					
Having information	0.666	0.585	0.871				
The perceived quality of internet connection	0.53888	0.382	0.408	0.875			
The perceived enjoyment	0.600	0.527	0.477	0.311	0.799		
The perceived security and privacy	0.622	0.564	0.404	0.471	0.584	0.815	
The perceived usefulness	0.642	0.523	0.555	0.375	0.465	0.377	0.847

FITTING OF MODEL STRUCTURAL PART AND DATA ANALYSIS

Tested hypothesis: At least one of independent variables in this study affects on changes of variable of the rate of using e-banking services.

To examine hypotheses and fitting of model structural part, we conducted path analysis test and calculation the standard beta value for all of variables as well as determination coefficient R^2 . Three values of 0.19, 0.33, and 0.67 have been considered as criteria for low, average, and high values of R^2 . The following figure shows R^2 values (determination coefficients) and path coefficients to test research hypothesis.



Image(1): R^2 values & path coefficients

As it shown in this figure, R-Square value for dependent variable of use of e-banking is 0.695. This means that approximately in average 69% of variance of internet banking acceptance as dependent variable is predicted by research independent variables. Similarly, the values of path standard coefficients indicate that the variables of 'having information about the e-banking' and 'the perceived usefulness' with the path standard coefficients play the maximum role in prediction of the dependent variable of internet banking acceptance. Likewise, among 6 independent variables, the lowest path coefficient

(0.131) belongs to variable of the perceived ease of use that shows this variable plays the least role in prediction of e-banking acceptance variable. However, with respect to this value, one can confirm the research major hypothesis; the value of general fitness value of the model (GOF) has been also studied for more confidence.

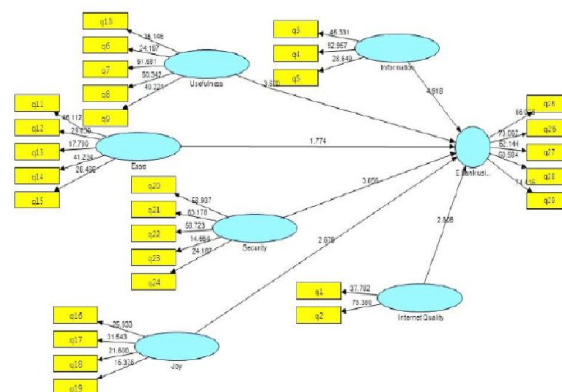
In Partial Least Squares (PLS) technique, the model fitness is determined by calculation of GOF value. With respect to three values of 0.01, 0.25, and 0.26 respectively, which have been introduced as the low, average, and high values for GOF and by acquiring the value of GOF as 0.706, very appropriate fitting value has been displayed for this model so the major hypothesis of the model is approved.

Table (3): Model total fitting

Mean of Communalities	Determination coefficient (R^2)	Model general fitting (GOF)
0.71746	0.695	0.706

Similarly, the research model has been also shown in following figure in Smart PLS output in addition to R-Square and path standard coefficients of model (standard beta (β)) where the values of the t-statistic denote the significance and insignificance of path coefficients. As it seen, values of t-statistic for five variables of the perceived usefulness, having e-banking information, the perceived enjoyment, the perceived security, and the perceived quality of internet banking are greater than 1.96 and this shows that the values of path coefficients in these five variables are significant at least at 95% level of confidence and only t-value for variable of the perceived ease of use is smaller than 1.96 that indicates the value of path coefficient is not significant in this variable.

Thus, research major hypothesis is approved.



Image(2): t-statistic & standard beta (β) & R-Square

RESULTS AND SUGGESTIONS BASED ON RESEARCH HYPOTHESES

At least one of the research independent variables may be effective in changes of variable of e-banking use.

6 variables of the perceived usefulness of e-banking services, the perceived ease of use, the perceived enjoyment, having information about e-banking, the perceived security and privacy, and also the perceived quality of internet connection were tested in the present study. It was identified that among them only variable of the perceived ease of use is not significantly related to e-banking acceptance. The results of current research are consistent with many conducted studies.

➤ RESULTS OF TESTING FIRST HYPOTHESIS

Regarding the first hypothesis i.e. 'The perceived usefulness of e-services affects on internet banking acceptance', the value of t-statistic is about 3.62 and this value is greater than boundary value 1.96. As a result, it can

be accepted at least level of confidence that the relationship among e-services and e-banking acceptance is significant and thus assumption for significance of relationship among these two variables is approved.

➤ RESULTS OF TESTING SECOND HYPOTHESIS

Concerning to second hypotheses i.e. 'the perceived ease of use of e- services affects on internet banking acceptance', the value of t- statistic is 1.77 and this value is smaller than boundary value 1.96 as a result it is identified that there is no significant relationship among the perceive ease of use with internet banking acceptance and consequently the assumption of significance of relationship among these two variables is rejected.

➤ RESULTS OF TESTING THIRD HYPOTHESIS

Regarding third hypotheses i.e. 'the perceived enjoyment of e-services affects on internet banking acceptance', value of t- statistic is approximately 2.68 and this is smaller than boundary value of 1.96; as a result, it can be accepted at least at confidence level 95% that there is significant relationship among the perceived enjoyment of e-services with e-banking acceptance and consequently the assumption of significant relationship among these two variables is approved.

➤ RESULTS OF TESTING FOURTH HYPOTHESIS

Concerning to fourth hypothesis i.e. 'having information about e-services may affect on internet banking acceptance', the value of t- statistic is 4.92 and this is greater than boundary value 1.96 as a result it can be accepted at least with confidence level 95% that there is significant relationship among the giving information about e-services with internet banking acceptance and consequently the assumption of significant relationship among these two variables is approved.

➤ RESULTS OF TESTING FIFTH HYPOTHESIS

With respect to fifth hypothesis i.e. 'the perceived security and privacy of e-services has affected on internet banking acceptance', the value of t- statistic was 3.85 and this is greater than boundary value 1.96 as a result it can be accepted with at least 95% level of confidence that the variable of perceived security and privacy of e-services is significantly related to internet banking acceptance and consequently the assumption of significant relationship among these two variables is approved.

➤ RESULTS OF TESTING SIXTH HYPOTHESIS

Concerning to sixth hypothesis i.e. 'the perceived quality of internet connection of e-services affects on internet banking acceptance', the value of t- statistic is approximately 2.81 and this is higher than boundary value 1.96. As a result, it can be accepted at least with confidence at level 95% that there is significant relationship among the perceived quality of internet connection with internet

banking acceptance and consequently the assumption of significance of relationship between these two variables is approved.

SUGGESTION

Given that the variable of the perceived ease of use does not affect significantly on e-banking acceptance thus it is suggested to the banks to play up the ease of operation with e-banking system in their advertisements thereby to encourage the people to use e-banking services.

With respect to the fact that variable of the perceived enjoyment has significant effect on e-banking acceptance thus it is suggested to the banks to design the method of using e-banking tools and software in such a way that to improve this dimension of using internet banking. Similarly, it is suggested them to provide customers' access to amusing sites and to broadcast light and beautiful music upon opening the site and during giving services to the customers with footage of advertisement short shows.

Given that having information variable has significantly affected on internet banking acceptance; therefore, it is suggested to banks to employ various tools to embed further information about the facilities of e-banking in this system so that all social classes to be able to have access to the given information. The appropriate training for customers should be preferred. Similarly, the bank should refer to advantages of internet banking in its advertisements such as reducing cost and saving time as well as public interests such as reduced consuming fuel and lower cost for printing bank notes, reduced environmental pollution, and decrease in traffic rate etc. Likewise, it is suggest holding of several festivals to express gratitude from the premier customers in using online services.

Security and privacy are some of very effective variables in the current research thus it is suggested to the bank to develop trust in banking system by holding certain conferences and seminars for the premier customers.

Similarly, it is suggested them to use software with more security potential as well as employing academic specialists and elites in supporting units and giving response to online customers.

Given that the variable of the perceived quality for internet connection affects on e-banking acceptance and use; thus, it is suggested to the banks to invest further in giving information as well as about its quality and also Central Bank of Iran may contribute to developing banking system with granting special facility to the pioneer banks in this process.

Similarly, it is suggested to the bank to make effort to accelerate the speed of operation in their site. Of course, improving ADSL internet infrastructures is one of the activities, which requires the effort made by the governmental officials and banks could not afford for it alone.

THE SUGGESTIONS FOR THE FUTURE RESEARCHES

The correlation method was employed in the present study and based on the coefficients derived from the prioritized variables it is suggested to use other techniques such as

AHP. Similarly, the statistical population in the present study was selected from Guilan Province. It is also suggested to test these hypotheses in other provinces in order to achieve more reliable results.

Given that SPSS software has been used in most of the previous studies thus it is suggested to conduct the present research in some other banks and several other geographic zones by means of SPSS software.

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