

# Investigating the Effect of Personality Traits, Subjective Norms and Perceptions of Customers on using Internet Banking

Mohaddeseh Kamyab\* and Narges Delafrooz

<sup>1</sup>Department of Management and Accounting, Rasht Branch, Islamic Azad University, Rasht, Iran;  
m.kamyab8358@gmail.com, delafroozn@yahoo.com

## Abstract

**Background/Objectives:** To evaluate the effect of factors such as character traits, norms and perceptions of customers on the use of internet banking. **Methods/Statistical analysis:** This research is an analysis-application one in which the customers of Bank Saderat of Guilan Province located in north of Iran was selected as population and sample consisted of 384 clients as statistic sample. The data collection tools are also standard questionnaire that collected and were analysed through two software SPSS and PLS. **Findings:** The results showed a positive and significant impact “generosity, usefulness, ease of use, security and environmental interest in the use of internet banking”. The mediation role of the security in relationship between “usefulness-use of internet banking” and “Easiness - use of internet banking” and the role of usefulness mediation in conjunction with “Ease of Use - Internet banking Usage” and “Ease of Use - Security” were approved. **Application/Improvements:** As the Iran’s banking method is different from the world’s banks, this research result can be useful for them to achieve their strategic goals on the verge of fundamental changes.

**Keywords:** Internet Banking, Perceived Security, Personality Traits, Subjective Norms, Usability

## 1. Introduction

Internet banking points to e-banking service for personal computers via the Internet or by other equipment capable of Internet access. Several studies have shown that online banking services are one of the most profitable parts of the<sup>1,2,3</sup>. To succeed in a competitive industry internet banking, banks need to provide quality services to their customers that this requires to determine the criteria that the customer uses for assessing the quality of systems of internet banking service so that with regard to these indicators, the necessary steps are done to improve the quality of offered services and improving the systems of Internet banking service<sup>4</sup>. In Iran, on the use of internet banking and its benefits, a lot of information is done, however, information on the one hand, still need of internet banking is not felt by people and bank customers as a vital

necessity and bank customers prefer the traditional system than the Internet. So this study tried to pay attention to factors such as personality and perceived lack of feeling in the area of customer acceptance of internet banking service in the country, and examines above subject and using a survey of customers answers the question of “whether the adoption of Internet banking customers is affected by factors such as personality and perception is?”

## 2. Research Methodology

Research design type, data collection tools and measurement reliability. Methods in this study is a survey-analysis one. To measure the variables, a standard questionnaire was used in the literature that is presented in Table 1. The questions were measured with 5-option range of Likert) strongly disagree, disagree, agree, and strongly agree).

\*Author for correspondence

Due to the translation of the questions contained in a questionnaire in order to ensure the validity, the professors and experts views were used. The questionnaire reliability was assessed using Cronbach's alpha coefficient that due to the fact that the average of reliability of all variables are over 0.7 so the reliability of the questionnaire is quite good. Statistical analysis has been done with the help of the SPSS and PLS.

**Population and statistic sample.** The population of this research is all customers of the branches of Bank Saderat of Province Guilan. To determine the sample size according to the size of the population is unlimited, unlimited formula cochrane was used for unlimited communities and sample size was calculated 384. The questionnaire was used to collect data. The questionnaire contains 22 questions that the questions are divided as follows (Table 1).

**Table 1.** Combination of Questionnaire Questions

| N | Variable             | N | Variable                   |
|---|----------------------|---|----------------------------|
| 4 | Generosity           | 4 | Social Influence Dimension |
| 4 | Perceived Usefulness | 4 | Perceived Security         |
| 4 | Perceived Ease       | 2 | Use of Internet Banking    |

To distribute a questionnaire, firstly the population was divided into homogeneous parts, and then purposeful independent random samples were extracted from the separate subsets. To determine the distribution of the questionnaires, defined areas were used by the Saderat bank. Thus, the bank has classified its branches in 8 areas.

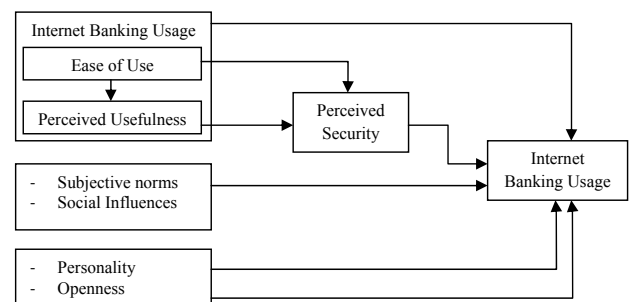
### 3. The Hypotheses of this Study

- Customers openness has a positive impact on the use of Internet banking.
- Customers perceived security has a positive impact on the use of internet banking.
- Customers perceived usefulness has a positive impact on the use of internet banking.
- Customers perceived ease of use has a positive impact on using internet banking.
- Customers perceived ease of use has a positive impact on perceived usefulness.
- Customers interest to keep the environment has a positive impact on using internet banking.
- Perceived usefulness has a positive impact on perceived security by customers.

- Perceived ease has a positive impact on security perceived by customers.
- Perceived usefulness plays a mediating role in the relationship between perceived ease of use and the use of Internet banking.
- Perceived security plays a mediating role in the relationship between perceived ease of use and use of Internet banking.
- Perceived usefulness plays a mediating role in the relationship between perceived ease of use and perceived security.
- Perceived security plays a mediating role in the relationship between perceived usefulness and use of Internet banking.

### 4. The Study of Conceptual Model

The theoretical framework of study is the relationship between dependent and independent variables, each of which includes: capability of use, subjective norms, personality traits as the independent variable and the variable of Internet banking usage as dependent variable and the perceived security as mediator variable. The procedure is shown in Figure 1.



**Figure 1.** Research Model.

### 5. Findings

In this study, the collected data was presented in the form of descriptive and inferential statistics using two software SPSS19 and PLS. In descriptive statistics for sample distribution in terms of demographic variables and the dependent and aspects of independent variables, the values of mean, standard deviation, variance and frequency were used and in inferential statistics, simple and multiple regression analysis and path analysis were used. In the

**Table 2.** Description of research Variables

| Internet Banking Usage | openess | Perceived Usefulness | Perceived Ease of Use | Social Influences | Security |                    |
|------------------------|---------|----------------------|-----------------------|-------------------|----------|--------------------|
| 3.827                  | 3.874   | 3.9186               | 3.851                 | 3.992             | 4.052    | Mean               |
| 0.538                  | 0.500   | 0.47597              | 0.441                 | 0.483             | 0.481    | Standard Deviation |
| 0.289                  | 0.250   | 0.227                | 0.194                 | 0.234             | 0.232    | Variance           |
| 384                    | 384     | 384                  | 384                   | 384               | 384      | N                  |

selected sample 282 were female (73.4%) and 102 (26.6%) were male, 154 (40.1 percent) were single and 230 (59.9 percent) were married. Also, from the 384 sample, 44 (11.5 percent) were less than 20 years, 143 (37.2 percent) were between 20 and 30 years, 176 (45.8 percent) between 31 and 40 years, 10 (2.6%) between 41 and 50 and 11 (2.9%) had more than 50 years; 9 (3.2%) were under the diploma, 109 (4.28 percent) diploma, 147 (38.3 percent) associate, 57 (8.14%) had bachelor's, 40 (10.4%) senior and 22 (5.7%) have a PhD. In terms of income levels, 74 (19.3 percent) earn less than 300 dollars, 27 (7%) between 300 and 500 dollars, 21 (5.5%) between 500 to 1, 77 (20.1 percent) between 1-1.5 million, 185 (48.2 percent) had more than 1.5 million in revenue.

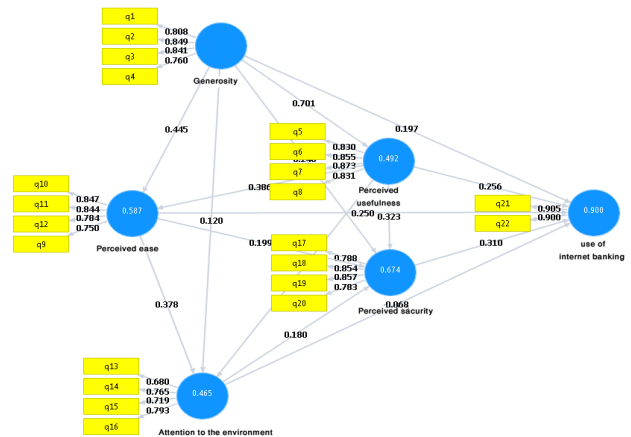
Description of study variables in terms of mean, standard deviation and variance are presented in table 2. As can be seen among the variables, perceived security has the highest average (4.052) and the dependent variable internet banking usage (3.827) has the lowest average.

## 6. Test of Hypotheses

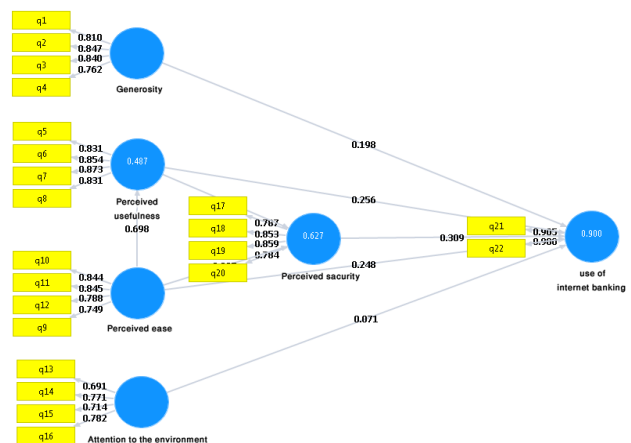
Before entering the test phase with path analysis using structural equation, to ensure the accuracy of the measurement model of study, confirmatory factor analysis was performed. In software PLS for factor analysis it is required that all latent variables to be connected to each other so the obtained model is shown from factor analysis of the study in Figure 2. This figure shows the correlation of each question to its related variable. It can be seen that all these questions measure their variable with a high percentage and have a high correlation with their variables. So no question was removed from the process of analyzing.

## 7. Test of Models

Model testing results and coefficients of paths to them are provided in the Figure (3), (4), (5) and (6).

**Figure 2.** The factor analysis.

Standardized coefficients of direct paths of model and the values of  $R^2$  (coefficient of determination) are represented in Figure 3. By using the standard mode, we can find the correlation rate of latent variables and measure the intensity of the relationship between two latent variables and based on it we can comment about the effect of variables on each other. For example, the Figure 3 shows that the perceived security of internet banking could

**Figure 3.** Direct effect of variables in standard mode.

affect 31% of Saderat bank customers' intention to use internet banking.

T-values of the research models path are presented in Figure 4. The values in this figure measure the significance of the relations between the latent variables. If in a relation the value of T statistics is obtained more than 1.96, that relation will be significance at 5% level, and if the value is obtained more than 2.58, it will be significance at 1% level<sup>5</sup>.

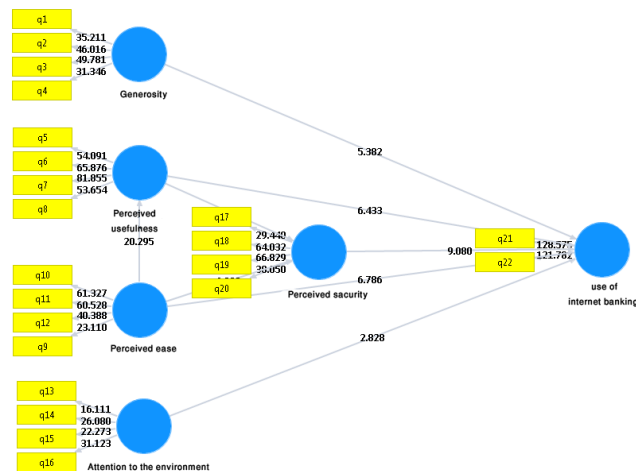


Figure 4. Research main model in a significance mode.

Figure 5 represented the indirect effects of the variables. In this model, only indirect routes have values and indirect paths have zero values. It can be seen perceived ease of use by two variables: perceived usefulness and

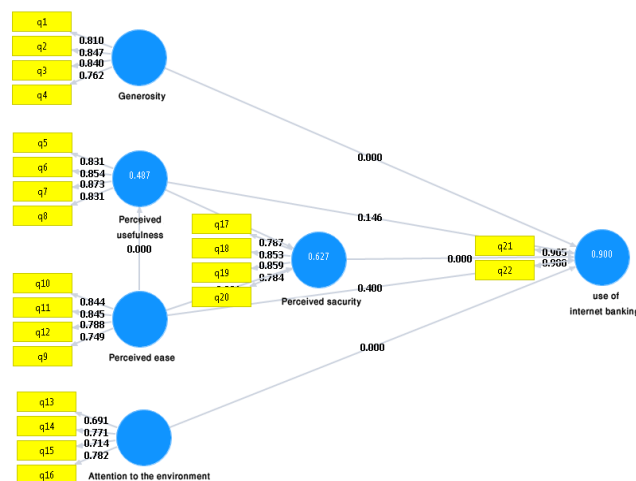


Figure 5. Indirect effects of research variables on each other.

perceived security, has had 40% effect on internet banking of clients of Saderat bank. And perceived usefulness and perceived security could vary from 14.6 percent on the use of internet banking customers to bank affected, and perceived usefulness by perceived security, could affect 14/6% on the use of internet banking of customers of the bank.

The direct and indirect effects of the variables are shown in figure 6. For example, the path coefficient and the effectiveness rate of perceived usefulness variable on using internet banking by customers of the bank (direct effect) was 25.6 as shows in the Figure 3. Result showed the indirect usefulness effect on the use of internet banking (through the perceived security) was 14.6%. The sum of these two values will be equal to 40/2% (Figure 6.).

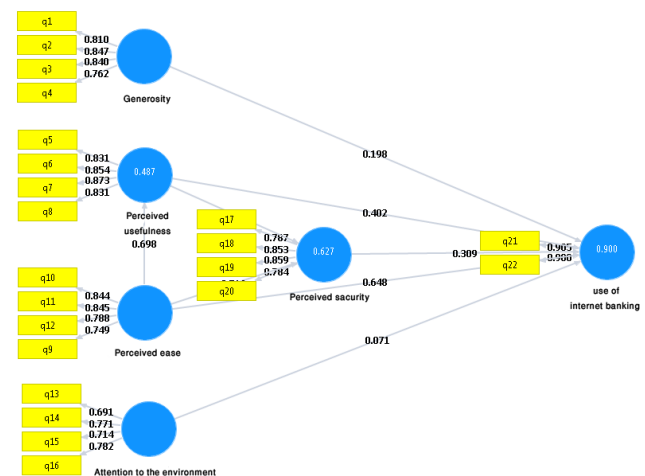


Figure 6. The overall effect (sum of direct and indirect effects).

## 8. The Results of the Study of Hypotheses Test

To better show the test results of the study hypothesis, firstly, the paths coefficients and the amount of their significance and then direct and indirect effect and each of variables on each other are presented in Tables (3), (4) and (5), then each hypothesis results are provided.

The first hypothesis testing showed that the coefficient value of standardized path is 0.198, which indicates a positive impact of generosity on the use of internet banking and the t-statistic value is 5.382 and is greater than the border amount of 1.96 that as a result, it can accepted by at least 99% confidence that generosity has a significant effect on the use of internet banking. As a result,

**Table 3.** Path coefficients in standard and significance mode

| Hypothesis                                        | Standardized $\beta$ | T statistics | Significance | Status of Hypothesis |
|---------------------------------------------------|----------------------|--------------|--------------|----------------------|
| Openness $\rightarrow$ Internet Banking           | 0.198                | 5.382        | Sig<0.01     | Confirmed            |
| Perceived Security $\rightarrow$ Internet Banking | 0.309                | 9.080        | Sig<0.01     | Confirmed            |
| Usefulness $\rightarrow$ Internet Banking         | 0.256                | 6.433        | Sig<0.01     | Confirmed            |
| Ease of Use $\rightarrow$ Internet Banking        | 0.248                | 6.786        | Sig<0.01     | Confirmed            |
| Ease of Use $\rightarrow$ Usefulness              | 0.698                | 20.295       | Sig<0.01     | Confirmed            |
| Social Influence $\rightarrow$ Internet Banking   | 0.071                | 2.828        | Sig<0.01     | Confirmed            |
| Usefulness $\rightarrow$ Perceived Security       | 0.474                | 8.496        | Sig<0.01     | Confirmed            |
| Ease of Use $\rightarrow$ Perceived Security      | 0.385                | 6.323        | Sig<0.01     | Confirmed            |

**Table 4.** Direct and indirect effects of usefulness and perceived ease of use on internet banking usage

| Total effect      | Indirect effect on internet banking | Direct effect on internet banking | Variables             |
|-------------------|-------------------------------------|-----------------------------------|-----------------------|
| 0.248+0.400=0.648 | 0.400                               | 0.248                             | Perceived Ease of Use |
| 0.256+0.146=0.400 | 0.146                               | 0.256                             | Perceived usefulness  |

**Table 5.** Direct and indirect effect of perceived ease of use on perceived security

| Total effect      | Indirect effect on security | Direct effect on security | Variable       |
|-------------------|-----------------------------|---------------------------|----------------|
| 0.385+0.331=0.761 | 0.331                       | 0.385                     | Perceived ease |

the generosity impact assumption on the use of internet banking will be accepted. These results can be compared with other studies the results of the Shik Yoon and Barker Steege<sup>11</sup> and results are in line with his results because their results showed generosity has a significant impact on clients of internet banking.

In the second hypothesis test it was observed that the standard path coefficient value is 0.309, which indicates a positive impact of the perceived security on internet banking and the t-statistic is 9.080 and greater the value border of 1.96. As a result, it can be accepted by at least 99% confidence that the perceived security has significant effect internet banking. As a result the perceived security impact hypothesis on the use of internet banking will be accepted. These results can be compared with other

studies that these findings of this study are consistent with previous findings of the study of Kazemi and Mehrvarzi<sup>8</sup>, Abdolvand and Abdulazimi<sup>6</sup>, Subsorn and Limwiri-yakul<sup>13</sup>, Nasri and Charfeddine<sup>10</sup>, Shik Yoon and Barker Steege<sup>11</sup> and Shik Yoon and Occeña<sup>12</sup> that the perceived security can be considered a prelude to the increased use of internet banking.

The third, fourth and sixth hypothesis testing showed that the standard path coefficient is equal to 0.256, 0.248 and 0.071 that indicates a positive impact of perceived usefulness, perceived ease of use and interest to environment on the use of internet banking and with the 99 percent confidence we can accept positive impact of Perceived usefulness and perceived ease of use on the use of internet banking. So the impact hypothesis of Perceived usefulness and perceived ease of use on the use of internet banking will be accepted. In comparison to the results of this hypothesis with the results of Nasri and Charfeddine<sup>10</sup>, Shik Yoon and Barker Steege<sup>11</sup> and Shik Yoon and Occeña<sup>12</sup> we can say that the result matches with the results of studies in which a significant effect of the perceived usefulness, perceived ease of use and interest to environment on Internet banking has not been approved.

The seventh and eighth hypothesis testing showed that Standard path coefficient are 0.747 and 0.385 that indicates the positive effect of perceived usefulness and perceived ease on perceived security and with at least 99% confidence we can accept that perceived usefulness and perceived ease has a significant and positive effect on perceived security. In comparison of these results with the previous results, the obtained findings match with the results of Shik Yoon and Barker Steege<sup>11</sup> are consistent with the said results.

To assess the ninth hypothesis testing three pathways (direct effect on perceived ease on use of Internet banking

2. the direct effect of perceived ease on perceived usefulness, and 3 (direct effect of perceived usefulness on use of the internet banking), were studied and paths coefficients were 0.248, 0.698, and 0.256, respectively and t-statistics, 6.786 and 20.295, and 6.433 respectively so the positive and significant impact of all paths was approved. So the effect of mediation of mediator variable of perceived usefulness in the relationship between two variables of perceived ease and use of internet banking was accepted. In comparison of the results with the results of previous studies, the obtained results are in line with the findings of Shik Yoon and Barker Steege<sup>11</sup> and correspond with the results of this research.

To assess the tenth hypothesis testing three pathways (direct effect on perceived ease on use of Internet banking 2. The direct effect of perceived ease on perceived security, and 3 (direct effect of perceived security on use of the internet banking), were studied and paths coefficients were 0.248, 0.385, and 0.309, respectively and t-statistics, 6.786 and 6.323, and 9.080 respectively so the positive and significant impact of all paths was approved. So the effect of mediation of mediator variable of perceived security in the relationship between two variables of perceived ease and use of internet banking was accepted. In comparison of the present results with the results of previous studies, the obtained results are in line with the findings of Shik Yoon and Barker Steege<sup>11</sup> and correspond with the results of this research. So with respect to the effect of mediation role of perceived security and perceived usefulness in the relationship between two variables of ease and use of internet banking, the indirect effect of ease on banking, with respect to the said variable was measured and the equivalent 0.400 was obtained; with respect to its direct impact (0.248) the total impact is equal to 0.648.

To assess the eleventh hypothesis testing three pathways (direct effect on perceived security on use of Internet banking 2. the direct effect of perceived ease on perceived usefulness, and 3 (direct effect of perceived usefulness on perceived security), were studied and paths coefficients were 0.385, 0.698, and 0.747, respectively and t-statistics, 6.323 and 20.295, and 8.496 respectively so the positive and significant impact of all paths was approved. So the effect of mediation of mediator variable of perceived usefulness in the relationship between two variables of perceived ease of use and perceived security was accepted. So the direct impact of it was measured and was equal to 0.331 and its total impact was equal to 0.716. In comparison of the present results with the results of previous

studies, the obtained results are in line with the findings of Shik Yoon and Barker Steege<sup>11</sup> and correspond with the results of this research.

To assess the twelfth hypothesis testing, also three pathways (direct effect on perceived usefulness on use of Internet banking 2. the direct effect of perceived usefulness on perceived security, and 3 (direct effect of perceived security on use of internet banking), were studied and paths coefficients were 0.309, 0.474, and 0.256, respectively and t-statistics, 6.323 and 20.295, and 9.080 respectively so the positive and significant impact of all paths was approved. So the effect of mediation of mediator variable of perceived security in the relationship between two variables of perceived usefulness and use of internet banking was accepted. So the indirect impact of it was measured and was equal to 0.146 and its total impact was equal to 0.400. In comparison of the present results with the results of previous studies, the obtained results are in line with the findings of Shik Yoon and Barker Steege<sup>11</sup> and correspond with the results of this research.

## 9. Discussion and Suggestions

The use of internet banking is one of the most modern methods in the area of banking services that because of the benefits it has for banks and customers has a particular importance in all countries because today Internet banking as one of the most important services and technology plays an important role in today's society. The importance of this role is so important that today life cannot be imagined without Internet services. However, despite the notifications, it has not yet found its place in the Iranian customers. So the studies such as the present one in order to identify various motivation factors can be helpful. Thus, with respect to the approval of all the studied variables on people's willingness to use and the acceptance of such technology the following suggestions are offered:

With regard to the confirmation of the relationship between generosity and the use of Internet banking it is recommended to bank managers to identify the personality traits of potential customers through surveys, and consider ways to attract and encourage other personality traits.

With regard to the confirmation of the relationship between perceived usefulness and use of internet banking it is recommended that banks inform potential customers about the benefits of using internet banking compared to

the traditional method, and identify the features that customers consider useful in traditional method and highlight them in internet banking.

With regard to the relationship between perceived ease and use of internet banking it is recommended that in order to promote the willingness of clients to take advantage of this technology, managers of the banks in their policies and planning should consider measures to improve communications and and simplify software and hardware of the technology along with the teaching of using it so that all segments of society, rich and poor, educated and illiterate, use trainings and use internet banking with the facilities they have.

Also according to confirming the relationship of perceived security of offered service and intake services with willingness to use internet banking, it is recommended to banks to equip their databases and website to the latest security systems and the most experienced personnel to prevent any misuse and theft of personal information and on the other hand make the error coefficient minimum during the time of using of the technology because the high security of internet banking technology, is the main condition to attract the trust of customers and the trust of customers to the system ensures the growth of the use of the system by customers.

Also according to the confirmation of the relationship between social norms (interest to the environment and the impact of the opinions of friends, family, etc. on person) with willingness to use of internet banking with Bank Saderat it is proposed that banks, especially Bank Saderat to use the opportunity and use the word of mouth advertising that customers can put in place and relying on this important issue that the use of this service also helps protect the environment while helping to promote the culture of using this service, they also benefit from this service to attract customers.

With regard to the verification of impact of ease on perceived usefulness we can say that according to the users of Saderat Bank to accept that electronic banking, it is essential that electronic transactions are convenient and manageable because it contributes to building confidence and improving their understanding of the advantages of internet banking so it is recommended that as much as possible use simple design and website and for ease of use they should use Help Tips.

With regard to the verification of the impact of the ease and perceived usefulness (capacity of utilization) on perceived security, the bank manager are suggested that they

should try to in order to simplify and minimize the steps processes of transactions, and provide simple instructions for using internet banking services, and information about the benefits of using it (in person or online); because the besides the security issues that the bank must act to it and bank provides a safe and secure environment, part of the reluctance to use is due to the lack of trust in banking security fears due to a lack of familiarity with the environment and lack of familiarity of the benefits of using this technology.

According to the approved mediating role of perceived security in the relationship between “ease and use of internet banking” and “Perceived usefulness of the use of internet banking”, bank managers are recommended to focus attention on the use of all the effort and equipment to create a safe and secure environment; because perceived security by the customer is the condition of trust and facilitates understanding of the capabilities of this technology (ease and usefulness) and as long as do not have a good understanding about the safety of Internet banking its other advantages are not considered. In this context, they can use the appropriate safety systems, and consider some laws related to Internet banking including compensation in the event of errors in the bank activities and application of digital signature to identify the customer in the financial transactions.

With regard to the confirmation of the mediation role of usefulness in the relationship between “ease and use of internet banking” and “ease and security”, it is recommended to broadcast television advertising and radio or TV advertising with the concepts of and time-saving, cost efficient transport, reduced traffic, eliminating the time and place restrictions on internet banking, to inform them about the benefits and encourage them to use it.

## 10. Recommendations for Future Research

With regarding to the fact that psychological risk play an important role in the rate of using internet banking<sup>14</sup>, therefore it is suggested that special planning should be carried out along with studying the degrees of people's risk takings in order to decrease this risk.

It is recommended to future researchers to examine other factors that may affect the acceptance or non-acceptance of this technology such as advertising of banking system, electronic awareness level of people and so on.

It is recommended to use the research model for other technologies such as e-banking, bank cards, mobile banking and telephone banking so that allows comparison of factors affecting the adoption of the technologies via the identification of admission models. This decision will also allow banks to use separate policy for marketing of each of the services; to avoid ineffective factors and allocate their resources in promoting the services in more efficient way.

Also it is recommended to further researchers to study the present research by considering other personality traits such as neuroticism, conscientiousness, extroversion and compliance.

## 11. References

1. Mols NP. The behavioural consequences of PC banking. *The International Journal of Bank Marketing*. 1998; 16(5):195–201.
2. Sheshunoff A. Internet banking – an update from the frontlines. *ABA Banking Journal*. 2000; 92(1): 51–3.
3. Robinson T. Internet banking: still not a perfect marriage. 2000. Available from <http://Informationweek.com>
4. Hashemian M, Esaei M T, Mikaeili F, Tabatabaei M. Factors effect on the acceptance of Internet banking from the saman banks customers. *IT management Journal*. 2012; 4(12):155–74.
5. Azar A, gholamzadeh R, ghanavati M. Path-structural modelling in management: application of smart PLs software. Tehran: knowledge perspective. 2012.
6. Abdolvand M A, Abdolazimi H. Evaluating the factors influencing the adoption of internet banking: an integration of TAM and TPB with perceived risk and perceived benefit. *Journal of Marketing Management*. 2012;7(15):1–14.
7. Ariff MSM, Ooi Yun L, Zakuan N, Ismail K. The Impacts of service quality and customer satisfaction on customer loyalty in internet banking. *Social and Behavioural Sciences*. 2013; 81(6):469–73.
8. Kazemi M., Mehrvarzi M. Evaluating the perceived trust and Risk of internet banking customers. Second conference on IT, Now, Future, Iran, Mashhad, 2011.
9. Martins C, Oliveira T, Popovič A. Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*. 2013; 34(1):1–13.
10. Nasri W, Charfeddine L. Factors affecting the adoption of Internet banking in Tunisia: An integration theory of acceptance model and theory of planned behaviour. *Journal of High Technology Management Research*. 2012; 23(1):1–14.
11. Shik Yoon H, Barker Steege LM. Development of a quantitative model of the impact of customers' personality and perceptions on Internet banking use. *Computers in Human Behaviour*. 2013; 29(3):1133–41.
12. Shik Yoon H, Occeña L. Impacts of customers' perceptions on internet banking use with a smart phone. *Journal of Computer Information Systems*. 2014; 54(3):1–9.
13. Subsorn P, Limwiriyaikul S. A Comparative analysis of internet banking security in Thailand: a customer perspective. *Procedia Engineering*. 2012; 32(3): 260–72.
14. Bazgosha G, Eizi N, Nawaser K, Parhizgar MM. Technology of e-banking: perspective of costumers' perceived risk and uncertainty. *Indian Journal of Science and Technology*. 2012; 5(2):2200–8.