

The Role of Trust and Other Behavioral Intention Determinants on Intention toward Using Internet Banking

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Abstract—Advances in telecommunication technologies have enables organizations such as banks and other financial institutions to offer more online services to their customers. Internet banking is one of such services that many banks have been venturing into with large investment. However, studies show that the adoption and usage by customers in some countries are very low. This paper presents the result of a study at Iranian National Bank, to investigate the determinants of behavioral intention of the bank's customers towards using internet banking. Survey data have been gathered from 237 respondents and the multiple regression and subgroup correlation analyses have been conducted. The result shows that perceived ease of use, social influence, perceived usefulness and attitude toward using have direct and positive effects on people behavioral intention. On the other hand trust has only moderate role on relationship between social influence and intention toward using.

Index Terms—internet banking, trust, behavioral intention, perception.

I. INTRODUCTION

We live in a world that because of globalization, it is faced with inevitable and fast changes. Thus this contemporary world has different names like: post-industrial age, information age or knowledge society [1].

By considering the rapid increase in competition in all areas of business, those institutions which give their customers better services, are more successful. Today, high productivity, improved communication with customers, effective business processes, quality management and strategic management are features and characteristics of many institutions to seek success in this competitive area [2],[3]. One of the crucial innovations is the use of computer networks and Internet in business. Today internet is a very important tool for business trading and it is a powerful media for marketing. E-commerce as one of the achievements of

modern information age has changed global business and the rules. It has created wonderful advantages in conducting business practices for consumers and retailers. This evolution and progress in information and communications technology industry, has created information age where in that computer literacy is inevitable matter for everyone. Consequences of using information technology in organizations include : increasing in speed and accuracy, access to classified information, create close and direct communication, improving speed and ease of decision making, flexibility in organizations and quick respond to dynamic environmental changing and generally cause widespread changes in organizations [4]. Statistics also indicate the rapid growth of e-commerce in developing countries and emphasize on implementing new required policies and strategies to expand this technology in these countries. On the other hand, although millions of dollars spent annually on creating and operating the electronic banking systems, and despite of many advantages, the results and reports show that almost all potential users do not use these systems [5]. As a result, perception and complete understanding of the affecting factors on the acceptance and usage of new technologies and its impact on the performance of financial institutions and banks, is one of the important prerequisite that we should consider before investing on e-banking. Various studies have been conducted regarding the barriers of e-commerce development and also about affecting factors on the development and success of electronic commerce which this study examines some of them. Since Aladwani [6] argued that creating and maintaining customer trust toward using new banking channels such as mobile banking have significant effects on people intention toward using new banking channels, in this research we investigate on the impact of “moderate role of trust” on “dependent and independent variables”.

II. LITERATURE REVIEW

One of the vital tools for expanding the electronic commerce is electronic banking system which operates simultaneously with the global financial and monetary systems and facilitates electronic commerce activities. In other words, it can be said that the implementation of electronic commerce, requires electronic banking. Electronic banking is using new advanced hardware and software technologies based on telecommunications networks in order to exchange resources and financial information in electronic

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form which can eliminate the physical need of users in different branches of banks. Electronic banking in terms of electronic banking facilities and market needs includes: Internet Banking, Mobile Banking, Phone Banking, Fax Banking, Automatic Teller Machine (ATM), Electronic Funds Transfer at Point of Sale (EFTPOS) and Electronic branches [7]. Internet banking term is used to describe the cases where the customers do their banking transactions through the internet [8]. Internet Banking are interesting for customers because they will be able to do all their banking tasks anywhere, at any time, faster and with lower cost compared with other banking channels. Despite of all the obvious advantages of the internet banking for customers, the acceptance and adoption rate vary in different countries and the reasons for this fact is very important because customer acceptance and adoption is one of the main factors for feasibility and success of new banking practices based on technology [8].

A. Trust

Trust is a positive expectation in which that the other side does not seeking his own benefit on his/her speeches, actions and decisions. Risk and recognition are two concepts which are connected to trust. Generally trust is an important factor in many social interactions that involve uncertainties and dependency. Online transactions and business relationships are not only characterized by uncertainty, but they also have other properties such as anonymity, lack of control and potential opportunism and these are the factors that increase the importance role of risk and trust on e-commerce. Thus Customers do not trust simply on electronic interactions [5]. Importance of establishing and maintaining trust between buyer and seller is known as an e-commerce success facilitator. Trust is a historical process based on relevant and limited experimental samples. Building trust needs time and is a gradual process [9]. Moreover it should be noted that the customer satisfaction is one of the prerequisite of trust because trust happens in long term and customer satisfaction is the issue that guarantees and ensures this long term [5]. Trust is the level of risk that each customer accepts in his/her trading through electronic banking. The result of trust is reducing perceived risk by customer [10], and that leads to a positive customer perception in acceptance of electronic banking. Many empirical researches have investigated the role of trust in electronic commerce with regard to different aspects and multi-dimensional structure of the trust [11]. In 1996, Quelch and Klein indicated that trust is a critical factor in order to motivate buying through the Internet [12]. They believe that the main specific obstacle in perceiving the Internet marketing among customers is their lack of trust on vendor manipulating and ability to meet customer order [12]. According to Disabatino [13] the failure of many Dot.com companies relates to the seller's inability to create a strong relationship of trust with their customers. Hoffman and his colleagues express that high level of trust encourages the desire of online purchasing for customers, while lack of trust is the main reason that prevent online shopping [5]. According to one research in 2008, American users are still worried about the identity theft and this problem has affected their behavior in online purchasing [14]. In this study, 80

percent of people are worried about their identity theft. From 77 percent of respondents who had access to the internet, 36 percent of them had a kind of fear about identity theft on online purchasing and 48 percent of them avoid using online shopping [14]. It can be concluded that by increasing the sales of goods and services via the Internet and by developing electronic commerce and e-banking, the issue of creating trust in e-commerce is more obvious.

III. RESEARCH METHODOLOGY

By reviewing the related literatures and identifying the affecting factors on customer behavior intention toward using electronic banking, the conceptual model of this research is designed as follows:

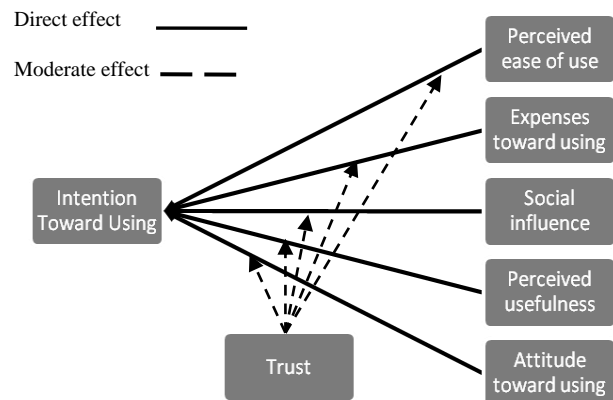


Fig. 1. Conceptual Framework of this research

Based on the conceptual framework, the research hypotheses are:

- 1) Perceived ease of use has direct and positive effect on behavioral intention.
- 2) Expenses toward using have direct and negative effect on behavioral intention.
- 3) Social influence has direct and positive effect on behavioral intention.
- 4) Perceived usefulness has direct and positive effect on behavioral intention.
- 5) Attitude toward using has direct and positive effect on behavioral intention.
- 6) Trust has moderate role on relationship between perceived ease of use and behavioral intention.
- 7) Trust has moderate role on relationship between Expenses toward using and behavioral intention.
- 8) Trust has moderate role on relationship between Social influence and behavioral intention.
- 9) Trust has moderate role on relationship between Perceived usefulness and behavioral intention.
- 10) Trust has moderate role on relationship between Attitude toward using and behavioral intention.

Resulting data from random sampling method of customers of an Iranian national bank, which performed through the survey questionnaire, were evaluated. Data were administrated to 265 Iranian national bank customers and 237 responses were achieved, giving 89.4 % response rate. All items were phrased positively and were scored on a Likert

five-point scale ranging from “strongly disagree” (1) to “strongly agree” (5) and we used the research conducted by Luarn and Lin [15], Grabner, Krauter and Faullant [16], Gu and colleagues [17], Yap and colleagues [18] and Kim and colleagues [19], in the field of electronic banking. In order to ensure reliability, a reliability analysis was performed on the questionnaires. In this analysis, the Cronbach’s alpha on the questionnaire which calculated by using SPSS was 0.749 (after removing one item) and it shows the validity of our measurements in this research.

IV. DATA ANALYSIS

To investigate the hypotheses, we used multiple regression in order to test the direct effect of components on behavioral toward using. Thus, before using this test, correlation coefficients between each of the components were examined. After ensuring of the significant relationship between the variables of this research, we used multiple regression analysis.

As the results of Table I, we can see the significant relationship between independent and dependent variables, then right now by using multiple regression analysis we can investigate on this issue whether the relationship between independent and dependent variables are positive and direct or negative. Table II, shows the result of multiple regression analysis.

The results of multiple regression analysis shows that between Perceived ease of use, Social influence, Perceived usefulness, Attitude toward using and intention toward using electronic banking, there is a direct causal relationship. Since their significantly levels are less than 0.05, therefore the hypotheses number 1, 3, 4 and 5 were confirmed, but the hypothesis number 2 was rejected. On the other hand since beta coefficient for the relationship between Perceived ease of use and intention toward using is equal to 0.228, this means that by increasing one unit of Perceived ease of use, therefore his/her intention toward using of this system, will be increase 0.228 units. (By assuming that the other variables are constant). Also, by decreasing one unit of Perceived ease of use, therefore his/her intention toward using of this system, will be decrease 0.228 units (By assuming that the other variables are constant). As a result whatever the person's Perceived ease of use of internet banking services to be

improved, therefore his/her intention toward using and finally the chance of usage of the system will increase.

According to Stone-Romero, & Anderson [20], for investigation on the effect of moderating variables, we can use mediator regression analysis and subgroup correlation analysis. In the subgroup correlation analysis, equality of two or more correlation coefficients which are related to the available subgroups will be tested. In this method, based on scores on a moderator variable (e.g., X_2), K subgroups will be formed and the correlation coefficient between two other variables (such as X_1 and Y) will be calculated based on inside-subgroups. Then the equality of K obtained coefficient will be tested. For this purpose, we use regression coefficients in each subgroup-sample (e.g. $r_1, r_2, \dots r_k$) for calculating the required parameters in Chi square test. U_0 distribution statistic is similar to Chi square distribution with k-1 degree of freedom and can be calculated as follows:

$$U_0 = \sum_{k=1}^K (N_k - 3) (Z_k - Z_0)^2$$

The parameters are:

N_k : Number of K's subgroup members in the sample

Z_0 : weighted average values of Z_k (The Z_k values for each subgroup should be multiplied by the subgroup members and should be divided into the total members of subgroups.)

Z_k value also can be calculated by using the following formula:

$$Z_r = \frac{1}{2} L_n \frac{1+r}{1-r}$$

In order to evaluating the moderate effects of trust, first we calculated the mean of questions, and then according to obtained numbers, the people on the sample should be classified into two subgroups, those with low trust and the people with high trust. Then, for each of the relationship between independent and dependent variables, we should calculate U_0 and Z_k and then we should compare them with Chi square value, with $k-1 = 1$ degree of freedom and alpha equal to 0.05, which is equal to 3.84. If the value of U_0 was greater than Chi square value, then the effect of moderate role will be confirmed and vice versa.

Table III, shows the final results of subgroup correlation analysis.

TABLE I. CORRELATION COEFFICIENTS BETWEEN EACH OF THE COMPONENTS OF THE MODEL

Variables		Intention toward using	Perceived usefulness	Perceived ease of use	Expenses toward using	Attitude toward using	Social influence
Intention toward using	Correlation Coefficient	1.000					
	Sig. (2-tailed)	.					
	N	237					
Perceived usefulness	Correlation Coefficient	.448**	1.000				
	Sig. (2-tailed)	.000	.				
	N	237	237				
Perceived ease of use	Correlation Coefficient	.292**	.305**	1.000			
	Sig. (2-tailed)	.000	.000	.			
	N	237	237	237			
Expenses	Correlation Coefficient	.287**	.447**	.385**	1.000		

toward using	Sig. (2-tailed)	.000	.000	.000	.		
	N	237	237	237	237		
Attitude toward using	Correlation Coefficient	.374**	.323**	.153*	.304**	1.000	
	Sig. (2-tailed)	.000	.000	.018	.000	.	
	N	237	237	237	237	237	
Social influence	Correlation Coefficient	.343**	.213**	-.079	.182**	.227**	1.000
	Sig. (2-tailed)	.000	.001	.223	.005	.000	.
	N	237	237	237	237	237	237

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).

TABLE II. MULTIPLE REGRESSION COEFFICIENTS FOR COMPONENTS OF THE MODEL

Coefficients^a

Model	Standardize d Coefficients	t	Sig.
	Beta		
1 (Constant)		1.456	.147
Perceived ease of use	.228	3.751	.000
Expenses toward using	-.044	-.673	.502
Social influence	.249	4.312	.000
Perceived usefulness	.291	4.470	.000
Attitude toward using	.167	2.840	.005

a. Dependent Variable: Intention toward using

TABLE III. THE RESULT OF THE MODERATE ROLE OF TRUST ON COMPONENTS OF THE MODEL

Variables	Effect of trust variable : Values of U_0	Compare with chi square
Perceived usefulness	2.383	3.84>2.383
Perceived ease of use	1.355	3.84>1.355
Expenses toward using	0.69	3.84>0.69
Attitude toward using	0.239	3.84>0.239
Social influence	7.59	3.84>7.59

As can be seen in Table III, trust has only moderate role on the relationship between Social influence and intention toward using, because obtained value of U_0 is greater than Chi square value for both variables. Therefore only hypothesis number 8 is confirmed. After this confirmation, the regression analysis performed one more time on the subgroup of trust in order to specify the kind of moderate relationship of trust on that. From the analysis, the regression coefficient of Social influence subgroups with low trust is equal to 0.386 and for subgroups of people with high confidence was 0.133. These coefficients show that the Social influence on intention toward using for people with low trust is greater than those with high trust.

After identifying and investigating the effective factors on Iranian customers' attitude toward using internet banking, and based on similar research works, especially Suh and Han [21],

the following model for re-evaluating the role of trust is proposed. We used structural equation modeling (SEM) approach by LISREL version 8.53 in order to investigate the afore-mentioned relations in this model.

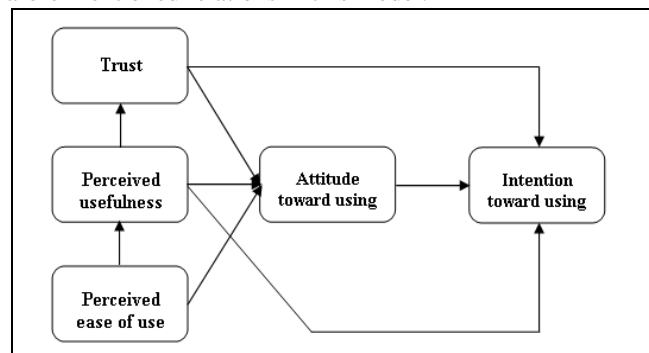


Fig. 2. Proposed model

The initial results of structural equation modeling presented in Fig. 3 (A and B).

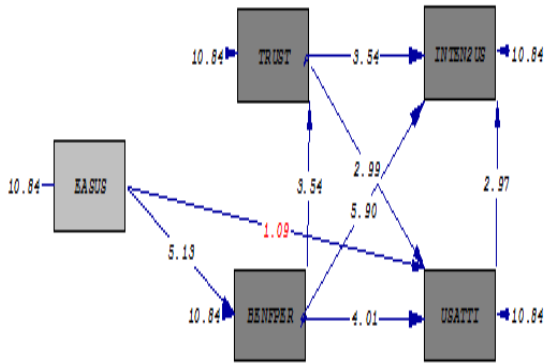


Fig. 3. (A): Significant coefficients of initial model

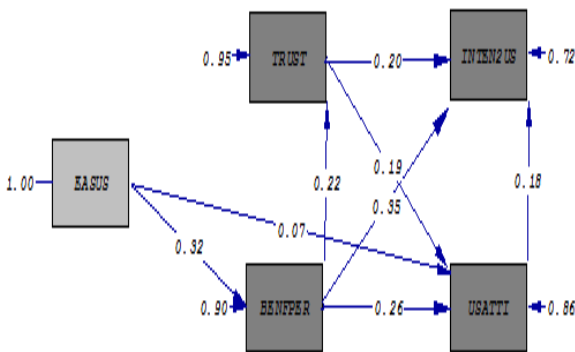


Fig. 3. (B) : Standard coefficients of initial model

Considering the significant values, all hypotheses except Hypothesis 5, have the value more than 1.96 which confirms the proposed hypotheses. Fitness indices of primary model are shown in Table IV.

TABLE IV. FITNESS INDICES OF PRIMARY MODEL

GFI (Goodness of Fit Index)	0.97
NNFI (Non-Normed Fit Index)	0.49
CFI (Comparative Fit Index)	0.90
NFI (Normed Fit Index)	0.89
RMSEA (Root Mean Square of Approximation)	0.20

The final model in Fig. 4 has been extracted by changing the software options. As it is clear on this Figure there are new relations in the model compare with initial model. One of these relations is the significant and direct impact of “perceived ease of use” on “intention toward using” and the second one is the impact of “trust” on “perceived usefulness” which is exactly in contrary with the mentioned hypothesis namely the impact of “perceived usefulness” on “trust”. The fitness indices of final model are shown in Table V.

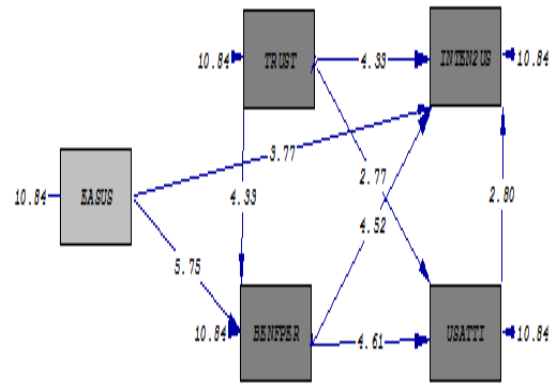


Fig. 4. (A): Significant coefficients of final model

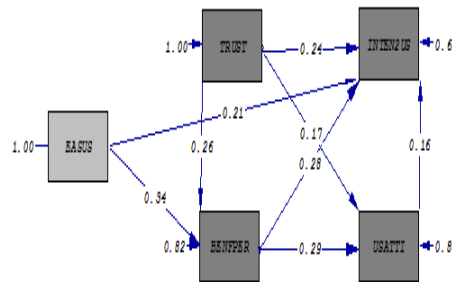


Fig. 4. (B): Standard coefficients of final model

TABLE V. FITNESS INDICES OF FINAL MODEL

GFI (Goodness of Fit Index)	0.99
NNFI (Non-Normed Fit Index)	0.96
CFI (Comparative Fit Index)	0.99
NFI (Normed Fit Index)	0.96
RMSEA (Root Mean Square of Approximation)	0.053

According to the fitness indices of final model on Table V, the final model has an appropriate fitness and it should be mentioned that the results of fitness in the final model indicated the two new relations which we did not consider them on the primary model.

V. CONCLUSION

The purpose of this study is identifying determinants of behavioral intention toward using internet banking. These components including perceived ease of use, social influence, perceived usefulness, Expenses toward using and attitude toward using. The results of multiple regression analysis indicated that direct and positive effect of perceived usefulness, perceived ease of use, attitude toward using and social influence; confirm previous research results of Suh and Han [21], Luarn and Lin [15], Grabner, et al. [16], GU and colleagues [17]. Also results of this research confirm findings of Shah [21] and Hanudin [22] which conducted in Malaysia. The Results show that perceived usefulness and social influence have the most effect on behavioral intention toward using internet banking. For attracting users through internet banking, banks need to use different methods for improving perceived usefulness of their customers. So it could be suggest to the banks that give some benefits to their internet banking users such as: high chance of participating in the bank lottery

or special services and offers and etc. The secondary purpose of this research was investigation on the moderate role of trust based on the conceptual framework of this study. We used the subgroup correlation analysis which was presented by Romero and Anderson [20] for this case. The result of this analysis indicate that trust has moderate role on relationship between social influence and intention toward using internet banking and those people who have low trust on the internet banking system are more under the Social influence. Banks should increase their customers trust by reducing the fear of doing their transactions through internet banking by improving the security of their system and using up-to-date techniques in this case. They can also use the supportive structure such as insurance companies for increasing their customers trust.

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