ANALYSIS OF FACTORS INFLUENCING CUSTOMERS' INTENTION TO THE ADOPTION OF E-BANKING SERVICE CHANNELS IN BAHIR DAR CITY: AN INTEGRATION OF TAM, TPB AND PR

Yitbarek Takele, PhD

Ass. Professor, Dept. of Management, Addis Ababa University, Ethiopia

Zeleke Sira

Lecturer, Department of Management, Axum University, Ethiopia

Abstract

This study is undertaken to analyze factors that influence customers' intention to adopt e-banking service channels in Bahir Dar city. A conceptual framework was developed by integrating six variables from theory of planned behavior, technology acceptance model and previous studies. The findings revealed that attitude, subjective norm, perceived behavioral control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users' intention to use e-banking service channels.

The construct perceived behavioral control emerged as a dominant factor followed by attitudes and perceived usefulness in predicting an individual's intention to adopt e-banking service channels. Finally, attitude is jointly predicted by perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk while perceived ease of use contributed more for the variation in attitude.

Keywords: E-banking, TAM, TPB, PR, Bahir Dar

Introduction

The breakthroughs in information technology occasioned by the introduction of the telecommunications networks and the computer system persist to shape the way banks and their corporate relationships are structured worldwide. The pressure of globalization, consolidation, deregulation and rapidly changing technology has made it necessary for banks to re-examine their service delivery systems in order to suitably position them within this dynamism of information technology (Woherem, 2000).

With the introduction of communication and computer technology, and its attendant revolution of information processing, electronic banking has become the order of the day resulting in the emergence of various automated devices enabling the banking industry to improve the speed and quality of service delivery and rapidly changed how banking is done worldwide. The volume and speed of banking transactions have tremendously improved, especially in the developed countries. Its various innovations have brought about reduction in costs, wide range of banking services, and greater convenience for customers (Ayodeji, 2003).

E-banking, a system that enables banks to offer their customers access to their accounts to transact business and obtain information via electronic communication channels such as Automated Teller Machines (ATMs), tele-banking, home banking and internet banking is becoming a common practice across the developed world (Pikkarainen et al, 2004).

Factors affecting customers' intention to adopt e-banking service channels have been at the forefront of several research works in the developed world (Lassar, 2005; Kolodinsky and Hogarth, 2004; Pikkarainen et al, 2004; Karjaluoto, 2002; Daniel, 1999; Lichtenstein & Williamson, 2006; Sathye, 1999; Yiu et al, 2007; Chan & Lu, 2004; Suh & Han, 2002). Nevertheless, there is very much limited published works that investigate the factors influencing the adoption of e-banking from the viewpoint of customers in the context of developing countries like Ethiopia. To date there have been very few such studies, a remarkable exception to this is the study conducted by (Gardachew, 2010) who studied electronic banking practices, opportunities and challenges in Ethiopia.

Despite the growth of e-banking worldwide, commercial banks in Ethiopia continue to conduct most of their banking transactions using traditional teller based methods. Banking operation is still under developed backed by low level of infrastructural development, lack of suitable legal and regulatory framework, high rates of illiteracy, frequent power interruption and security issues (Gardachew, 2010). Moreover, e-banking is a new technology in Ethiopia which needs a lot of effort and resources to be easily adopted by customers. Hence, in order to help banks improve e-banking adoption by their customers, it is necessary to examine factors that influence customers' intention to adopt e-banking service channels.

The aim of this paper is, therefore, to examine the determinants of customers' intention to adopt e-banking service channels in Bahir Dar city by deriving factors from the technology acceptance model (TAM) developed by Davis (1989), theory of planned behavior (TPB) developed by Ajzen (1985) and perceived risk from other previous studies.

The Research Model

The measurement of customers' intention of to adopt e-banking service channels in Bahir dar city is undertaken with the aid of TAM, TPB and PR variables.TAM was first introduced by Fred Davis in 1989 to predict user acceptance of new technologies. According to TAM, attitude toward new technology is jointly influenced by two main constructs; perceived usefulness (PU) and perceived ease of use (PEOU). He argued that perceived usefulness will directly influence the behavioral intention. If a certain new technology improves the performance of users, potential users will develop a positive intention to adopt it. Moreover, perceived usefulness is influenced by perceived ease of use. Whenever the technology is free of effort, potential users will realize its usefulness.

The extension of the original theory of reasoned action had led to the formation of the theory of planned behavior with the introduction of a new construct; perceived behavioral control to the earlier variables of TRA (attitude and subjective norms). According to this theory, perceived behavioral control is a situation in which the resources and opportunities available to a person must to some extent dictate the likelihood of behavioral achievement. Of greater psychological interest than actual control, however, is the perception of behavioral control and its impact on intentions and actions (Ajzen, 1985).

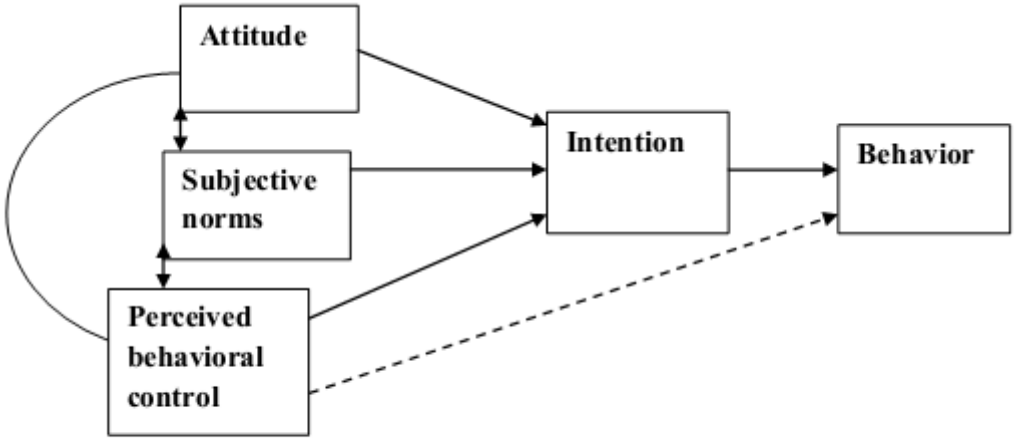

Figure 1: The theory of planned behavior (Ajzen, 1991)

Both TAM and TPB complement each other. While constructs like attitude, subjective norms and perceived behavioral control from TPB predicts intention to use E-banking technology, perceived usefulness and perceived ease of use from TAM predicts attitude. Many studies conclude that perceived risk is the main factor that influences customers' intention to use e-banking. In addition, Perceived risk influences both of TAM and TPB constructs (Schmiege et al, 2009).

Vijayasarathy and Jones (2000) show that perceived risk negatively influenced both perceived usefulness toward online shopping and perceived ease of use to shop online. Other studies similarly find that perceived risk negatively influenced consumers' perceived usefulness or perceived ease of use to purchase on the internet (Davis et al, 1989). According to Schmiege et.al (2009), there is a relationship between TPB and perceived risk. Perceived risk influences intention and attitude negatively. Alireza et al (2010) argued that there is a relationship between TPB and perceived risk. Perceived risk influences attitude negatively. All the variables were integrated to develop the general research model of this study. Hence; the following conceptual framework is developed to serve as a roadmap to analyse the entire study.

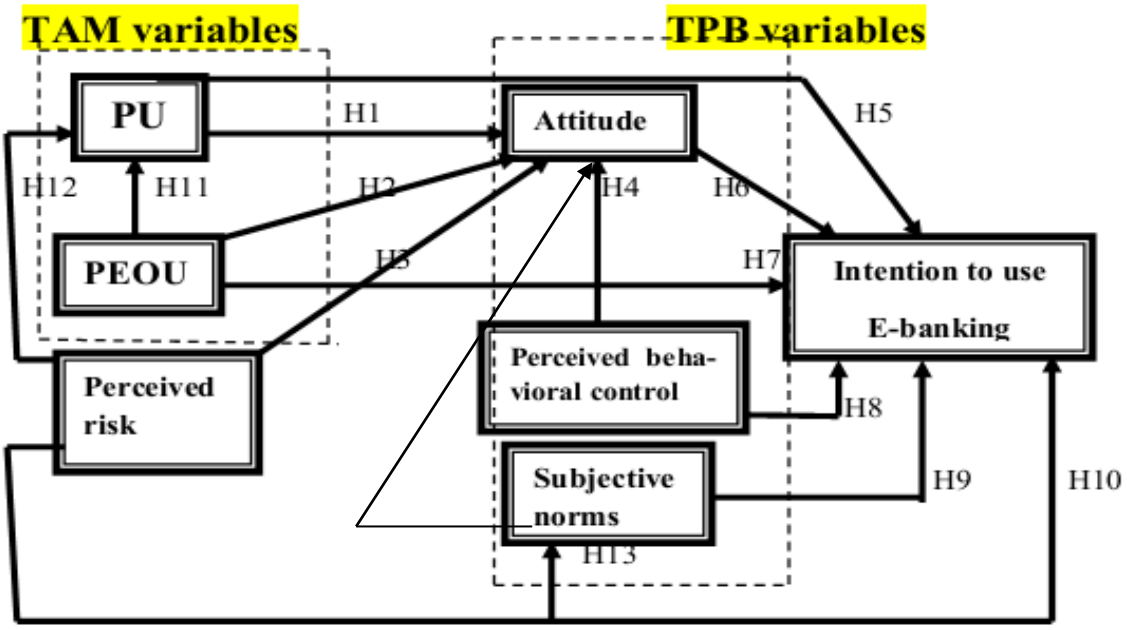

Figure 2.the research framework (own computation)

This research model is unique in that it is comprehensive by integrating the most powerful theories and models that previous studies don't. Moreover, this research model consists of most of the factors that influence e-banking adoption, and has constructs that are related to social, behavioral and technological issues derived from different theories and models previously developed in relation to the acceptance of a new technology. Hence, this study different from previous studies in that it combines constructs from theories and models while previous studies focused only on the constructs from one model. Several related studies emphasis on one side of factors and ignore others.

Research hypotheses

Table 1: Hypotheses emerged from the research model

H1: There is a significant positive relation between perceived usefulness and attitude to use e-banking.
H2: There is a significant positive relation between perceived ease of use and attitude to use e-banking.
H3: There is a significant negative relation between perceived risk and attitude to use e-banking.
H4: There is a significant positive relation between perceived behavioral control and attitude to use e-banking.
H5: There is a significant positive relation between perceived usefulness and intention to use e-banking.
H6: There is a significant positive relation between attitude and intention to use e-banking.
H7: There is a significant positive relation between perceived ease of use and intention to use e-banking.
H8: There is a significant positive relation between perceived behavioral control and intention to use e-banking.
H9: There is a significant positive relation between subjective norms and intention to use e-banking.
H10: There is a significant negative relation between perceived risk and intention to use e-banking.
H11: There is a significant positive relation between perceived ease of use and perceived usefulness.
H12: There a significant negative relation between perceived risk and perceived usefulness.
H13: There is a significant negative relation between perceived risk and subjective norms.
H14: There is a significant positive relation between attitude and subjective norms.

Empirical Model

As discussed in the related literature review part of this study, a conceptual framework was developed based on the technology acceptance model (TAM), the theory of planned behavior (TPB) and previous empirical studies carried out in relation to perceived risk. Based on the conceptual framework of the study, the following empirical model is developed. Thus, parameters for the following functional relationships were estimated using the empirical model. Regression as opposed to other techniques as it is widely accepted model in many of the studies carried in the e-banking service adoption (Alireza et al., 2010 and Alenezi et al., 2010).

$$\mathbf{INT = \beta_0+\beta_{1Att+}\ \beta_{2\ PU}+\ \beta_{3\ PEOU}+\ \beta_{4PBC}+\ \beta_{5SN}+\ \beta_{6PR}+\beta_{7CTU}+\varepsilon}$$

Where:

INT = customers' intention to accept e-banking, Att = attitude of customers, PU = perceived usefulness, PEOU = perceived ease of use, PBC = perceived behavioral control, SN = subjective norms, PR = perceived risk and **ε =** is the error term for any missing variable in behavior of human account, assumed to distribute normally with zero mean and σ standard deviation and is independent of the error terms associated with all other Observations. $\boldsymbol{\beta_0}$ = the intercept value of the regression surface.

Results and Discussions

This section presents the analysis, discussion and inferences made on the basis of the responses obtained. All the data were coded and entered in to SPSS version 15.0 and inferences were made based on the statistical results.

The research instrument used in the study was survey questionnaire. The location of the study was Bahir Dar city. The study population comprised the customers of commercial banks in Bahir Dar city who used at least one type of e-banking services (ATMs, internet banking, SMS banking, tele banking and POS). These customers came from different

backgrounds and were of different ages with other individual differences. A moderately representative sample was obtained by employing the use of a stratified sampling technique. When this research was conducted, there were 10 commercial banks in Bahir Dar city of which 5 banks (Commercial Bank of Ethiopia, Dashen Bank, Wogagen Bank, Berhan International Bank and United Bank) are included in the study as they are offering E-banking services. While Berhan International Bank was offering an advanced delivery system with the use of SMS via account holders' mobiles, it refused to participate in this study.

Table 2: Demographic characteristics of respondents (N=211)

Variables	Category	Frequency	Percent
Gender	Male	125	59.2
	Female	86	40.8
Age	18-30	152	72.0
	31-45	54	25.6
	46 and above	5	2.4
Occupation	Student	30	14.2
	Civil servant	141	66.8
	Self employed	40	19
Education	High school completed	15	7.1
	Diploma	55	26.1
	Bachelors	112	53.1
	Masters or higher	29	13.7

As shown in **Table 2,** there were more males than females with a ratio of 59: 41 respectively. Majority of the respondents were between the ages of 18-30 years accounting for 72% of total respondents. This result supports the findings of a lot of studies on e-banking technology acceptance, where users tended to be young and had at least secondary school level of education (Amel, 1986; El-Haddan & Almahmeed, 1992; Marshal & Heslop, 1988; Swinyard & Ghee, 1987; Taube, 1988).

Table 3: Correlations between Predictors and the Dependent Variable

Variables	1	2	3	4	5	6	7	8
1. CTU	1 211							
2. PU	.187(**) .003 211	1 211						

3.	PEOU	.197(**) .002 211	.051 .230 211	1 211					
4.	ATT	.083 .114 211	.017 .403 211	.475(**) .000 211	1 211				
5.	PBC	.126(*) .034 211	.058 .201 211	.333(**) .000 211	.566(**) .000 211	1 211			
6.	SN	-.080 .125 211	.123(*) .038 211	-.015 .416 211	.045 .259 211	-.099 .076 211	1 211		
7.	PR	-.113 .051 211	-.008 .455 211	-.069 .159 211	- .476(**) .000 211	- .467(**) .000 211	-.091 .095 211	1 211	
8.	INT	.285(**) .000 211	.207(**) .001 211	.451(**) .000 211	.531(**) .000 211	.631(**) .000 211	.057 .204 211	- .228(**) .000 211	1 211

As shown in the correlation matrix intention to adopt e-banking service is negatively and significantly related to perceived risk (r = -0.228, p<0.01). There is also a significant and positive relationship between, perceived usefulness (r=0.207, p<0.01), perceived ease of use (r=0.451,p<0.01), attitude (r=0.531, p<0.01), perceived behavioral control (r=0.631,p<0.01) with intention to use e-banking services. The constructs attitude (r =0.556), and perceived ease of use (r = 0.333) are positively and significantly related with perceived behavioral control (all p_s<0.01). Perceived behavioral control (r = -0.467) and attitude (= -0.476) are negatively related with perceived risk (all p_s<0.01). The construct subjective norm is negatively related with, perceived ease of use (r =-0.015) and perceived behavioral control (r =-0.099), (all p_s >0.05). From this it can be inferred that the influence of relatives, peers and families on the decision of individuals to adopt e-banking services is negligible.

Multiple Regression Results

In this study, multiple regression analysis was carried out to get the predictive value of the constructs considered. Since the model is developed in such a way that each construct is being affected by other constructs, it is necessary to carry out a separate regression analysis against the variables considered to be affected by other variables. This was basically made to

determine the linear combination of the constructs. Tables 4, 5 and 6 present the results from the multiple regressions carried out using the five constructs: perceived usefulness, perceived ease of use, perceived risk, subjective norms and perceived behavioral control as the independent variables and attitude as the dependent variable. This was done to determine the best linear combination of the constructs for predicting attitude.

Table 4 **Model Summary b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	Durbin-Watson
1	.729 [a]	.532	.520	.68231	.532	1.578

a. Predictors: (Constant), Perceived Risk, Perceived usefulness, Perceived ease of use, Subjective norms, Perceived Behavioral control

b. Dependent Variable: Attitude

Table 5 **ANOVAb**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	108.308	5	21.662	46.529	.000 [a]
	Residual	95.438	205	.466		
	Total	203.746	210			

a. Predictors: (Constant), Perceived Risk, Perceived usefulness, Perceived ease of use, Subjective norms, Perceived Behavioral control

b. Dependent Variable: Attitude

Table 6 **Coefficients a**

Model		Unstandardized Coefficients: B	Unstandardized Coefficients: Std. Error	Standardized Coefficients: Beta	t	Sig.	Collinearity Statistics: Tolerance	Collinearity Statistics: VIF
1	(Constant)	.063	.272		.233	.816		
	Perceived usefulness	.066	.059	.054	1.108	.029	.962	1.039
	Perceived ease of use	.383	.047	.421	8.067	.000	.839	1.192
	Perceived Behavioral control	.297	.065	.274	4.584	.000	.640	1.562
	Subjective norms	.042	.056	.037	.750	.454	.938	1.067
	Perceived Risk	-.358	.062	-.320	-5.785	.000	.746	1.340

a. Dependent Variable: Attitude

From Table 4, it can be seen that 53.2% of the variance in the model can be predicted using the independent variables (for attitude).

Table 5 presents the ANOVA report on the general significance of the model. As p is less than 0.05, the model is significant. Thus, the combination of the variables significantly predicts the dependent variable ($F=46.529$; $p < 0.05$). Table 4.9 showed the standardized Beta

Coefficients that present the contributions of each variable to the model. The t and p values showed the impact of the independent variables on the dependent variable. From Table 4.8, it is clear that the construct perceived ease of use had the highest influence on attitude (the dependent variable). The large t value (t=8.067) and corresponding low p value (p< 0.01) supports the result for perceived ease of use which had the highest beta coefficient. On the other hand there is significant and negative relationship between perceived risk and attitude.

Table 7 **Model Summary** [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson
					R Square Change	Sig. F Change	
1	.712[a]	.507	.492	.68368	.507	.000	1.682

a. Predictors: (Constant), Perceived Risk, Perceived usefulness, Perceived ease of use, Subjective norms, Perceived Behavioral control, Attitude

b. Dependent Variable: Intention to adopt E-banking

Table 8 **ANOVA[b]**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	97.998	6	16.333	34.943	.000[a]
	Residual	95.353	204	.467		
	Total	193.351	210			

a. Predictors: (Constant), Perceived Risk, Perceived usefulness, Perceived ease of use, Subjective norms, Perceived Behavioral control, Attitude

b. Dependent Variable: Intention to adopt E-banking

Table 9 **Coefficients [a]**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.088	.272		.322	.748		
	Perceived usefulness	.204	.059	.173	3.432	.001	.957	1.045
	Perceived ease of use	.201	.055	.227	3.687	.000	.637	1.570
	Attitude	.185	.070	.190	2.641	.009	.468	2.135
	Perceived Behavioral control	.491	.068	.465	7.201	.000	.581	1.722
	Subjective norms	.067	.056	.060	1.181	.239	.935	1.070
	Perceived Risk	-.163	.067	-.150	-2.443	.015	.641	1.559

a. Dependent Variable: Intention to adopt E-banking

From Table 7, it can be inferred that 50.4% of the variance in the model can be predicted from the independent variables, attitude, perceived usefulness, perceived ease of

use, perceived behavioral control, subjective norms and perceived risk. Besides, the result on Table 8 shows the model is fit. Thus Attitude, perceived usefulness, perceived ease of use, perceived behavioral control, subjective norms and perceived risk significantly predict the dependent variable Intention to adopt e-banking ($F=34.943$; $p < 0.05$).

From Table 9 it can be inferred that perceived behavioral control has the highest influence on the dependent variable ($\beta = 0.465$, $p<0.05$). Moreover, perceived risk has negative relationship with intention to adopt e-banking services which ($\beta = - 0.150$, $p < 0.05$). This indicates that perceived risk influence intention negatively.

Summary of Hypotheses Testing

In this study Linear Regression was used to test the research hypotheses. The table below shows the summarized results of the hypotheses tested.

Table 10: Summary of hypotheses tested

1. Attitudes(model-1)	**R^2**	**β**
1.1. PU-ATT		0.059*
1.2. PEOU-ATT		0.421**
1.3. PR-ATT	53.2%	-0.320**
1.4. PBC-ATT		0.274**
1.5. SN-ATT		
(0.037,p>0.05)		
2. Intention to use E-banking/the full model		
2.1. PU-INT		0.173**
2.2. ATT-INT		0.190**
2.3. PBC-INT		0.465**
2.4. SN-INT	50.7%	
(0.060,p>0.05)		
2.5. PR-INT		-0.150**
2.6. PEOU-INT		0.227**
3. Perceived usefulness		
3.1. PR-PU	0.3%	(-0.011,p>0.05)
3.2. PEOU-PU		(0.052,p>0.05)
4. Subjective norms (PR-SN)		**(0.091.p>0.05)**

Discussion

Table 10 depicts The results of regression analysis of each model, the result show that intention is individually and co-jointly predicted by perceived ease of use ($\beta = 0.227$,$p<0.01$) perceived usefulness ($\beta = 0.173$, $P < 0.01$), attitude ($\beta = 0.190$, $P < 0.01$), perceived behavioral control ($\beta = 0.465$, $P < 0.01$), and perceived risk ($\beta = -0.150$, $P < 0.01$).These variables together explain **50.7%** of the variance on intention to use e-banking technology.

Hence, hypotheses 5, 6, 7, 8 and 10 were supported. Intention to adopt e-banking services has a strong relationship with perceived behavioral control which is significant at

99% ($\beta = 0.465$, $p < 0.05$). This indicates that perceived behavioral control is the dominant factor that influences the intention to adopt e-banking services.

The results of regression analysis show that attitude is jointly predicted by perceived usefulness ($\beta = 0.059$, $P < 0.05$), perceived ease of use ($\beta = 0.421$, $P < 0.01$), perceived risk ($\beta = - 0.320$, $P < 0.01$) and perceived behavioral control ($\beta=0.274$, $p<0.01$).These variables together explain 53.2% of the variance on attitude to use e-banking technology (coefficient of determination (R^2) is 0.532). Hence, hypotheses (1, 2, 3 and 4) were supported. Perceived ease of use significantly influence attitude ($\beta = 0.429$, $p < 0.05$); this indicates that perceived ease of use is the most factor which influences attitude to adopt e-banking technology.

Based on regression analysis, Perceived Usefulness is not predicted by perceived ease of use ($\beta = 0.052$, $P >0.05$). Hence, **Hypothesis 11 is not supported**. Perceived risk do not significantly influence perceived usefulness ($\beta = 0.011$, $P > 0.05$). Hence, **Hypothesis 12 is not supported**. Perceived risk do not significantly predict subjective norms ($\beta = 0.091$, $p>0.05$), hence, **hypothesis 13 is also not accepted.**

Conclusions

Most of the findings of this study are in conformity with previous empirical studies. The findings revealed that the seven factors included in the models (attitude, subjective norm, perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk were significant in affecting users' behavioral intention to use e-banking.

Results also revealed that the construct perceived behavioral control is the dominant factor followed by perceived ease of use and attitudes in predicting an individual's intention to accept e-banking service channels. The regression result also shows that attitude is jointly predicted by perceived behavioral control, perceived usefulness, perceived ease of use, and perceived risk while perceived ease of use contributed more for the variation in attitude.

The variance explained in this model (52.6%, and 50.4%) is in line with previous studies, Huang et. al. (2007); 49%, Alireza et al. (2010); 44.7%, Alenezi et al. (2010); 37.3% all with Regression analysis and, Baraghani (2007) 56% using Partial Least Square.

References:

Adesina, A. & Ayo C. K. (2010).An empirical Investigation of the Level of Users' Acceptance of E-Banking in Nigeria. *Journal of Internet Banking and Commerce*, 15, (1), 1-13.

Ajzen, I. (1985).From intentions to actions: A theory of planned behavior. In J. Kuhi & J. Beckmann (Eds.), Action control: From cognition to behavior (11-39). Heidelberg: Springer.

Aladwani, M. A. (2001). Online banking: Afield study of drivers, development challenges, and expectations. *International journal of information management*, 21, 213-225.

Alagheband, P. (2006). Adoption of electronic banking services by Iranian customers. (Master thesis, Lulea University of Technology). Retrieved from http://epubl.ltu.se/16530187/2006/49/LTU-PB-EX-0649-SE.pdf

Alenezi, A., R., Abdulkarim, A. & Veloo, A. (2010). An empirical investigation into the role of enjoyment, computer anxiety, computer self-efficacy and Internet experience in influencing the students' intention to use E-learning: A case study from Saudi Arabian governmental universities. *TOJET: The Turkish Online Journal of Educational Technology*, 9, (4), 22-34.

Alireza A.,Yap V. C.& Saravanan M. (2010).Preparation of Measurement Tools of the Effective Factors for the Acceptance of Online Stock Trading. *European Journal of Economics, Finance and Administrative Sciences*, 19, 1450-2275.

Almogbil, A. (2005).Security, perceptions, and Practices: Challenges facing Adoption of online banking in Saudi. PhD Thesis. Washington: George Washington University.

Andam, Z.R. (2003).e-Commerce and e-Business. *E-ASEAN Task force UNDP-APDIP*, 2 (1), 1-47.

Ayodeji, A. (2003). Impact of electronic banking on customer service in Lagos, Nigeria *J.soc.sc*.7 (1), 29-36.

Baraghani, S.N. (2007). Factors Influencing the Adoption of Internet Banking (Unpublished Master's Thesis). Lulea university of Technology. Sweden.

Binda, J. (2005). Banking services and payment systems: selected problems of e-economy in banking, paper presented at the international conference future of banking, retrieved from http://www.opf.slu.cz/pb2000/cz/2005/proceedings/2005_p12.pdf

Calisir, F. & Gumussoy, A. C. (2008). Internet banking versus other banking channels: Young consumers' view. *International Journal of Information Management*, 28, 215– 221.

Chan, S & Lu, M. (2004).Understanding Internet Banking Adoption and Use Behavior: A Hong Kong Perspective. *Journal of Global Information Management*.12 (3), 21-43.

Chellappa, R. & Pavlou, P.A. (2002). Perceived Information Security, financial Liability, and Consumer Trust in Electronic Commerce Transactions. *Journal of logistics information management, special Issue on Information security*, 11, 5.

Daghfous, N. & Toufaily, E. (2007). The adoption of E-banking by Lebanese banks: success and critical factors, research paper, Universte du Quebec a Montreal Retrieved from http://www.esg.uqam.ca/recherche/document/2007/02-2007.pdf

Daniel, E. (1999). Provision of electronic banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-82.

Davis, F. D. (1989).Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*. 13(3), 319-340.

Davis, F. D., Bagozzi, R. P.& Warshaw, P. R. (1989).User acceptance of computer technology: a comparison of two theoretical models. *Management Science*.35 (8), 982-1003

Dillon, A. &Morris, M. (2003).User acceptance of information technology: theories and models for Developing countries. Madrid.

Featherman, M. S. & Pavlou, P. A. (2003).Predicting E-services Adoption: A Perceived Risk Facets Perspective. *International Journal of Human-Computer Studies*, 59, (4), 451-474.

Fink, D. & Jaruwachirathanakul, B. (2005).Internet banking adoption strategies for a developing co untry: the case of Thailand. *Internet Research*, 25, (3), 295 – 311.

Fishbein, M., & Ajzen,. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, Addison-Wesley.

Floh, A. & Treiblmaier, H. (2006).What keeps the e-banking customers loyal? A multi-group analysis of the moderating role of customer characteristics on e-loyalty in the finance service industry. *Journal of Electronic Commerce Research*, 7(2), 97-110.

Furst, K. Lang, W. & Nolle, D. E. (2002). Internet banking: developments and prospects, working paper from office of the comptroller of the currency, administration of national banks, retrieved from http://www.occ.gov/ftp/workpaper/wp2000-9.pdf

Gardachew, (2010). Electronic-Banking in Ethiopia- Practices, Opportunities and Challenges. *Journal of Internet Banking and Commerce*, 15(2).

Haghighi, M., Divandari, A., Keimasi, & M. (2010). The impact of 3D e-readiness on e-banking development in Iran: A fuzzy AHP analysis. *International Journal of Expert Systems with Applications*, 37, 4084–4093.

Karjaluoto, H., (2002). Factors underlying attitude formation towards online banking in Finland, International J. *Bank Marketing*, 11(6), 222-239.

Kerem, K. (2003). Adoption of electronic banking: underlying consumer behavior and critical success factors. Case study of Estonia, paper presented at the 2003 conference of the technology and everyday life network, London, U.K.Retrieved from http://www.lse.ac.uk/collections/EMTEL/conference/papers/kerem.pdf

Khalfan, A. M., Alrefaei, Y. S. & Al-Hajery, M. (2006). Factors influencing the adoption of internet banking in Oman: a descriptive case study analysis. *International journal of financial services management*. 1(2/3), 155-172.

Khalfan, M. (2006). Factors influencing the adoption of Internet banking in Oman: a descriptive case study analysis. *International Journal of Financial Services Management*. 1(2/3), 155-172.

Khalfan, M. Sh, AlRefaei, S.Y. Y., & Al-Hajery, M. (2006).Factors influencing the adoption of Internet banking in Oman: a descriptive case study analysis. *International Journal of Financial Services Management*. 1(2/3), 155-172.

Khan, S. (2009).Adoption Issues of Internet banking in Pakistani's Firms (Unpublished Master's Thesis). Lu lea university of Technology. Sweden.

Kolodinsky, J.M. & Hogarth, J.M. (2004).The adoption of electronic banking technologies by US consumers. *The International Journal of Bank Marketing*, 22(4), 238–259.

Kuisma, T., Laukkanen, T.& Hiltunen, M. (2007). Mapping the reasons for resistance to Internet banking: a means-end approach. *Int J Inform Manage*, 27(2), 75–85.

Lassar, W.M. (2005). The Relationship between Consumer Innovativeness, Personal Characteris tics, and Online Banking Adoption. *International Journal of Bank Marketing*, 23(2), 176-199.

Laudon, D.P. and Laudon, J.P. (2001): *Management Information Systems: Organization and Technology in the Network Enterprises* (4th ed). Prentice Hall International in. U.S.

Lee, E., & Lee, J. (2001). Consumer adoption of Internet banking: Need-based and/or skill based? *Marketing Management Journal*, *spring*.

Lee, E., Lee, J. & Eastwood, D. (2003). A two-step estimation of consumer adoption of technology-based service innovations. *The Journal of Consumer Affairs*, 37(2), 256-282.

Lee, M-C. (2009).Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, doi:10.1016/j.elerap.2008.11.006.

Liao, S., Shao, Y.P, Wang, H. & Chen, A. (1999). The adoption of virtual banking: an empirical study. *International Journal of Information Management*, 19(1), 63 – 74.

Lichtenstein, S., Williamson, K. (2006). Understanding consumer adoption of internet banking: an interpretive study in the Australian banking context. *Journal of Electronic Commerce Research*, 7 (2), 50–66.

Liebermann Y. & Stashevsky S. (2000).Perceived risks as barriers to Internet and e-commerce usage. Qualitative Market Research: *An International Journal*, 5, (4), 291-300.

Lishan, A. (2010).Towards Evidence-based ICT Policy and Regulation: Policy Paper.*ResearchICTafrica.net*, 2 (9).

Mishkin, F. S. (2000). The regulatory and public policy agenda for effective intermediation in post socialist economics, working paper, University of Pennsylvania, Whorton School, (34-96).

Natarajan,T., Balasubramanian S. A., & Manickavasagam S. (2010). Customer's Choice amongst Self Service Technology (SST) Channels in Retail Banking: A Study Using Analytical Hierarchy Process (AHP). *Journal of Internet Banking and Commerce*, 15, 2.

Pikkarainen, T., Pijjarainen,K, Karjaluoto,H & Pahnila,S. (2004).Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet research*, 14 (3), 24-235.

Sathye, M. (1999). Adoption of Internet banking by Australian consumers: An empirical investigation. *International Journal of Bank Marketing*, 17(7), 565-577.

Sathye,M.,(1999).Adoption of Internet banking by Australian consumer: An empirical investigation. *International Journal of Bank*, 17 (7), 324-334.

Schmiege, S. J., Bryan A, & Klein W. M. P. (2009).Distinctions Between Worry and Perceived Risk in the Context of the Theory of Planned Behavior. *Journal of Applied Social Psychology*, 39, (1), 95–119.

Shah, H. M., & Siddiqui A. F. (2006).Organizational critical success factors in adoption of e-banking at the Woolwich bank. *International Journal of information management*, 26, 442-456.

Sheppard, B. H., J. Hartwick (1988). The Theory of Reasoned Action: A Meta-Analysis of Past Research with Recommendations for Modifications and Future Research. *Journal of Consumer Research* 15(3), 325-343.

Sofia Lulseged and Abrha S. Hussein Yimam, (2005). Dashen bank as information infrastructure.

Sohail, M. S. Shanmugham, B. (2003). E-banking and customer preferences in Malaysia: an empirical investigation, information sciences-informatics and computer science. An international journal, 150,207-217.

Suh, B. & Han, L. (2002).Effect of Trust on customer acceptance of Internet Banking. *Electronic Commerce Research and Application*, 1, 297 – 363.

Suh,B. & Han,I.(2002).Effect of trust on customer acceptance of Internet banking. (1) 1, 247-263

Tan, M., & Teo, T. S.H, (2000).Factors Influencing the Adoption of Internet Banking. *Journal of the Association for Information Systems*.

Vijayasarathy, L. R. & Jones, J. M. (2000). Print and internet catalog shopping: Assessing attitudes and intentions. *Internet Research,* 10(3), 191-202.

Walker, R. H., Craig-Lees, M., Hecker, R. & Francis, H. (2002).Technology-enabled service delivery: an investigation of reasons affecting customers adoption and rejection. *International Journal of service Industry management*, 13, (1), 91 – 106.

Wang Y., Wang Y, Lin H, &Tang T. (2003).Determinants of use acceptance of Internet banking: and empirical study. *Int. J. Service. Ind. Manage*, 24, (5), 501-5019.

Woherem, E. W. (2000): Information Technology in the Nigerian Banking Industry, *Spectrum*, Ibadan.

Xu, X. and Zhao, Z.X. (2000).Strategy and revelation of online banking service development in Western countries. Foreign Economy and Management, 22(6), 54–60.

Yang, Y. (1997). The security of electronic banking, presented at the national information systems security conference U.S.A, retrieved fromhttp://csrc.nist.gov/nissc/1997/proceedings/041.pdf

Yin, R. K. (1994). *Case Study Research: Design and Methods*, (2nd ed), Sage Publications Thousands Oak.

Yiu, C.S., K. Grant & D. Edgar (2007).Factors affecting the adoption of Internet Banking in Hong Kong-Implications for the banking sector. *International J. Information Management*, 27(2), 336-351.

Zikmund, W. G. (1994). *Business Research Methods*, (4th ed), Orlando, FL.: The Dryden Pres.