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Factors Affecting E-Banking Adoption and Its Impact on Customer Satisfaction: A Case Study of Ethiopian Banks

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Abstract

Purpose: *The aim of the present paper was to identify current customers of e-banking by predicting their intention to use and its acceptance and impacts on customer satisfaction in selected banks of Ethiopia.*

Research philosophy and approaches: *The philosophy of this research was positivism philosophy and the approach of this research is a deductive approach, the type of the research was quantitative type/ cross-sectional survey design.*

Design/methodology: *The design of this study was conclusive/inferential research design. Data was collected from a self-administered survey from selected banks of Ethiopia. Exploratory Factory Analysis (EFA) by using SPSS 16 and Confirmatory Factor Analysis (CFA) by using AMOS 21 in order identify the factors those affect e-banking adoption. Finally, SEM analysis was done to check the impact of TAM (technology acceptance model) on customer satisfaction.*

Findings: *Perceived ease of use and perceived usefulness were significantly influences the intentions of electronic banking users, intentions of Electronic Banking were significantly influences the Actual usage of Electronic Banking Services and lastly actual usage of electronic banking affect customer satisfaction*

Research limitations/implications: *Sampling issue (researchers select only five banks' customers (Commercial, Wogagen, Dashen, Zemen Bank, and Nib International Bank of Ethiopia purposively) but these five banks are not the only banks to provide e-bank services in Ethiopia); there are other banks as well in Ethiopia. As a result, the analytical results presented here thus may have limited generalisability and care should be taken when generalising the findings of this study.*

Originality/value: *This paper was a pioneer study of satisfaction with electronic banking adoption, especially of the relationships between Technology adoption factors with and its impacts on customer satisfaction*

Keywords: *Electronic Banking, Perceived Ease of Use, Perceived Usefulness, Intention, Actual Usage, Customer Satisfaction*

Introduction and Justification of the Study

Electronic banking was used mainly as information presentation medium in which banks marketed their products and services on their websites. Many Internet-banking services have been initiated such as e-banking centres, e-ATMS, e-phone banking, e-cash cards, and e-saving account etc. Internet bank has evolved into a "one stop service and information unit" that promises great benefit to both banks as well as consumers (Margaret & Thompson, 2000). Growth of electronic banking in a given country depends on many factors, such as success of Internet access, customer's awareness as well as educational status, new online banking features, household growth of Internet usage, legal and regulatory framework. Electronic banking can offer speedier/efficient service, quicker and dependable services to the customers for which they may be relatively satisfied than that of manual system of banking. Electronic banking (such as ATM, POS, mobile banking and Internet banking, home banking, personal computer banking) provide customers with opportunity to establish broad electronic banking transactions by a lower administrative cost and more promptly through bank website, without any temporal and spatial limitation (Pikkarainen, Pikkarainen, Karjaluoto, & Pahnila, 2004).

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According to Qureshi, Zafar, and Khan (2008), the major reasons for moving to the adoption of e-banking services are perceived usefulness, perceived ease of use, security and privacy of online banking. Earlier studies identified that the adoption rate of Internet banking is still low due to a number of factors: customers' perceptions of risk, their specific needs, lack of knowledge about Internet banking, inertia, accessibility of technology, pricing, and IT fatigue (Gerrard, Cunningham, & Devlin, 2006). As far as my knowledge is concerned, no research is conducted by combining TAM model with customer satisfaction in Ethiopian banking industry context. Most research conducted on technology adoption by using TAM model separately; they do not see the impact of TAM model on customer satisfaction. TAM model greatly contribute customer satisfaction. The main objective of this study was to identify current customers of e banking by predicting their intention to use it and its impacts on customer satisfaction in some selected bank of Ethiopia.

Research Hypotheses

Based on literature review, the following hypotheses emerged based on the TAM model (Davis, 1989) for technology adoption of customers and its impacts:

Ho_1: Perceived ease of use has no effect on attitude of buyers.

Ho_2: Perceived usefulness has no effect on attitude of buyers.

Ho_3: Perceived ease of use has no effect on intention to use e banking.

Ho_4: Perceived usefulness has no effect on intention to use e banking.

Ho_5: Attitude of buyers of has no effect on intention to use e banking.

Ho_6: Intention to use e-banking has no effect on Usage of E-banking.

Ho7: Usage of e-banking has no effect on customer satisfaction.

Need and Significance of the Study

The finding of this study may provide marketers/electronic banking sector in Ethiopia with information that could be useful in attracting customers to the banking sector as well as retaining existing customers. With the development of information communication technology, the world has become a global village and it has brought a dynamic revolution in the banking industry. The Ethiopian banks appear to be on fast track for technology based products and services. That is why bank customers are becoming very demanding and it is the extensive use of technology that enables banks to satisfy adequately the requirement of customers as well as the bank must also maintain the existing customers (customer loyalty).

Research Methodology

The philosophy of this research was positivism philosophy. According to Bryman and Bell 2003), positivism research can be defined as a research philosophy where only a phenomenon that can be understood by the senses shall be seen as real knowledge in the world. The aim of the positivism theory is to build hypotheses that should be tested and result can be generalised at the end of the final research discussion and conclusion (Saunders, Lewis, & Thornhill, 2003), As a result, the researchers selected the positivism research philosophy to conduct research on impact of e-banking services on customer satisfaction and loyalty study of Ethiopian banks.

The approach of this research was deductive, because of which the hypotheses were developed from existing theory, often to explain causal relationships, and empirical data are gathered to test these hypotheses. Deductive research usually concerns with collecting quantitative data, to later be able to generalise/ conclude the results (Saunders *et al*., 2003). The researcher used standardised questionnaire to collect the data. As a result the researcher prepared hypothesis about the technology adoption and customer satisfaction based on studies by Davis (1989), Parasuraman, Zeithaml, & Malthotra (2005), Zeithaml, Bitner, and Gremler (2002, p. 363), Anderson and Srinivasan (2003), in addition to this the researcher used standardised questionnaire to collect the data based on Parasuraman *et al.* (2005) e-serv-qual.

The type of this research was quantitative. A quantitative approach is one which the investigator primarily uses for developing knowledge, causing and affecting thinking, reduction to specific variables and hypothesis and question, use of measurement and observation, and the test of theories employs strategies of inquiry such as experiments and survey and collects data on predetermined instruments that yield statistical data (Creswell, 2003). Du Plessis and Rousseau (2007) identified that a quantitative research approach is a systematic and structured, aimed at obtaining information from respondents in a direct, open manner. Results obtained from such type of approach are easily quantifiable and has a potentially high degree of accuracy. According to the Herington and Weaven

(2009), a quantitative research can be taken as the most appropriate for examination of the measurement of electronic quality by taking the form of distribution of a survey questionnaire. That is why the researcher used this type for conducting a research on electronic banking service quality and its impacts.

Unit of Analysis and Delimitation of the Study

Unit of analysis for this study was customers who are using e-banking service in Commercial Bank, Wogagen Bank, Dashen Bank, Nib International Bank of Ethiopia, and Zemen bank in Addis Ababa, Ethiopia. Only customers with one online bank account and having experience in using e-banking were considered as potential respondents. Researcher delimited to the five banks because of the following reason. Firstly, the Commercial Bank and Dashen Bank are the first banks to bring e-banking service in Ethiopia and later Wogagen, Zaman Bank, and Nib International Bank too followed e-banking services. Based on the bank technology adoption age and to make research manageable and achievable, the researchers delimited the scope of the banks in to five banks.

Sample Size and Sampling Methods

Stratified sampling method was used based on ownership of banks in from the bank sector. Ownership of the bank was divided in to the public and private ownership. From public banks, Commercial Bank of the Ethiopia was selected due to the case that commercial bank of the Ethiopia is the first bank which adopted ATM/ bank technology in the Ethiopian banking industry/in 2001 Ethiopian calendar/ in 2008Gc. In addition to the bank technology adoption currently the bank lead the other bank by market share more than 66%, according to the World bank report 2014, According to the Agenda of 2016 commercial bank; there are 280 branches in a four districts (East, West, North and West) of Addis Ababa. From four Districts two districts were selected randomly for this research. They are south Addis and East Addis districts. From each districts one branch were selected to get participants for this research purpose. They are Goitera branches from south addis Discrticts (1623 e-bank users), Meskel flower from east Addis (3385). Totally, 5008 participants were selected from commercial bank of Ethiopia as a target population. Target population figures were collected from E-payment department in Legahar Branch of commercial banks of Ethiopia as of January 2015.

More specifically, to get sample/representative participants from the each two banks Yamane (1967) formula was employed.

Yamane (1967:886) provides a simplified formula to calculate sample sizes. A 95% confidence level and P = .5 are assumed.

$n = N/1 + N(e)^2 = n = \quad 5008/1+5008(0.05)^2$

$n = 370.41$

$n = 370$

Where n is the sample size, N is the target population size, and e is the level of precision. When this formula is applied to the above sample/target population, n=370 for commercial bank of Ethiopia from Ethiopia.

The other ownership of the bank is private banks. From the private banks; Dashen bank, Zemen bank, Wogagen bank and Nib international bank were selected based bank technology adoption (the year in which the bank adopt the bank technology). In over all Ethiopia the number of card users in Dashen bank as at January 2016 is 410237, Internet banking 5590, mobile banking 6510 and merchant signing 831. In Ethiopian banking industry Dashen bank also is one of the leading bank in bank technology adoption next to the commercial bank and the first bank which introduce worldwide master card in Ethiopia. The researcher used simple random sampling method in order to select the representative banks branches from Dashen Bank. First, the researcher identified 84 branches of Dashen bank in Addis Ababa. This was because of that e-banking customers must have saving book in order to get their visa, mobile banking service and internet banking services from one of branch of the Dashen bank. As a result their list also registered in one of branches of the Dashen bank in which they get their saving book in Addis Ababa. To take sample of customers who are using e-banking service service in Dashen bank in Addis Ababa, the researcher identified all 84 branches in alphabetical order and take 10 % of the 84 branches in Addis Ababa.

Based on the lottery system the Dashen bank branch on the number 12 get the first chance and used as starting point to count 8 branches of Dashen bank (10 % of 84 in Addis Ababa in Dashen area bank). 8 branches of Dashen bank were selected based 11 Dashen bank branches interval. The selected branches are; Ghandi (113 customers), Gojam Berenda branches (99 customers) lamberet branches (130 customers), stadium branches (107), Sosit kutri mazoria (172), Tewdros adebabay (128 customers), Meshualekia (143) and T/medhanialem (115). The Target population figures were collected from E-payment department in Dashen Bank (Main office Goitara Branch) as of January

2015. Totally, 1007 customers were selected as target population for Dashen banks in Addis Ababa.

Currently 57 branches of wogagen bank installed e-banking services in its branches in Addis Ababa Ethiopia , From this researcher took 10% of 57(6) branches by using rule of thumb method. Based on lottery system number 2 is get the first chance to count six branches. The selected six branches were wogagen bank ayer tena branhes (171 customers), Wogagen Bank Addis-Hawsi branches (181 customers), Dukem branches (13 customers), Edaga hamuse (22 customers), Meda-agame (169 customers), and Yerer Ber branches(17customers), Totally 573 customers were taken as a target population for Wogagen banks representatives Addis Ababa. Target population figures were collected from E-payment department in Wogagen Bank (Main office in Dabal City Center) as of January 2015.

To take sample of customers who are using e-banking services in Nib International Bank in Addis Ababa, the researcher identified all 50 branches in alphabetical order and take 10% of the 50 branches in Addis Ababa. Target population figures were collected from E-payment/e-banking department in Nib International Bank (Main office in Dabal City Center) as of January 2015. Based on the lottery system the Nib international branch on the number 10 get the first chance and used as starting point to count five branches of Nib International Bank (10% of 50 in Addis Ababa in Nib International Bank). 5 branches of Nib International Bank branches were selected based 10 Nib International Bank branches interval. The selected branches were; Cathedral (731) customers), Ehil Berenda branches (978 customers), M/merkato branches (810), Tigat (722), and wollo seffer (484) customers. Totally 3725 customers were selected from the selected five branches as a target population.

To take the representative from Zemen bank the researcher took the main branch which is found in kazachis (In Addis Abeba) for target population. According to the annual report of zemen bank report 2015 the visa card and regular e-bank service users are 1000). Finally the 1000 customers taken as a target population.

Dashen bank 1007, Wogagen bank 573, Nib international bank 3725, and zemen bank 1000. Totally 6305 were target population from private banks. According to the sample size determination formula

$$n = N/1+N(e)^2$$

Which is calculated as sample size for private banks include = $6305/1+6305(0.05)^2 = 376$

After calculating the total sample size for all above four private banks (376), this sample size was proportionally distributed to the each four banks.

For Dashen bank 1007/6305*100=60, Nib international bank bank 3725*376/6305=222, Wogagen bank 573*376/6305=34, and Zemen bank 1000*376/6305=60

Totally 746 were participants/target population for this research. Finally, the researcher used convenience approaches for each customers from the each selected branches to distribute the questionnaire in each branches of bank technologies during the bank technology service usage. This was because of that finding of e-bank customer by their name, address is very difficult at a time, in addition to this they are also homogeneous customers for each bank technology services. Gaur A. S. and Gaur S. S. (2009) an adequate sample size is important for identifying the correct factor analysis. In this research, researcher used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) from the factor analysis tools. A sample size of less than 100 is not very suitable for conducting factor analysis. A sample size above 500 is considered to be excellent sample size. As rule of thumb, a sample size of 200-300 should be considered to be adequate for proper analysis. As result the "746" is categorized as an excellent sample size.

Data Sources

The researchers used primary as well as secondary source for data.

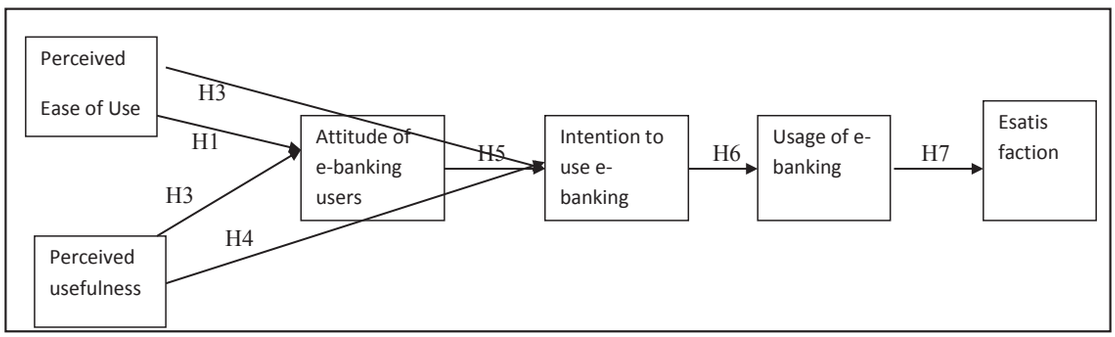

Fig. 1: Research frame work based on the Technology Acceptance Model (Davis, 1989)

Questionnaires were prepared for customers who are using currently e-banking in Commercial Bank, Wogagen Bank, Nib International Bank, Dashen bank and Zemen Bank. The questionnaires were divided into three sections. The first section investigated the respondents' basic knowledge, their use of Internet banking systems, and their demographic information. The second section measured e-banking service quality. Thirdly, the questionnaire tried to examine the effects of service quality on customer satisfaction.

Validity and Reliability Issue

Content Validity

Content validity can be measured by questionnaire pre-testing (by asking professional in the area to comment on the questionnaires) (Hair, Black, Babin, Anderson, & Tatham, 2006; Hair, Black, Babin, & Anderson, 2010). Content validity is the degree to which items correctly represent the theoretical content of the construct and it is guaranteed by the in-depth literature review taken under Zaichkowsky method (1985). For the purpose of this study, the content of the technology adoption factors was formulated by consulting academicians/ research scholars. Bank professionals and customer representatives were asked to comment on the standardised questionnaires; the researchers distributed the questionnaires to marketing professor in Bahir Dar University in Ethiopia as well as at Punjabi University Patiala and among bank professionals in order to gather an important comment on the content validity issue. Finally, the content validity was checked and corrected based on the collected data.

Face Validity

It is defined as the degree that respondents judge that the items are appropriate to the targeted construct. Face validity is habitually confused with content validity (Hair *et al*., 2006; 2010). Face validity was tested through a variation of the Zaichkowsky method (1985), whereby each item is qualified by a panel of experts as ''clearly representative'', ''somewhat representative'', or ''not representative'' of the construct of interest. As a result, the hypothesized model from the pilot test was 82% out of 100 customers. Comments were incorporated for final questionnaire preparation by using five point Likert Scale (strongly disagree, disagree, undecided, agree, strongly agree) which was developed based on the Zaichkowsky method (1985).

Construct Validity

This shows whether the items that compose a determined scale converge on only one construct (Hair *et al*., 2010). This was tested by checking that the factor loadings of the confirmatory model were statistically significant (level of 0.01) and higher than 0.5 points (Sanzo, Santos, Vazquez, & A´lvarez, 2003). For the measurement (TAM) model, average factor loading (AVE) of three constructs was greater than the minimum acceptance region/.30 for each of them. With few exceptions (the factor loading of one dimension of the intention of customers towards e-banking services being .454), rest of all dimensions' factor loadings in each construct are greater than .50, that means .50 is greater than the minimum acceptable threshold value (.30).

Construct Reliability (CR) = a measure of reliability and internal consistency based on the square of the total of factor loadings for a given construct. Almost all dimensions (5 dimensions) for objective one (TAM model 1), average Cronbach's alpha for each of them was .773 , except one which was usage of e-banking .602. As a result the model/ dimensions are sufficiently reliable for this study, which is greater than the minimum threshold value .60.

Convergent Validity

For the measurement (TAM) model, average factor loading (AVE) of three constructs is greater than the minimum acceptance region/.30 for each of them. With few exceptions (the factor loading of one dimension of the intention of customers towards e-banking services being .454), rest of all dimensions' factor loadings in each construct are greater than .50, that means .50 is greater than the minimum acceptable threshold value (.30). As a result, the model is highly significant (convergent validity).

Discriminate Validity

The internal validity of the measurement model was examined by calculating the composite reliability, average variance extracted (AVE), maximum shared variance (Fornell & Larcker, 1981), and maximum reliability (H). Construct reliability was calculated using the formula:

(square of the summation of the factor loadings)/ {(square of the summation of the factor loadings) + (summation of error variances)}.

The interpretation of the resultant (construct reliability) coefficient is similar to that of Cronbach's alpha, except that it also takes into account that the actual factor loadings rather than assuming each item to be equally weighted in the composite load determination. Criteria for ensuring discriminant validity are MSV<AVE and ASV<AVE (Hair *et al*., 2010) as shown in Table 1.

Table 1: Criteria for Ensuring Discriminant Validity

	CR	AVE	MSV	MaxR (H)	Usage	Peou	Pu	Intt	Esatisfa
Usage	.70	.5	0.125	0.614	**0.584**				
Peou	0.804	0.578	0.324	0.852	0.144	**0.760**			
Pu	0.774	0.534	0.324	0.903	0.354	0.569	**0.731**		
Intt	.70	.5	0.190	0.920	0.334	0.301	0.436	**0.642**	
Esatisfa	0.818	0.603	0.066	0.943	0.049	0.167	0.257	0.208	**0.776**

Nomo Logical Validity

The covariance matrix Phi (Φ) of construct correlations is useful in this assessment. As a result, there is no problem of correlation between the constructs in the measurement model. That means no correlation among the constructs, which was above .80. As a result, there is no problem of Nomo logical validity issue.

Data Analysis and Presentation

The data were collected from customers who are using electronic banking services (ATM, POS, mobile banking and Internet banking) in some selected banks of Ethiopia during Feb 1 to Mar 28, 2016. Survey was conducted through questionnaire using five point Likert scale ranging from 1=strongly disagree to 5=strongly agree. 100 respondents who were asked to provide comments on the relevance and wording of the questionnaire items conducted a pilot test of the measures/ electronic service quality dimensions for selected banks of Ethiopia and it was then adjusted based on their comments. The results of the pilot test were checked through internal reliability by using 'Cronbach's Alpha and Exploratory factor Analysis (EFA). From 100 questionnaires, 82% were returned for pilot test analysis. Several items were removed from the instrument based on the feedback from the pretesting subjects/constructs. After the completion of the pilot test validation, a total of 746 survey questionnaires was distributed for the final survey. At the end, 630 survey questionnaires were collected; among these 40 of them were invalid questionnaires and thus were eliminated. The remaining 590 usable questionnaires were retained for further analysis. The response rate is 79.0%, which was more than reasonable for a survey of this type. The responses from the pilot study were not included in the main study. Factor analysis (both exploratory factor analysis, EFA and confirmatory factor analysis, CFA) and structural equation modelling (SEM) were used to test the proposed model of relationships. Once the survey questionnaires were completed, all the raw data were edited, recorded and coded; errors were filtered and lastly data input into SPSS for processing.

Frequency distribution shows that (74.1%) of total pupation were male customers and remaining 25.9% were female customers. The dominant age group of customers were young customers between 25-35 age groups, this finding confirmed with so many findings in the earlier research of e-banking journal (Poon, 2008; Gupta & Bansal, 2012; Herington & Weaven, 2009). Most of the e-bank technology users (49.8%) in the selected banks of Ethiopia were married couples. Majority (46.4%) of e-bank users were university degree holders (BA). Most of e-bank users were government workers. This may be due to the fact that most of the customers were from commercial bank of Ethiopia. Government bank (Commercial Bank of Ethiopia) has the larger number of electronic services users than private banks (Dashen Bank, Wogagen Bank, Zemen Bank, and Nib International Bank of the Ethiopia). 60.2% of them were using ATM services, 10.3% of them were accessing both ATM and POS services, 9.8% of them were using ATM, POS, mobile banking, 6.9% of them were using all the type e-banking services available to them (ATM, POS, mobile banking, and Internet banking). Majority of e-banking users fall in income category of above 5000 Ethiopian birr. With regard to the usage time of the customers, 59% of customers use e-bank technology based on their needs and wants (depending on the conditions). Most of the customer experiences was found between 1-2 years (28.5%).

Structural Equation Model for Technology Adoption (By using TAM, Davis, 1989 with little modification)

There are two types of structural equation modelling, variance-based structural equation modelling and covariance-based structural equation modelling. The researchers used covariance-based structural equation modelling which mainly focuses on AMOS (analysis of moment structure). Structural equation modelling is a powerful statistical tool that combines a measurement model (affirmative factor analysis) and the structural model (regression of path analysis) in to one statistical synchronic test (Sadeghi & Heidarzadeh, 2010). It is used to verify the goodness of fit of the research framework and to describe

the relationships among the construct variables (Chang & Chen, 2009). Before evaluating the structural models, the overall model fit (goodness of fit index), local/ comparative versus global/ absolute fit indices, were assessed to ensure that the model adequately represents the entire set of causal relationships (Hair *et al*., 2006; 2010). The structural equation modelling (SEM) is a main analytical tool, which was used to allocate the cause and effect relation of the research model variables (Lin & Sun, 2009). The statistical significances of all the structural parameters/ constructs estimates were examined to determine the validity of the hypothesized paths (Lee & Lin, 2005). The structural equation modelling (SEM) technique was used to test the research Model (TAM Model), which was supported by AMOS 21. A structural path representing relationships between different constructs was examined. It is also used to verify the goodness of the research framework and to describe the relationships among the construct variables (Chang & Chen, 2009). The major objective of this study was to identify current users of e-banking by predicting intention to use of customers in some selected banks of Ethiopia. To achieve this objective, the SEM is employed to test the interrelationships among all the research constructs (perceived ease of use, perceived usefulness, intention, actual usage, and electronic banking satisfaction) and to compare the modelled relationships with the observed scores. But the attitude dimension was cancelled after conducting EFA and CFA, because attitude dimension was loaded with perceived usefulness of electronic banking services (ATM, POS, mobile banking, and Internet banking). During SEM analysis, both unstandardised and standardised estimates (solution) were identified using AMOS 21. The measurement model was estimated with the robust maximum likelihood method from the asymptotic variance (covariance matrix) (Shumacker & Lomack, 2010; Hair *et al*., 2010; Joreskog & Sorbom, 1996). The fit indices obtained in the measurement model estimation showed that the variables measured converge towards the factors established during the confirmatory factor analysis (CFA). The proposed research model comprises five latent constructs for TAM model. A latent construct cannot be measured directly but it can be represented or measured by one or more variables (indicators). Here in SEM analysis each latent construct was measured by three observable/ indicator variables. An observed (measured) variable is a specific item or question, obtained in response to questions in a questionnaire. Measured variables are used as the indicators of latent constructs (Hair *et al*., 2006, 2010).

Standardised Estimates

The standardised estimate is the slope coefficient, but normalised to between -/+ 1 (Hair *et al*., 2006, 2010).

Model Fit Summary for SEM model 1

The value of CMIN/DF was 2.385, which was very significant (< 3) according to Carmines and McIver (1981) and Straub (1989). The value of GFI (.959) and AGFI (.939) those were >.90. The value of NFI for SEM model 1 is .927, while that of RFI is .904, IFI is .956, and TLI is .942. Their minimum acceptable value is >.90 (Hair *et al*., 2006, 2010). The value of CFI is .956 which was >.95, hence the measurement model is highly significant (Hair *et al*., 2006, 2010). The value of RMSEA for SEM model 1 is .048; the minimum acceptable threshold value for RMSEA should be below 0.08 (Hair *et al*., 2006, 2010).

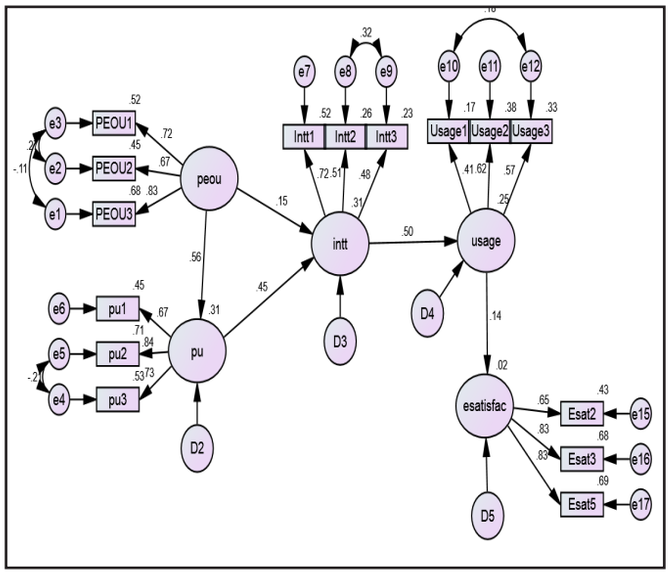

Fig. 2: SEM Model for TAM Constructs and its Impact on Customer Satisfaction

Table 2: Summary of Hypothesis for TAM Model 1

Hypothesis	Evidences after SEM analysis	Conclusion
	β-value and p-value (standardised estimates)	
Ho_3: Perceived ease of use has no effect on intention to use e-banking.	.15(.000)	Not supported
Ho_4: Perceived ease of use has no effect on perceived usefulness of e-banking.	.56(.000)	Not supported
Ho_3: Perceived usefulness of e-banking has no effect on intention to use e-banking.	.45(.000)	Not supported
Ho4: Intention to use e-banking has no effect on usage of e-banking.	.50(.000)	Not supported
Ho_5: Usage of e-banking has no effect on e-bank customer satisfaction.	.14(.000)	Not supported

Discussion on Analysis Part with Existing Literature

The five constructs (perceived ease of use, perceived usefulness, intention, actual usage, and electronic banking satisfaction) were confirmed for further analysis (SEM model) through EFA and CFA (which includes the local and global fit indices). This finding matched with the previous researchers' results (Hong, Thong, Wong, & Tam, 2001). They also suggested that the inclusion of attitude is not meaningful. The TAM concepts (perceived ease of use (PEOU) and perceived usefulness (PU)) in predicting customers' intention of/ adoption of electronic-banking were supported by recent studies (Chen & Barnes, 2007; Joseph, McClure, & Joseph, 1999; Meuter, Ostrom, Rountree, & Bitner, 2000; Parasuraman & Grewal, 2000; Parasuraman *et al*., 2005; Cheng, Lam, & Yeung, 2006). According to the Adesina and Ayo (2010), bank customers who are active users of e-banking system use it because it is available anywhere (found at any place and at any time), easy to use, time saving, and appropriate for their transaction needs. This research's finding also matched with that of Chirani and Rahmati (2009) who identified that TAM was a simpler, easier to use, and more powerful model to uncover what determines user acceptance/ adoption of IT (e-banking). Individual customers expect that the perceived ease of use make them free from incurring effort/ make things easy to do (Davis, 1989; Lin & Sun, 2009; Taylor & Todd, 1995). Perceived usefulness has been found to have a significant effect on the intention to use or adopt any new technology like ATM, mobile banking, phone/ mobile banking, and Internet banking (Tobbin, 2012). Although usefulness was found to be a significant predictor of attitudes toward ATMs and phone banking, this was not the case for Internet banking (Curran & Meuter, 2005). PU positively influences mobile Internet and M-services acceptance (Chiu et al., 2005; Nysveen, Pedersen, & Thornbjørnsen, 2005). The measurement model was matched with other previous research works like Abdinnour-Helm, Chaparro, and Farmer (2005) which found that perceived ease of use has a direct and positive effect on customer satisfaction with a commercial web site. Liao and Cheung (2008) proposed and empirically tested the perceived ease of use as a measurement of consumer satisfaction with online banking/ electronic banking. Perceived ease of use is an antecedent of customer satisfaction with online banking (Yoon, 2010). Khanifar, Niya, Jandaghi, Molavi, and Emami (2012) empirically found that perceived electronic service quality and subjective norm have significant direct influence on customer's intention to use electronic banking service (ATM, mobile banking, POS, and Internet banking). Pikkarainen *et al*. (2004) identified that perceived usefulness has the most powerful impact on intention to use, among various other variables. Gounaris and Koritos (2008) compared motivating factors of electronic/online banking adoption and they reached the same conclusion of Pikkarainen *et al*. (2004). Successful electronic system should be both easy to learn and use (adopt), since the perception about these characteristics is likely to lead in higher adoption behaviour (actual usage of electronic banking system) (Jahangir & Begum, 2008). Gounaris and Koritos (2008) found that perceived ease of use satisfactory predicts the intention to use electronic banking/ online banking, while Pikkarainen *et al*. (2004) and Eriksson, Kerem, and Nilsson (2005) failed to reach the same conclusion with the above one. Perceived ease of use (usability) is one of the most important factors for determining the quality of a website/electronic service quality which also supported with a number of studies like Casalo, Flavia, and Guinal (2008); Sikdar, Kumar, and Makkad (2015). In return it may influence the levels of online customer satisfaction. Chong, Ooi, Lin, and Tan (2010) identified that if users feel that online banking is easy to use and free of hustle, then the chances of them using the system will be greater. Perceived ease of use is an essential element of consumer usage of computer technologies like electronic banking technologies (Davis, 1989; Morris & Turner, 2001; Freed, 2011; Liao & Cheung, 2002; Venkatesh, 2000; Venkatesh and Davis, 2000), and it has particular importance for new users (Gefen & Straub, 2000). It is also a determinant of service quality (Dabholkar, 1996) and decisive for customer satisfaction, since it enhances the efficiency of using the service (Xue & Harker, 2002). Flavia'n and Guinalı'u (2006); Poon (2008) identified that convenience/ efficiency/perceived ease of use, easy accessibility, feature availability, bank management and image, fees and charges, privacy and security, design, content, and speed are pertinent factors that significantly affect the adoption/ usage of e-banking at $p < 0.05$ in case of Malaysian consumers. Measurement model also confirmed with other studies like McHaney *et al*. (2002) and Somers, Nelson, and Karimi (2003) which identified that perceived ease of use implies that the Internet banking system has a user-friendly interface and the interface is easy to use for electronic banking customers. Information content (fulfilment) and perceived ease of use are the main elements of electronic service quality and later they can be the sources of online customer loyalty (Collier & Bienstock, 2006; Lin & Sun, 2009; Liao & Cheung, 2008; Sikdar *et al*., 2015; Yen & Lu, 2008; Finn, 2010; Pentji, Marimon, & Casadesus, 2011; Bernardo, Marimon, Alonso-Almeida, 2012). Perceived ease of use is an antecedent of customer

satisfaction with Electronic banking services (Yoon, 2010, Liao & Cheung, 2008, Abdinnour-Helm *et al*., 2005, Lai & Li, 2005), on the other hand perceived usefulness of bank technology is an antecedent of customer satisfaction with electronic banking services (ATM, POS, Internet banking, and mobile banking) (Zhou & Lu, 2011; Wu, 2013). Measurement model also linked with other previous researchers finding accessibility, ease of use, trust, and usefulness on satisfaction with electronic banking services (Liebana-Cabanillas, Munoz-Leiva, & Rejon-Guardia, 2013). Pikkarainen *et al*. (2004) applied the traditional Technology Acceptance Model (TAM) in Finland and they found that perceived usefulness and information on Electronic banking were the main factors influencing customer acceptance, According to the Anderson, Fornell, and Lehmann (1994), consumer satisfaction is valuable for explaining why consumers purchase or repurchase products/services, and exposes the motivations that underlie consumer behaviour and psychology. In an electronic banking transactions/e-tailing context, perceived ease of use can be described as accurate functionality, accessibility/convenience of relevant information for targeted customers, ease of ordering and navigation (Reibstein, 2002). A number of research findings support the above measurement model. One of the main reasons why online consumers use electronic banking services/Internet banking is that it is very convenient to them and they are very easy to accomplish it in short period of time (Zeithaml, Bitner, & Gremler, 2009; Santos, 2003; Ombati, Mangatu, Nyamwange, & Nyaoa, 2010; Hamadi, 2010; Yoon, 2010). As a result perceived ease of use needs to be considered by bankers so that customers are able to use online banking/ electronic banking service effectively, efficiently and to their satisfaction. The findings of this research output as well as other research results show that perceived ease of use is a major factor in determining the adoption and use of various corporate information technologies such as electronic banking (Gounaris & Koritos, 2008; Liao & Cheung, 2008).

Conclusion

From general descriptive statistics, it can be said that age, gender, income, experience, type of bank technology, nature of banks (private versus government), timing of the bank technology, marital status, and education status have a significant impact on adoption (usage) of electronic banking services in Ethiopia.

ATM was dominant electronic banking type used by most of the Ethiopian electronic banking consumers (Al-Smadi, 2012). This was because the concept of electronic banking technology (ATM, POS, mobile banking, and Internet banking) services was new and emerging in Ethiopia. As a result, most of the consumers were ATM users. The second major category of dominant electronic type was POS (Point of Sales). ATM and POS users were larger due to the fact that consumer use POS when they face difficulty in ATM services. The third and fourth Internet/electronic banking service in Ethiopia were mobile banking and Internet banking respectively.

After conducting the necessary tests (EFA, CFA, SEM), perceived ease of use and perceived usefulness significantly influence the intentions of electronic banking users. Intentions of electronic banking customers in Ethiopia significantly influence the actual usage of electronic banking services and lastly, actual usage of electronic banking affects customer satisfaction which was supported by the number of pervious research results (Taylor & Todd, 1995; Venkatesh & Davis, 2000).

Recommendations/Managerial Implications

Perceived ease of use/convenience/efficiency all time usage is an antecedent of customer satisfaction with online banking/electronic banking which is also supported by the measurement model/ hypothesized model. As a result, bank sector in Ethiopia must ensure consumer education towards the usage of electronic banking technology. To increase the perceived ease of use, banks should hold training courses/manuals about how to use e-banking systems, because customer education/ customer awareness is the base/key to increase product and service usage from service providers (Yoon, 2010; Gefen & Straub, 2000; Joseph *et al*., 1999; Reibstein, 2002; Meuter *et al*., 2000; Parasuraman & Grewal, 2000; Parasuraman *et al*., 2005; Moutinho and Smith, 2000; Zhu *et al*., 2002; Liao & Cheung, 2008). The most commonly cited reason for online shopping/online transaction is perceived ease of use/ convenience (Chang & Chen, 2009). Forcing technology enabled bank services on customers, particularly complex technologies that do not enhance/increase the exchange process, may create hostile and frustrated consumers. Online customers/electronic banking customers perceive that the technology channel should be easy to use and reliable. Their consumption experience will be positive and they will be satisfied with the use of technology based-banking, thus giving a boost to their confidence/ trust in the long run consumption pattern.

Research Limitations and Future Research Area/ Directions

Sampling issue: Researchers selected only five banks' customers (Commercial Bank, Wogagen Bank, Dashen Bank, Zemen Bank, and Nib International Bank of Ethiopia purposively), but these five bank were not the only banks which provide e-bank services in Ethiopia. There are other banks too in Ethiopia. As a result the analytical results presented here may have limited generalisability and care should be taken when generalising the findings of this study. Replication in other settings/ in other country/ by selecting the other remaining banks in Ethiopia is also recommended for future researchers.

In order to achieve objective of this study (consumer intentions towards the electronic banking technology), the authors used TAM model. Even though the TAM model is one of the most common and powerful models to capture technology acceptance, it is better to be supported by TPB (Ajzen, 1991), TRA (Ajzen & Fishbein, 1980), technology-organisational-environmental model (TOE) developed by Tornatzky and Fleischer (1990). This study is cross-sectional in design and only a standardised questionnaire was involved to collect the data. The e-banking market in Ethiopia, as well as knowledge about customer behaviour in relation to e-banking is found at the infant stage (it is also infant stage for other world markets) (Parasuraman and Zinkhan, 2002; Parasuraman *et al*., 2005; Gounaris & Koritos, 2008; Bauer et al., 2005; Zhang & Prybutok, 2005). At a time (during the data collection period) when rapid changes in new technologies come to market daily, weekly, monthly, yearly, the results of a cross-sectional study may not be perfectly generalised to the whole population in Ethiopia. Future research could undertake a more longitudinal study by including the qualitative data collection methods like in-depth interview, focus groups and observation techniques by fully investigating the pre-launch stage, the promotion stage and the post-launch stage of electronic banking services. This would certainly be a significant contribution to the e-banking literature in the future by customising the research based on Ethiopian customers' point of view.

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