
Assessment of the Practices and Challenges of Electronic Banking Adoption in Ethiopia

Beza Muche Teka

(Ph.D. Candidate at Punjabi University, School of Management Studies, Patiala, India)

Under the guidance of **Dr. Dhiraj Sharma** (Assistant professor at Punjabi university school of management studies, Patiala, India)

Abstract

Purpose: *Although there has been diffusion of innovative products and services such as electronic banking systems by commercial banks in Ethiopia, electronic banking services have not been widely adopted by most bank customers; most bank customers continue to conduct most of their banking transactions using traditional methods. Therefore, the main objective of this study is to assess the current practices and challenges of e-banking adoption in Ethiopia from the current users' perspective.*

Research Methodology: *The type of research applied in this study was descriptive in nature. A total of 600 users' of e-banking services were used as a sample for the survey from seven commercial banks in Addis Ababa, Ethiopia. A well-structured and randomly administered questionnaire was used to collect the relevant information from those customers who are using at least one form of e-banking systems. Interview was also used to collect supporting data from e-banking department managers of each respective bank. Data gathered from customers were analyzed using descriptive statistics such as mean, frequency, percentage and ANOVA. The entire statistical tests were conducted using SPSS version 21.*

Findings: *The findings of this study imply that ATM is the dominant e-banking service delivery channel by which most bank customers' are using. However, other e-banking channels such as mobile and internet banking are in an infant stage in Ethiopia. With regard to the challenges that negatively influence users' effective utilization of e-banking services, the study identified that frequent network/internet interruption, frequent power interruption, lack of awareness about e-banking service delivery channels, fear of security issues and frequent breakdown of automated teller machine (ATM) are the major ones that seriously influence users' full adoption or usage of e-banking services.*

Implication: *The findings from this study suggest that commercial banks in Ethiopia should create awareness to their customers with regard to the usage and benefits of e-banking systems (especially about mobile and internet banking) and also should consider ICT infrastructure problems in collaboration with Ethiopian Telecommunication Corporation.*

KEYWORDS: *Adoption, ATM, E-Banking Users', Internet Banking, Mobile Banking*

Introduction

In this globalized world information communication technology is playing a great role in the banking industry. To maintain their competitiveness in the market place banks had started to provide electronic banking services to their customers (Annin, Adjepong & Senya, 2013) because advances in electronic banking technology have created new ways of handling banking transactions (Al- Somali, Gholami, and Clegg, 2011). Electronic banking (e-banking) is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. Customers access e-banking services using an intelligent electronic device, such as a personal

computer (PC), personal digital assistant (PDA), automated teller machine (ATM), kiosk, or Touch Tone telephone (Daniel, 1999). Similarly, in view of this study, e-banking is considered as an umbrella term which includes self-service technologies like Automated Teller Machine (ATM), Electronic Point of Sale (EPOS), Mobile banking and Internet banking. The researcher has taken ATM, mobile banking, Electronic Point of sale terminal (EPOS) and Internet banking as the e-banking service channels for which the customers are using for various modes of services like money withdrawal, balance inquiry, making different payments, fund transfer between accounts, viewing account statements, viewing foreign exchange rates, sending and receiving money, mobile top up and other services. Here, ATM and EPOS refers to the digital or electronic machines by which consumers can able to access banking services using their ATM cards also called as card banking in Ethiopia. Providing banking services through electronic channels have an advantage for both banks and users' or customers. From the banks perspective among other benefits includes better branding and better responsiveness to the market. Those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, they would enjoy a better brand image. The other benefit is that it offers a perfect opportunity for maximizing profits through reducing transaction costs (Nathan 1999; and Pyun et al., 2002 as cited in Salehi and Allpour, 2010). For consumers conducting banking transactions using e-banking service delivery channels have the benefits of cost reduction, convenience, speed, better fund management and access to additional services (BankAway, 2001 and Nath, Schrick and Parzinger, 2001). However, customers' can get the above e-banking services from banks if and only if they adopt or use the system effectively. According to Rogers and Shoemaker (1971) and in view of this study, adoption is defined as the acceptance and continued use of a product, service or idea . Know a days, for Ethiopians to effectively access financial services electronically, several banks have declared or started e-banking as one of the core strategies for customer handling as well as for the development of the banking sector. For this reason most banks have heavily invested on e-banking for among other reasons, to reach more customers, provide services anywhere, any time and to reduce cost of providing services. Further, the Ethiopia telecommunication corporation is currently creating an environment that enables to improve the ICT infrastructure in the country and hence it enables for the growth of e-banking technology in the banking industry. However, although there has been a rapid diffusion of innovative products and services such as electronic banking service delivery channels by commercial banks in Ethiopia, electronic banking services have not been widely adopted by most bank customers; most bank customers continue to conduct most of their banking transactions using traditional methods (Garedachew, 2010). This implies that traditional branch-based retail banking services remains the most widespread method for conducting banking transactions in Ethiopia. Given the almost complete adoption of e-banking in developed countries, the reason for the low level of e-banking usage or adoption in developing countries like Ethiopia is an important research area. Therefore, the main objective of this study is to assess the current practices and challenges of users' e-banking adoption behavior in Ethiopia.

Literature Review

E-banking in Africa: Practices and challenges-empirical evidence

Practices

A number of previous studies were conducted to assess the practices of e-banking usage in many parts of the world. However, the concern in this study is to review those previous works related to the practices of e-banking adoption in African countries in which Ethiopia is one of them. Accordingly, a study conducted by Annin et al. (2013) in Ghana to assess the usage practice of e-banking among bank customers' indicated that ATM is the most dominant e-banking service followed by mobile banking while internet banking recorded the lowest patronage by bank customers. A research study conducted by Ismail and Osman (2012) in Sudan also indicated that among all e-banking channels, Automated Teller Machine

(ATM) is the most popular e-banking channel used by bank customers'. On the other hand, Mansour, Eljelly and Abdella (nd) in Sudan clearly demonstrated that there are differences among the users' acceptance of the three banking technologies (ATM, mobile banking and internet). Although there are differences among the three technologies, the differences are minimal between mobile and internet banking. These two technologies have more in common regarding the customers' perceptions and intentions. With regard to the usage practice of different e-banking services, a study conducted by Padachi, Rojid and Seetanah (2007) in Mauritius shows that the mostly used internet banking services are inter account transfer, payment to other personal account, transfer to credit card account, recharge mobile phones, standing order transactions, and savings, current and fixed deposit account application.

Challenges and Barriers

According to the Economic Commission for Africa (2007), the growth of e-banking in most African countries has been slow for a variety of reasons, which include: low levels of internet penetration and poorly developed telecommunications infrastructures (especially beyond urban areas), unaware of the opportunities offered by e-banking, lack of a suitable legal framework and security measures, inadequate banking systems and high rates of illiteracy. A study conducted by Auta (2010) in Nigeria to identify factors affecting e-banking adoption among bank customers found that the issue of security, accessibility problem, lack of enough knowledge about the service and shortage of infrastructures such as power and telecommunication facilities are among the major factors that influence consumers adoption of e-banking. Similarly, Anwana (2010) on his study also identified that the major inhibiting factors of e-banking adoption are inadequate security, lack of knowledge of use of the technology, inadequate and moribund telecommunication facilities and infrastructure, inadequate public power supply, lack of trust, poor economic condition of the people, and lack of confidence on the technology by the people. With regard to security and knowledge of the technology, this study implies that e-banking services and products are not reliable and secured, and so, is not trusted. Consumers' do not know how to use some of the e-banking products/services, their banks do not offer training or education on its usage and so, they prefer face-to-face banking to e-banking, because, they think it is complex. Azouzi (2009) in Tunisia also investigated that awareness of e-banking products and services and willingness to adopt e-banking as well as the respondents' attitudes toward change was a crucial factor considered as an important responsible for e-banking non-adoption and effective utilization. Ismail and Osman (2012) identified eleven factors that affect the adoption of e-banking (ATM) in Sudan. These factors include frequent breakdown of ATMs, inconvenient locations of ATMs and Electronic Points of Sale (EPOS), inaccessible internet, lack of means reporting technical problems, unclear legislations protecting e-transactions, slow banks response for correcting erroneous transactions, weak banks' role in raising clients awareness, unclear e-banking guidelines and instructions, frequent power cut offs, and high e-banking services' fees. In line with the above previous studies, Garedachew (2010) on his study in Ethiopia also identifies that low level of internet penetration and poorly developed telecommunication infrastructure, lack of suitable legal and regulatory framework for e-commerce and e-payment, inadequate banking system, high rates of illiteracy, high cost of internet, absence of financial networks that links different banks (Banks are not yet automated), frequent power interruption, resistance to accept new technology among customers, Lack of awareness on the benefits of new technologies, fear of risk and lack of trained personnel in key organizations are the major challenges for the development of e-banking business in Ethiopia.

Research Methodology

Sampling and Population

The target population of the current study includes those customers' of Ethiopian commercial banks who are the users' of at least one of the e-banking systems. The research was carried out in Addis Ababa as a

representative geographical area of the population of Ethiopia. Purposive sampling technique was used to select the target population for this study (i.e., only the customers of those banks that are providing e-banking services by using at least two forms of e-banking channels as well as those banks who started offering the service before a year at the time of data collection were included in the sample. When this research was conducted, there are 16 commercial banks in Ethiopia. However, based on the above criteria samples were taken from seven commercial banks such as commercial bank of Ethiopia, Dashen Bank S.C, Wogagen bank S.C, United Bank S.C, Abyssinia Bank S.C, Abay Bank S.C and Zemen Bank S.C. Then, random sampling was used to select the required sample respondents. The nature of the data collected for this study is purely primary. With regard to data collection instruments, in this study, cross-sectional primary data was collected by administering well- structured questionnaire to the target respondents / customers' and by conducting interview with the e-banking director or manager of the respective banks. Among these primary data collection tools, the first and the major one is administering questionnaire to the target respondents. The questionnaire was administered to the target bank customers by the researcher himself. The selected places for administering the questionnaire includes both ATM and POS locations, recreation centers, big supermarkets, malls, bank branches as well as at their working places (companies, businesses, university campuses etc). The questionnaire includes both closed ended and open ended questions, however, majority of the questions were closed ended questions. The statements used to measure e-banking adoption behavior as well as the different challenges for e-banking adoption or usage were found from previous empirical studies (Tan, Potamites and Chi, 2012; ECA, 2007; Abenet, 2010; Garedachew, 2010; Ismail and Osman, 2012; and Auta, 2007) having significant modification. To ensure the content and face validity of the instrument, five volunteer bank personnel's and five staff members (lecturers) who have good understanding in the area of interest examined issues related to the relevance and wordings of the questionnaire items, length of survey and time taken to complete the questions. Feedback received from these experts was taken into account to improve the final questionnaire. In addition, to confirm the reliability of the items for the dependent variable (usage behavior), Cronbach's Alpha was used and the result is 0.889 which is above the recommended cut off value of 0.7 and above by Hair, Black, Babin, and Anderson (2010). The required sample size was estimated based on the number of variables included in the study. In this regard; Hair et al. (2010) recommended that the sample size should be 15-20 observations per variable for generalization purposes. Krejcie and Morgan (1970) also suggested that for a population having more than 1,000,000 target groups a sample size of 384 is acceptable. Hence, based on these justifications, and by giving allowance for errors and non-response rates, a total of 600 respondents were considered as acceptable sample size for the current study. However, among these much of questionnaires distributed only 495 were returned which gives a response rate of 82.5% but after removing those incomplete questionnaires, the actual sample size used for analysis in this study was 420 respondents (70%). At the time of data analysis, the interview response collected from each respective bank e-banking manager or director was used to triangulate or support the data collected through questionnaire. In addition, secondary data obtained from related published journals, online articles, books and international conference papers were also used. The entire primary data was collected from November 2015 to January 2016.

Method of data analysis

Once the data is collected, coded, entered and cleaned; it goes through descriptive data analysis techniques. Descriptive techniques used in this study includes the use of descriptive statistics such as frequency, percentage, mean, standard deviation and one way Analysis of Variance (ANOVA). One way analysis of variance (ANOVA) was used to compare e-banking adoption or usage behavior between those who are using one type of e-banking channel and those who are using more than one e-banking channels as well as to compare e-banking adoption or usage behavior between government, private and both

private and public bank e-banking users' because ANOVA is used to compare differences among those groups having more than two categories (Pallant, 2011). All the entire tests are performed using SPSS version 21.

Results and Discussions

Table 1: Demographic Profile of Respondents

Variables	Category	Frequency	Percent
Gender	Male	243	57.9
	Female	177	42.1
Age	18-25	112	26.7
	26-32	206	49.0
	33-40	68	16.2
	>40	34	8.1
Education	Elementary school complete	9	2.1
	High school complete	15	3.6
	College diploma	68	16.2
	First degree	260	61.9
	Second degree and above	68	16.2
Marital status	Married	170	40.5
	Single	238	56.7
	Divorced	12	2.9
	Widowed	0	0
Income	Less than 2000	15	3.6
	2000-3999	97	23.1
	4000-5999	185	44.0
	6000-10,000	91	21.7
	>10,000	32	7.6
Occupation	Government employee	185	44.0
	Private employee	140	33.3
	Self-employed	95	22.6

Source: Survey, 2015/16

The above table shows the demographic profile of respondents. Accordingly, it indicated that more than half of the respondents are males (243, 57.9%). This implies that males have better e-banking usage experience as compared to females. In line with this finding, a study conducted by Alagheband (2006) to identify factors affecting the adoption of e-banking services indicated that men represent the segment with the highest use of e-banking. Similarly, with regard to the customers e-banking usage behavior a study conducted by Milion Assefa (2013) and Abrehe (2015) in Gondar and Mekelle-Ethiopia respectively found that the majority of current e-banking users' were males as compared to females. Further, Muzividzi, Mbizi, and Mukwazhe (2013) on their study shown that e-banking is popular with men than women. This may be because men have the courage to take up new technology as compared to women even with little information about it.

With regard to age category, majority of the respondents are young with the age category of 18-32 (75.7%). This suggests that majority of the e-banking users' are young or in other words young customers have better e-banking usage practice as compared to old customers. Consistent with this, Poon (2008) and Azouzi (2009) on their study supports that young and computer literate respondents are using or are willing to use electronic banking. In addition, a study conducted by Margaret and Ngoma (2013) shows that the young generation is more familiar with computer and internet, so they are more interested in using the e-banking systems particularly ATM & online transaction rather than old & traditional banking services. The rational for having more people adopting or using e-banking in this age group is because these are peoples who were born during the digital era and they understand technology faster than those who are in their late thirties and above (Muzividzi et al., 2013).

Related to educational level, majority of the respondents are first degree and above holders (328, 78.1%). This also suggests that educated peoples having first degree and above educational level have better e-banking usage experience as compared to those who have below first degree educational qualification. In line with this, Edwin, Ailemen, Okpara and Mike (2014) on their study found that consumers' level of education and information communication technology knowledge impacts their acceptance of e-banking services. Similarly, Tater et al. (2011) and Abrehe (2015) on their study identified that customers with post-graduate and graduate qualifications are mostly adaptors of information technology enabled banking services such as e-banking. This implies that higher qualification is associated with bringing attention towards new technology based banking services and qualification is a factor found to be relevant.

In relation to marital status more than half of the respondents are single or not married (238, 56.7%). This implies that not married or single customers have better e-banking usage practice as compared to married and divorced counter parts which is in line with Izogo, Nnaemeka, Onuoha, and Ezema (2012) in Nigeria and Abrehe (2015) in Ethiopia.

The tables also indicates the average monthly income category of respondents and it revealed that most of them have average monthly net income of between 4000-6000 (44%) Ethiopian birr. This implies that majority of the e-banking users' are those who have better average monthly net income. In line with this Ismail and Osman (2012) on their study investigated that e-banking usage is associated with clients' income. High income clients and those who are computer and internet literate are more likely to use e-banking services (Poon, 2008). Similarly, Annin et al. (2013) clearly indicate that monthly income level is among the socio-economic factors that significantly influence bank customers' decision to use e-banking. Finally, the table shows the occupational status of respondents and it revealed that more number of respondents (185, 44%) are government employees which indicates that government employees have better e-banking usage practice as compared to others.

Table 2: E-Banking Usage Experience

Variables	Category	Frequency	Percent
E-banking channels usage experience	Both card banking (ATM and EPOS), mobile banking and internet banking	113	26.9
	Both card banking (ATM and EPOS) and mobile banking	129	30.7
	Both card banking (ATM and EPOS) and internet banking	29	6.9
	Card Banking (ATM and EPOS) only	149	35.5
	Both Internet and mobile banking	0	0
	Mobile banking only	0	0
	Internet banking only	0	0
	Total	420	100.0
E-banking usage experience	1-2 year	295	70.3
	3-4 year	97	23.1
	≥ 5 years	28	6.7
	Total	420	100.0
Mostly used e-banking channel	Card banking (ATM and EPOS)	230	84.9
	Mobile banking	25	9.2
	Internet banking	16	5.9
	Total	271	100.0
Frequency of e-banking transaction	Daily	60	14.3
	2-3 times in a week	154	36.7
	Once in a week	65	15.5
	2-4 times in a month	108	25.7
	Once in a month	18	4.3
	As required	15	3.6
	Total	420	100.0

Source: Survey, 2015/16

As presented in the above table, 149 (35.5%) out of 420 e-banking users' are utilizing card banking only as a means of getting e-banking services, 129 (30.7%) are using both card banking and mobile banking and 113(26.9%) out of 420 are using both card banking, mobile banking and internet banking in order to get banking services using these channels. The last e-banking channel adopted by small number e-banking users' is internet banking together with card banking in which only 29(6.9%) out of 420 are using. However, no e-banking users' who are using internet bank only, mobile banking only as well as internet banking together with mobile banking. These analyses implies that the mostly adopted e-banking channel is card banking (ATM and EPOS) in which all of the customers are using card banking (using both ATM and EPOS machines) as a means of getting banking services whereas the usage practice of internet and mobile banking is in an infant sage in Ethiopia. Even out of those customers who are using more than one e-banking service delivery channels, 84.9% are mostly using card banking in order to conduct banking transactions. The main reasons provided by customers for the dominant utilization of card banking as compared to other e-banking service delivery channels includes; accessibility of the service as compared to other e-banking channels / more deployed or adopted e-banking channel by banks/, enables to withdraw cash, more secured as compared to others and simplicity of utilization. In line with this, the interview response from each bank e-banking personnel's also indicated that card banking is the dominant and mostly practiced e-banking service delivery channel in the Ethiopian banking industry. Further, it also suggests that mobile banking together with card banking is the second e-banking channel adopted by 242 customers (57.6%). Therefore, from these findings, it is observed that the penetration rate of ATM usage in the Ethiopian banking industry is encouraging whereas the other electronic banking products such as internet and mobile banking need customer education. In line with this finding, a research study conducted by Annin et al. (2013) in Ghana to identify factors affecting the usage of e-banking among bank customers' indicated that ATM is the most dominant e-banking service followed by mobile banking while internet banking recorded the lowest patronage by bank customers. A research study conducted by Ismail and Osman (2012) in Sudan also indicated that among all e-banking channels, Automated Teller Machine (ATM) is the most popular e-banking channel used by bank customers'. Similarly, Machogu (2014) on his research in Rwanda reveals that the majority of the banking customers use ATM followed by mobile banking and internet banking respectively which is in line with the findings of the current study.

With regard to e-banking usage experience, most of the users' (295, 70.3%) have e-banking usage experience of 1-2 years. The major reason for this is the recent introduction of the technology in the Ethiopian banking industry. However, significant numbers of users (97, 23.1) have also an e-banking experience of 3-4 years. All this indicates that e-banking usage is in an infant stage in Ethiopian bank customers. Lastly in relation to frequency of e-banking transaction, the table indicated that most of the users' have an e-banking transaction frequency of 2-3 times in a week. Similarly, significant numbers of users' have also e-banking usage frequency of 2-4 times in a month.

Table 3: Types of E-Banking Services utilizing by Users' (Adopters)

E-Banking services	Frequency			Percentage		
	Yes	No	Total	Yes	No	Total
Money withdrawal	415	5	420	98.8	1.2	100.0
Balance inquiry	367	53	420	87.4	12.6	100.0
Fund transfer between accounts	217	203	420	51.7	48.3	100.0
Viewing account statements	182	238	420	43.3	56.7	100.0
Sending and receiving money	145	275	420	34.5	65.5	100.0
Mobile top up	48	372	420	11.4	88.6	100.0
To change pin code	83	337	420	19.8	80.2	100.0
Requesting for stop payment on checks	17	405	420	4.0	96.0	100.0
Making purchase payments	46	374	420	11.0	89.0	100.0
Making foreign currency exchange	16	404	420	3.8	96.2	100.0

Source: Survey, 2015/16

As indicated in the table above, money withdrawal using ATM machines (98.8%), balance inquiry (87.4%), fund transfer between accounts (51.7%), viewing account statements (43.3%) and sending and receiving money (34.5) are among the e-banking services by which the Ethiopian e-banking users' are using. However, money withdrawal with the help of ATM machines and balance inquiry are the major and mostly practiced e-banking services. Similarly, the interview response from e-banking managers of each respective bank also prove that money withdrawal using ATM, balance inquiry, requesting mini statement and fund transfer between accounts are the major and common e-banking services by which Ethiopian bank customers are utilizing. This implies that among the different e-banking channels, most e-banking users' are utilizing the services provided by card banking (ATM and POS). In this regard the interview response from e-banking managers also proves that bank customers are not fully and effectively utilizing the services provided by the different e-banking systems (especially mobile and internet banking) as a means of conducting banking transactions. In consistent with the findings of the current study, Abrehe (2015) on his study in Mekelle-Ethiopia also investigated that the majority of the ATM users are using the multipurpose ATM banking service to only limited functions especially for withdrawing money. The low level of using e-banking channels for mobile top up (11.4%), to request stop payment on checks (4%), to make purchase payments using POS machines (11%) and to make foreign currency exchange (3.8%) as well as the dominant utilization of only for money withdrawal and balance inquiry suggests that the usage practice of e-banking service delivery channels in the Ethiopian banking industry is in an infant stage or in other words it shows the existence of low level of e-banking usage practice among e-banking users'.

Table 4: Challenges or Barriers that Affect Users' Effective Utilization of E-Banking Services

Challenges or Barriers	N	Mean	Std. Deviation
High internet cost	420	2.63	1.255
Frequent network/internet interruption	420	4.34	.988
Frequent power interruption	420	4.27	1.043
lack of awareness about e-banking	420	4.04	1.296
Frequent breakdown of ATMs	420	4.01	1.195
Inconvenient locations of ATMs and POS	420	3.05	1.284
Inaccessible internet	420	3.33	1.290
High e-banking services' fees	420	2.61	1.214
Unable to withdraw large amount of money from ATM	420	2.92	1.325
Lack of ICT knowledge	420	2.59	1.318
Inaccessible ATM and POS	420	3.39	1.364
Security	420	3.61	1.439
Complexity	420	2.38	1.178
Slow banks response to correct erroneous transactions	420	3.36	1.358
Delay of the bank to maintain ATMs' that are failed to provide service	420	3.64	1.280

Source: Survey, 2015/16

The above table contains challenges or barriers that hinder the effective utilization of e-banking service among e-banking users' in the Ethiopian banking industry. The measures incorporated in the table were measured by questions developed in a 5 point likert scale where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Disagree. Therefore, the mean value in the table above indicates the average value of all respondents response in a given question statement or proposed challenges. Accordingly, among the proposed challenges that hinder the effective utilization of e-banking services, frequent network/internet interruption with a mean value of 4.34, frequent power interruption with a mean value of 4.27, lack of awareness about e-banking service delivery channels with a mean value of 4.04, frequent breakdown of automated teller machine (ATM) with a mean value of 4.01, delay from the banks side to maintain ATMs' that are failed to provide service with a mean value of 3.64, inaccessible ATM and POS machines with a mean value of 3.39, slow banks response to correct erroneous e-banking transactions with a mean value of 3.36, inaccessible internet service with a mean value of 3.33, inconvenient location of ATM and POS machines with mean value of 3.05 and security problem with mean value of 3.61 are the common challenges in the Ethiopian banking industry that have significant negative impact on users' full and effective utilization of e-banking services. Among these challenges; frequent network/internet interruption, frequent power interruption, lack of awareness about e-banking service delivery channels, fear of security issues and frequent breakdown of automated teller machine (ATM) are the major ones that seriously influence users' full adoption of e-banking services. In addition to these, failure of ATM machines to provide receipt, English language problem and complex or long process of mobile banking usage are also among the challenges that negatively influence users' e-banking usage practice. Similarly, the interview response from each bank e-banking personnel also indicated that lack of awareness, infrastructural problems such as internet/network and power supply, frequent failure of ATM, inaccessible or shortage of ATM and POS machines, lack of trust and ATM transaction error are the major challenges that negatively influence the usage of e-banking services among bank customers. Further, during the interview, e-banking personnel's of each respective bank also replied that lack of trained manpower in the banking sector, resistant to accept new technology among bank customers, lack of banking education, need for personnel contact at branch and branch expansion are among the barriers or challenges that are affecting users' full adoption of e-banking services. All these factors contribute to the low level of e-banking usage practice in Ethiopia. In line with this, a study conducted by Economic Commission for Africa (2007) revealed that the growth of e-banking in most African countries has been

slow for a variety of reasons, which include: low levels of internet penetration and limited communication infrastructures as well as low level of awareness regarding the opportunities offered by e-banking. Similarly, a study conducted by Auta (2010) in Nigeria to identify factors affecting e-banking adoption among bank customers found that the issue of security, accessibility problem, lack of enough knowledge about the service and shortage of infrastructures such as power and telecommunication facilities are among the major factors that influence consumers adoption of e-banking. With regard to security, Poon (2008) also investigated that privacy and security issues are the major sources of dissatisfaction among the users' of e-banking services. In addition, Ismail and Osman (2012) on their study identified that frequent breakdown of ATMs, inconvenient locations of ATMs and Electronic Points of Sale (EPOS), inaccessible internet, slow banks response for correcting erroneous transactions and frequent power cut offs are the major factors that affect customers adoption of e-banking. In line with the above previous studies, Garedachew (2010) on his study in Ethiopia also identifies that low level of internet penetration and poorly developed telecommunication infrastructure, lack of suitable legal and regulatory framework for e-commerce and e-payment, high cost of internet, frequent power interruption, resistance to accept new technology among customers, Lack of awareness on the benefits of new technologies, fear of risk and lack of trained personnel in key organizations are the major challenges for the development of e-banking business in Ethiopia.

Conclusion

From the data collected, analyzed and discussed to assess the current practices and challenges of e-banking adoption in Ethiopia, the following conclusions were inferred:

- ❖ The result of the study with regard to the practices of e-banking service utilization in Ethiopia implies that e-banking (especially mobile and internet banking) is in an infant stage in Ethiopia. Among the different e-banking channels, ATM is the frequently and mostly practiced e-banking service delivery channel.
- ❖ Money withdrawal using ATM machines, balance inquiry, fund transfer between accounts, viewing account statements and sending and receiving money are the major e-banking services by which the Ethiopian e-banking users' are using.
- ❖ Frequent network/internet interruption, frequent power interruption, lack of awareness about e-banking service delivery channels, inaccessible ATM and EPOS machines, fear of security issues, slow banks response to correct erroneous transactions and frequent breakdown of automated teller machine (ATM) are the major challenges that seriously influence users' full adoption of e-banking services in Ethiopia.

Theoretical and Managerial Implications

The findings of this study have both theoretical and practical implications. From a theoretical perspective, the major implication for scholars in the field of technology adoption in general and e-banking adoption in particular is that the current study used actual usage behavior as a dependent variable in contrary to most previous scholars' usage of behavioral intention as a dependent variable. The important justification for this is that as suggested by Bagozzi (2007) intention may not be representative enough of actual use, because the time period between intention and adoption could be full of uncertainties and other factors that might influence an individual's decision to adopt a technology. The findings of this study also have important practical implications for banks and the government. Therefore, in order to improve the level of users' adoption or usage of e-banking services, the following measures or recommendations should be taken both by banks and the government itself:

- ❖ The currently available basic infrastructure (ICT and power supply) for e-banking diffusion is not sufficient to full fill the requirements of e-banking technology in Ethiopia. Therefore, efforts to

improve the basic infrastructure by the government should be strengthened both in terms of coverage and quality. This includes provision of adequate ICT service and stable supply of electricity.

- ❖ In order to improve the level of e-banking usage among the users', all banks should aggressively create continuous awareness to the society with regard to the usage and benefits (usefulness) of e-banking services by using different media.
- ❖ In order to reduce customers' frustration concerning the security of e-banking channels (especially internet and mobile banking), banks in Ethiopia need to develop risk reducing strategies. These strategies include the improvement of the security of electronic banking services (like the implementation of advanced encryption methods and strong firewalls), protecting users personal information, giving unconditional loss guarantees and reducing the possibility of delays of payment and waiting time (particularly for ATM services) which might assist consumers to develop high confidence about e-banking services.

Limitations and Directions for Future Research

Due to the difficulty of incorporating all issues in a single study, any research is not free from some limitations. Therefore, the major limitations and potential future research directions in this study are listed below:

Limitations

- ❖ Exclusion of the voice of non-users (those who are not using e-banking)
- ❖ E-banking is in an infant stage in Ethiopia, as a result it was very difficult to get adequate previous works in the context of Ethiopia. Most of the empirical studies were taken from studies conducted outside Ethiopia and this may lead to the representation of the influence of the factors considered from other countries perspective which may not particularly common in Ethiopia.
- ❖ Another limitation of this study is that customers (e-banking users') who filled the survey /questionnaire were only individual or retail customers and not corporate customers (i.e. corporate customers were not considered).

Directions for Future Research

Future researchers in the area of e-banking in developing countries especially in Ethiopia should consider the limitation of this study and thereby they should consider the following issues. **First:** The views of non-users' as well as corporate customers should be considered because inclusion of these groups of bank customers will broaden the study and helps to capture their views and also it enables to do comparison between adopters and non-adopters intention towards e-banking adoption or usage. **Second:** E-banking services (especially mobile and internet banking) are still relatively new or in an infant stage in the Ethiopian banking industry, therefore similar future studies should be conducted in the country after a while that the number of e-banking users' has reached a critical mass. By doing so, a more comprehensive investigation on the factors that influence users' effective and efficient utilization of e-banking services can be made.

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