



DIRE DAWA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**FACTORS AFFECTING ADOPTION OF ELECTRONIC BANKING, IN
ETHIOPIAN BANKING INDUSTRY, A CASE IN COMMERCIAL BANK
OF ETHIOPIA DIRE DAWA DISTRICT.**

ABEBAYEHU BEKELE

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DIRE DAWA

DECLARATION

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NAME OF STUDENT: **ABEBAYEHU BEKELE**

SIGNATURE: _____ DATE _____

THIS MBA SPECIALTY THESIS DISSERTATION HAS BEEN SUBMITTED FOR EXAMINATION WITH MY APPROVAL AS THESIS/DISSERTATION ADVISOR.

NAME OF MAJOR ADVISOR: **BUMBUL SHEWAKENA (ASST. PROFESSOR)**

SIGNATURE: _____ DATE _____

PLACE OF SUBMISSION: _____

DATE OF SUBMISSION: _____

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As thesis advisor(s), i hereby certify that i have read and evaluated this thesis prepared under my guidance. I recommend the student to submit his thesis, which fulfilled requirements.

Bambul Shewakena (Asst. Proff)

Major advisor name

_____ signature

_____ date (dd/mm/yy)

_____ Co-advisor name

_____ signature

_____ date (dd/mm/yy)

Officials use (signature and date)

_____ Department head

_____ signature

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ABSTRACT

The benefits of any technology on the growth on an economy can only be realized when there is significant use and diffusion of the technology. Technology adoption is important because it is the vehicle that allows most people to participate in a rapidly changing world where technology has become central to our lives.

It is against this background that this study investigated the factors that affect adoption of E Banking in Ethiopian banking industry in a case of Commercial Bank of Ethiopia Dire Dawa district. In order to achieve the research objective, the researcher used both descriptive and explanatory research designs. The study was conducted based on the data gathered from sample respondents from commercial bank of Ethiopia who are employees and customers. Stratified and random sampling techniques were applied. The data collected was analyzed using Stata version 2013. The study revealed E- banking were not well adopted by Ethiopian banking industry due to lack of suitable legal frameworks, low level of ICT infrastructure, lack of customers trust, lack of government support and awareness towards the technology and customers' fear to use the technologies that holds banking industry to adopt the system.

Finally based on the research findings and conclusions the researcher recommends the government to support the banking industry by investing on ICT infrastructure development, providing necessary infrastructure like electricity, road and telecom services especially in rural area of the country.

Acronyms

ATM	Automated Teller Machine
ADF	Augmented Dickey Fuller
CBE	Commercial Bank of Ethiopia
COC	Controller of the Currency
CSM	Customer Service Manager
DBE	Development Bank of Ethiopia
DDCA	Dire Dawa City Administration
E-Banking	Electronic Banking
IB	Internet Banking
ICT	Information Communication Technology
IDT	Innovation Diffusion Theory
MB	Mobile Banking
NGOs	None Governmental Organizations
PC	Personal Computer
PIN	Personal Identification Number
POS	Point of Sales
SMS	Short Message Service
SPSS	Statistical Package for the Social Science
SQ	Service Quality
TAM	Technology Acceptance Model
TOE	Technology- Organization –Environmental

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CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The benefits of any technology on the growth on an economy can only be realized when there is significant use and diffusion of the technology. Technology adoption is important because it is the vehicle that allows most people to participate in a rapidly changing world where technology has become central to our lives. Individuals who do not or cannot adapt to technology will increasingly limit their ability to participate fully in the financial and convenience benefits associated with technology (Bridges, 2012).

In order to provide efficient and effective services, Banks currently uses deposit, machine, Technology, manpower/human resources and other materials as basic inputs to achieve its predetermined goals and objectives. Among those resources, technology is one of a competitive advantage for the banking industry to ease delivery of the intended service, to make timely decision, exploit resources user friendly, achieve the objectives of the organization as planned and contribute for the enhancement of the overall development.

The banking industry has been significantly influenced by evolution of technology. The growing applications of computerized networks being used by banks has reduced the cost of transactions and increased the speed of service delivery substantially. The nature of financial intermediaries made banks improve their production technology by focusing on distribution of products. In other words, the evolution of banking technology has been mainly driven by changes in distribution channels as we see evidence from over-the counter (OTC), automated-teller-machine (ATM), telephone-banking, and most recently internet banking (IB) (Yoonhee, 2007).

Technology keeps clients coming back for more and doing business with you in the future. They are more likely to stick with your brand longer and eventually turn in to the kind of advocates that will help spread the word for you, there by earning you more customers down the road.

Electronic banking can have powerful effects in the banking and financial sector. It focuses on using modern technology to provide better banking service using electronic devices to customers to fulfilling customers' expectations.

Banking institutions across the globe have recognized the importance of electronic banking and developing maintaining enduring relationship with their customers as two crucial parameters leading to increased business profits.

The rapidly growing information and communication technology (ICT) is knocking the front door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopian's financial sector cannot remain an exception in expanding the use of the system (Gardachew 2010, p.2).

Technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enables customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space (Turban 2008).

However, mirroring the development of E-commerce, the adoption and diffusion of electronic banking (E-banking) system is not well developed in Ethiopia. E-banking refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, and to pay bills, or to obtain commercial information and advices. In a dynamic changing and highly competitive environment success in the banking industry especially depends on having use of the appropriate technology along with retention of well trained and motivated employees who have the capacity to exploit the Bank's existing technology as well as look for better advancement.

One of the major significance of e-banking product and services is improved efficiency and effectiveness of the operations so that, transactions can be processed faster and most conveniently. Thus, it has enhanced customer services, effective distribution, improved operations, faster access to information and improved internal processes. This implies that customers benefit ranges from reduced frequency of going to the banking halls to handling of cash.

The application of E-banking in Ethiopia goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced ATM to deliver service to the local

users. In addition to eight ATM Located in Addis Ababa, CBE has had visa card registration and distribution since November 14, 2005.

Commercial bank of Ethiopia has already introduced e-banking as one tool to settle down the growing competition by investing on card acceptance network expansion which in fact makes the network to raise to 1100 Automatic Teller Machines (ATMs), 3000 Point of Sale (POS) terminals and number card holders to 4235684 as at June, 2016. Those ATMs are able to accept international cards that generates foreign currency like VISA, MasterCard, Union Pay and recently American Express cards.

In order to encourage further E-banking adoption in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao et al., 2008). Low literacy rate is a serious impediment for the adoption of E-banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of E-banking, they should not only know how to read and write but also possess basic ICT literacy (Gardachew, 2010).

There are limited studies currently available in Ethiopia about EBS which includes ATM, Debit card, Tele banking, internet banking, mobile banking, Agent Banking and so on. Therefore, to address the current gap in the literature, this study is designed to examine the E-banking adoption situation in CBE focusing on opportunities, challenges and optimization of EBS to the level expected. Hence, by utilizing an analytical framework from the extant literature and empirical evidence in this regard, the research will elaborate in more detail and recommends possible ways that shows factors affecting the adoption of EBS specifically to CBE.

1.2. Statement of the problem

With the emergence of universal banking, banks aim to provide all banking product and service offering under one roof and their endeavor is to be customer centric. With the emergence of economic reforms in world today's banks have come up in a big way with prime emphasis on technology.

The banking industry in Ethiopia is underdeveloped therefore, there is an all immediate need to embark on capacity building arrangements and modernize the banking system by employing the state of the art of technology being used anywhere in the world. With a growing number of import-export businesses, and increased international trades and international relations, the current banking system is short of providing efficient and dependable services.

Commercial bank of Ethiopia is yet to fully adopt this new banking product. The banks that have adopted the product have been faced with various obstacles leading to poor application of internet banking services. According to Paul (2009), the key challenges that the banking industry face are, technological infrastructure, E-transaction security and legislative framework. E-banking has an important role in improving the efficiency and the effectiveness of service provided by the bank. Service delivery and transaction processing time can be reduced and fasten conveniently.

E-banking has enhanced customer services, effective distribution, improved operations, faster access to information and improved internal processes. This implies that customers benefit ranges from reduced frequency of going to the banking halls to handling of cash. Most of the products of E-banking like ATMs, Debit cards, Credit cards, Tele banking, Internet banking, Mobile banking and others are new to the Ethiopian banking sectors and not familiar with the society.

Even though the importance of E-banking is increasing from time to time a lot of works needs to be done in Ethiopia to bring the needed change. Considering the low extent of development of ICT infrastructure in developing countries, when compared with the developed countries E-banking has not really been able to diffuse into society given the low rate of internet access (Banji& Catherine 2004).

In addition to the failure of network lack of awareness from the society to use electronic banking products has also created a major effect on E-banking products. For improving the adoption of E-banking in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao et al. 2008). By gaining an in-depth understanding of the factors and conditions that influence developing country's ability to fully adopt and realize its benefits, strategic implications can be generated for the researchers and practitioners regarding how to promote the growth of E-banking in the developing countries.

Electronic banking has many advantages and interesting diversities including more number of customers, services in higher quality and lower price, preservation and enhancement of share in market, unlimited space for market, concentration in new distribution, making competition between commercial brands, concentration on expenses and improvement of revenue, providing extensive services, improvement in management system, decreasing the expenses of contractions, close intra banking connection, controlling ecological pollution, etc.

There are several major challenges and issues facing the e-banking industry today. First, and perhaps most important is the security concern (Feinman *et al.*, 1999). Financial Services Security Lab Background, 2001). Customers are certainly concerned of giving their bank account number online or paying an invoice through internet. Another challenge facing e-banking industry and the e-business in general is the quality of delivery service – including both delivery speed (*i.e.*, short advance time required in ordering) and delivery reliability (*i.e.*, delivery of items/services on time) (Furst *et al.*, 2000), which caused many e-business failures in the earlier dot.com era. Limited online payment options have resulted in many customers to drop out in the last stage of the purchasing process due to dissatisfaction and inconvenience (Furash, 1994).

Finally, the issue of customer unfamiliarity with the internet, which is prominent among senior citizens, has recently caught some attention, because these customers believe that they are left at a disadvantageous position and become very reluctant in doing business online.

Therefore, this study is intended to assess factors affecting adoption of Electronic Banking system in Ethiopian Banking industry.

1.3 Research Hypothesis

Based on theoretical review, the following research hypothesis were developed at 5% significance level (researcher is willing to take as much as a 5 % risk of rejecting the null hypothesis when it (H_0) happens to be true).

✓ **Null Hypothesis/H0/**

H0: Technological factors, Environmental factors, Organizational factors, awareness, Demographical factors, and trust on the system has no significant effect on the adoption of E banking

✓ **Alternative Hypothesis/H1/**

H1: There is a relationship between Technological factors and adoption of E banking.

H2: There is a relationship between Environmental factors and adoption of E-banking

H3: There is a relationship between Organizational factors and adoption of E banking.

H4: There is a relationship between awareness and adoption of E banking.

H5: There is a relationship between Demographical factors and adoption of E banking.

H6: There is a relationship between trust and adoption of E banking.

1.4 General objectives

The general objective of this study is to identify factors affecting adoption of Electronic banking in Ethiopian banking industry in case of commercial bank of Ethiopia Dire Dawa district.

1.5 Specific objectives

The study would achieve the following specific objectives.

- To examine the influence of technological factors on the adoption of Electronic banking in Ethiopia banking industry.
- To investigate the influence of environmental factors on the adoption of Electronic banking in Ethiopia banking industry.
- To identify the influence of organizational factors on the adoption of Electronic banking service in Ethiopian banking industry.
- To evaluate the influence of lack of awareness on the adoption of Electronic banking service in Ethiopian banking industry
- To examine the influence of trust on the system on the adoption of Electronic banking in Ethiopian banking industry.

1.6 Significance of the Study

After investigating factors affecting adoption of Electronic banking in Ethiopian banking industry in case of commercial bank of Ethiopia Dire Dawa district, the paper provides some important clues for the banks, financial institutions, bank managers and other institutions. It also helps other researchers in the area as a reference for further study.

The study provides update and current information to stake holders and management of various banks on factors affecting adoption of electronic banking in Ethiopia. And this helps to employee effective IT application strategies like implementation of better anti-fraud security systems to guarantee high level of confidentiality on electronic banking. This may lead to attraction of more customers leading to realization of increased bank growth and development.

It helps managers to identify challenging factors that hinder the adoption of Electronic banking in order to increase the use of service as well as to encourage the general acceptance of new IT services and to monitor the development and growth of agent banking and E-banking.

It also helps other researchers in the area who are interested to conduct further study regarding the issue.

In addition, the researcher also benefited in doing next wide study by gaining some experiences from the case, so it is very necessary in developing one's thinking based on scientific research methodologies.

1.7 Scope of the Study

The main concern of the study is to identify factors affecting adoption of Electronic banking in Ethiopia banking industry. The scope is confined only to commercial bank of Ethiopia dire dawa District.

1.8 Limitation of the study

In conducting research there are many conditions and situations which hinder the plan of human beings. In the case of this study, the major constraints that the researcher faced are the following.

- The major limitation was absence of previous research work in the area.

- Another potential limitation was unwillingness of the respondents to respond. but by convincing the respondents I have managed it.
- Finally biasness of the respondents was the other basic limitation for the research.

1.9 Organization of the study

The paper is organized in five chapters. The first chapter contains back ground, statement of the problem, research hypothesis, objective, limitation, and organization of the paper. The second chapter incorporates review related literature. Chapter three contains research methodology. Chapter four deal with data presentation, analysis and discussion. The last chapter is summary conclusion and recommendation. At the end, the paper includes relevant information's and questionnaires.

CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical Literature

2.1.1 Definition of E-banking

Electronic banking is defined as the provision of banking services to customers through the internet (Daniel, 1999). Services offered by banks using the internet include: Mobile banking (m banking), video banking, fund transfers, e-payments and ATM cards. Of all e-banking services on offer, however, technological advancements keeps broadening the frontier of possibilities in all human endeavors and thus more e-banking services are being developed and introduced.

Daniel (1999) defines electronic banking as the delivery of banks' information and services by banks to customers via different delivery platforms that can be used with different terminal devices such as personal computers and mobile phone with browser or desktop software, telephone or digital television; Abidand Noreen (2006) defined it as any use of information and communication technology and electronic means by a bank to conduct transactions and have interaction with stakeholders. Magembe et al. (2002) also defined electronic banking as nothing but e-business in banking industry. E-banking is a generic term for delivery of banking services and products through electronic channels, such as the telephone, the internet, the cell phone, etc.

E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul, 2009).

2.1.2 Types of E-banking

Among the many e-banking delivery channels to provide banking service to customers, ATM, POS, Mobile & agent banking and internet banking are the most widely used and discussed below:-

2.1.3. ATM

It is a machine where cash withdrawal can be made over the machine without going in to the banking hall. It also sells recharge cards and transfer funds; it can be accessed 24 hours/7 days with account balance enquiry (Fenuga, 2010).

ATM is same as teller point but it run automatically through identity like card and password. It does not need any slip or cheque but it is very much based on account holder's ATM card and it's Password. Generally, ATM machines provides the same services, such as money withdrawal, fund transfer, balance enquiry, mini statement, and money transfer from one account to the other.

2.1.4. INTERNET BANKING

Internet banking allows customers of a financial institution to conduct financial transactions on a secure website operated by the institution, which can be a retail or virtual bank, credit union or society. It may include any of transactions related to online usage. Banks increasingly operate websites through which customers are able not only to inquire about account balances, interest and exchange rates but also to conduct a range of transactions. Unfortunately, data on Internet banking are scarce, and differences in definitions make cross-country comparisons difficult(Alabar, 2012).

2.1.5. POS

POS also sometimes referred to as point of purchase (POP) or checkout is the location where a transaction occurs. A "checkout" refers to a POS terminal or more generally to the hardware and software used for checkouts, the equivalent of an electronic cash register. APOS terminal manages the selling process by a salesperson accessible interface. The same system allows the creation and printing of the receipt. POS systems record sales for business and tax purposes (Shittu, 2010).

2.1.6. MOBILE BANKING

Mobile banking also known as M-Banking is a term used for performing balance checks, account transactions, payments, credit applications and other banking transactions through a mobile device such as a mobile phone or PDA. The earliest mobile banking services were offered over Short Message Service (SMS), a service known as SMS banking. Mobile banking is used in many parts of the world with little or no infrastructure, especially remote and rural areas.

This aspect of mobile commerce is also popular in countries where most of their population is unbanked.

In most of these places, banks can only be found in big cities, and customers have to travel hundreds of miles to the nearest bank. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information (Tiwari et al., 2007).

2.2. E-banking System in Ethiopian Banking Industry

The appearance of E-banking in Ethiopia goes back to the late 2001, when CBE introduced the service for local users with its eight ATMs located in Addis Ababa (Gardachew, 2010). Then after DB comes to the picture in the year 2006 with its ATMs that provide service for local Dashen Visa Card holders and international Visa Cardholders coming to Ethiopia. United Bank S.C is the first to introduce telephone-banking - including text messages or SMS by the end of 2008.

Currently, United Bank starts to deliver E banking services like ATM, internet, mobile and agent banking. (United Bank SC web report, 2015) Wegagen Bank is introducing a Core Banking System as of July 2000 that helps to connect its Head Office & all branches through network. Through its versatile ISO Standard Core Banking System, the Bank is now delivering more efficient services to its customers. The system has also enabled the Bank to provide technology-based banking services such as Card payment services (through ATM & POS), internet banking as well as mobile banking services. (Wegagen Bank SC web report, 2015)

Zemen Bank has launched prepaid bank cards which can be used without opening a deposit account at the bank. The cards will have preloaded funds, which can be withdrawn from ATMs or used to make purchases from POS terminal. The prepaid cards will be given to the card holders with a PIN to withdraw the cash. The prepaid cards can be used as gift cards or employee salary or expense cards, which can avoid the need to carry around a large amount of cash. The cards can be preloaded with a minimum of 100 Br. And a maximum of 50,000.00 Br. and reloaded after the previous funds have been fully utilized. The bank will take a commission each time a card is loaded (Fortune, 2012).

Currently, there are only a few agreements in place to share ATM resources. The first was the Premium Switch Solutions (PSS), which was established by three banks in 2009 namely Awash International Bank S.C., Nib International Bank S.C and United Bank S.C., with a capital of 165million Br, and now has six member banks, including Awash International Bank S.C., United Bank S.C., Nib International Bank S.C., Berhan International Bank S.C., Addis International Bank S.C and the Cooperative Bank of Oromia S.C. It is the first certified Third Party Payment Processor by the regulatory party, National Bank of Ethiopia and starts its operations in July 2012.

Moreover, PSS has made its system certified by VISA, Master Card and Union pay. Hence, members connected to PSS network can issue and acquire cards with these brands. Per plan of PSS, there will be one ATM at every branch of the consortium banks, all domestic airports serviced by commercial service, shopping complexes and merchants. The agreement is the first significant cooperation between competing banks in Ethiopia, which others should be encouraged to follow as there is no single bank in Ethiopia that can afford to provide extensive geographical coverage and access (Binyam, 2009, cited in Gardachew, 2010).

2.3. Benefits of E-banking

It should be noted that E-banking can bring about various benefits for banks and their customers as well. It is obvious that cost savings, efficiency, gaining new segments of customers, improvement of the banks reputation and better customer services and satisfaction are primary benefits to banks (Jayawardhena & Foley, 2000).

Under the view of Robinson (2000), relevant costs for conducting a banking transaction via online are much lower than via a brick and mortar branch. Moreover, Sheshunoff (2000) contends that one of the most important factors influencing the adoption of E-banking by banks is the need to build up strong barriers to customer exiting. Under the view of the author, once customers become familiar with the utilization of full service E-banking, it is unlikely that they will change to another financial institution. Such an argument can be supported by the consumer behavior theory that switching costs are often very high in terms of time and efforts by

consumers. Finally, the author emphasizes that the implementation of E-banking can bring about many competitive advantages for banks in today's highly competitive banking market.

A research on E-banking has been carried out in Denmark by Mols (1998). The author argues that E-banking can play an important role in enhancing cross-selling and price differentiation. E-banking can make favorable conditions for banks to provide customers numerous services 24 hours a day and 7 days a week. E-banking can improve customer satisfaction with the bank due to the fact that it makes customers less price sensitive, and improve their intention to repurchase, and more loyalty to the bank via providing more positive words of mouth about the bank than other bank customer. It should be noted that E-banking is not only brings about benefits to banks but also to their customers. Thanks to the emergence of the Internet, banking transactions are no longer limited to time and geography.

It is very easy for consumers throughout the world to access to their bank accounts 24 hours per day and seven days a week. Customers can enjoy a variety of services, especially services which are not provided by traditional bank branches (Pham 2010).

It is argued that one of the greatest benefits that E-banking brings about is that it is not expensive or even free for customers to utilize E-banking products/services. However, some people believe that prices appear to be one factor that is impedimental to the distribution of E-banking (Sathye 1999).

E-banking can bring about convenience and accessibility, which will have positive effects on customer satisfaction and loyalty (Pham 2010). It is totally possible for customers to manage their banking transactions whenever they want and to enjoy improved privacy in their interactions with the bank.

It is contend by Turban (2008), that E-banking is really beneficial to customers in terms of cost savings, no limit on time and space, quick response to customer complaints, and better services/products. Such benefits are believed to elevate customer satisfaction.

2.3.1. Benefits to Customers

E-Banking offers substantial advantages to customers in the form of convenience, time saving and easy access to the banking services. The customers can transact in their account at anytime and anywhere throughout the country or outside the country. There is no time and place restriction. The customers need not visit a branch for each and every transaction and no need to wait in the long queue. By this they can save the time. The customers can avail 24 hours a day and 7 days a week access to banking services at anywhere. With the help of e-banking, the easy access to the banks will be another advantage to the customers. Thus the e-banking provides sophisticated services to the customers (Devamohan, 2002). Dawd(2004) also argued that cardholders can be benefited from the safe and convenient nature of using cards for payment. Moreover, payment cards can make life easy for people who want to travel abroad as it minimizes the volume of cash one needs to carry and the associated risk of theft. From merchants' point of view, those merchants who accept cards enable to increase their sales as card holders prefer merchants who can accept their card for payment. Moreover, by reducing the amount of cash on hand, merchants can manage to reduce risks as well as costs related to cash management.

2.3.2 Benefits to Banks

The first benefits for the banks offering electronic banking services is better branding and better responsiveness to the market. In this competitive world, E-banking helps the banks to attract more number of customers and tackle the competition from other banks. According to Olga (2003), those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, those banks that provide the service can enhance the customer satisfaction through sophisticated services. By providing secured e-Banking services, the banks can also avoid fraudulent activities. With the help of e-banking, banks can save time and hence they can increase the number of transactions and business (Devamohan, 2002). The other benefits of e-banking are possible to measure in monetary terms. The main goal of every company is to maximize profits for its owners and banks are not an exception. In this regard, automated e-banking services offer a perfect opportunity for maximizing profits (Olga, 2003).

2.3.3 Benefits to the Economy

As e-banking provide opportunity to banking sector to enlarge their customer base, it has a consequence to increase the volume of credit creation which in turn results in better economic condition. The positive impacts of electronic banking are immense for economic development of a nation. Some of the economic benefits of e-banking as identified by Dawd (2009) are as follow:

1. Reduction of the cost for printing cash notes and its related distribution

In a cash based economy, governments are required to invest a great deal of fund on printing of cash notes and distributing same to the public. In the case of electronic payment systems the transaction values are transferred from one account to another using electronic means, reducing the need for cash note distribution. Thus, by encouraging acceptance of payment cards, governments can achieve huge cost saving for their economy in terms of reducing cash note printing and related expenditure (Dawd, 2009).

2. Enhancement of Aggregate Deposit

When people start to increase the proportion of their saving compared to their daily consumption, the saved money can be utilized for investment purposes that in turn will create employment opportunities. This is a great benefit for the economy as a whole. However, individual savings could not bring this kind of impact. The benefit can only be obtained when savings are made in a banking system whereby the saved fund can be deployed to the economy in the form of loan to encourage the required investment (Dawd, 2009). In an electronic payment card infrastructure people do not need to carry cash notes for their day to day expenditures as well as contingencies. They rather are encouraged to deposit their fund in the banking system and obtain a single plastic to access this fund at any time of the day when the need arises. This implies that unused funds are always in the banking system that helps to facilitate economic growth (Dawd 2009).

3. Banking the un-banked

While the electronic payment card infrastructure is diversified, payroll for employees can be handled through this system. Besides creating ease and convenience, both for the employer as well as the employee, it enables individuals to enter into the banking system which they may not

be interested otherwise (Dawd, 2009). Such impact of banking the unbanked population also has a benefit in increasing aggregate deposits as indicated above.

2.4. Challenges of Electronic Banking

Electronic banking despite its numerous benefits, there are challenges in the implementation of e-banking applications. Some of the identified challenges as revealed by previous research works include Technological factors, security, infrastructure, regulatory and legal issues and Socio Cultural challenges.

2.4.1 Technological factors

Successful electronic banking implementation requires effective technology management. The limited access to financial services is attributed to three main challenges: limited scale (outreach), depth and the high cost of providing financial services. Essentially, the provision of financial services to many more people, especially in the depth of rural areas, using traditional branch networks entails high costs (Helms, 2006). In an attempt to overcome these challenges, financial service providers in a growing number of countries are finding innovative ways of delivering financial services. The use of ICT is indeed providing a means to increasing scale and depth, while reducing costs in the provision of financial services. Studies suggest that technology plays a significant role in improving financial access by taking financial services in a sustainable way to under-served and un-served areas (Stegman. Rocha, & Davis, 2005; Claessens, 2006). Studies also reveal that technologies such as ATMs, mobile phones and points-of-sale (POS) devices are increasingly being used to reduce costs and increase access for low-income clients (Ivatury, 2006). These technologies are providing alternative delivery channels for the delivery of financial services.

2.4.2 Security

One of the biggest challenges and the basic requirements of e-banking are ensuring its security. Securing the process in e-banking involves authenticating data of the customer and banker and protecting the information to be transmitted from interception. This authentication can be done using user ID and passwords. In addition a means must be provided that prevent repudiation both

by the merchant and customer once the payment process has taken place (Barnes and Hunt, 2001). According to Worku (2010), e-banking systems must also take into account the need of multilateral security keys i.e. security needs of all participating parties in the e-banking system. An e-payment system that is not secured may not get trust from its users. Trust is one of the crucial factors to ensure the acceptance of e-banking system by users. Martina (2005) also indicated that e-banking applications represent a security challenge as they highly depend on critical ICT systems that create vulnerabilities in financial institutions, businesses and potentially harm customers. It is imperative for banks to understand and address security concerns in order to leverage the potential of ICTs in delivering e-banking applications. Software failures can also be considered as security challenges as it destroy entire portions of a network and bring huge losses. According to Tadesse and Kidan (2005), some of the major security challenges include the following.

A. Disclosure of private information

In e-payment there are many ways in which private information may be accessed by attackers. For instance hackers may intercept network traffic to get confidential data. It is also possible to access private data stored on a computer connected to the internet. This data could be used to make fraudulent transactions that could lead to a loss of money.

B. Counterfeiting

Counterfeiting is the creation of new data or duplication of existing data, which are technically valid but not legally admissible. Cloning of e-money for double spending and creation of fake accounts are example of counterfeiting. One popular form counterfeiting attacks is duplication of electronic data from a payment cards (e.g. ATM card) is creating duplicate cards and withdraw money from the accounts.

C. Illegal alteration of payment data

Illegal modification of payment information may result in loss of money. This may again results in the loss of customer confidence. Alterations could be made to the transaction account numbers resulting in misdirected payments, to the payment amounts or to electronic balances on electronic. Another challenge in e-payment includes usage of a fraudulent web site by an attacker

to collect credit card number and other personal and/or financial information. According to Taddesse and Kidan (2005), the most common method of securing e-banking services is using cryptographic based technologies such as encryption and digital signatures. However, applying these technologies will reduce its efficiency by making it slower and as a result some sort of compromising has to be made between security and efficiency.

2.4.3 Infrastructure

The other challenge for the adoption of e- banking is proper infrastructure. For the effective deployment of e-banking, it is necessary to have a reliable and cost effective infrastructure that can be accessible to the majority of the population. The most common communication infrastructure for e-banking is computer network such as Internet. Most e-banking systems use internet to communicate with their customers. The other communication infrastructure available for e-banking users is the mobile network used for mobile phone. Automating the banking activities is another prerequisite for e-banking system. Closed financial network that links banks and other financial institutions is necessary. This network is usually used between banks or other financial institution for clearing and payment confirmation. According to Kumaga (2010), low level of internet penetration and poorly developed telecommunication infrastructure impede smooth development and improvements in e-commerce in developing countries. In this regard, a study made by Microfinance Nigeria (2010) indicated that efforts made by the Nigerian government and other financial and ICT stakeholders to move Nigeria's payment system from a cash-dependent platform to the globally acceptable electronic-driven alternative way is impeded by shortage of well-developed telecommunication infrastructure. Another major problem that relates to this is frequent electric power disruption. This will create lot of problems in e-banking activities which are basically depending on power supply. It will force the banks to depend on generators results in high operational cost. These problems are considered as obstacles for the expansion of e-banking services.

2.4.4 Regulatory and Legal Issues

National, regional or international set of laws, rules, and other regulations are important prerequisites for successful implementation of e-banking services. Some of the main elements include rules on money laundering, supervision of commercial banks and money institutions by supervisory authorities, payment system oversight by central banks, consumer and data

protection, cooperation and competition issues (European Central Bank, 2002). According to Mishra (2009), the virtual and global nature of e-payment also raises legal questions such as which jurisdiction will be competent and about applicable laws in disputed cases, validity of electronic data, electronic contracts, and electronic signature. Moreover, a legal and regulatory framework that builds trust and confidence supporting technical efforts to meet the same is another important issue that needs to be addressed. In this regard legislative support is essential for protecting the interests of customers and banks in various areas relating to e-banking and payment systems. Some of the main issues like liability for loss in case of fraud, allocation of loss in case of insolvency, cheque truncation, evidence and burden of proof, preservation of records, prevention of fraud, etc. are to be cleared in the legislation (ECB,2002). This can be done by adopting model laws at global level such as UNCITRAL Model law on E-commerce (1996), UNCITRAL Model law on E-signatures (2001) and at regional level such as the SADC Model law on Electronic Transaction and Data protection (Mishra, 2009).

2.4.5 Socio-Cultural Challenges

Cultural and historical differences in attitudes and the use of different forms of money (e.g. use of credit card in North America and use of debit cards in Europe) complicate the task of developing an electronic payment system that is applicable at international level. Difference in the degree of the required security and efficiency among peoples of different cultures and level of development aggravates the problem (Tadesse and Kidan, 2005).

2.4.6 Increasing the potential for hard currency generation

Especially in developing economies, earning of hard currency is very essential to manage a country's balance of payment. The payment card system can bring a good potential of enabling economies to earn more foreign currency. This can be realized by attracting tourists and by encouraging them to spend more. In today's world, availability of payment card infrastructure is one of the criteria that tourists set while they decide which country to visit. As a result countries that maintain a developed electronic payment card system has a better potential of being visited by tourists than those which do not establish the infrastructure. Hence, more tourists and increased hard currency as a result of diversifying payment card business (Dawd, 2009).

Furthermore, due to the fact that travelers can access their account at home easily while staying in another country, where the payment card infrastructure is established, their chance of spending more is great. Travelers, being outside of their home country, feel more unsafe and uncomfortable to carry bulk amount of cash while on travel. Thus, they can be forced to spend only to the extent of the limited cash on hand during a certain period of stay in another country.

2.5. Adoption of E-banking system

Adoption is the acceptance and continued use of a product, service or idea. Consumers go through a process of knowledge, persuasion, decision, implementation and confirmation before they are ready to adopt a product or services Rogers and Shoemaker (1971). A potential adopters passes through certain stages before decision is made on whether to adopt or reject an innovation.

The innovation process defined by Rogers is the process through which an individual or other decision making unit passes from knowledge of innovation, to forming an attitude towards the innovation, to a decision to adopt or reject, to implementation of the new idea, to confirmation of the decision. These stages typically follow each other in a time-ordered manner.

A. Knowledge: Socio-economic characteristics, Personality variables and communication behavior all relate to innovativeness. Innovativeness is the degree to which an individual or other adoption unit is relatively early in adopting new ideas compared to other members of a system (Rogers, 1995). According to Rogers early adopters have more formal education than later adopters and are more likely to be (socio-economic characteristics).

B. Persuasion: The potential adopter's attitude towards the innovation is formed in this stage. By anticipating and predicting future use satisfaction and risk of adoption, the potential adopter develop positive or negative attitudes to the innovation, which play important role of modifying the final decision. Perceived attitudes of an innovation as its relative advantage, compatibility and complexity are especially important here (Rogers, 1995).

C. Decision: The decision stage occurs when an individual engages in activities that lead to adoption or rejection of the innovation. In this stage the adopter starts to actively seek out information about the innovation that assists the decision making.

D. Implementation: In this stage, mental information processing and decision making come to an end, but the behavioral change begins.

E. Confirmation: After the adoption of innovations, the adopter keeps evaluating the results of his / her decision. If the level of satisfaction is significant enough, the use of innovation will continue; however, it is also possible that the rejection occurs after adoption.

In the latter case, the reverse of previous decision is called “discontinuance”. The time frames for adopting an innovation can be compressed or fairly lengthy. For example, awareness of an innovation may precede the decision to adopt by months or years.

2.5.1 Factors influencing Banks to adopt E-banking system

There are different factors that affect the practice and adoption of technological innovation in general and specifically E-banking. There are many theories for the adoption of IT. The most used theories for technology adoption are the technology acceptance model (TAM) (Davis F. 1989), theory of planned behavior (TPB) (Ajzen 1985, Ajzen 1991), unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003), diffusion of innovation (DOI) (Rogers 1995), technology organization environment (TOE) framework (Tornatzky and Fleischer 1990), institutional theory and Iacovou et al. (1995) model. From these IT adoption models while TAM, TPB and UTAUT are individual level models, DOI, TOE, institutional theory and Iacovou et al. (1995) models are at the firm level (Tiago and Maria 2011). The following section will discuss some of the above IT adoption models in detail for the adoption and practice of new technology.

2.5.2 Technological Factors

It appears that there is a lack of consensus on what factors belong to this context. For example, one study (Salwani 2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in this context, while other studies (Ellias 2009 & Chang 2007) consider some relevant characteristics of technology. To avoid overlapping between technology and organizational contexts, researcher chooses two basic factors related to technology competence, which have relevant to the organizational factors, i.e. perceived benefits and perceived risks are considered in this study from the technological factors.

1. Perceived benefits: - Perceived benefits of E-banking cover both direct and indirect benefits for the banking industry as well as for the consumers. Direct benefits include the savings on operational cost, improved organizational functionality, productivity gain, improved efficiency and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer's satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Lu et al. 2005; Kuan&Chau 2001 &Iacovou 1995)
- 2 Perceived risks: - One of the important risks faced by banking institutions in offering E-banking services is the customers' resistance to use the services which significantly hinder the growth of E- banking (Zhao et al. 2008 &Laforet 2005). Issues related to security have always been a concern when dealing with technologies related to online transactions such as E-banking (Chang 2007 &Rogers 2003). Therefore, the perception of the risks regarding E-banking is expected to influence its adoption and further growth.

2.5.3 Organizational Factors

Organizations are different in their preference to adopt technological innovation (Iacovou 1995 &Grover 1993) influenced by a number of factors, like firm size, top management support and financial and human resources. In the framework for this study, researcher uses one basic organizational factor as discussed below. Financial and human resources: - Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Kuan 2001 &Iacovou 1995).Therefore, it is expected that the availability of financial resources within the adopting firms is important for E-banking practice. These resources enable banking institutions to obtain human related resources including the required skills and expertise to develop and support provision of E-banking services.

2.5.4 Environmental factors

Researcher identified factors related to the environmental context that play a crucial role in technology adoption and some factors in this category are arguably more influential than others, especially when countries under study have an authoritative government leadership. The Four factors relevant for E-banking adoptions included in this study are:-

1. Legal Frameworks: - The existence and maturity of E-commerce legal frameworks within a country influence the diffusion of online transactions including E-banking as demonstrated in various studies (Tan & Wu 2002; Martinson & Trappey 2001).

2. The National ICT infrastructure: - National ICT infrastructure is a major factor that supports the adoption of E-banking as the case for other E-commerce initiatives. Without an adequate development level and quality of a nation's ICT infrastructure, E-banking adoption and use cannot do well (Efendioghu 2004 & Scupola 2003).

3. Competitive pressure: - Competitive pressure can strongly influence any bank to develop and adopt E-banking initiatives and it may affect the bank's perception towards E-banking system. As implied in previous studies (Quaddus & Hofmeyer 2007; Gibbs, Kraemer & Dedrick 2003).

4. Government Support: - Government can either directly or indirectly affect the adoption of E banking in terms of creating a favorable environment and impetus for banking institutions and their customers so that the services can be diffused with the community (Kuan 2001 & Iacovou 1995) Generally these theory discuss different variables associated with the adoption of E-banking and i.e. from technological factors perceived benefits and perceived risks, from organizational factors human and financial resources and from environmental factors legal frameworks, national ICT infrastructures, competitive pressure and government support and this theory used to test does this variables affect the adoption of E- banking in Ethiopian banking industry.

2.6 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen (1975), is probably one of the most influential theories used to explain human behavior (Venkatesh et al., 2003). Simply put, according to this theory, the behavioral intention can be explained by the attitude towards behavior and subjective norm. The attitude towards behavior is defined as —an individual's positive or negative feelings (evaluative effect) about performing the target behavior (Fishbein and Ajzen, 1975, p. 216). Subjective norm refers to perception that most

people who really matter to the individual think that he either should or should not perform the behavior in question (Fishbein and Ajzen, 1975, p.302). Attitude towards behavior, in turn, can be explained by the salient beliefs in the behavior. This theory is give high emphasis to human behavior, norms and beliefs and used to investigate customers behavior, beliefs and norms about the adoption of E- banking in Ethiopian banking industry.

2.7 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was proposed by Ajzen (1985) as an extension of TRA (Fishbein and Ajzen, 1975) for situations where people do not have complete control over their behavior. Basically, TPB adds a determinant to the behavioral intention and the attitude towards behavior constructs which is the perceived behavioral control. This construct reflects how people perceive the internal and external limitations to their behavior. On more formal terms, it refers to how easy or difficult people believe it would be to perform certain behaviors (Ajzen, 1985). In TPB, behavior itself is a function of both the behavioral intention and the perceived behavioral control. Behavioral intention, in turn, is influenced by the attitude towards behavior, the subjective norm and the perceived behavioral control. The determinants of intention (attitude, subjective norm, and perceived behavioral control) are established by the structure of the underlying (attitudinal, normative and control) beliefs.

Strengths of theory of planned behavior

The theory of planned behavior can cover people's non-volitional behavior which cannot be explained by the theory of reasoned action. An individual's behavioral intention cannot be the exclusive determinant of behavior where an individual's control over the behavior is incomplete. By adding "perceived behavioral control," the theory of planned behavior can explain the relationship between behavioral intention and actual behavior. Several studies found that the TPB would help better predict health-related behavioral intention than the theory of reasoned action Ajzen, I. (1989) The TPB has improved the predictability of intention in various health-related fields such as condom use, leisure, exercise, diet, etc. In addition, the theory of planned behavior as well as the theory of reasoned action can explain the individual's social behavior by considering "social norm" as an important variable.

Limitations of theory of planned behavior

Some scholars claim that the theory of planned behavior is based on cognitive processing, and they have criticized the theory on those grounds. More recently, some scholars criticize the theory because it ignores one's needs prior to engaging in a certain action, needs that would affect behavior regardless of expressed attitudes. For example, one might have a very positive attitude towards beefsteak and yet not order a beefsteak because he is not hungry. Or, one might have a very negative attitude towards drinking and little intention to drink and yet engage in drinking as he's seeking group membership. Also, one's emotions at the interviewing or decision-making time are ignored despite being relevant to the model as emotions can influence beliefs and other constructs of the model. Still, poor predictability for health-related behavior in previous health research seems to be attributed to poor application of the model, associated methods and measures. Most of the research is correlation, and more evidence based on experimental studies is welcome although experiments, by nature, lack external validity because they prioritize internal validity Sniehotta, F.F. (2009). Theory of planned behavior also give high emphasis to human behavior, norms and beliefs and used to investigate customers behavior beliefs and norms about the adoption of E- banking in Ethiopian banking industry.

2.8 Technology Acceptance model (TAM)

According to Davis (1989) TAM assume two sets of beliefs, i.e. Perceived Ease of Use (PEoU) and Perceived Usefulness (PU) to look at individual's technology acceptance. TAM proposes perceived usefulness (PU) and perceived ease of use (PEOU) as fundamental determinants of technological adoption where an individual's intention to use an application is predicted and explained by once perception of the technological usefulness and its simplicity (Hart O. et al, 2012). Perceived Ease of Use refers to the level of degree where an individual believes that using a particular system would be free of physical and mental effort. It measures the prospective user's assessment of the mental efforts required of the use of the target applications (Davis, 1993). Opia(2008) claimed that innovations with perceived complexities of user interface and steep learning curve, which thought risky to adopt. Empirical findings confirm the positive

relationships between attitude towards use and ease of use (Venkatesh& Davis, 2000) and show that PEOU is a proven key determinant of users' intention to accept IT (Venkatesh, 2000). Thus, ease of use is a powerful determinant of intention to accept innovation(s) (Hart O. et al, 2012). Perceived Usefulness on the other hand is related to users' perception of the degree to which using a system will be beneficial (Alsabbagh&Molla, 2004). It provides diagnostic lenses into how actual use and intention to use or attitude towards using are influenced. The near-term results are synonymous with postulates of PU; and the long-term consequences refer to consequential results in one's career or social image, which reflects Rogers' (1995) important motivation for adoption of innovation. The attainment of perceived near-term usefulness paves way for long-term usefulness (Hart O. et al, 2012). It relates with the cost and time saving and it considered from the perspective of improving service delivery and creating more access to users. Decomposing PU as (Triandis, 1980) and (Chau, 1996) did explicitly provides more specific lenses into understanding user perception of Information Technology's usefulness.

The reasons for the popularity of TAM as the theoretical framework is that, TAM is a theory specifically developed for ICT implementation and adoption research. It is a theory owned by the IS research community, a field, in which theories are scarce Lee, Y., Kozar, K. A., & Larsen, K. R. T., (2003). TAM provides a clear and tested framework for ICT adoption and implementation research Yousafzai, S. Y., Foxall G. R., & Pallister, J. G., (2007). The other strength of TAM is its simplicity Davis, F. D. (1989) which has been achieved by leaving social and organizational Factors outside the scope of the theory. On the other hand, looking at the weaknesses, TAM has left out social and organizational factors in its construct, which are very instrumental in influencing technological innovation and ICT adoption. Also, extending TAM to achieve other variations of TAM such TAM2 or other different models and independent variables may cause a theoretical confusion in which, it may become unclear which version of the many iterations of TAM is the commonly accepted one (Benbasat, I. & Barki. H. (2007) Also, the many extensions of TAM did not succeed in deepening the theory in the sense of explaining the essential concepts in greater depth Whetten, D. A., (1989), for example, by explaining exactly what perceived usefulness or ease of use means Bagozzi, R. P., (2007). Criticisms of TAM as a "theory" include its questionable heuristic value, Actual use limited explanatory and predictive power, triviality, and lack of any practical value (Chuttur 2009). Benbasat and Barki suggest that TAM "has diverted researchers' attention away from other important research issues and has created an

illusion of progress in knowledge accumulation. Furthermore, the independent attempt by several researchers to expand TAM in order to adapt it to the constantly changing IT environments has lead to a state of theoretical chaos and confusion (Benbasat and Barki 2007). This is the reason why this study found TAM and its extension unsuitable. This model is associated with the adoption of e- banking because using of technology have its own advantage and disadvantage (risk) i.e. perceived usefulness and perceived ease of use and TAM is used to elaborate perceived usefulness and perceived ease of use associated with the use of IT technology in general and adoption of E- banking in Ethiopian banking industry.

2.9 Diffusion of Innovation (DOI)

As Rogers explained DOI is a theory of how, why, and at what rate new ideas and technology spread through cultures, operating at the individual and firm level. DOI theory sees innovations as being communicated through certain channels over time and within a particular social system. Individuals are seen as possessing different degrees of willingness to adopt innovations, and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time. Breaking this normal distribution into segments leads to the segregation of individuals into the following five categories of individual innovativeness (from earliest to latest adopters): innovators, early adopters, early majority, late majority, laggards (Rogers 1995). The innovation process in organizations is much more complex. It generally involves a number of individuals, perhaps including both supporters' and opponents of the new idea, each of whom plays a role in the innovation-decision (Rogers 1995).

Based on DOI theory at firm level, Rogers stated innovativeness is related to such independent variables as individual (leader) characteristics, characteristics of innovation, and external characteristics of the organization. As shown in Figure 2, individual characteristics describe the leader attitude toward change. Characteristics of innovation include relative advantage (perceived benefit), compatibility, perceived risk, trial ability and observability. As Roger stated the characteristics of innovations, as perceived by individuals, help to explain their different rate of adoption. Rogers explained the independent variables as follows:

Relative advantage (perceived benefit) is the degree to which an innovation is perceived as better than the idea it supersedes. The degree of relative advantage may be measured in economic terms, but social-prestige factors, convenience, and satisfaction are also often important components. It does not matter so much whether an innovation has a great deal of objective advantage. What does matter is whether an individual perceives the innovation as advantageous. The greater the perceived relative advantage of an innovation, the more rapid its state of adoption is going to be. Compatibility is the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters. An idea that is not compatible with the prevalent values and norms of a social system will not be adopted as rapidly as an innovation that is compatible. The adoption of an incompatible innovation often requires the prior adoption of a new value system.

Perceived risk is the degree to which an innovation is perceived as difficult to understand and use. Some innovations are readily understood by most members of a social system; others are more complicated and will be adopted more slowly. Trialability is the degree to which an innovation may be experimented with on a limited basis. New ideas that can be tried on the installment plan will generally be adopted more quickly than innovations that are not divisible. Observability is the degree to which the results of an innovation are visible to others. The easier it is for individuals to see the results of an innovation, the more likely they are to adopt. Such visibility stimulates peer discussion of a new idea, as friends and neighbors of an adopter ask him or her for innovation-evaluation information about it. External characteristics of organization refer to system openness.

Strength and weakness

DOI theory has the following strengths: DOI represents important advancement over earlier limited effects theory. It drew from existing empirical generalizations and synthesized them into a coherent, insightful perspective. It was consistent with most findings from effects surveys and persuasion experiments, and above all, it is very practical. It laid the foundation for numerous promotional communication and marketing theories and the campaigns they support even till today. The weakness of DOI theory is linear and source dominated because it sees communication process from the point of view of elite who has decided to diffuse information or

an innovation. This theory also underestimates the power of media. They mainly create awareness of the new innovations. It assigns a very central role to different types of people critical to the diffusion process. The theory simply says that the media influence innovators or early adopters who influence opinion leaders who in turn influence everyone else. Rogers failed to realize that the media can also be used to provide a basis for group discussions led by change agents. Another fall out of this theory is that it stimulates adoption by groups that do not want the innovation. In the adopters' categories of this theory, it is noted that the category of a set of adopters is omitted. Rogers didn't realize that some adopters may have the features of innovators/early adopters but may not quickly adopt an innovation. Diffusion of innovations theory is often simplified to focus solely on a product or innovation, disregarding the complex societal, cultural, economic and other factors that determine how the product is adopted into society. Diffusion research focusing on a few select innovations often fails to advance and draw important conclusions on the larger theory. Finally Diffusion of innovation theory discuss factors affect the adoption of information technology in general and E- banking adoption in particular factors like relative advantage, compatibility, perceived risk(complexity), trial ability and observability and this theory used to test does this factors affect the adoption of E- banking in Ethiopian banking industry.

2.10 Empirical Review

2.10.1 Technological factors and adoption of E- banking

It appears that there is a lack of consensus on what factors belong to this context. For example, one study (Salwani 2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in this context, while other studies (Ellias 2009 & Chang 2007) consider some relevant characteristics of technology. To avoid overlapping between technology and organizational contexts, researcher chooses two basic factors related to technology competence, which have relevant to the organizational factors, i.e. perceived benefits and perceived risks are considered in this study from the technological factors.

1. Perceived benefits: - Perceived benefits of E-banking cover both direct and indirect benefits for the banking industry as well as for the consumers. Direct benefits include the savings on

operational cost, improved organizational functionality, productivity gain, improved efficiency and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer's satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Lu et al. 2005; Kuan&Chau 2001 &Iacovou 1995)

2. Perceived risks: - One of the important risks faced by banking institutions in offering E banking services is the customers' resistance to use the services which significantly hinder the growth of E-banking (Zhao et al. 2008 &Laforet 2005). Issues related to security have always been a concern when dealing with technologies related to online transactions such as E-banking (Chang 2007 & Rogers 2003). Therefore, the perception of the risks regarding E-banking is expected to influence its adoption and further growth.

H1: There is a relationship between Technological factors and adoption of E banking.

2.10.2 Environmental factors and adoption of E- banking.

Environmental factors mainly relates to different facilitating and inhibiting factors in areas of operations (Al-Qirim, 2006). The arena in which a firm conduct its business in adopting technological innovations; its industry, competitors, access to resources supplied by other externals and dealings with government are claimed to be covered under environmental contexts (Kvin Z. et al. 2004). Legal frameworks, the National ICT infrastructure, Competitive pressure and Government supports are amongst significant factors to be considered in the study (Ayana, 2012) as described here under. 1. Legal Frameworks: - The existence and maturity of legal frameworks on the e- commerce within a country to influence the diffusion of online transactions including electronic banking as indicated in various studies (Tan & Wu, 2002 and Martinson, 2001).

2. National ICT Infrastructure: - National ICT infrastructure is a major factor that supports the adoption of e-banking system as the case for other initiatives. Without an adequate development and quality of a national ICT infrastructure, e-banking adoption and use cannot do well (Efendioghu 2004 &Scupola 2003).

3. Competitive pressure: - Competitive pressure can strongly influence any bank to develop and adopt e-banking initiatives and it may affect the bank's perception towards innovation

(Quaddus&Hofmeyer 2007). Intense competition stimulates the adoption of innovation (Mansfield et al. 1977).

4. Government Support:-Government can either directly or indirectly affect the adoption of E-banking in terms of creating a favorable environment and momentum for banking institutions and their customers so that the services can be diffused with the community (Kuan 2001 &Iacovou 1995)

H2: There is a relationship between Environmental factors and adoption of E-banking

2.10.3 Organizational factors and adoption of E- banking

Organizational factor captures firm's business scope, organizational culture, top management support, complexity of organizational structure measured in terms of centralization, vertical differentiation, and formalization, the quality of human resource, and size related issues such as specialization and internal slack resources (Jeyaraj A. Et al, 2006). Iacovou (1995) and Grover (1993) also argued that organizations influenced by a number of factors, like firm size, top management support and financial and human resources in their preference to adopt technological innovation. As per Kvin Z. et al. (2004) and Tornatzky and Fleisher (1990) it is defined in terms of several descriptive measures: firm size and scope; the formalization, centralization and complexity of its managerial structure; the quality of its human resources and the amount of internally available slack resources. Accordingly, the researcher considered the financial and human resources as the organizational factor in the framework for the study as discussed below. Financial and Human Resources: - Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Iacovou 1995 and Kuan 2001). The availability of financial resources and costs related with adoption of innovations has paramount importance and deserves consideration. Human resources that enable banks to obtain the required technical and managerial skills and expertise to adopt and implement technological innovations like electronic banking system are also found important to consider as factors without disregarding the customer sides.

H3: There is a relationship between Organizational factors and adoption of E banking.

2.10.4 Lack of awareness

Octovian and Daniela (2006) mentioned that Romanian customers were not adopting internet banking services because of unawareness and sufficient information about internet banking. In a parallel the study by Octavian and Daniela (2006) and Omar et al. (2011), it was discovered that most of the bank customers are still not aware of internet banking services, although customers would possibly adopt internet banking due to their willingness to accept change and innovation ,and to appreciate ease of navigation on banks website with resulting time savings. Devadevan V (2013) conducted a survey on 65 respondents, and found that 84.6% of the same had tested the mobile banking facility while the rest were unaware of the same. Laforet S, Xiaoyan Li, (2005) points out a low level of awareness in China as far as mobile banking was concerned. In view of the same, Laukkanen T, Kiviniemi V (2010) tested the impact of information and guidance offered by the bank. They found that the information and guidance offered by a bank has the most significant effect on perceived functional usability of mobile banking and also significantly increases the positive image associated with the innovation. The results also suggested that information and guidance significantly increase the perceived value added provided by mobile banking and decrease the perceived risks related to the innovation. However, information and guidance have no significant impact of psychological barriers like tradition.

H4: There is a relationship between lack of awareness and adoption of E banking.

2.10.5 Demographic factors and adoption of E- banking

Demographic factors have a great impact on consumer attitudes and behavior towards new technology acceptance such as e-banking. Age, gender, educational level, income and occupation are among the most influential demographic variables affecting e-banking usage. The empirical studies related to these important demographic factors from the perspective of e-banking usages are discussed;

Gender

Gender refers to the difference in the adoption and usage of new technology such as e-banking between male and female. The impact of gender on customers' e-banking usage behavior has been validated by a number of scholars as explained below. 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, Alafeef et al. (2011) on their study regarding the influence of demographic factors on e-banking adoption discovered that gender has strong effects on the adoption level of e-banking applications in which males have greater e-banking usage experience as compared to females. Azouzi (2009) also discovered that gender is a crucial variable impacting the customers' attitude towards the adoption of e-banking. Similarly, Muzividzi et al. (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 even with little information about it. Men usually are keen to experiment than women. However, Ismail et al. (2012) and Izogo (2012) found that there is no significant association between e-banking usages with gender. Besides, Sheshadri et al. (2014) found that gender does not have an effect on the customer adoption of electronic banking. Both genders have equivalent level of adoption of these services as now a day's both genders are employed and so they have their individual bank accounts and have their own practice of these technological services. Both genders have a diverse knowledge on these services presented by their banks. Therefore, they conclude that gender does not play a role in link with the technology adoption as both males and females are qualified in today's situation.

Age

A study conducted by Abenet (2010) concerning the determinants of e-banking adoption in Ethiopia revealed that the young age group is more computer literate and finds it easy to accept and use new technologies. Poon WC (2008) and Azouzi D (2009) on their study also supports that young and computer literate respondents are using or are willing to use electronic banking. The hypothesis tested to diagnose the relationship between age and e-banking preference by Yitbarek et al. (2013) shows a gradual but steady decline in the percentage preference of e-banking as the age group increases. This means that the percentage preference for e-banking for

the 18 to 25 years age group is greater than the percentage preference for e-banking for the above 60 year's age group. This makes it quite clear that the younger the age group, the greater the preference for electronic banking.

Educational Level

The impact of education on bank customers' e-banking usage practice is discussed below by reviewing various previous studies. For example; a study conducted by Abenet (2010) in Ethiopia found that e-banking usage practice is greater among those peoples who are in a better educational level as compared to others, so educational level has positive impact on e-banking adoption. This finding is in line with Edwin et al. (2014) who found that consumers' level of education and ICT knowledge impacts their acceptance of e-banking services. A number of the respondents were ICT literate and used it in their everyday transactions, which shows a fair amount of ICT knowledge. Further a study conducted by Izogo (2012), Alafeef et al. (2011) and Margaret et al. (2013) concerning the impact of demographic factors on e-banking adoption among bank customers using Chi-Square Test found that educational status has significant effect on customers' adoption and usage of e-banking. They discovered that the education level is the strongest positive factor that influences the adoption level of e-banking whereby the younger generations are highly educated. In line with this Tater et al. (2011) on their study identified that customers with post-graduate and graduate qualifications are mostly adopters of IT banking services such as e-banking. This implies that higher qualification is associated with bringing attention towards new technology banking services and qualification is a factor found to be relevant.

H5: There is a relationship between Demographical factors and adoption of E banking.

2.10.6 Trust on the system and adoption of E- banking

Trust plays an important role in the business-to-consumer relationships involving unknown risks (Gefen, D., Karahanna, E. and Straub, D. (2003); Jarvenpaa, S.L., Tractinsky, N. and Saarinen, L. (1999). With the advent of the virtual marketplace, the role of trust has become more predominant and attracted the attention of academicians and practitioners. With respect to online shopping and online banking, potential uncertainties come from multiple sources such as vulnerability of Internet, Internet communication platforms and the technical capability of the

vendors. In Internet banking environment, consumers attach more importance to trust than branch banking (Ratnasingham, 1998). This may be due to the absence of the physical contact between the service employee and consumer in the service delivery process. Fears of hackers and privacy invasion compound the uncertainty surrounding online services (Hoffman Hoffman, D.L., Novak, T.P. and Peralta, M.A. (1999); Yoon, 2002). Hence, the uncertainty and risk are inherent in the online banking environment. Research has shown that risk and trust are inseparable components in decision-making (Morrison and Firmstone, 2000). Previous studies suggest that trust is an antecedent of perceived risk (Manzano, J.A., Navarre, C.L., Mafe, C.R. and Blas, S.S. (2009), Kesharwani and Bisht, 2012). In environments such as Internet banking, trust is the most effective strategic method to reduce uncertainty and risk (Gefen, 2000; Hart and Saunders, 1997). Customers trust in M-Banking service, reliability of different M-banking services such as funds transfer, pay bill and application of loan have been found to be positively affecting adoption of e-banking services Hannah Wangari and Willy (2014). In view of this, following hypotheses are proposed:

H6: There is a relationship between trust and adoption of E banking.

2.11 Conceptual framework

The figure below depicts the dependent and independent variables of the research and the relationship among them. The independent variables include Technological factors, Organizational factors, Environmental factors, and Demographic factors, Lack of awareness and Trust on the system. Perceived risk and perceived benefit indicate technological factors, financial and human resource indicate organizational factors, legal frame work, national ICT infrastructure, competitive pressure and government support indicate environmental factors, age, sex, and education indicate demographic factors. On the other hand, use of paying bill, account balance enquiry, buying airtime, use of internet banking, use of ATM and POS machine, use of mobile banking and funds transfer service indicate adoption of E-Banking service.

Figure 2.1 shows the linkage of internal and external factors on the adoption of E-Banking

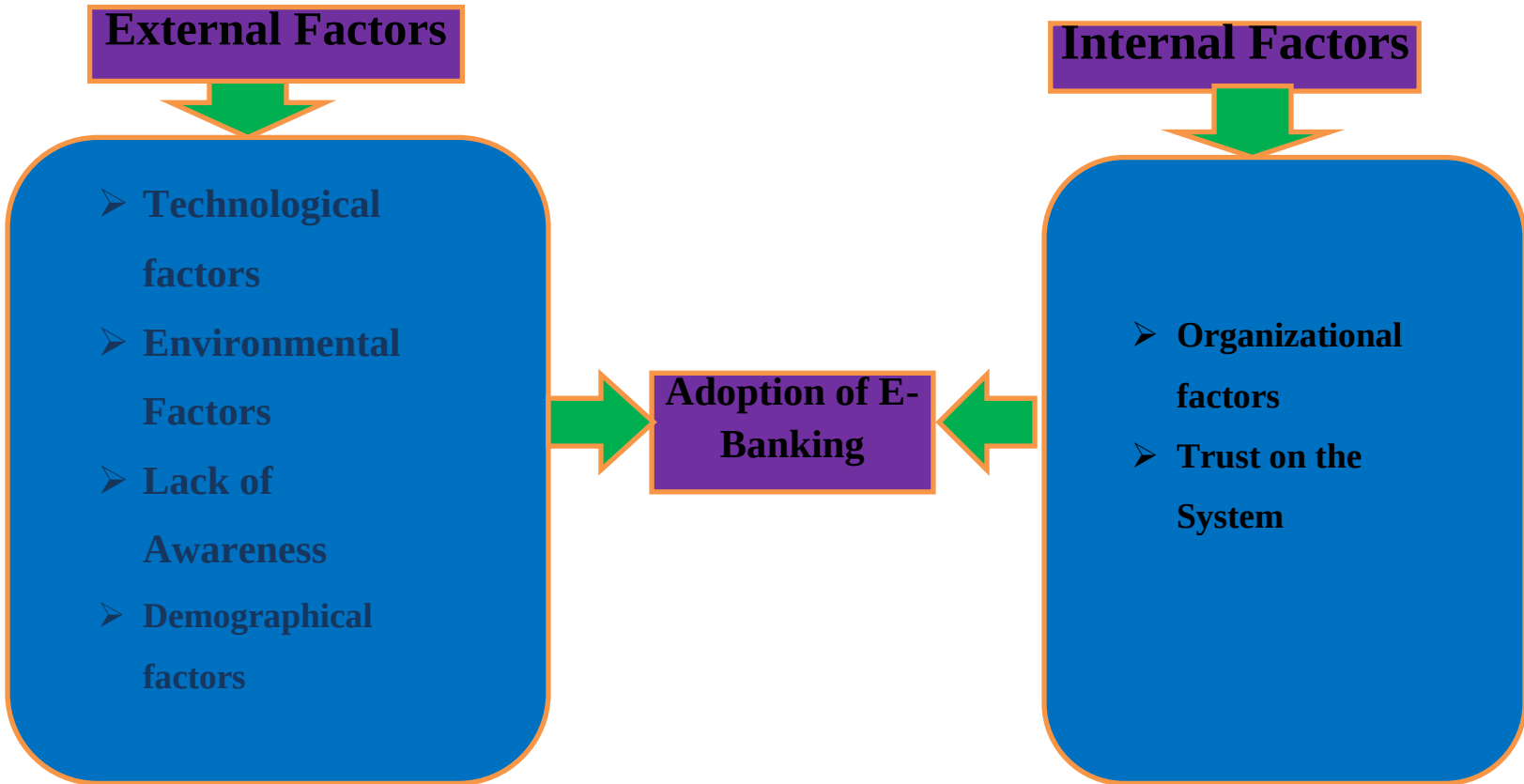


Figure 2.1 conceptual frame works

Modified conceptual frame work by the researcher.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This section presents the detail methodology that was applied to obtain representative data from samples and contains seven major components; research design, definition of target population, sampling technique and size, inclusion and exclusion criteria, data collection methods and sources, method of data analysis and presentation and ethical consideration.

3.1 Research Design

The purpose of this thesis was to conduct mixed research design. The goal of descriptive research is to describe some aspect of customer's attitude about E- banking in Ethiopian banking industry, i.e., the status of E- banking. It can help understand a topic and lead to causal analysis. The desire to know "why," to explain, is the purpose of explanatory research. It is a continuation of descriptive research and builds on exploratory and descriptive research and goes on to identify the reasons for something that occurs. The researcher goes beyond merely describing the characteristics, to analyze and explain why or how a customer does not adopt e- banking in Ethiopia. Thus, explanatory or analytical research aims to understand phenomena by discovering and measuring causal relations of independent variables like technological factors, environmental factors, and organizational factors, lack of awareness, demographical factors and trust on the system with adoption of e- banking.

3.2 Data collection method and source

In order to collect sufficient data that can answer the research hypothesis, researcher designed two surveys; the first was a questionnaire to get quantified results. The second survey was interviews aimed to collect data from E-payment/IT managers. In addition to questionnaire and interview, data collected from different published and unpublished materials has been also used.

3.2.1 Questionnaires

As indicated in the above, employees and customers were included in the survey. A questionnaire was distributed to all 97 samples of commercial bank customers. Questions present in the form of affirmative statements, relating to the concepts on E-banking to identify their intention on the factors affecting the adoption of E- banking, in such a way to enable measurement of the respondent's opinions. The questionnaires were structured in close-ended type and responses to the questions were measured on a five Likert rating scale where: Strongly Agree (SA) = 5; Agree (A) = 4; Neutral (N) =3, Disagree (D) = 2; and Strongly Disagree (SD) = 1; the use of Likert scale is to make it easier for respondents to answer question in a simple way. In addition, this research instrument was permitting an efficient use of statistics for the interpretation of data. Moreover, the central issue to argue that likert scales is that it produces ordinal data. Johns (2010) noted that in statistical terms the level of measurement of the likert response scale is ordinal rather than interval: that is, we can make assumptions about the order but not the spacing of the response options. Thus, the permissible descriptive statistics that can perform on ordinal data is mean (or average response) and mode (or more frequent responses) (Hole 2011).

3.2.2 Interviews

In the qualitative strategy, semi-structured interview were conducted with one manager from each branches to have sufficient information regarding the research problem and with the relevant body at National Bank of Ethiopia (NBE). The major purpose of this interview was to corroborate certain facts that the investigator already thinks have been established (Yin, 1989; pp. 89). Therefore, the semi-structured interviews were conducted to enhance and supplement the results of questionnaires.

3.3 Sample size and technique

In the course of the study, the researcher selected 17 branches which are located at Dire Dawa City Administration. Among those populations, the researcher took 97 samples by using random sampling technique. This method is selected because they are viewed as avoiding bias and weakness of the frequency or intensity.

3.4 Method of Data analysis

Data analysis consists examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study (Yin, 1989). The researcher analyzed the data collected through survey to statistical population concerning the factors affecting the adoption of E- banking. The data collected via questionnaires was analyzed by STATA Version 2013). Wolcott (1994) cited in Creswell (2003), suggested that qualitative research is fundamentally interpretative i.e. the researcher makes an interpretation of the data. Thus, the data that was collected from the interview and reviews of documents were interpreted qualitatively. The qualitative type of data analysis technique was used based on the data gathered from experts of various institutions mentioned above with narration and systematic summery. Analyzing qualitative data typically involves immersing oneself in the data to become familiar with it, then looking for patterns and themes, searching for various relationships between data that help the researchers to understand what they have, then visually displaying the information and writing it up (Westbrook, 1994). In analyzing the data from interviews, narrative approaches were used. Moreover, linear regression analysis was used to test the developed hypotheses.

Both descriptive and econometric model has been deployed to assess the factor affecting adoption of E-banking and to answer the research specific objectives. To answer the first specific objective of the research descriptive statistics has been used to analyze the quantitative trends of adoption of E-banking growth in CBE.

3.5 Model Specification

The theoretical literature discussed above suggests that Adoption of E-banking, Awareness, Environmental factor, Organizational factor, Technological factor, Demographic factor and Trust on the system are somehow related. The empirical frame work of this study is focused on modeling the determinants of Adoption of E-banking in Dire Dawa District. A variant of the determinant model can be used to evaluate the determinants of Adoption of E-banking. However, the study used the following determinant variables: Awareness (AW), Environmental factor (EF), Organizational factor (OF), Technological factor (TF), Demographic factor (DF) and Trust on the system (TOS). Based on the above explanation, the models are formulated as follows:

$$\text{AOEB} = F(\text{LAW}, \text{EF}, \text{OF}, \text{TF}, \text{DF}, \text{TOS}) \dots \dots \dots (1)$$

Where:

AOEB: Adoption of E-banking

LAW: Awareness

EF: Environmental factor

OF: Organizational factor

TF: Technological factor

DF: Demographic factor

TOS: Trust on the system

$$\text{AOEB} = \beta_0 + \beta_1 \text{LAW} + \beta_2 \text{EF} + \beta_3 \text{OF} + \beta_4 \text{TF} + \beta_5 \text{DF} + \beta_6 \text{TOS} + \varepsilon_t \dots \dots \dots (2)$$

Where, ε_t is the error term and β_0 is the constant term, β_1 , β_2 , β_3 , β_4 , β_5 and β_6 , are slope coefficients. Regression Coefficients (to be estimated) measures how much units of Adoption of E-banking (AOEB) would be changed with a unit change in the independent variables.

3.5.1. Diagnostic Test Procedure of the Model

The statistical tool was employed using quantitative techniques in analyzing data so as to fulfill the objectives of the study. This study has used multiple regression models to show the relationship between the response and explanatory variables. Johansen procedure of co-integration was employed to demonstrate the strength of the relationship. After running the regression equation of the model, the data has been tested through diagnostic test procedure whether the model is statistically accepted or not. This is done by testing autocorrelation using the Durbin-Watson statistic, normality uses Bera-Jarque (BJ) test uses to know the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance.

3.5.1.2 Serial Correlation (Autocorrelation)

The multiple regression models assumes no serial correlation (also called autocorrelation) which means that the errors in subsequent periods are not correlated (Wooldridge, 2000). However, the problem of serial correlation could be present in this research because time series data are used, incorporating data from the same firms for several periods of time. To control for serial correlation, the RE or FE models (dependent on which model suits best) are adjusted for this issue with a first-order autocorrelation - AR (1) - disturbance. AR (1) means that the variable is a function of just one lag of itself (Badeley & Barrowclough, 2009).

3.5.1.3 Normality test

Jarque-Bera statistical test was undertaken to examine the normality distribution of data. Upon examination the Jarque-Bera (JB) test uses to know the property of a normally distributed random variable that the entire distribution is characterized by the first two moments the mean and the variance.

3.5.1.4 Multi co linearity

Multi co linearity is a statistical phenomenon in which two or more explanatory variable in a multiple regression model are highly correlated, meaning that one can be linearly explained or predicted from the others with a non-trivial degree of accuracy. In other words, multi co linearity is the correlation of explanatory variable with each other or it is a problem that arises due to the presence of liner relationship among explanatory variable. In this situation the coefficient estimates of the multiple regressions may change erratically in response to small change in the model or the data.

Multi co linearity does not reduce the predictive power or reliability of the model as a whole. At least within the sample data themselves; it only affects calculation regarding individual predictors or explanatory. That is a multiple regression model with correlated predictors can indicate how well the entire outcome variable, but it may not give valid result about any individual predictors are redundant with respect to others.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1 Descriptive Data Analysis

4.1.1 Introduction

This chapter contains the findings and analysis of the research study based on interpretation of the data collected. The researcher distributed a total of 97 questionnaires based on sample size determination criteria for Commercial bank of Ethiopia customers and employee who have commenced e- banking services in Ethiopia. Our valid and useable questionnaires were obtained to enable a meaningful analysis of the data with 95% response rate. The research findings relate to the results of the effects of awareness, organization factors, environmental factors, technological factors, demographic factors, and trust on the system variables in the adoption of E- banking. Additionally, the effects of awareness, organization factors, environmental factors, technological factors, demographic factors, and trust on the system with respect to adoption of E banking are determined and scrutinized based on detailed elements of the measurements. Furthermore, the study findings are subjected to statistical analysis, which are discussed in more details. For example, multiple linear regression analysis was used for test of the hypothesis to indicate the extent to which the relationship of the determinants in the adoption of E banking services were explained through the use of the mentioned factors in the survey questionnaires under each determinant. Hence, the research results that were collected through the survey questionnaires were analyzed using descriptive statistics and linear regression inferential statistics with the help of STATA version 2013 software and the results are presented and discussed in the following sections.

4.1.2 Respondents Demographic Profile

The study participants on survey questionnaire have different personal information; besides these differences they introduce different responses towards E-banking usage, and the factors that influence E-banking adoption. The following discussion shows these differences. The demographic profile of respondents, participated in this study was shown in table 4.1 as follow.

Table 4.1 Respondents demographic profile

Variable	Classification of Variables	Frequency	Percentage
Gender	Male	50	51.5%
	Female	47	48.5%
	Total	97	100%
Age	20 to 30 years	70	72.1%
	31 to 40 years	20	20.6%
	41 to 50 years	7	7.3%
	Above 50 years	-	-
	Total	97	100%
Educational Level	Diploma holder	10	10.3%
	First Degree holder	60	61.8%
	Masters Degree	27	27.9%
	Above Masters Degree	-	-
	Total	97	100%
Monthly income	Birr 2,000.00 -3,999.00	10	10.3%
	Birr 4,000.00 – 4,999.00	15	15.4%
	Birr 5,000.00- 9,999.00	50	51.7%
	Above 10,000.00	22	22.6%
	Total	97	100%

Source: Survey result of own tabulation

As it is shown on the above table, the highest percentage of participants in this study was Male who represents 51.5% of respondents. In the case of classification of respondents by age 72.1% of the respondents are young (20-30 years old). Regarding the educational level of the study 61.8% of the respondents are BA degree holders. On the other hand, 51.7% of the respondent has monthly income ranging between 5,000.00 to 9,999.00 Ethiopian birr. So majority of the respondents of the survey are male, young, BA degree holders and relatively middle income level.

4.1.3 Factors affecting adoption of E- banking in Ethiopia

Questions were asked to identify perceptions of the sampled customer with respect to factors affecting the adoption of E-banking services. The following sections discuss about the responses of the respondents regarding factors affecting the adoption of E banking service in Ethiopian banking industry. Respondents' response towards factors affecting adoption of E- banking services were identified based on the research model that use the two basic frameworks, technology- organization- environment (TOE) frame work and technology acceptance model(TAM) with some modification.

4.1.3.1 Technological factors

Results obtained from survey respondents of the bank customers and employee regarding factors affecting the adoption of E banking under determinant technological factors that focus mainly on perceived risk and perceived usefulness aspects of the service are depicted below using descriptive statistics:-

4.1.3.1.2 Perceived risk

The perception of the risks regarding e-banking is expected to influence the adoption and further Growth. Table 4.2 shows participant responses on perceived risk of e-banking service.

Table 4.2 perceived risk

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
Security aspect considered as barrier for implementing of E-banking	-	-	5	42	50	4.46391	1.5962	3	5
Customers do not trust the technology of E-banking	-	-	3	55	39	4.2410	1.3094	3	5

Source: Survey result of own tabulation

As shown in the above table, the responses were scored on a scale of 1 – 5, with 1 representing the respondents’ strong disagreement and 5 representing strong agreement with each of the factors. As the above table indicated the respondents agree and strongly agree with Security aspects considered as barrier for implementing of E- Banking with the mean score of 4.46391 and standard deviation of 1.5962, Customers do not trust the technology of e- banking is also barrier for implementing of e- banking with mean of 4.2410 and standard deviation of 1.3094, Moreover, interview with the key informant staff also support the result of questionnaires and indicate that all factors in this categories have significant impact on adoption of the service. Accordingly, they pointed out that making awareness to the customer of the bank on how the risk associated with the adoption of E banking mitigated by the bank may build their trust and confidence that ultimately reduce perceived risk towards E banking services provided by the bank. Therefore this study identified that Lack of availability of physical security are the major factors faces the banking industry in adopting E-banking service. The study result appeared to be somehow consistent with the findings of Sathye (1999); Howcroft et al. (2002); Poon (2008); AldasManzano et al. (2009); and Chong et al. (2010), who found security concerns to be the major factor discouraging the adoption of E-banking services. Moreover, the result is consistent with the findings of Khalfan et al. (2006), Wondwossen and Tsegai (2005), Zhao et al. (2010), and that of Laukkanen (2008).

4.1.3.2 Environmental Factors

Results obtained from survey respondents regarding factors affecting the adoption of E banking under determinant environmental factors that focus mainly on ICT infrastructure, legal frameworks, government support and competition are depicted below using descriptive statistics:-

4.1.3.2.1 National ICT infrastructure

Despite the recent improvements made on the national infrastructure, the overall ICT infrastructure in Ethiopia remains inadequate. Table 4.3 shows the study results.

Table 4.3 National ICT infrastructure

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
The bank has adequate ICT infrastructure to conduct E-banking	24	34	25	8	6	2.3608	1.1290	1	5
The quality of internet and mobile network significantly affect E-banking	-	-	25	32	40	2.2740	1.0941	1	5

Source: Survey result of own tabulation

As portrayed in the Table 4.3 above respondents Disagree that the bank has adequate ICT infrastructure to conduct e- banking (Mean = 2.36 and std. Dev 1.12) and Ethio Telecom provided high speed internet and mobile connection (Mean = 2.27 and std. Dev1.09). Respondents agree and strongly agree with the question of the quality of internet connection and mobile network significantly affects e- banking (Mean = 2.27and stddev1.09). So the response of the respondents implies that national ICT infrastructure is back bone of both e-banking services. On the other hand an interview conducted with IT managers /E-payment manager of sample banks stated that, unavailability of well-functioning ICT infrastructure and poor internet service affect the smooth functioning E-banking service. But recently, Ethiopian government were doing on improvement of national infrastructure, it will encourage our bank to practice different technological innovation.

4.1.3.3 Organizational Factors

Results obtained from survey respondents regarding factors affecting the adoption of E banking under determinant organizational factors that focus mainly on finance and human aspects of the service are depicted below using descriptive statistics:-

4.1.3.3.1 Financial resource

Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Kuan 2001 &Iacovou 1995). Table 4.4 shows the response of study participants regarding unavailability of financial resource.

Table 4.4 financial resources

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
Implementing technological innovation require a high investment cost	-	-	8	38	51	4.422	0.7193	1	5

Source: Survey result of own tabulation

Table 4.4 shows that the majority of the respondents agree and strongly agree 38 and 51 respectively with statement of implementing technological innovation requires high investment cost having the mean score of 4.422 and standard deviation of 0.719. The finding result of the study shows that the unavailability financial resources hinder the adoption of e-banking services.

4.1.3.4 Lack of awareness

Result obtained from survey respondents regarding their perception towards awareness associated with adoption of E banking service using descriptive statistics are depicted below:

Table 4.5 Awareness of customers about e- banking

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
I have enough information about electronic banking service	-	-	5	38	54	4.505	1.597	3	5
I have enough knowledge to use electronic banking	10	9	10	33	35	2.2740	1.0941	1	5

Source: Survey result of own tabulation

As the above table indicates that the respondents were strongly agree and agree on the statement I have enough information about electronic banking services with the mean score of 4.505 and standard deviation of 1.597 Similarly respondents were strongly agree and agree on the statement I have enough knowledge to use electronic banking with the mean score of 2.274 and standard deviation of 1.094 Based on the survey result majority of the customer have awareness about e-

banking services and the bank does not provide help (demo) on its website to use e- banking. The study results are consistent with the findings of AmolaBahatt (2016); and Alex Alecheni O. Peter who found lack of awareness has an effect in adoption of E banking services.

4.1.3.5 Demographical factors

Results obtained from survey respondents of selected customers regarding factors affecting the adoption of E banking under determinant demographical factors that focus mainly on age, gender and educational level are depicted below using descriptive statistics:-

Table 4.6 Demographical factors

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
Relatively male customer of the bank use E-banking service than female	20	15	10	22	30	4.319	1.884	1	5
High rate of illiteracy affect the easy practice of E-banking	9	10	5	30	43	4.025	1.425	2	4
Young customer of the bank use E-banking service than old	-	-	-	40	57	4.521	1.534	3	5

Source: Survey result of own tabulation

Responses captured in the above table shows that, the respondents asked on the demographical factors Relatively Male customers of the bank use E- banking services than female, , High rates of illiteracy affect the easy practice of E-banking, , Young customers of the bank use e- banking services than old customers, Customers level of education affect the adoption of e- banking and towards the agreement in the Likert scale as the average response of the respondents' gave an average result of 4.288 in the Likert scale where respondent were agreed on the issue, therefore demographic factors is found to be one of the possible factor that hinder adoption of e- banking in the country. The study results are consistent with the findings of Tater et al. (2011), Izogo (2012), Alafeef et al. (2011) and Margaret et al. (2013), Abenet (2010), Poon WC (2008) and

Azouzi D(2009), Muzividzi et al. (2013) and Azouzi (2009) who found demographical factors such as gender, age, and education level have an effect in adoption of E-banking in Ethiopian industry.

4.1.3.6 Trust on the system

Results obtained from survey respondents regarding factors affecting the adoption of E banking under determinant trust on the system service are depicted below using descriptive statistics:-

Table 4.7 Trust on the system

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.	min	max
Customers have a high degree of trust on the bank system and satisfied with the security of E-banking service	31	28	17	12	9	2.670	1.178	1	5

Source: Survey result of own tabulation

As indicated in the above table the respondents did not agree that Customers have high degree of trust on the bank and are satisfied with security of electronic banking service provided by the Bank as the mean value is found to be 2.670 and standard deviation of 1.178 So lack of trust on the system is an effect on the adoption of e- banking. The study results are consistent with the findings of Siriluck Rotchanakitumnuai, Mark Speece, (2003), Carlos Flavián, Miguel Guinalú, Eduardo Torres, (2006), Peter Tobbin, (2012) , and Francisco Muñoz-Leiva, TeodoroLuque-Martínez, Juan Sánchez-Fernández, (2010) who found that trust on the system has an effect on adoption of e- banking services. The interview depicts that the basic factors affecting adoption of E-banking after introduction are High rates of illiteracy, low level of internet penetration, poorly developed infrastructure, lack of suitable legal and regulatory framework for e-banking, frequent power interruption, fear of risk and unavailability of competent and skilled employee, culture of the society, customers reluctant to change and lack of awareness.

4.1.3.7 Likelihood of E-banking Adoption

The respondents were asked to state to what extent their use of e- banking to consider adopting of e- banking. The results are shown in Table 4.13

Table 4.13 likelihood of adopting e- banking

Factors	SD 1	D 2	N 3	A 4	SA 5	Mean	Std Dev.
I have used electronic banking.	30	20	10	15	22	3.821	1.897
	30.9%	20.6%	10.3%	15.4%	22.8%		
I strongly recommend the use of Electronic banking.	10	10	5	30	42	4.505	1.494
	10.3%	10.3%	0.05%	30.9%	48.45%		
I will increase my use of Electronic banking.	15	10	10	32	30	4.302	1.4290
	15.4%	10.3%	10.3%	32.9%	31.1%		

Source: Survey result of own tabulation

For the question that were asked to do you have used electronic banking, large number of the respondents (51.5%) replied that they disagree and strongly disagree, 10.3% neutral, 15.4% agree and 22.8% strongly agree with mean of 3.821 and std deviation of 1.897. Moreover, for the question asked do you strongly recommend the use of e- banking large number of the respondents (79.3%) replied they agree and strongly agree, 0.05% neutral, 10.3% disagree and 10.3% strongly disagree with mean of 4.505and STD deviation of 1.494. The average responses of the participants showed that they strongly recommend the use of e- banking and also majority of the respondents (64%) agree and strongly agree they will increase their use of e- banking with the mean of 4.302 standard deviation of 1.429. The study result shows that majority of the customers do not use e- banking due to different factors discussed above but because of the benefit they recommend to use e- banking and if the government and other concerned body avoided or minimize the above factors they promise to increase their use of e- banking.

4.2.2 Regression Analysis

Regression analysis is a mathematical measure of the average relationship between two or more variables in terms of the original units of the data. Regression clearly indicates the cause and effect relationship between the variables. In regression, the variable corresponding to cause is taken as independent variable and the variable corresponding to effect is taken as dependent variable. The results of data analysis are presented in the thesis. Regression analysis is the relationship between dependent variable and independent variable. Regression equation is $y = a_0 + b_1 X$, where y is the dependent variable, a_0 is constant, b_1 is slope of the regression line, X is independent variable. Below are the results of the several tests conducted with the help of regression analysis.

Table 4.10: the Estimated Results of the Model for AOEB

Variable	Coefficient	Std. Err.	Z	p> z
LAW	-0.477519	0.2151029	-2.22	0.026
EF	0.4087157	0.0758055	5.39	0.000
OF	0.1747013	0.1317613	-1.33	0.000
TF	0.4478307	0.2301904	-1.95	0.000
DF	-0.491569	0.0910559	-5.40	0.000
TS	-0.285348	0.0661244	-4.32	0.003
R-Squared = 0.848 = 84.8%			F(6, 90) = 83.68	
Adj R-squared = 0.837 = 83.7%			Prob> F = 0.0000	
No. of Obs = 97			_Cons = -3.279089	

Source: own computation using Stata13

The final estimated result of model of AOEB is the following equation:

$$AOEB = -3.27 + -0.48LAW + 0.40EF + 0.17OF + 0.45TF + -0.49DF + -0.29TS \dots\dots\dots (2)$$

4.2.3 Interpretation of the Model Result for AOEB

The above result indicated that all independent variables at 5 percent level of significance have a significant effect on the adoption of E-banking service. As can be seen from the above estimated result, the equation suggested that environmental factor, technological factor and organizational factor are positively affecting the adoption of E-banking service. While lack of awareness, demographic factor and trust on the systems are negatively affecting the adoption of E-banking service.

Lack of awareness (LAW)

The relationship between adoption of E-banking and Lack of awareness is negative and statistically significant. A 1percent increase in Lack of awareness results a 0.48 percent decrease in adoption of E-banking other thing remain constant. This means if lack of awareness of customers of the bank tends to increase through time this would decrease the number of customers in adoption of E-banking service and also the result of the regression analysis above, indicates the research hypothesis “H1: There is a Relationship between lack of awareness and adoption of E banking Services is supported.

Environmental factor (EF)

The relationship between adoption of E-banking and environmental factor is positive and statistically significant. A 1percent increase in environmental factor results a 0.40 percent increase in adoption of E-banking service and other thing remain constant. The result of the regression analysis above indicates the research hypothesis “H2: There is a relation between environmental factors and adoption of E banking services” is supported. The results are consistent with the findings of Gardachew (2010); Tan & Wu (2002); Martinson (2001); Trappey et al. (2001); Wondwossen and Tsegai (2005); Efendioglu (2004); Scupola(2003); Quaddus&Hofmeyer (2007); Gibbs et al. (2003); andKuan 2001; and Iacovou (1995) who found environmental factors such as low internet access, lack of government support, lack of available ICT infrastructure, limited legal framework, and competitions that hinders the adoption of E-banking in one way or another.

Organizational factor (OF)

The relationship between adoption of E-banking and organizational factor is positive and statistically significant. A 1percent increase in organizational factor results a 0.17 percent increase in adoption of E-banking service and other thing remain constant. The result of the regression analysis above shows the research hypothesis “H3: There is a relationship between organizational factors and adoption of E banking Services is supported. The study results are consistent with the findings of Daghfous and Toufaily (2007); Ayana(2010); Wondwossen and Tsegai (2005); and Gardachew (2010) who found Organizational factors such as financial and human aspects have an effect in adoption of E-banking.

Technological factor (TF)

The relationship between adoption of E-banking and technological factor is positive and statistically significant. A 1percent increase in technological factor results a 0.45 percent increase in adoption of E-banking service and other thing remain constant. The result of the regression analysis above shows the research hypothesis “H4: There is a Relationship between technological factors and adoption of E banking Service is supported.

Demographic factor (DF)

The relationship between adoption of E-banking and demographic factor is negative and statistically significant. A 1percent increase in demographic factor results a 0.49 percent decrease in adoption of E-banking other thing remain constant. The result of the regression analysis above indicates the research hypothesis “H5: There is relationship between demographical factors and adoption of E banking Services.” is supported.

Lack of Trust on the system (TS)

The relationship between adoption of E-banking and lack of trust on the system is negative and statistically significant. A 1percent increase in lack of trust factor results a 0.29 percent decrease in adoption of E-banking other thing remain constant. The result of the regression analysis above

indicates the research hypothesis “H6: There is relationship between lack of trust on the system and adoption of E banking Service is supported.

4.2.4 Diagnostic tests

The diagnostic checks are very important to the model because they validate the parameter evaluation outcomes achieved by the estimated model. This arises because, if there is a problem in the residuals from the estimated model; it is an indication that the model is not efficient such that parameter estimates from the model may be biased. As per brooks (2008), the first assumption required that the average value of the errors is zero ($E(u_t) = 0$). In fact, if a constant term is included in the regression equation, this assumption will never be violated. Since, no intercept parameter without constant term the first assumption will never be go against that means there is no potentially severe biases in the slope coefficient estimates in the regression model. So, the diagnosis test included normality test, model specification test, and residuals serial correlation test (autocorrelation).

4.2.5 TEST FOR SERIAL CORRELATION (Autocorrelation)

The test for autocorrelation was made by using Durbin and Watson (1951). Durbin-Watson (DW) is a test for first order autocorrelation i.e. it tests only for a relationship between an error and its immediately previous value. So table below indicates weather there is serial correlation or not.

Table 4.11: TEST FOR SERIAL CORRELATION

Method: Lagrange-multiplier test veclmar, mlag

Included observations: 97

Lag	chi2	Df	Prob> chi2
1	65.1237	49	0.06132
2	63.1519	49	0.16485

H0: no autocorrelation at lag order

As a decision rule a multiple regression model has no serial correlation or not if:-

- ✓ If the prob.chi2 value (0.164) is greater than critical value (0.05) not reject null hypothesis (i.e. no serial correlation).
- ✓ If the prob.chi2 value is less than critical value reject null hypothesis (i.e. existence serial correlation or autocorrelation).

Accordingly, the table 4.11 above signifies that the decision rule is accepting the null hypothesis, if this is the case all the variables of the model has no serial correlation. Therefore we accept the specified multiple regression model.

4.2.6 TEST FOR NORMALITY

Normality test was applied to determine whether a data is well-modeled by a normal distribution or not, and to compute how likely an underlying random variable is to be normally distributed. The classical normal linear regression model assumes that each variable is distributed normally when the mean and the variance for two variables are zero; covariance or correlations of variables are independent (Gujirati, 2004). Jarque- Bera test is conducted to test normality..

Table 4.12: Normality Test for Residuals

Method: Jarque-Bera test vecnorm, jbera

Included observations: 97 after adjustments

Equation	chi2	Df	Prob> chi2
D_bdgrth	0.688	2	0.55889

H0: residual is normally distributed

Accordingly, the table 4.12 above signifies that since the prob.chi2 value (0.558) is greater than critical value (0.05) not reject null hypothesis (i.e. residuals are normally distributed in this multiple model.

4.2.7 TEST FOR MODEL SPECIFICATION

The other test that was or usually undertaken concerning the appropriateness of the model is that the value of R^2 which indicates how much of the dependent variable is explained by the explanatory/ independent variables, the higher the value of R^2 the more the dependent variable is explained by the independent /explanatory variables, in this case the value of R^2 found to be very much satisfactory. I.e. 84.8 percent, this means 84.8 percent of the dependent variable, adoption of E-banking is explained by the explanatory/independent variables included in the model and the rest is captured by the error term (U_t). So still the specification of the model is adequate enough to show the extent of the explanatory variables in terms of explaining the relationship between the independent variables and the dependent variable.

4.2.7.1 Multi co linearity

Multi co linearity is a statistical phenomenon in which two or more explanatory variable in a multiple regression model are highly correlated, meaning that one can be linearly explained or predicted from the others with a non-trivial degree of accuracy. In other words, multi co linearity is the correlation of explanatory variable with each other or it is a problem that arises due to the presence of liner relationship among explanatory variable. In this situation the coefficient estimates of the multiple regressions may change erratically in response to small change in the model or the data.

Multi co linearity does not reduce the predictive power or reliability of the model as a whole. At least within the sample data themselves; it only affects calculation regarding individual predictors or explanatory. That is a multiple regression model with correlated predictors can indicate how well the entire outcome variable, but it may not given valid result about any individual predictors are redundant with respect to others.

Why is multi co linearity a problem?

Multi co linearity increases the standard error of the coefficient. Increase standard error in turn means that coefficient for some independent variable may be found not to be significant whereas without multi co linearity and with lower standard error, these same coefficient might have been found to be significant and the researcher may not have come to null finding in the first place.

In other word, multi co linearity misleadingly inflates the standard error. Thus, it makes some variable statistically insignificant while they should be otherwise significant.

Since the presence of multi co linearity is a problem and affect the OLS estimators and make them inefficient as well as inconsistence, the problem of multi co linearity must be tested.

The researcher formally used the variance inflation factor (VIF) to test the existence and the magnitude of multi co linearity. So, variance inflation factor (VIF) measures how much the variance of the estimated coefficient is increased over the case of no correlation among the explanatory variables. It also provided an index that measure how much the variance (the square of the estimated standard deviation) of an estimated regression coefficient is increased because of co linearity. If no two explanatory variable are correlated then all the VIF, will be 1. If VIF for one of the variable is around or greater than 10, there is co linearity associated with that variable. The easy solution is: if there are two or more variables that will have a VIF around or greater than 10, one of these variable must be removed from the regression model.

Therefore, the result shows in the following table that there is no multi co linearity

Figure 4.1 multi co linearity tests

Variable	VIF	1/VIF
tf	8.42	0.118800
aw	6.56	0.152336
df	2.49	0.400843
of	2.41	0.414913
ts	1.76	0.568041
ef	1.69	0.590075
Mean VIF	3.89	

CHAPTER FIVE

5. SUMMARY CONCLUSION AND RECOMMENNDATION

This final section of the study presents summary of research findings and conclusions that are drawn from the findings of the study and put forward some suggestions and policy recommendations that might have important implications to-wards the country's effort in attracting customers in adoption of E-banking and mobilizing of deposit and to mitigate the challenges it faces on the way. Given the summary result of the above empirical analysis, the study had concluded the following to banks by taking CBE as evidence of the study.

5.1 Summary of Research Findings

The research on the title of: factors that Affects the adoption of E-banking service: An empirical case study on commercial bank of Ethiopia (CBE) Dire Dawa District had gone through empirical analysis. As a result of the analysis and interpretation, the following are the summary of the findings.

- The relationship between adoption of E-banking and Lack of awareness is negative and statistically significant.
- The relationship between adoption of E-banking and environmental factor is positive and statistically significant.
- The relationship between adoption of E-banking and organizational factor is positive and statistically significant.
- The relationship between adoption of E-banking and technological factor is positive and statistically significant.
- The relationship between adoption of E-banking and demographic factor is negative and statistically significant.
- The relationship between adoption of E-banking and lack of trust on the system is negative and statistically significant.

5.2 CONCLUSIONS

The study findings revealed that the banking sector in Ethiopia is eager to adopt the e-banking system as an alternative service delivery channel by identifying its main barriers and drivers. The e-banking system presents an opportunity for speedy expansion at lower cost by leveraging on the existing investment of retail agents through implementation of information and communication technology. E-banking are not well adopted by Ethiopian banking industry due to lack of suitable legal frameworks, low level of ICT infrastructure, lack of customers trust, lack of government support and awareness towards the technology and customers' fear to use the technologies that holds banking industry to adopt the system. Improvements are required to enhance client confidence towards the system. Lack of competitions from foreign banks is also another challenge in adopting the e-banking in the country. The prevailing technical and managerial skills available in the Ethiopian banking industry towards adopting the e-banking, culture of the society, reluctant to change, high level of illiteracy are found to be limited to influence the technological adoption rate. In general, the findings of the study highlight factors influencing the adoption of e-banking in Ethiopian Banking industry. Barriers identified in this study while adopting the e-banking services may help to cursor the best alternative course of actions to enhance its development. It will also be valuable by increasing awareness and understanding towards the system.

5.3 RECOMMEDATIONS

Based on the above conclusion, the researcher recommends the following points that will help the banking industry of Ethiopia in minimizing the factors that face the adoption of e-banking;

- Without an adequate development level and quality of a national ICT infrastructure, E banking adoption and use cannot do well, so the government has to support banking industry by investing on ICT infrastructure development, providing necessary infrastructure like electricity, road and telecom services especially rural area of the country and the government supports the banking industry by introducing financial education program.

- Banks should launch campaigns to create direct awareness to potential adopters, issues such as fear of the lack of privacy and security, together with relative advantages of using E-banking products and continuously review and upgrade the existing system of security to the level that minimize risk .
- National Bank of Ethiopia, (NBE) needs to urgently establish a comprehensive legal and regulatory frame works on the use of technological innovation and the use of third party retail agents in banking sector.

5.4 Further Research

This research has an important contribution to the literature due to the findings of the study which will help policy makers to formulate policy. However, the study is not beyond limitations. Even though the research addressed different variables there are so many variables that were not included in this study. Thus, future researchers may be interested in validating the consistency of the result and provide supplementary results for this study by including other variable.

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Appendix

Test for serial autocorrelation

Lagrange-multiplier test

+-----+				
lag	chi2	df	Prob>	chi2
-----+				
1	65.1237	49	0.06132	
2	63.1519	49	0.16485	
+-----+				

H0: no autocorrelation at lag order

Test for Normality

Jarque-Bera test

+-----+				
Equation	chi2	df	Prob>	chi2
-----+				
AOEB	0.688	2	0.55889	
H0: residual is normally distributed				

Test for Multi co linearity

Variable	VIF	1/VIF
-----+		
tf	8.42	0.118800
aw	6.56	0.152336
df	2.49	0.400843
of	2.41	0.414913
ts	1.76	0.568041
ef	1.69	0.590075
-----+		
Mean VIF	3.89	

Department of Management
College of Business and Economics
Dire Dawa University

Factors Affecting Adoption of E banking, a case in commercial bank of Ethiopia Dire Dawa District

Following to my degree of Masters in business administration (MBA), this questionnaire is intended particularly to carry out a research on the Factors Affecting Adoption of E banking in Commercial Bank of Ethiopia.

The purpose of the research is to examine your opinion about Factors Affecting Adoption of E banking in Ethiopian Banking Industry in case of Commercial Bank of Ethiopia. Based on your experience as a customer of commercial bank of Ethiopia in using different E-banking service channels, I would appreciate if you could spare a few minutes of your time to take part in this research as well as enabling me complete my program successfully. All responses are confidential and the results will only be used for research purpose, outline in the form of statistical data.

Thank you for your time!!!!

Ababayehu Bekele For any comments and further in query please don't hesitate to communicate me.

Tel. 0912225793 and my e-mail address: - Abega957@gmail.com

Part One: Demographic Details

Please indicate the following by ticking (✓) on the spaces in front of the response options:

1. Gender :

Male

☐

Female

☐

2. Age :

Below 20

☐

31 to 40 years

☐

20 to 30 years

☐

Above 50 years

☐

41 to 50 years

☐

3. Educational level :

Grade 12 and below

☐

Masters Degree

☐

Diploma holder

☐

Above Masters Degree

☐

First Degree holder

☐

4. Monthly Income :

Less than Birr 2000

☐

Birr 2000 to Birr 3999

☐

Birr 4000 to Birr 4999

☐

Birr 5000 to Birr 9999

☐

Above Birr 10000

☐

Part II: Factors affecting adoption of e- banking in Ethiopian banking industry.

Below are lists of statements pertaining to factors affecting adoption of E-banking? Please

Indicate by circling your choices from the options.

1 Strongly Disagree (SD) 2-Disagree (D) 3- Neutral (N) 4- Agree (A) 5- Strongly Agree (SA)

1. AWARENESS		SD	D	N	A	SA
		1	2	3	4	5
AW1	I have enough information about electronic banking services.	1	2	3	4	5
AW2	The bank provides help (demo) on its website to use e-banking.	1	2	3	4	5
2. ENVIROMENTAL FACTORS						
EF1	My bank has adequate ICT infrastructure to conduct e- Banking.	1	2	3	4	5
EF2	The quality of internet connection and mobile network Significantly affects e- banking.	1	2	3	4	5

EF4	My bank has regulatory guidelines on e-banking.	1	2	3	4	5
EF5	It is difficult to perform E-banking because of absence of suitable legal and regulatory framework for e-commerce and e-payment.	1	2	3	4	5
EF6	The Government promotes e- banking for its citizens.	1	2	3	4	5
EF7	The government providing necessary infrastructural facilities (road, electric power, telecommunication and etc) to remote area of the country in order to facilitate e-banking adoption.	1	2	3	4	5
EF8	There is high competition between local banks on e- banking services.	1	2	3	4	5
EF9	Absence of competition from foreign banks has influence on e banking.	1	2	3	4	5
3. ORGANIZATIONAL FACTORS						
OF1	Implementing technological innovation requires high Investment cost.	1	2	3	4	5
OF2	Banks require skilled human resource in order to implement e-banking.	1	2	3	4	5
OF3	Banks require skilled IT personnel's in implementing technological innovation.	1	2	3	4	5
OF4	Technical and managerial skills of staffs on using technological innovation have influence on adoption e- banking.	1	2	3	4	5
OF5	Unavailability of competent and skilled employee in related with e banking is the challenge for banks to practice e banking.	1	2	3	4	5
4. TECHNOLOGICAL FACTORS						
TF1	Security aspects considered as barrier for implementing of E-Banking.	1	2	3	4	5
TF2	Customers do not trust the technology of e- banking.	1	2	3	4	5
TF3	Customers fear risk of new technology innovation.	1	2	3	4	5
TF4	Customers do not trust the technology provided by the banks	1	2	3	4	5
TF5	E- Banking services are convenient in terms of time saving.	1	2	3	4	5
TF6	E-banking services are accessible without time limit.	1	2	3	4	5
5. DEMOGRAPHIC FACTORS		1	2	3	4	5
DF1	Relatively Male customers of the bank use E- banking services than female.	1	2	3	4	5
DF2	High rates of illiteracy affect the easy practice of E-banking.	1	2	3	4	5

6. TRUST ON THE SYSTEM						
TR1	Customers have high degree of trust on the bank and are satisfied with security of electronic banking service provided by the Bank.	1	2	3	4	5
7. ADOPTION						
AD1	I have used electronic banking.	1	2	3	4	5
AD2	I strongly recommend the use of electronic banking.	1	2	3	4	5
AD3	I will increase my use of electronic banking.	1	2	3	4	5

Any Suggestions that you would like to give on e- banking?
