



St. Mary`s University
School of Graduate Studies

**FACTORS AFFECTING E-BANKING ADOPTION OF CUSTOMERS; AN
INVESTIGATION IN COMMERCIAL BANK OF ETHIOPIA AND FOUR
DIFFERENT PRIVATE BANKS, ADDIS ABABA**

BY
ZERAY KAHSAY

January, 2017
Addis Ababa, Ethiopia

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**A Thesis Submitted to St. Mary`s University School of Graduate Studies in
Partial Fulfillment of the Requirement for the Degree of General Masters of
Business Administration**

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**January, 2016
Addis Ababa, Ethiopia**

DECLARATION

I, the undersigned, declare that the study permitted “factors affecting e-banking adoption of customers; an investigation in commercial bank of Ethiopia and four different private banks, Addis Ababa” proposed for award of general masters of business administration (GMBA) is my original work and has not been presented for any other award of degree in other university, and all sources of materials used for the study have been appropriate acknowledged.

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December, 2016

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CERTIFICATION

This is to certify that Zeray Kahsay Weldegebereal has carried out his thesis work on the topic entitled “factors affecting e-banking adoption of customers; an investigation in commercial bank of Ethiopia and four different private banks, Addis Ababa”. This submitted in partial fulfillment of the requirement for the award of general master of business administration (GMBA), St. Mary`s University and the work is original and new in nature and is appropriate for submitted.

This thesis has been submitted for examination with my approval as a university advisor.

Advisor

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(Asst. professor):

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Acknowledgements

First and for most, I am most grateful to Almighty God. There is no any realization without the help of him. And also I would like to thank St. Marry for her love and prey for me the son of Adams.

My deeply grateful appreciation goes to my principle advisor, Mr. Zemenu Ayneaddis(Asst. professor) for his precious comments and constructive suggestions that support me during study. In addition I also like to thank Dr. Yohannes Belay to his thoughtful contributions to this thesis. Farther more, grateful appreciation goes to my wife, for her moral and endless support throughout the study. I extend my heartfelt praise and gratitude for Werede Kidanu and Mesfin Mokennen for their support during data collection, my heartfelt thanks to Commercial bank of Ethiopia, Wegagen Bank, Dashin bank, Hibret bank and Awash bank IT managers and workers for their effective support during data collection process.

Finally, I would like to say my deep gratitude to the people who participated in this thesis which I cannot state their names here but contributed a lot of doing well to achievement of this study.

TABLE OF CONTENTS

Contents	Page No
ACKNOWLEDGEMENTS	VI
TABLE OF CONTENTS	VII
ACCRONYMS	IX
LIST OF TABLES	X
LIST OF FIGUERS	XI
ABSTRACT	XII
CHAPTER ONE	1
INTRODUCTION	
1.1 BACKGROUND OF THE STUDY	1
1.2 STATEMENT OF THE PROBLEM	3
1.3 RESEARCH QUESTIONS	4
1.4 OBJECTIVES OF THE STUDY	4
1.4.1 General objective	4
1.4.2 Specific objectives	4
1.5 SIGNIFICANCE OF THE STUDY	4
1.6 SCOPE OF THE STUDY	5
1.7 CONCEPTUAL DEFINITION OF TERMS	5
1.8 ORGANIZATION OF THE STUDY	6
CHAPTER TWO	8
LITERATURE REVIEW	
2.1 THEORETICAL LITERATURES	8
2.1.1 Technology Acceptance Model (TAM).....	8
2.1.2 Technology- organization- Environment (TOE).....	9
2.2 MODES OF E-BANKING	9
2.2.1 Automated Teller Machines (ATM)	9
2.2.2 Point-of-Sale Transfer Terminals (POS).....	10
2.2.3 Internet / extranet banking-	10
2.2.4 Mobile banking-.....	10
2.2.5 TV based:.....	11
2.2.6 Telephone banking:.....	11
2.2.7 Managed network:	11
2.3 REVIEW OF EMPIRICAL LITERATURE	11
2.3.1 Empirical and Conceptual Studies	12
2.3.1.1 Demographic characteristics	16
2.3.1.2 Customer awareness (CA).....	17
2.3.1.3 Perceived benefit (PB).....	17
2.3.1.4 Perceived security (PS)	18
2.3.1.5 Perceived risk (PR).....	18
2.3.1.6 Legal framework and ICT infrastructure (LFII).....	19

2.3.1.7 Organizational factor (OF)	20
2.3.1.8 Perceived usefulness (PU).....	20
2.3.1.9 Perceived ease of use (PEOU).....	21
CHAPTER THREE	26
RESEARCH DESIGN AND METHODOLOGY	
3.1 RESEARCH DESIGN	26
3.2 TYPES AND SOURCES OF DATA	26
3.3 SAMPLING TECHNIQUE	26
3.3.1 Sample size and sample determination	27
3.4 DATA COLLECTION METHOD	27
3.5 DATA COLLECTION AND INSTRUMENTS	28
3.6 DATA COLLECTION PROCEDURE	28
3.7 DATA PROCESSING AND ANALYSIS.....	28
3.8 MODEL SPECIFICATION	29
3.9 ORDERED PROBIT REGRESSION MODEL	30
CHAPTER FOUR.....	33
DISCUSSION AND RESULTS	
4.1 DESCRIPTIVE STATISTICS	33
4.2 DEMOGRAPHIC CHARACTERISTICS OF SAMPLE CUSTOMERS.....	34
4.3 DESCRIPTIVE ANALYSIS FOR VARIABLES	38
4.4 CORRELATION ANALYSIS.....	47
4.5 RESULTS OF ECONOMETRICS REGRESSION ANALYSIS	54
4.5.1 Summary of Hypotheses Testing.....	55
4.5.1.1 Demographic characteristics	57
4.5.1.2 Customer awareness.....	58
4.5.1.3 Perceived benefit (PB).....	59
4.5.1.4 Perceived risk (PR).....	60
4.5.1.5 Perceived security (PS)	60
4.5.1.6 Legal framework and ICT infrastructure	61
4.5.1.7 Organizational factors (OF).....	61
4.5.1.8 Perceived usefulness (PU).....	62
4.5.1.9 Perceived ease of use.....	63
4.5.2 Marginal effect after ordered probit regression	64
4.5.3 Test for Multicollinearity.....	67
CHAPTER FIVE	69
CONCLUSIONS AND RECOMMENDATIONS	
5.1 CONCLUSIONS	69
5.2 RECOMMENDATIONS	71
REFERENCES	74
APPENDIX	81

ACCRONYMS

ADEB	Adoption Electronic Banking
ATM	Automated Teller Machine
CA	Customer Awareness
CBE	Commercial Bank of Ethiopia
CSF	Critical Success Factors
DC	Demographic Characteristics
E-Banking	Electronic Banking
E-Commerce	Electronic Commerce
EFT	Electronic Fund Transfer
E-Payment	Electronic Payment
ICT	Information Communication Technology
LFII	Legal Framework and Information Communication Technology And Infrastructure
OF	Organizational Factor
PC	Personal Computer
PEOU	Perceived Ease of Use
PIN	Personal Identification Number
POS	Point of Sale
PR	Perceived Risk
PS	Perceived Security
PU	Perceived Usefulness
SME	Small and Medium Enterprise
SMS	Short Message Service
TAM	Technology Acceptance Model
TOE	Technology Organization Environment
USA	United States of America

LIST OF TABLES

Tables	Descriptions	Page No
Table 2.1	Experiences of Factors Influencing the Adoption of E-Banking in different countries	22
Table 4.1.1	The Sample Size Details	32
Table 4.3.1	Descriptive Analysis for Variables other than Demographic Characteristics	38
Table 4.4.1	Correlation Between Dependent Variable and Independent	48
Table 4.4.2	Correlation Between DC and Adoption of E-Banking	50
Table 4.4.3	Correlation Among Customer Awareness and Adoption of E-Banking	51
Table 4.4.4	Correlation Among Perceived Benefit and Adoption of E-Banking	51
Table 4.4.5	Correlation Among Perceived Risk and Adoption of E-Banking	51
Table 4.4.6	Correlation Between Perceived Security and Adoption of E-Banking	52
Table 4.4.7	Correlation Between LF ICT Infrastructure and Adoption of E-Banking	52
Table 4.4.8	Correlation Between Organizational Factor and Adoption of E-Banking	52
Table 4.4.9	Correlation Between Perceived Usefulness and Adoption of E-Banking	53
Table 4.4.10	Correlation Between Perceived Ease of Use and Adoption of E-Banking	53
Table 4.5.2	Ordered Probit Regression Result	55
Table 4.5.3	Hypothesis Testing Proposed	63
Table 4. 5.4	Marginal Effect Outcome	64
Table 4.6	Variable Inflation Factor	66

LIST OF FIGUERS

Figures	Descriptions	Page No
Figure 2.1	Conceptual Framework	21
Figure 4.2.1	Gender Graphical Descriptive	33
Figure 4.2.2	Age; Graphical Descriptive	34
Figure 4.2.3	Level of Education Descriptive Analysis	34
Figure 4.2.4	Income Level of Sample Customers	35
Figure 4.2.5	Occupation Back Ground Descriptive Analysis	36
Figure 4.2.6	Adoption of Electronic Banking Descriptive	37
Figure 4.3.1	Customer Awareness	40
Figure 4.3.2	Perceived Benefit	41
Figure 4.3.3	Perceived Risk	42
Figure 4.3.4	Perceived Security	42
Figure 4.3.5	Legal Framework and ICT Infrastructure	43
Figure 4.3.6	Organizational Factor	44
Figure 4.3.7	Perceived Usefulness	45
Figure 4.3.8	Perceived Ease of Use	46

ABSTRACT

Electronic banking nowadays is becoming a crucial technology in the global banking industry for cashless transaction and effective banking services. In Ethiopia, e-banking was introduced by commercial Bank of Ethiopia, ATM Service was introduced for local users in 2001, eight ATMs located in Addis Ababa despite, being the lead the way in introducing ATM based payment system and acquired Visa membership, CBE lagged behind Dashen Bank, which worked aggressively to maintain its lead in electronic payment systems in June 2009 Gardachew, W. (2010) and now almost all banks has introduced. However, the adoption level of this technology is minimal Ayana, G. (2012). The objective of this research is to identify factors that influencing customer's adoption of electronic banking. To address this objective technology acceptance model (TAM) with technology-organization-environment (TOE) is employed. The samples were 272 applicable respondents using the purposive sampling technique from Addis Ababa. Questionnaires were distributed to five banks officials of e-banking department (commercial bank, wogagen bank, Dashin bank, Awash bank and Hibret bank) that the electronic banking technology employed, and their currently electronic banking user customers. The primary data was collected from 272 respondents; an interview was also conducted to the bank managers and e-banking department managers. Ordered probit regression and descriptive statistics were used to analyze the primary data which is collected what is more the probit regression also used to test the hypothesis. Additionally correlation analysis ware exploits their relationship between variables. Moreover STATA version 11 was engaged to facilitate the ordered probit regression analysis and the correlation process, Likert scale also used to the descriptive analysis and for the orbit regression. The research focus on related factors such as, demographic characteristics, customer awareness, perceived benefit, perceived risk, perceived security, legal framework and ICT infrastructure , organization factor, perceived usefulness and perceived ease of use. The result of the study concluded that among the factors, perceived benefit was the strongest significant influencing factor followed by perceived security. Customer awareness, perceived ease of use and perceived risk were next more important factors that influence customer's intention, to adopt e-banking. To boost the identified factors the researcher pressured banks to announce (promote) benefit of electronic banking and give due attention on security and risk features to decrease customer perception towards them.

Key words: Adoption of electronic banking, demographic characteristics, Customer awareness, perceived benefit, perceived security, perceived risk, Legal framework and ICT infrastructure, Organization factors, Perceived usefulness and perceived ease use.

Chapter One

Introduction

1.1 Background of the study

In very simple terms e-banking means the provision of information or services by a bank to its customers, via a computer, television, telephone, or mobile phone. It is an electronic connection between bank and customer in order to prepare, manage and control financial transactions. Furthermore, electronic banking is said to have three different means of delivery: telephone, PC, and the Internet. For example, it introduces four different channels for electronic banking: PC banking, Internet banking, managed network, and TV-based banking. Electronic banking is the newest delivery channel in many developed countries and there is a wide agreement that the new channel will have a significant impact on the bank market (Daniel, 1999) cited in (Shaikh, 2014). Despite the growth of e-banking worldwide, banks in Ethiopia continue to conduct most of their banking transactions using traditional teller based methods. Banking operation is still under developed backed by low level of infrastructural development, lack of suitable legal and regulatory framework, high rates of illiteracy, frequent power interruption and security issues (Gardachew, 2010). Moreover, e-banking is a new technology in Ethiopia which needs a lot of effort and resources to be easily adopted by customers. Hence, in order to help banks improve e-banking adoption by their customers, it is necessary to examine factors that influence customers' intention to adopt e-banking service channels (Yitbarek. and Zeleke. 2013).

The term electronic banking can be described in several ways. In the present world money is circulated all over the globe. Due to globalization, technological advances and other factors money is circulating unimaginably fast. Financial Institutions mainly Banks play a pivotal role in matching a depositor and lenders and channeling money and making the economy more efficient. Although the history of Banking goes back to the 14th century in Europe but Banks are now everywhere. Banks play a significant role compared to other financial Institutions (Hoque, 2012). Many banks are making huge investments in technology to maintain and upgrade their infrastructure, in order not only to provide new electronic information-based services, but also to

manage their risk positions and pricing Dwumfuo O., and Dankwah B., (2013). According to Arunachalam and Sivasubramanian (2007), Internet banking is where a customer can access his or her bank account via the Internet using personal computer (PC) or mobile phone and web-browser. In addition, Ongkasuwan and Tantichattanon (2002) further defines Internet banking service as banking service that allows customers to access and perform financial transactions on their bank accounts from their web-enabled computers with internet connection to banks' websites any time they wish. E-banking service also enables bank customers to perform transactions such as transfer and payments, access of latest balance, statement viewing, account detail viewing, customization, print, downloading of statements and obtaining of a history statement on all accounts linked to the bank's customers' Auto-Bank (ATMs). According to Khan (2007), Internet banking includes the system that enables financial institution customers, individuals or businesses, access accounts, transact business, or obtain information on financial products and services on public or private network including Internet (Musiiime and Ramadhan. 2011).

The breakthroughs in information technology occasioned by the introduction of the telecommunications networks and the computer system persist to shape the way banks and their corporate relationships are structured worldwide. The pressure of globalization, consolidation, deregulation and rapidly changing technology has made it necessary for banks to re-examine their service delivery systems in order to suitably position them within this dynamism of information technology (Woherem, 2000). In the United States, Most modern banks have deployed Internet banking capabilities in an attempt to reduce costs while improving customer service. Despite the potential benefits that online banking offers consumers, the adoption of online banking has been limited and, in many cases, has fallen short of expectations (Bielski, 2003; Wade, 2003). While all of the top 50 largest banks in the US offered Internet banking by 2002 and approximately 91% of US households had a bank account (Kolodinsky, 2004), only 17% of consumers adopted online banking. At the time, analysts estimated that this online banking penetration would not exceed 30% of all bank households by 2007 (Babej, 2003). This prediction appears to have been realized. An American Bankers Association survey in the summer of 2007 found that only 23% of U.S. consumers use online banking as their primary banking method (Fisher, 2007). Prior research on online banking adoption has principally used survey methods to attribute social and technical dimensions such as attitudes toward new technology, awareness, access and usability to the

variation in Internet banking adoption and usage (Karjaluoto, et al., 2001; Gerrard and Cummingham, 2003; Lee, et al., 2004; Lee et al., 2003; Lichtenstein and Williamson, 2006; and Tan and Teo, 2000). In Pakistan however, banking organizations have been focused on censure for not given to their customers with original and suitable banking services. Therefore, the as outcome some customers, find it suitable to keep their money or reserves at home than the banks. Manual banking system was performing below standard services to the customers and it may be affected on the customer's support. Transactions of the money from one manual bank to the other can take five to ten days. Some time, when the purpose of transferring the money has almost dead. Sometimes businessmen have to cancel their business deals due to the unavailability of the cash transferring facility in time in traditional banking system where services are as slow as non-secure, non-satisfactory (Juma. 2013).

1.2 Statement of the Problem

Comparing with the banking industry operated in developed countries, without doubt the banking industry in Ethiopia is underdeveloped and therefore, there is an 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 (Gardachew 2010). E-banking system, such as ATM, mobile banking, internet banking and others are not well adopted by Ethiopian banking industry. The modern E-banking methods like Automated Teller Machine (ATM), Debit cards, Credit cards, Tele banking, Internet banking, Mobile banking and others are new to the Ethiopian banking sector. E-banking which 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 are not well known in Ethiopia (Ayana, 2012). However, some of the barriers such as, lack of competition between local and foreign bank and lack of social awareness were not addressed (Ayana, 2012). Therefore this study intends to identify factors that affect adoption of E- banking services among customers of Commercial bank of Ethiopia and some selected private banks in the case of Addis Ababa, Ethiopia. The researcher motives to address the influential factors to customers use and accept

new technology of electronic banking for effective delivery of banking service in Addis Ababa, there is limit to address other regions on their geographical constraints and related costs to cover.

1.3 Research Questions

1. What are the factors that influence customers for not adopting e-banking services?

1.4 Objectives of the Study

1.4.1 General objective

The purpose of this study is to identify the factors affecting adoption of e-banking services among customers of Commercial Bank of Ethiopia and some selected private banks operating in Addis Ababa.

1.4.2 Specific objectives

1. To identify the attitude of customers on the adoption of e-banking services
2. To set sequentially the levels of factors affecting e-banking adoption of customers services
3. To examine factors influencing customers' intensions to adopt e-banking services
4. To identify the factors that influence customers for not-adopting e-banking services.

1.5 Significance of the Study

The study attempted that, factors affecting adoption of e-banking services among customers of some selected banks operating in Addis Ababa. The study indicated that banks executives and indeed the policy makers of the banks and financial institutions to be aware of the factors influencing customers from using e-banking services. Good bank policies will help to improve customer confidence to facilitate more transactions that will stir (or mix) up economic growth in Ethiopia. It's also hoped that the information that was gathered in regards the factor which influences of e-banking to customer service delivery in the banking industry will be shared to related financial institutions. This will go a long way, if shared by the relevant teams in the departments dealing with e-banking, in sensitization and strengthening their product. The significance of this study is not limited to the bank executives. It is worth including stakeholders such as;

1. Customers, E-banking gives users 24-hour access to their accounts. Most banks allow customers to pay their bills online and provide SMS alerts when there is a withdrawal.
2. Bank employees: Business owners, accounting staff and other approved employees can access routine banking activity such as deposits, cleared checks and wired funds quickly through an online banking interface. This ease of review helps ensure the smooth processing of all banking transactions on a daily basis, rather than waiting for monthly statements. Errors or delays can be noted and resolved quicker, potentially before any business impact is felt.
3. Shareholders of banks: Bonus interest will applies to new Premier Investment Accounts and to existing Premier Investment Accounts reinvested.

1.6 Scope of the Study

The scope of this study is limited to the examination of Factors affecting electronic banking of customers in commercial bank of Ethiopia, Wegagen bank, Dashin bank, Awash bank and Hibret bank that found in Addis Ababa, Ethiopia that excludes other financial institutions to explore the intent of the study and also limited e-banking service example ATM, Mobile, POS and internet banking. Those banks are selected on the base of their familiarity with technological innovations in Addis Ababa to e-banking.

1.7 Conceptual definition of terms

E-commerce: is the buying and selling of goods and services over the Internet. E-commerce refers only to online transactions. E-commerce takes place through the application of electronic technology and covers outward-facing processes that touch customers, suppliers and external partners, including sales, marketing, order taking, delivery, customer service, purchasing of raw materials and supplies for production and procurement of indirect operating-expense items, such as office supplies. www.computerworld.com

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).

1.8 Organization of the Study

This paper is divided into five chapters that covered Introduction, Literature Review, Research Methodology, Research Results, and Conclusions and Recommendations. The outlines of the five chapters are as below.

Chapter 1: Introduction

This chapter provides an overview of the study. It contains general introduction to the issues with which the study is concerned, problem statement, objectives and research questions, hypothesis and regression model, significance of study, scope of study, limitations and organization of the study

Chapter 2: Literature Review

The review has four sections. Section 2.1, presents the definition of E-banking and theoretical literature follow by the modes of E-banking system, in section 2.2, Factors affecting E-banking adoption to customers is presented in section 2.3, empirical studies and conceptual framework present in section 2.4

Chapter 3: Research Design and Methodology

This chapter describes and explains the research methodology used in the study. Key topics of this chapter include description of the study area along with the research methodology employed, research instrument, sampling design, data collection procedures, and data analysis techniques.

Chapter 4: Research Result

This chapter describes overall findings. It summarizes the statistics of respondents' demographics, respondents' response on their knowledge about factors affecting adoption of customers, respondents' response on motivational factors, content analysis of open ended questions, result of statistical analysis, and discussion of the research results. Results and data analysis are presented in the form of text, figures, tables, etc.

Chapter 5: Conclusions and Recommendations

And finally conclusions, recommendations and direction for future research are presented under this chapter.

Chapter Two

Literature Review

This chapter concerns to review the literatures in the area of E-banking adoption and mainly focus on the factors and drivers of adopting E-banking system.

2.1 Theoretical Literatures

Electronic banking adoption has gained special attention in academic studies during the past years to investigate factors of adoption. Two of the most important theories used by researchers in the study of individual's adoption of e-banking is Davis et al, (1989) Technology Acceptance Model (TAM) (Pikkarainen et al, 2004; Cheng et al, 2006), Theory of Planned Behaviour (TPB) (Shih and Fang, 2004) originally proposed by Ajzen (1991).

2.1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model introduced by Davis (1985) is one of the most cited theoretical frameworks to predict the acceptance and use of new information technology within organizations. The Technology Acceptance Model hypothesizes that system use is directly determined by behavioral intention to use, which is in turn influenced by users' attitudes toward using the system and the perceived usefulness of the system. Perceived usefulness was defined as the degree to which individuals believe that using a particular system would enhance their job performance (Davis, 1989), whereas perceived ease of use relates to the degree to which individuals believe that using a particular system would require no effort (Davis, 1989). According to (Pfeffer, 1982; Vroom, 1964) TAM posits that two particular beliefs, perceived usefulness (PU) and perceived ease of use (PEOU) are the primary relevance for computer acceptance behavior. PU is defined as the degree to which a prospective user believes that using a particular system would enhance his or her job performance. Since its inception, the model has been tested with various applications in various studies and has become the most widely applied model of user acceptance and usage (Pikkarainen et al., 2004). Various authors, simply posits that individuals who are keen to adopt an innovation, would want to believe or made to believe that they will not find a particular technology difficult to use and it would require no much labor in its usage. The following researchers Lee (2009) in Finland; Lichtenstein and Williamson (2006) in

Australia, have utilized TAM variously in their works and some modifications based on environmental and cultural characteristics have also been included. However, The TAM model does not account for social influences in the adoption and utilization of new technologies Edwin A., (2013) According to Masrom and Hussein (2008) the adoption of whether to use an information system for a particular individual is very much dependent on the perceived usefulness and perceived ease of use of the information system.

2.1.2 Technology- organization- Environment (TOE)

TOE framework was proposed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, et al, & Ellis 2009; Chang et al 2007, Zhu & Kraemer 2006). According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment. Based on this, the researcher adopts the TOE framework to summarize possible key factors affecting E-banking adoption. The technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks). While the organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system. The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services. For each context, various factors have been identified from the literature but only those that are considered relevant for E-banking adoption will include in the framework. Details of factors that consider in this study are as follows.

2.2 Modes of e-banking

Different forms of E-banking system will discuss as follows.

2.2.1 Automated Teller Machines (ATM)- It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. To withdraw cash, make

deposits or transfer funds between accounts, a consumer needs an ATM card and a personal identification number (PIN).

2.2.2 Point-of-Sale Transfer Terminals (POS)- The system allows consumers to pay for retail purchase with a check card, a new name for debit card. This card looks like a credit card but with a significant difference. The money for the purchase is transferred immediately from account of debit card holder to the store's account (Malak 2007).

2.2.3 Internet / extranet banking-It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers. Molla (2002,p.2) defines internet banking as a distinct subset of electronic/online banking which is more broadly defined as the provision of retail and small value-added banking products and services through electronic channels. This electronic banking definition includes several different forms of internet banking, the different types of which are outlined below.

1. Internet banking via personal computers (PC) using dial-up software. Here, customers make use of home finance software to link to banks for online banking Internet banking via the World Wide Web. This form of online banking bypasses subscription based services and allows banks to interact directly with their customers through the World Wide Web.
2. Internet banking which makes use of a bank's proprietary software. This form of online banking uses the bank as an "electronic gateway" to customer accounts. Customers install this software on their home computers to enable them to transfer funds and pay bills electronically.
3. Internet banking via online service, banks set up retail branches on subscriber based online service such as American online

2.2.4 Mobile banking-Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS).

Banks offer Internet banking in two main ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional delivery channels. A second alternative is to establish virtual branchless or Internet-only, Bank almost without physical offices. Virtual banks may offer their customers the ability to make

deposits and withdraw funds via ATMs or other remote delivery channels owned by other institutions (Furst & Nolle 2002, p.5).

2.2.5 TV based: the use of satellite or cable to deliver account information to the TV screen of customers (it is internet based).

2.2.6 Telephone banking: access their bank via telephone (own personal ID and password require)

2.2.7 Managed network: the bank makes use of an online service provided by another party. In the framework of this study E-banking will not only considers as transferring of service by using internet connection rather it considers as multi-channel service provide through ATM, internet banking, Mobile banking, and Debit cards.

2.3 Review of empirical literature

Definitions of E-banking

E-banking has a variety of definitions all refer to the same meaning, the following section show some of these definitions. According to Daniel (1999) Electronic banking is the provision of banking services to customers through Internet technology (IT). As Kamrul (2009) clearly described, 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. Through the use of IT, banks now employ different channels such as internet technology, video banking technology, telephone banking, Automated Teller Machine, and WAP technology to deliver their services.

According to Nehmzow (1997) Internet banking offers the traditional players in the financial services sector the opportunity to add a low cost distribution channel to their numerous different services. He continues that Internet banking also creates a threat to traditional banks' market share, because it neutralizes so many of their competitive advantages in having a traditional branch bank network.

Malak (2007) described E-banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to another, rather than by check or cash. Electronic banking is the newest delivery channel in many developed countries and

there is a wide agreement that the new channel will have a significant impact on the bank market (Daniel, 1999; Jayawardhena and Foley, 2000).

The term of E-banking often refers to online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services (Furst & Nolle 2002, p.5). With the help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week. E-banking is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network"" (Yang 1997, p.2). Furthermore, electronic banking is said to have three different means of delivery: telephone, PC, and the Internet. Daniel (1999), for example, introduces four different channels for electronic banking: PC banking, Internet banking, managed network, and TV-based banking.

2.3.1 Empirical and Conceptual Studies

Researchers make huge efforts in order to understand the factors that may initiate individuals to the adoption of electronic banking. The outcomes of these efforts also are not consistent enough to conclude about the factors that customers initiate to use or not to use e-banking. But there are a number of empirical literatures that attempted to identify factors that influence individuals to engage in the adoption of e-banking.

Adoption is the acceptance and continued use of a product, service or idea. According to Rogers and Shoemaker (1971), consumers go through "a process of knowledge, persuasion, decision and confirmation" before they are ready to adopt a product or service. Many researchers have been used different frame works in the study of adopting new technological innovation.

Among frameworks that have been developed based on the past studies includes, the Technology-organization-Environment framework (TOE) (Tornatzky & Fleischer 1990), which identifies three basic Factors for the adoption of technological innovation, i.e., technological factors, organizational and environmental factors. According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment. Based on this, the researcher adopts the TOE framework to summarize possible key factors affecting E-banking

adoption. The technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks). While the organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system. The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services.

The Technology Acceptance Model as well introduced by Davis (1985) is one of the most cited theoretical frameworks to predict the acceptance and use of new information technology within organizations. The Technology Acceptance Model hypothesizes that system use is directly determined by behavioral intention to use, which is in turn influenced by users' attitudes toward using the system and the perceived usefulness of the system.

Perceived usefulness was defined as the degree to which individuals believe that using a particular system would enhance their job performance (Davis, 1989), whereas perceived ease of use relates to the degree to which individuals believe that using a particular system would require no effort (Davis, 1989).

From the above different theories that we have, the tendency to recognize the factors that influence the customers to the adoption on electronic banking, in addition different investigators obtains different variables to determine the factors that have an influence on the customer purpose to implement and use the technology of e-banking.

As Davis et al., (1989) clearly states that the external variables in the model refer to a set of variables that can influence information system adoption indirectly through perceived ease of use and perceived usefulness. According to Taylor and Todd (1995), constructs of TAM are almost measured in the same way in every context. Furthermore, TAM is a reliable instrument and empirically sounds. Several meta-analysis studies have provided sufficient data about TAM to be highly credible and rationally explain up to 40 percent of the behavioral intention to use (King and He, 2006; Yousafzai, Foxall, and Pallister, 2007).

On the study Dehbini N. et al. (2015) showed that ease of use and usefulness has a significant effect on the electronic payment card acceptance in Iran. According to Taeb (2009); Mashreghi (2011) clearly stated in their research showed that ease of use and usefulness have positive effect on new

technology acceptance. According to authors Dahlberg and Orni (2007); Lee et al., (2003); Al-Gahtani (2001); Rose and Straub (1998); and Baniyasi, Sharifi and Poor nabi, (2009) concluded that ease of use and usefulness has significant relationship with acceptance technology. Warshaw et al., (1989), indicated that ease of use has low impact on technology acceptance. Also Pan, Sivo and Brophy (2003), showed that the ease of use and usefulness of technology acceptance have not significant relationship among in the academic environment.

Salwani (2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in his/her 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 the study from the technological factors.

According Nasri (2011) obviously studied perceived risk (PR) that customers perceive and their own tolerance of risk tacking is factors that influence their purchase decision in Tunisia. A larger perception of risk will reduce the perceived benefit of the technology (Horst, Kuttischreuter, and Gutteling, 2007). Previous studies mentioned that perceived risk was a major factor that influences the adoption of electronic banking services (Polatoglu and Ekin, 2001; Tan and Teo, 2000). According to Loudon and Bitta, (1993) risk regarding the most appropriate purchase decision or the consequences of the decision is a significant variable influencing the total amount of information gathered by consumers. Several studies (Bhatnagar et al. 2000; Featherman and Pavlou 2003; Jarvenpaa et al. 1999; Kolsaker et al. 2004; Liao and Cheung, 2001, Park et al. 2004, Pavlou 2003, and Ruyter et al. 2001) have deemed consumer risk perceptions to be a primary obstacle to the future growth of online commerce and e-services.

According Odumeru J.,(2012) perceived benefits, perceived ease of use and perceived risk, all significantly determines acceptance of e-banking by customers in Nigeria. As Howcroft et al., (2002) clearly stated that perceived benefits also found that the most important factors encouraging consumers to use online banking are lower fees followed by reducing paper work and human error, which subsequently minimize disputes (Kiang et al., 2000). What is more according Dwumfuo O., and Dankwah B., (2013) That perceived benefits to the bank served as a motivating factor for adopting the Internet banking product in Ghana. As Mohammed, A.(2014) Clearly stated that Perceived benefits associated with electronic banking were to be important

factor in Adama, Ethiopia. According to Kamau et al., (2012) From his/her study, it is also identifies that perceived usefulness, perceived ease of use, perceived self-efficacy, perceived compatibility, perceived relative advantage and perceived results demonstrability are the key factors that influence internet banking adoption. The results also show that risk had minimum influence on Internet banking in Kenya. As Hussein N., (2012) clearly stated on his/her empirical investigation of factors that could affect internet banking adoption. These factors include awareness, usefulness, trust and perceived risk. Usefulness was found to have a positive and direct influence on internet banking adoption. On the other hand, awareness, trust was found to have positive and not significant influence on Internet banking adoption. However, perceived risk has negative and not significant influence on internet banking adoption. Usefulness is the only significant predictor which influences the internet banking adoption in this study. According to Abubakar A., Younus S. and Bin R.,(2012) studied awareness is the most important factors influencing adoption of e-banking and security is seen as the least important and ease of use and reluctant to change are not important factors in influencing their adoption rate in Nigeria. In other study, Consumers' concerns about security, which arise from the use of an open public network, have been emphasized as being the most important factor inhibiting the adoption and use of internet banking (Sathye, 1999; Daniel, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Cox and Dale, 2001, Polatoglu and Ekin, 2001, Black et al., 2002, Giglio, 2002; Howcroft et al., 2002 Howcroft et al., 2002). In USA, Thorton Consulting (1996) which conducted a survey focusing on banks concluded that 67 percent of US banks feel that "security concerns" is the major barriers for Internet banking. The same results obtained from the study of Booz et al. (1997), reveals that security concern among customers was the top-ranking obstacle for non-adoption of Internet banking in Latin America.

According to (Quaddus & Hofmeyer 2007; Gibbs, Kraemer & Dedrick 2003) 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. 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). 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). On the other hand Hussein N., Jusoh J., and Abideen A., (2014) that ICT may not be an issue in the banks however; the relationship between ICT readiness and intention towards internet banking services adoption was not supported in Yemen.

Organizational factors 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. 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 adoption.

Marketers often segment markets on the basis of demographic information because it is widely available and often relates to consumers buying and consuming behavior. Only with a clear understanding of major consumer characteristics can the implications of environmental and individual determinants of consumer behavior begin to be appreciated (Du Plessis and Rousseau, 1999, p.274). Age, education level, income and occupation are the most influential demographic variables affecting Internet usage. Typical internet banking users tend to be well educated, relatively young and are high income earners. According Karjaluoto (2002, p.360) It has been widely recognized that demographic factors have a great impact on consumer attitudes and behavior towards internet banking. The consumer demographic factors relevant to this study are therefore age, education level, income and occupation.

There is a different literature review which argues that many of these factors can be a prior consideration as a significant to the process of e-banking adoption. That the researcher develops based on the proposed e-banking adoption can be modeled with variables derived from literatures, and nine variables referring to customer awareness, perceived ease of use, perceived usefulness, security perception, legal framework and ICT infrastructure, perceived risk, demographic characteristics and organization factors.

2.3.1.1 Demographic characteristics

Demography is the study of human population statistics, including age, sex, race, location, occupation, income, education, and other characteristics. Each of these characteristics influences the nature of consumer needs and wants; ability to buy products; the perceived importance of

various attributes or choice criteria used to evaluate alternative brands; and attitudes towards and preference for different products (Loudon and DellaBitta, 1993, p.35).

Marketers often segment markets on the basis of demographic information because it is widely available and often relates to consumers buying and consuming behavior. Only with a clear understanding of major consumer characteristics can the implications of environmental and individual determinants of consumer behavior begin to be appreciated (Du Plessis and Rousseau, 1999, p.274). Therefore, the following hypothesis proposed

H1 demographic characteristics regarding E-banking expected positive effect to adoption e-banking.

2.3.1.2 Customer awareness (CA)

According to Rogers (1983) study awareness innovation exists and gains some understanding of how function. While Sathye (1999) has defined awareness of innovation as: understanding whether the customer is aware or not aware of service itself and its benefits. He also shows that low level of awareness is a critical factor in causing customers not to adopt online banking. According to Rogers and Shoemaker (1971), consumers go through “a series of process in knowledge, confidence, decision and confirmation” before they are ready to adopt a new product or service. Hence make the customers aware about the availability of such a product and explain how it adds value relative to other products of its own or that of the competitors. Therefore, the following hypothesis is proposed;

H2 Awareness has a significant effect on acceptance and use of e-banking.

2.3.1.3 Perceived benefit (PB)

Perceived benefits of E-banking obtain 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).

Gerrard and Cunningham (2003) found a positive correlation between convenience and online banking and remarked that a primary benefit for the bank is cost saving and for the consumers a

primary benefits is convenience. Multi-functionality of an IT based services may be another feature that satisfies customer needs (Gerson, 1998).

A reduction in the percentage of customers visiting banks with an increase in alternative channels of distribution will also minimize the lines in the branches as stated Thornton and White, (2001). Robinson (2000) argued that the online banking extends the relationship with the customers through providing financial services right into the home or office of customers. The banks may also enjoy the benefits in terms of increased customers loyalty and satisfaction (Oumlil and Williams, 2000). According to Basu and Muylle (2007), described as value creation or value enhancement for one or more of a company's stakeholder groups and cost saving, increased market share, speed and efficiency of doing business and improvement in customer service. Consequently, the following hypothesis proposed

H3 perceived benefit has a positive effect on the use of e-banking.

2.3.1.4 Perceived security (PS)

Security is one of the very important factors in determining the decision of consumers to use internet banking. Walls report (1997) also reported that unless security is improved, more households would be willing to conduct their transactions over the internet. According to Polatoglu and Ekin, (2001), security comprises of three dimensions: reliability, safety, and privacy. Consumers' concerns about security, which arise from the use of an open public network, have been emphasized as being the most important factor inhibiting the adoption and use of internet banking (Sathye, 1999; Daniel, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Cox and Dale, 2001, Polatoglu and Ekin, 2001, Black et al., 2002, Giglio, 2002; Howcroft et al., 2002 Howcroft et al., 2002). Consequently, the following hypothesis proposed

H4 Perceived security has a positive effect on the use of e-banking.

2.3.1.5 Perceived risk (PR)

Perceived risk defined in terms of the customer's perception of the uncertainty and potential adverse consequences of buying a product or services.

As different authors (Bauer 1960; Hsi-Peng et al, 2005 and Hsi-Peng et al, 2005) clearly stated risk in terms of uncertainty and negative consequences associated with consumer's actions.

Consequently the lower the perception of risks involved in using internet banking the more likely an individual would be prepared to use it. 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).

The degrees of risk that customers perceive and their own tolerance (acceptance) of risk tacking are factors that influence their purchase decision. On the other hand, introducing a new technology may involve both benefits and risks to the user, and before deciding to adopt the technology, the individual may want to weigh risks and benefits. Electronic banking services will not be an exception to this general rule. A larger perception of risk will reduce the perceived benefit of the technology (Horst, Kuttschreuter, and Gutteling, 2007). Hence, the researcher is proposed the following hypothesis;

H5: The lower the perceived risk of using e-banking, the more likely that e-banking will be adopted.

2.3.1.6 Legal framework and ICT infrastructure (LFII)

(Quaddus & Hofmeyer 2007; Gibbs, Kraemer & Dedrick 2003) 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. 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). 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). 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). Consequently, the following hypothesis proposed

H6 Legal framework and ICT infrastructure has a positive effect on the use of e-banking.

2.3.1.7 Organizational factor (OF)

Technology-organization-Environment framework (TOE) (Tornatzky & Fleischer 1990), which identifies among the three basic Factors for the adoption of technological innovation, i.e., organizational factor was the relevant that influence the e-banking.

Organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system. Organizational factors 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. 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. Consequently, the following hypothesis proposed

H7 organizational factor has an effect on the use of e-banking.

2.3.1.8 Perceived usefulness (PU)

The Technology Acceptance Model introduced by Davis (1985) is one of the most cited theoretical frameworks to predict the acceptance of new information technology within organizations. Perceived usefulness was defined as the degree to which individuals believe that using a particular system would enhance their job performance (Davis, 1989). According (Pfeffer, 1982; Vroom, 1964) TAM posits that perceived usefulness (PU) is the primary relevance for computer acceptance behavior. PU is defined as the degree to which a prospective user believes that using a particular system would enhance his or her job performance. Since its inception, the model has been tested with various applications in various studies and has become the most widely applied model of user acceptance (Pikkarainen et al., 2004). According to Alsabbagh & Molla (2004) PU on the other hand is related to users' perception of the degree to which using a system will be beneficial. As Davis et al., (1989) clearly states that the external variables in the model refer to a set of variables that can influence information system adoption indirectly through perceived usefulness. Consequently, the following hypothesis proposed

H8 perceived usefulness has a positive effect on the use of e-banking.

2.3.1.9 Perceived ease of use (PEOU)

The Technology Acceptance Model as well introduced by Davis (1985) is one of the most cited theoretical frameworks to predict the use of new information technology within organizations. Perceived ease of use is Technology Acceptance Model (TAM) concerns to the degree to which individuals believe that using a particular system would require no effort (Davis, 1989).

According to Alsabbagh & Molla (2004) PEOU refers to the degree to which an individual believes that using a particular system would be free of physical and mental effort.

According (Pfeffer, 1982; Vroom, 1964) TAM posits perceived ease of use (PEOU) is the primary relevance for computer acceptance behavior. Since its inception, the model has been tested with various applications in various studies and has become the most widely applied model of usage (Pikkarainen et al., 2004). That's why, the researcher proposed the following hypothesis;

H9 Perceived ease of use has a positive effect on using e-banking

After assessment of several empirical findings the following conceptual framework is developed for this study. The conceptual framework of the study is developed by arrangement different factors from deferent writers related to the specific area and form behavioral aspects. The nine independent variables that are believed to have an influence on the using of adopted electronic banking.

Independent variables

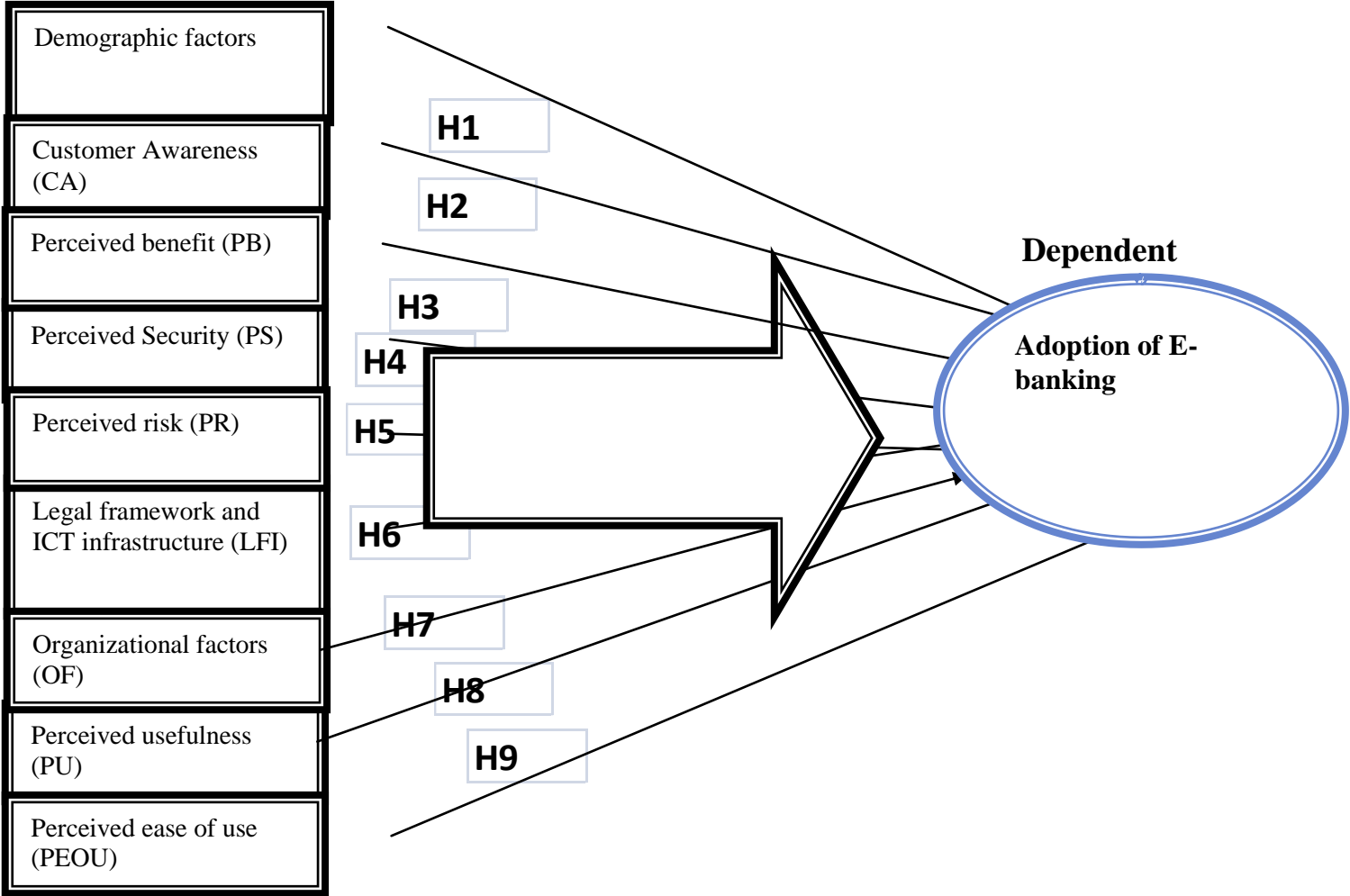


Table 2.1 Experiences of Factors Influencing the Adoption of E-Banking in different countries

Table	Title	Results
Nasri,W. (2011)	Factors Influencing the Adoption of Internet Banking in Tunisia	The empirical results show that the perceived convenience, perceived risk, perceived security and prior internet knowledge all have significant effects on behavioral intention to use online banking. among ‘early adopters’, convenience was a more important indicator and among demographic variables, further significant influences have been found for instruction and occupation and Information online banking the only did not affect online banking
Abubakar, etal.,(2012)	An Exploratory Study on Adoption of Electronic Banking: Underlying Consumer Behavior and Critical Success Factors in Nigeria	The empirical results show that awareness is the most important and security is seen as the least important and ease of use and reluctant to change are not important factors in influencing their adoption rate.
AkinyiI R., et al., (2012)	Factors affecting adoption of mobile banking technology in Kenya	The results from regression analysis that revealed that PU had a positive significant influence on adoption of mobile banking. The second findings indicate that there is no significant relationship between perceived ease of use and adoption of Mobile banking technology. Perceived risk inverse significant influence on adoption of Mobile banking technology.
Yitbarek. T. and Zeleke. S. (2013)	Analysis of factors influencing customers’ intention to the adoption	Findings revealed that the seven factors (attitude, subjective norm, perceived behavioral control,

	of e-banking service channels in Bahirdar city Ethiopia.	perceived usefulness, perceived ease of use and perceived risk) were significant in affecting users' behavioral intention to use e-banking.
Al-Smadi M., (2012)	Factors Affecting Adoption of Electronic Banking: An Analysis of the Perspectives of Banks' Customers in Saudi Arabia	First: the results of the study revealed that perceived usefulness and perceived ease of use has a positive and significant impact on customers' attitude toward electronic banking services. The second result showed that one cultural dimension (uncertainty avoidance) has a positive and significant impact on perceived usefulness and perceived ease of use. Third: the results revealed a positive and significant impact of perceived risk on the customers' attitudes to use electronic banking services. Fourth: the results of the study showed that subjective norm and perceived behavioral control have a positive and significant impact on customers' intention toward using electronic banking services. Fifth: the results showed that attitude as a positive and significant influence of attitude on customers' intention to use electronic banking services.
Dehbiniet al., (2015)	Factors influencing the adoption of electronic payment cards in urban micro-payments	Findings of the research showed that age, gender, education, employment and marital status did not significantly related to electronic payment card acceptance. On the other hand the factors like usefulness, ease of use, satisfaction, compulsion, norms and network externalities have significant effect on acceptance of electronic micropayments card.
Hussein N., (2012)	Factors Affecting the	The empirical investigation of factors that could affect

	<p>Adoption of Internet Banking Amongst International Islamic University Malaysia (IIUM) students.</p>	<p>Internet banking adoption, Usefulness was found to have a positive and direct influence on internet banking adoption.</p> <p>On the other hand, awareness and trust were found to have positive and not significant influence on Internet banking adoption. However, perceived risk has negative and not significant influence on internet banking adoption.</p>
<p>Odumeru J.,(2012)</p>	<p>The Acceptance of E-banking by Customers in Nigeria</p>	<p>The study shown that age, educational background, perceived benefits, perceived ease of use, income, experience from previous use, perceived risk, peer influence and perceived enjoyment all significantly determines acceptance of e-banking by customers in Nigeria.</p>

Chapter Three

Research Design and Methodology

Many researchers have written extensively on research methodology. The underlying factor in most studies on research methodology is that the selection of methodology is based on the research problem and stated research questions. Methodologies cannot be true or false, only more or less useful (Silverman, 2001). Nachamias et al. (1996) for instance states that methodologies are considered to be systems of explicit rules and produced, upon which research is based, and against which claims for knowledge are evaluated. Conducting any type of research should be governed by a well-defined research methodology based on scientific principles.

3.1 Research design

The research design was conducted both the qualitative and quantitative method of survey research and analyzed the factors that affect adoption of e- banking in Addis Ababa. For the quantitative approach survey design and qualitative approach an in depth interview were utilize. Since the total population of the e-banking customers in the banks is more than 53,859, a complete survey is difficult to use for this large number so sampling technique is an essential (Leedy, 1989)

3.2 Types and sources of data

The types of data that have been used in this research were primary and secondary data. The data was collected from two sources; from the bank's customers that uses electronic banking and from bank officials. The data is collected from the bank users through questionnaire as well as data collected from the bank officials, were through questionnaire and interview supported by different documents obtained from records and reports of the industry, from web site, books, articles and Journals.

3.3 Sampling technique

Sampling is the process of choosing, from a much large population, a group about which to make generalized statements, so that the selected part represents the total group, (Leedy, 1989; pp. 158). The banks have been operating and the additional banks which make an initial public offering to

begin their operation will take as population and customers who uses currently e-banking, and purposely draw a sample from the total to get rich evidence. However, to undertake this research, the researcher purposely selects sample of five banks, which currently adopt and implement some form of e-banking services. These banks include Commercial bank of Ethiopia, Dashen bank, Awash bank Hibret Bank and Wegagen bank.

The sampling design included a detail plan of the sample size, sample area and sampling techniques. Depending on the nature of the respondents, the study utilized purposive method. The purposive sampling method was used to select officials from the e-banking departments of the selected banks, and sample customers who utilize e-banking.

3.3.1 Sample size and sample determination

The sample size is the number that selected from the target population to constitute a sample that fulfills the requirements of representativeness of the target population (Kothari, 2008).

To determine the sample size, the Yamane (1967) formula is used which is $n=N/(1+Ne^2)$

Where n= require responses

N= Sample size (target population)

e^2 = sampling error limit

N=53,859

e = 0.06

1= Designates the probability of the event occurring

Placing the formula for Addis Ababa population give up a sample size of;

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

$n= 53,859/(1+53,859*0.06^2)$

n=276.35

n=276

The sample size for Addis Ababa was 276 bank officials in e-banking departments and customers. For sampling procedure, proportional sampling will be applied.

3.4 Data collection method

Primary data was collected through questionnaire and interview. The questionnaire include close and open end questions for the bank users as well as bank officials an interview questions was

designed for the bank officials. And also in-depth interview was conducted on face-to-face basis by using structure and unstructured questions.

3.5 Data collection and instruments

The research relied based on the Likert scale structured questionnaire. A five scale likert scale is used to assess the influence of factors originating from the technology and external environment on using the technology. Most of the questions adopted from Ayana, G. (2012), Juma, S., (2013) (Nasri, W. 2011; Guriting and Ndubisi, 2006; Luarn and Lin, 2005; Wang et al., 2003 and Ramayah et al., 2003) and Abenet, y. (2010) whereas a few questions are designed by the researcher and adjustment was done with objective of building them effective in the situation of the study. Then the questionnaires were translated in to Amharic language and prepared English language too. The questionnaires were distributed to the target respondents at the banks as well as for customers. In addition to the data extracted using questionnaire an interview is conducted with e-payment managers of the selected banks to support and cross check gaps.

3.6 Data collection procedure

A letter of authorization was obtained from St. Mary`s University, school of graduate studies. The researcher used questionnaires to collect primary data from the respondents. A five point likert scale was used to measure the respondents` outlook regarding statements on Demographic characteristics, perceived benefit, perceived risk, perceived security, Legal framework ICT infrastructure, organizational factor, perceived usefulness, and perceived ease of use. The questionnaires were managed by the researcher with the help of three research assistants to bank officials of the five banks and for the customers that are found in deferent station. The researcher assistants had completed their undergraduate degree. They were trained by the researcher on how to control the questionnaires to the target group. The responses were used to address the study objectives.

3.7 Data processing and analysis

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial propositi on of a study (Yin, 1989; pp. 105). The collected data was coded so as to make it useful and relevant to analysis and the quantitative data that is

gathered by the researcher is analyzed by using descriptive statistics such as percentage, frequency, mean, and was interpreted by using tables, and chart were used. The effects of electronic technology influence on the banking industry and customers as strongly affecting, medium or low according to Kessuwan and Muenjohn (2010), the attributes placed between 1.00-2.49 mean score are seen as low level of influence in which an attribute possess, attributes placed between 2.50-3.49 mean grade are seen as having moderate level of effect and attributes placed between 3.50-5.00 mean point designates that the attribute have strong or high level of influence. in addition to prove or test hypothesis, the p-value of ordered probit regression result was used, at $p < 0.1$ significant level and ordered probit regression models also used to analyze the data to better understand and interpret the data gathered through the questionnaires, in addition correlation matrix was used to know the relationship between each variables. This approach has been widely employed in the survey - based studies Akinyi R., et al., (2012)(Nasri, W. 2011; Guriting and Ndubisi, 2006; Luarn and Lin, 2005; Wang et al., 2003 and Ramayah et al., 2003). The interview and open-ended questions were analyzed by using qualitative data analysis. While doing so, statistical package for STATA software and Microsoft excel was used to generate the data results. As indicated above, the purpose of this study was for investigation of factors affecting electronic banking adoption of customers in the case of Addis Ababa. In order to do this, respondents were asked to evaluate the attributes of some widely accepted factors that influence customers for adoption of electronic banking and selected based on Likert scale items from 5 to 1.

3.8 Model specification

To measure the factors that determine the intention rate of individual, model developed by (Davis, 1989), Technology Acceptance Model (TAM) (Tornatzky & Fleischer 1990) Technology-organization-Environment framework (TOE), is used according to Nasri, W. (2011) Considering the outcome from the factor analysis, the items for independent variables and the dependent variable were aggregated. Once the data were aggregated, the order probit regression was conducted to reveal how different factors affect intention to use internet banking. This approach has been widely employed in the survey based studies Nasri, W. (2011) Akinyi R., et al., (2012) (Guriting and Ndubisi, 2006; Luarn and Lin, 2005; Wang et al., 2003 and Ramayah et al., 2003). Aggregation of the research results allows combining of all items under one particular

heading or label, which thus is easy to analyze using order probit regression analyses Nasri, W. (2011)

3.9 Ordered probit regression model

An ordered probit model is an appropriate model for this study because the dependent variables, adoption of e-banking, can result an ordinal value that take on five discrete values. This means the dependent variable can be specified in a clear ordering of the outcomes using an integer number as 1, 2, 3, 4, 5, but it may not be ready to assume that the distance between each of the categories is constant.

Ordered probit regression is often used to analyze things like lickert scales on polls or subjective scales (Verbeek, 2004). In this case the dependent variable adoption of e-banking was measured by assigning values as 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. But it does not assume a constant difference between each category, the permission for the possibility that it took a bigger change in an independent variable to get over the threshold into one category than it obtained to get into the next category (Donoghue, et al. 2010). An ordered probit model estimates both the effects of the independent variables (through the systematic component) and the thresholds of the dependent variables (through the stochastic-(having a random probability) component) at the same time (Fox, 2010: Donoghue, et al. 2010).

According to, (Donoghue, et al. 2010) the most straightforward extension of the probit or logit model is the case where Y takes on several possible values, but where there is a natural order in the responses. A better application of ordered model is thus the case of ordered qualitative variables. Frequently, in survey-type research the responses are on a likert-type scale, such as strongly agree, somewhat or strongly disagree as an ordered variable (Gujarati, 2004).

The correlation between the identified dependent variable (ADOEB) and the independent variable were analyzed by ordered probit model as framed below:

Assuming a latent (hidden) variable, Y^* exist, can be defined $Y^*=x\beta+\varepsilon$

Where:

$Y^*=ADOEB$ and x represents all independent variables.

Y^* be divided by some cut points (thresholds): α_1 (strongly disagree), α_2 (disagree), α_3 (neutral), α_4 (agree), α_5 (strongly agree), and $\alpha_1<\alpha_2<\alpha_3<\alpha_4<\alpha_5$

The observed customers' intention level to adopt e-banking is the ordinal outcome, y , ranging from 1 to 5.

It can be defined as

$$Y = \begin{cases} 1 & \text{if } y^* \leq \alpha_1 \\ 2 & \text{if } \alpha_1 < y^* \leq \alpha_2 \\ 3 & \text{if } \alpha_2 < y^* \leq \alpha_3 \\ 4 & \text{if } \alpha_3 < y^* \leq \alpha_4 \\ 5 & \text{if } y^* > \alpha_4 \end{cases}$$

To compute probability of adoption of e-banking in each cut off point the following formula were used:

$$P(y=1) = P(y^* \leq \alpha_1) = P(x\beta + \varepsilon \leq \alpha_1) = F(\alpha_1 - x\beta);$$

$$P(y=2) = P(\alpha_1 < y^* \leq \alpha_2) = F(\alpha_2 - x\beta) - F(\alpha_1 - x\beta);$$

$$P(y=3) = P(\alpha_2 < y^* \leq \alpha_3) = F(\alpha_3 - x\beta) - F(\alpha_2 - x\beta);$$

$$P(y=4) = P(\alpha_3 < y^* \leq \alpha_4) = F(\alpha_4 - x\beta) - F(\alpha_3 - x\beta);$$

$$P(y=5) = P(y^* > \alpha_4) = 1 - F(\alpha_4 - x\beta)$$

To compute the cumulative probabilities using the form: $p(y \leq j) = F(\alpha_j - x\beta)$ the model was constructed as:

$$P(\text{ADOEB}) = \alpha + \beta_1 \text{DC} + \beta_2 \text{CA} + \beta_3 \text{PB} + \beta_4 \text{PK} + \beta_5 \text{PS} + \beta_6 \text{LFII} + \beta_7 \text{OF} + \beta_8 \text{PU} + \beta_9 \text{PEOU} + \varepsilon$$

In ordered probit model, the marginal effects for continuous independent variables are however, the sign may be either positive or negative. This makes interpretation of the coefficients complicated, and necessitates special calculations but the dependent variable was likert scale as it is, from strongly agree to strongly disagree (1-5) level. The technique on the independent variables that the level of respondent's probabilities of strongly agree and agree should sum to 1, and level of respondent's probabilities of strongly disagree, disagree and neutral marginal effects should sum to 0.

For example, the marginal effect (0) thus tells us the estimated change in the probability of a respondent reporting that he is 'not too happy, when his adoption e-banking increases one unit. On the other hand, (1) which would mean that the respondent is more likely to report he is 'very happy' otherwise with an increase one unit in adoption of electronic banking. Be either positive or

negative and depends on the relative shift in the densities. For dummy variables, the calculation is even more complicated since the variable is not continuous. In this case, we do not look at the marginal effect directly. Instead, we must look at the predicted probabilities for each realization of the dummy variable, the technique described by Greene (1997).

Were

ADOEB-adoption of electronic banking

DC=demographic characteristics

CA- customer awareness

PB- perceived benefit

PK- perceived risk

PS- perceived security

LFII-legal framework and information communication technology infrastructure

OF- organizational factors

PU-perceived usefulness

PEOU- perceive ease of use

ε = error term (absorbs unobserved factors)

α = constant (intercept)

β_1 - β_9 = coefficients

Chapter four

Discussion and Results

In this chapter the data that were collected are checked over and examined using different descriptive statistics and ordered probit regression. Hypothesis testing results also incorporated with their interpretation and discussions.

4.1 Descriptive statistics

Table 4.1.1 The Sample size details

No	Name of Banks and customers selected for study	The sample number for each bank and customers after detrained the sample size by the researcher	The returned questionnaire after distributed
1	Dashin Bank Officials	24	23
2	Commercial Bank of Ethiopia Officials	61	61
3	Wegagen Bank officials	13	13
4	Hibret Bank officials	1	1
5	Awash Bank officials	1	1
6	Customers of the banks	176	173
	Total	276	272

Source: developed by the researcher (2016)

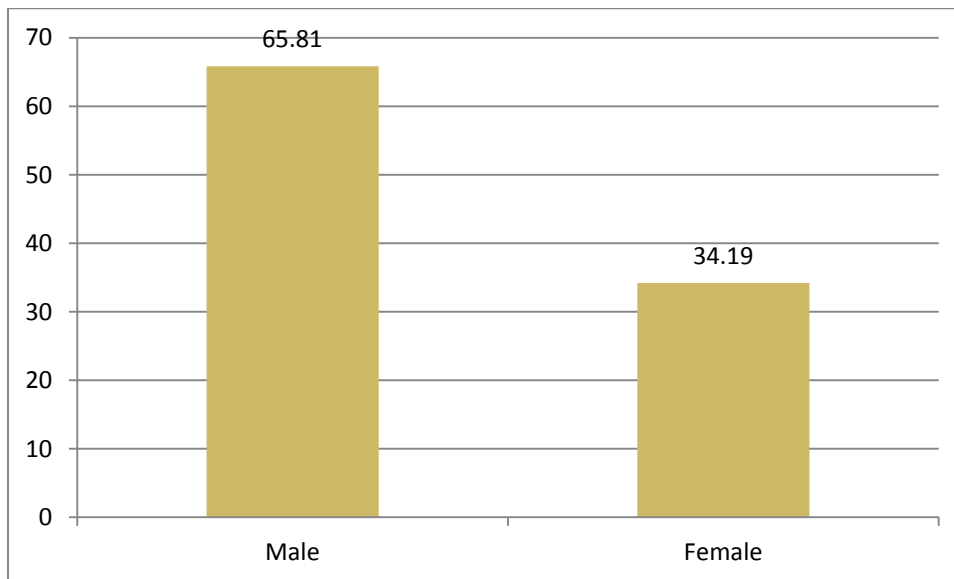
The number of questionnaire distributed to the bank officials was, according to their number of customers that used electronic banking proportionate. The questionnaire distributed purposive method survey to electronic banking departments of bank officials as well for the customers also, only that used electronic banking technology innovation. A total 276 questionnaires were distributed, out of the total forwarded, 272 questionnaires returned which represent 98.55% of the sample population, statically an accepted number. This result was consistent with Nasri, W.

(2011); Kamau P., Ritho C., Olweny T., and Wanderi M., (2012); somewhat consistent with Hussein N., (2012); Yitbarek. T. and Zeleke. S. (2013)

4.2 Demographic characteristics of sample customers

As shown in below 4.2.1 graph 65.81% of respondents were males and the remaining 34.19% were females. The majority to the electronic banking were males as compare to females. This indicates that males are more active than females to adoption of electronic technology innovation.

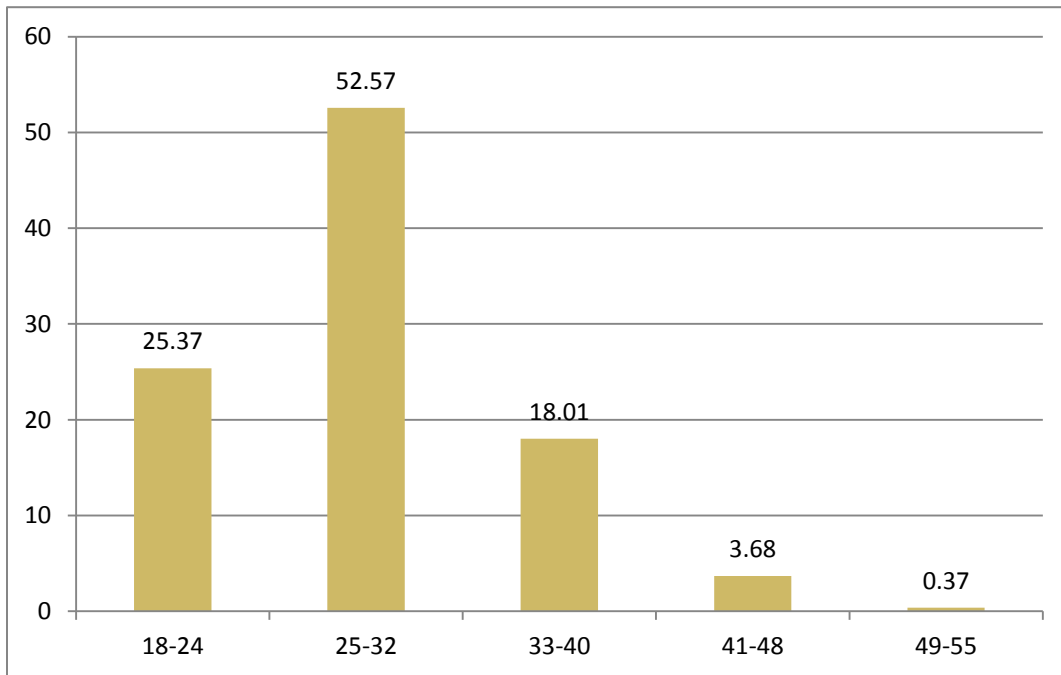
Figure 4.2.1 Gender



Source: STAT result (2016)

With regarded to age indicated in below graph 4.2.2, 87.87% of respondents are between 18-32 years old and the remaining 12.13% are between 33-55 years old. This result shown that, from young to middle class age groups was highly willing to adoption of new technology electronic banking, than the older age groups which were reluctant to adoption of e-banking. In Addis Ababa context the middle class age groups are more exposure to new technology so they have the probability higher adoption of e-banking.

Figure 4.2.2 Age; graphical descriptive



Source: STAT result (2016)

As far as the level of education background concerned of respondents 68.38% were degree holders and 8.09% of respondents were master and above holders 16.18% were diploma holders 6.25% were high school and certificate holders 1.1% elementary school holders. This result indicates that, higher level of education holders adopt the electronic technology innovation more than the lower education level holders.

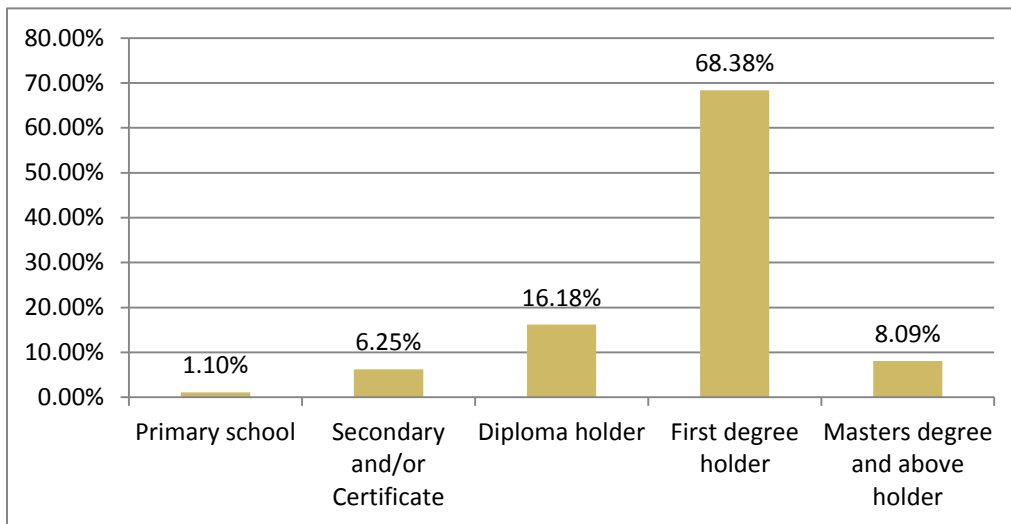
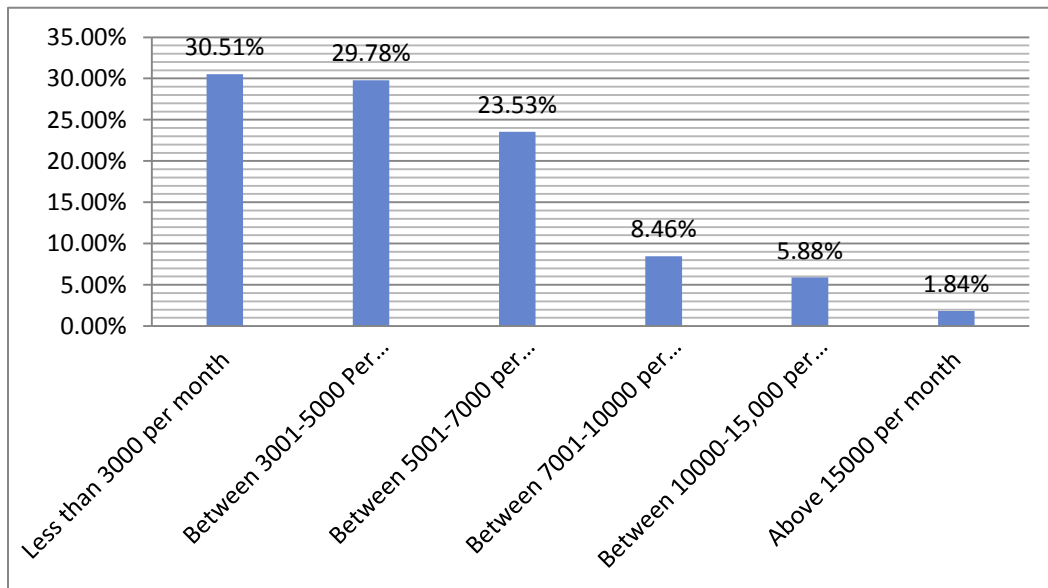


Figure 4.2.3 Level of education descriptive analysis

Source: STAT result (2016)

With regard to income group, respondents with income of less than 3000 per month 30.51% (83) of the total respondents and income between 3001-5000 per month 29.78% (81), between 5001-7000 per month, 23.53% (64), between 7001-10000 per month 8.46% (23) and between 10000-15,000 per month 5.88% (16) of respondents have the level of their monthly income. This result did not mean that the lower income level have an influential for adoption of e-banking because that the probability of available higher income group individuals are minimal to that of lower income group individuals.

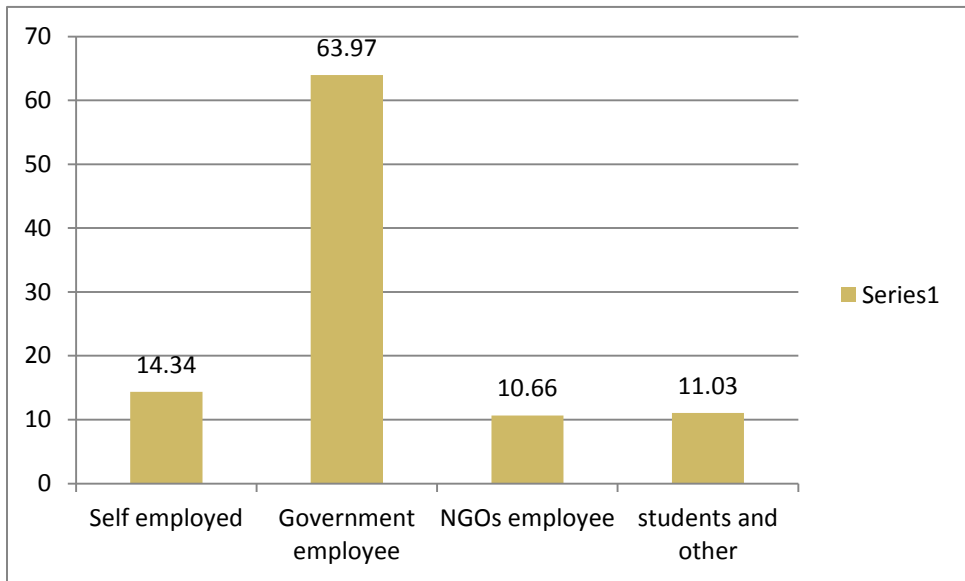
Figure 4.2.4 Income level of sample customers



Source: STAT result (2016)

With observed to occupation in below graph 4.2.5 indicates that 14.34% are self-employed 63.97% of the respondents were governmental employee and out of the total respondents 10.66% are NGOs employees the rest 11.03% are students and others this indicated that government employees have the higher exposure to electronic banking.

Figure 4.2.5 Occupation back ground descriptive analysis

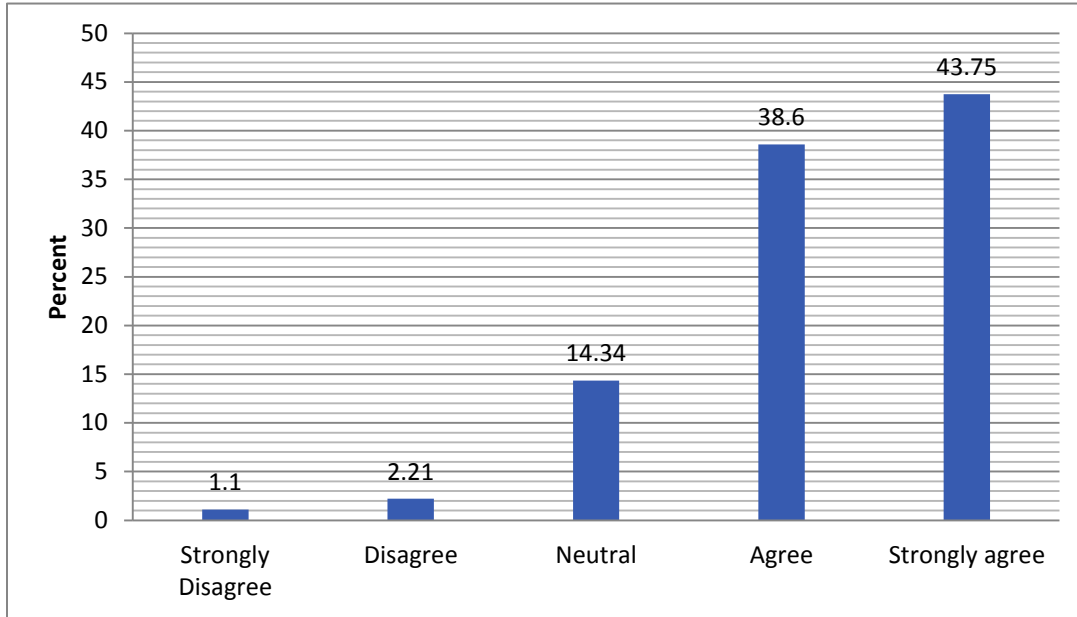


Source: STAT result (2016)

Concerning the adoption of e-banking the dependent variable whether customers are willing to accept (adopting) e-banking service or not, questions were forwarded to respondents and the result was as followed below the adoption of e-banking is measured by the range agreement that the customers responded to the adoption level of e-banking. As indicated in below graph 4.2.6, adoptions of e-banking ranks from the options strongly agree to strongly disagree alternatives. The result as indicated below from the total respondents 3.31% response is in the range of strongly disagree and disagree, which means customers that have not any idea to accept and use e-banking service, respondents which choose agree and Strongly agree to adoption of electronic banking were 38.6% and 43.75%, respectively. Implies that, respondents believed that electronic banking which is an important, new innovative technology and those individuals have willingness to adoption e-banking. Whereas, 14.35% of the respondents are responds neutral in their idea, for adoption electronic banking. The below result indicated that most of the respondents believed to increase the electronic technology in the banking industry. An interview is made with the bank managers of commercial bank, Wegagen bank, Dashin bank, Awash Bank and Hibret Bank which had somehow similar results with that of customer's decision to accept e-banking and their willingness is wise and customers are strongly registering to have an account to adopt the technology.

To sum up the results of both questionnaires and interview implied that, the modern technology have the tendency to drive the paper work to electronic working circumstance, form the strong expansion of e-banking and customers have wise idea and willing to the adoption of e-banking.

Figure 4.2.6 adoption of electronic banking descriptive



Source STATA result of 2016

4.3 Descriptive analysis for variables

Table 4.3.1 Descriptive analysis for variables other than demographic characteristics

Variables	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
	CA		PB.		PR.		PS.	
Strongly Disagree	18.4	6.8	7.60	2.79	21.67	7.96	15.4	5.66
Disagree	36.3	13.4	13.00	4.78	47.17	17.34	32	11.76
Neutral	69.6	25.6	34.80	12.79	77.17	28.37	60.8	22.35
Agree	90	33.1	84.40	31.03	79.67	29.29	94.8	34.85
Strongly agree	57.7	21.2	132.20	48.60	46.33	17.04	69	25.37
Total	272	100	272	100	272	100	272	100
Mean	3.49		4.18		3.30		3.63	

CA- customer awareness

PB- perceived benefit

PK- perceived risk

PS- perceived security

Variables	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
	LFII		OF		PU		PEOU	
Strongly Disagree	22.5	8.27	23.4	8.6	3.5	1.29	11.4	4.19
Disagree	35.33	12.99	42.2	15.51	13.33	4.9	15.4	5.66
Neutral	75.83	27.88	84	30.88	49	18.01	55.6	20.44
Agree	86.5	31.8	80.8	29.71	94.67	34.81	98.8	36.32
Strongly agree	51.83	19.06	41.6	15.29	111.5	40.99	90.8	33.38
Total	272	100	272	100	272	100	272	100
Mean	3.43		3.28		4.09		3.89	

LFII-legal framework and information communication technology infrastructure

OF- organizational factors

PU-perceived usefulness

PEOU- perceive ease of use

Note: Strongly Disagree (has a point =1) Disagree (has a point=2) Neutral (has a point=3) Agree (has a point=4) Strongly agree (has a point =5)

Source STATA result of 2016

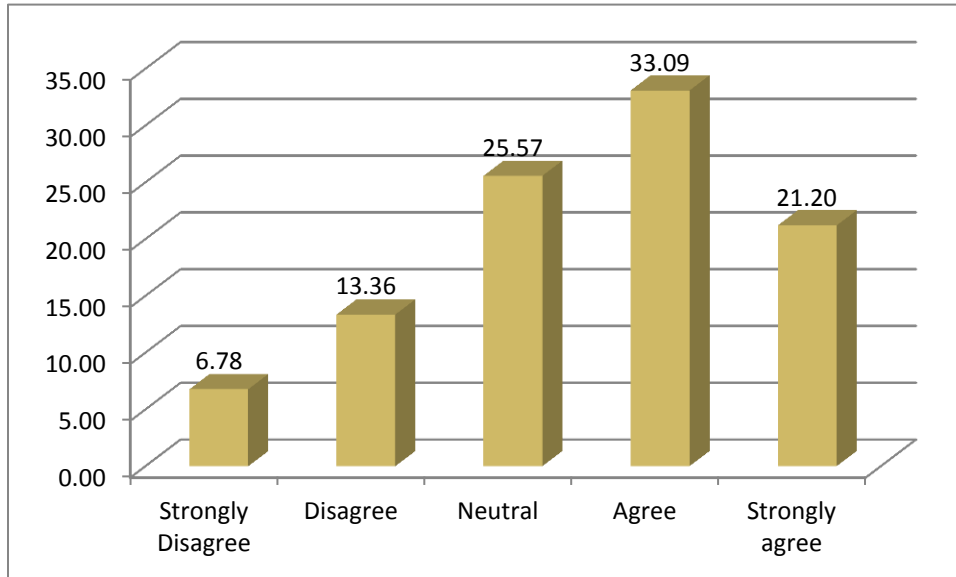
Customer awareness

Customer awareness helps customers knowledgeable to purchase a service or a product, which create awareness before they are ready to adopt a new product or service. Awareness is believed to have appositve serious factor to influencing customers not to adopt e-banking.

As shown in below graph 4.3.1, from the total respondents, 6.78% strongly disagree and 13.36% disagree respectively the respondents believe that, awareness influence the adoption e-banking and in oppose 33.09% & 21.20% of respondents agree and Strongly agree respectively who

believed that, customer awareness influence the adoption e-banking. On the other hand significant numbers 25.57% of respondent have neutral concerning customer awareness, that influence customers adoption of e-banking with mean score of 3.49. Implies that according to Kessuwan and Muenjohn (2010) moderately influence adoption of e-banking.

Figure 4.3.1 Customer Awareness



Source STATA result of 2016

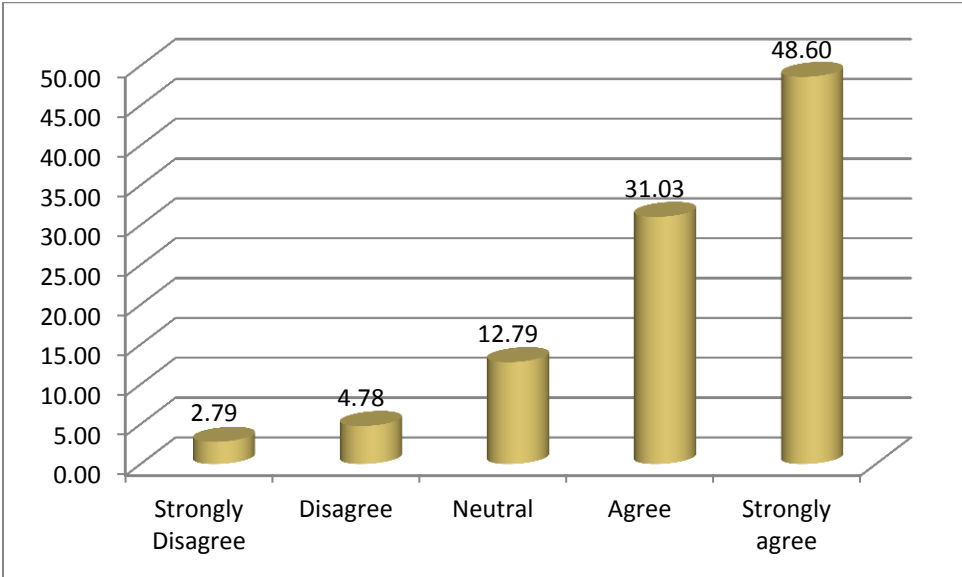
Perceived benefit

Perceived benefit from the adoption e-banking, assists for the banking industry as well as, for the consumers that includes saving operational cost or efficiency, improves banking industry operation activities and results over all organizational profitability. On the customer’s point of view as well they gain satisfaction from the bank’s improved service such as time saving, home or office based service without visiting the bank so as to fulfill customer service needs and convenience.

Related to this, questionnaires forwarded to respondents, out of the response, as indicated in the graph 4.3.2 below among the total, 31.03% and 48.60% of most significant respondents, agree and strongly agree respectively. Thus individuals believe that perceived benefit influence customers to adopt e-banking and those services that make possible bank industry, from the implementation of e-banking gained organizational profitability and improved banking activities more quickly, easily and timely.

Those respondents as well believe that influence for adoption of e-banking technology benefit's both the customers and banks it helps the bank industry to reduce the daily operating cost services that enhance competitive position in the market. This is gained from the adoption of e-banking in the delivery of service to customers, and customers benefit satisfaction from the improved service. On the other hand 12.79% of respondents are neutral for the benefits of e-banking for banks as well to customers. 2.79% and 4.78% respondents strongly disagree and disagree respectively which means, thus individuals did not have the intention of e-banking ,so as to benefit's banking industry in addition to customers from the adoption of e-banking, that have the aggregated highest mean score of 4.18. Implies that according to Kessuwan and Muenjohn (2010) significantly influence adoption of e-banking.

Figure 4.3.2 Perceived benefit



Source STATA result of 2016

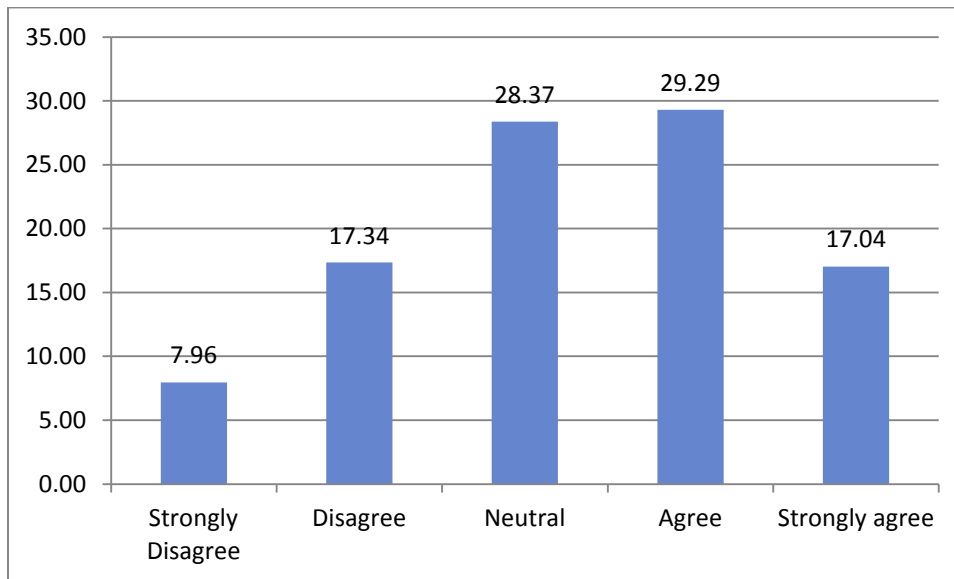
Perceived risk

Perceived risk means the provisions of the customer's larger perception of risk that may reduce the perceived benefit of the technology from the realization, or the uncertainty of negative happening from the present of the e-banking technology, results the lower the perception of risks

involved in using e-banking the more possible an individual would be ready to use the electronic technology in the banking industry.

As far as concerned to perceived risk, questionnaires advanced, out of them 29.29% of respondents agree and 17.04% of respondents strongly agree that perceived risk influence customers for the adoption of electronic banking negatively. 7.96% of respondents strongly disagree in addition 17.34% significant respondents disagree with the purpose, perceived risk influence customers for the adoption of e-banking. Furthermore, 28.37% of significant respondents are neutral with the intention of perceived risk to influence customers for adoption of electronic banking, which have an aggregated mean score of 3.30 rates. Implies that according to Kessuwan and Muenjohn (2010) moderately influence adoption of e-banking.

Figure 4.3.3 Perceived risk



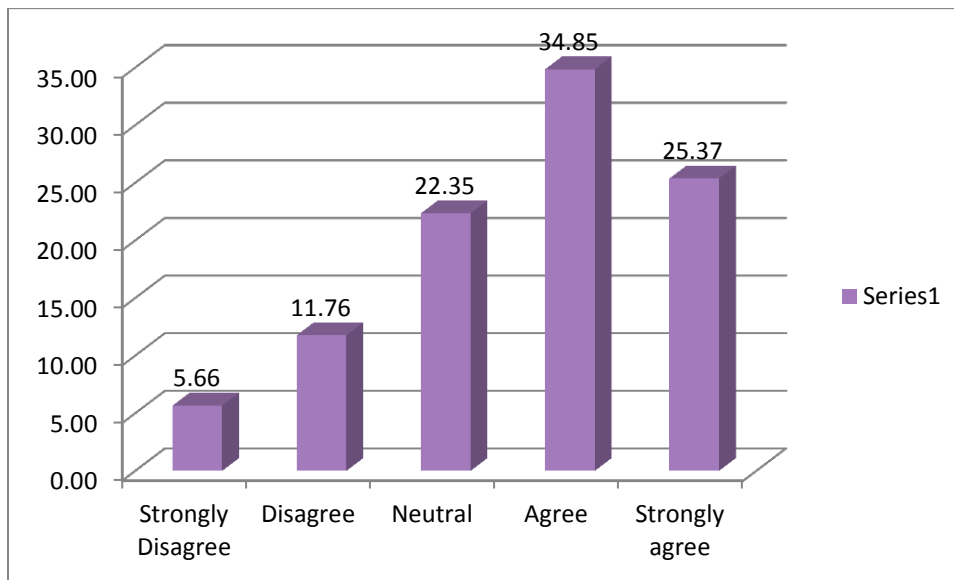
Source STATA result of 2016

Perceived security

Perceived security is one of the very important factors in determining the decision of consumers to use e-banking, reliability, safety, fraud, and personal information. Consumers’ emphasized about security that inhibit the adoption e-banking. As demonstrate in below graph 4.3.4, that 34.85% and 25.37% of respondents are with ranges agree and strongly agree respectively. Thus, individuals believe that security perception influences customers to accept or adopt the e-banking

technology. In oppose 5.66% of respondents strongly disagree that security radically to influence of e-banking for adoption of electronic banking. Moreover 11.76% of the respondents disagree; similarly their concern didn't influence the e-banking by security perception. Significant number 22.35% of respondents are neutral that security influence customers for the adoption of electronic banking, with the aggregated mean score of 3.63 rates. This implies that perceived security have the probability of affecting adoption of e-banking significantly. This also, implies that according to Kessuwan and Muenjohn (2010) significantly influence adoption of e-banking.

Figure 4.3.4 Perceived security



Source STATA result of 2016

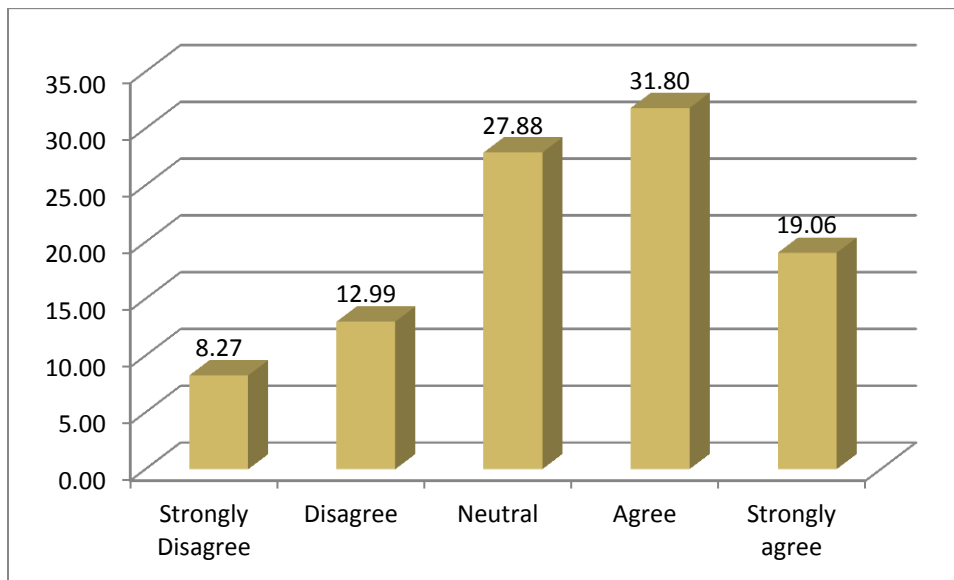
Legal framework and ICT infrastructure

An availability legal framework and ICT infrastructure is importantly support customers and banks for effective telecommunication infrastructure, on the availability of uninterrupted network, accessibility of internet and extranet to adopt e-banking in advanced technology. Without government sufficient support and protection of telecommunication infrastructure, banks and customers cannot adopt advanced technology like electronic banking. Thus, government should apply regulations to protect banks and customers from unexpected events.

As demonstrate on the graph 4.3.5 below the result shown 31.80% of respondents agree with legal framework and infrastructure that influences customer adoption of electronic banking significantly and 19.06% of respondents range strongly agree that most significantly influence

customers' adoption of e-banking. In oppose 8.27% and 12.99% of respondents strongly disagree and disagree respectively, that respondent's intention towards legal framework support and infrastructure had no influence customers to adoption of e-banking. 27.88% of major respondents were neutral level of their intention; we can say that, legal framework and infrastructure conditions of influence customers to adoption of e-banking had a medium meaning, which have the aggregated mean score of 3.43 rates. Farther more according to Kessuwan and Muenjohn (2010) moderately influence adoption of e-banking.

Figure 4.3.5 Legal framework and ICT infrastructure



Source STATA result of 2016

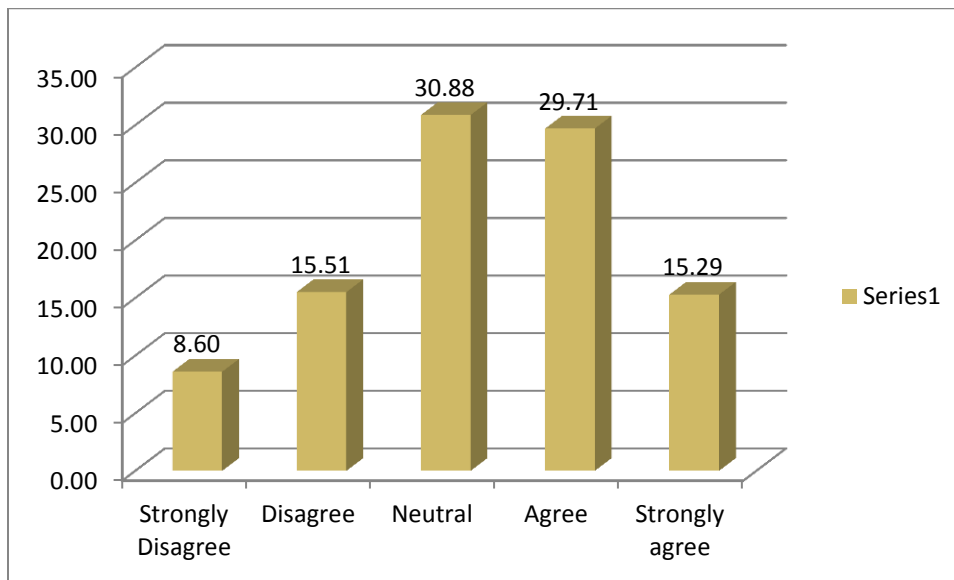
Organizational factor

Organizational factor is concern to the bank's industry human resources character, on their ability, government support, mandatory skills and expertise to obtain, that the well operates of e-banking services, influence to adopt and use of e-banking technology innovation.

Related questionnaire forwarded to respondents as illustrated in below graph 4.3.6, 8.60% and 15.51% of the respondents responded strongly disagree and disagree respectively that believes the organizational human resource ability, skill, management support did not influence customers to adoption e-banking in significant. Moreover 30.88% of respondents responded neutral for organizational factor and 29.71% of respondents agree with the bank's industry human resource ability, required skill, and management support influence the customers to adoption e-banking.

Likewise 15.29% of respondents shown that strongly agree human resources capability, ability, required skill, and management support influence customers to adoption of e-banking. That has the aggregated mean score of 3.28 rates. This result implies that, according to Kessuwan and Muenjohn (2010) moderately influence adoption of e-banking.

Figure 4.3.6 Organizational factor



Source STATA result of 2016

Perceived usefulness

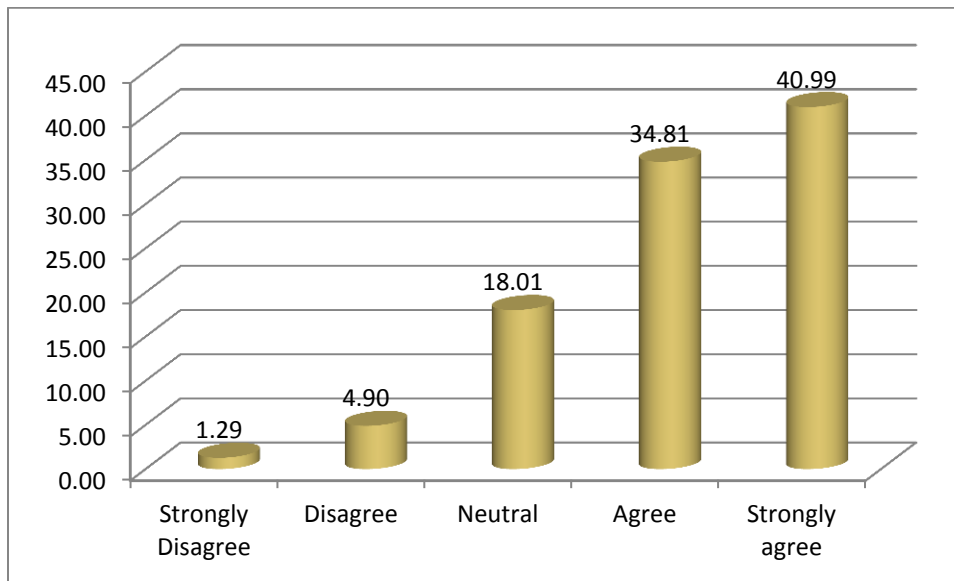
Perceived usefulness is one of the most cited theoretical frameworks to predict the acceptance of new information technology within organizations. It was defined as the degree to which individuals believe that using a particular system would enhance their job performance (Davis, 1989).

As stated briefly in the graph 4.3.7 below, that out of the respondents 40.99% and 34.81% responds strongly agree and agree respectively that using the electronic banking technology improves the performance of individuals, to operate organizational functions, like customer service, speed, efficiency, time saving and convenient to customers.

Farther more using e-banking technology performs in a simple way of transaction at lower cost and the technology helps for competitive position in the market. Thus, respondents believed that perceived usefulness significantly influence customers to adoption of e-banking positively from the creativity of effective performance. 1.29% and 4.90% of respondents strongly disagree and

disagree respectively the technology that improves of performance. Important number 18.01% of respondents are neutral for the perceived usefulness of the e-banking technology that enhance their job performance, which have aggregated mean score of 4.09 rates. Likewise implies that, significantly influence adoption of e-banking, according to Kessuwan and Muenjohn (2010)

Figure4.3.7 Perceived usefulness



Source STATA result of 2016

Perceived ease of use

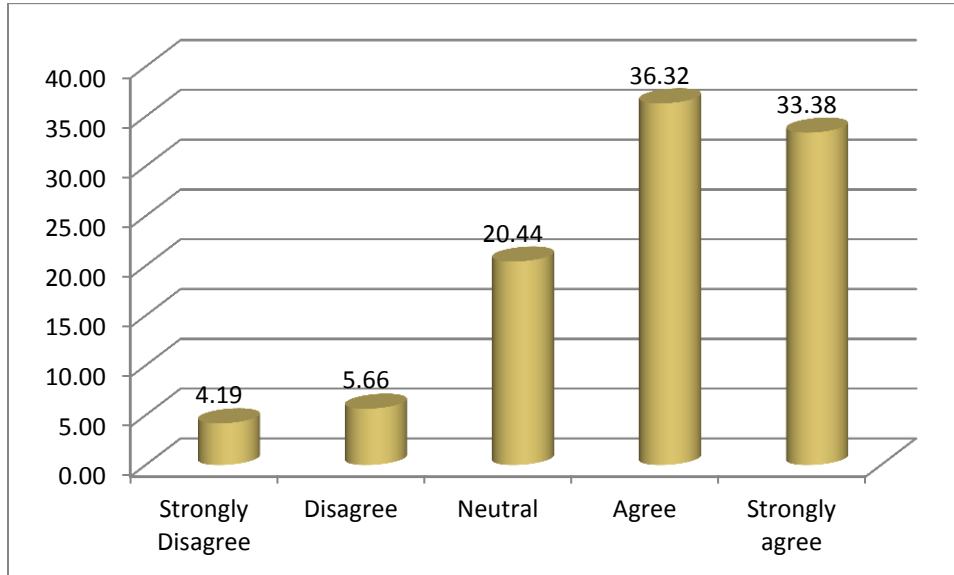
Perceived ease of use as well introduced by Davis (1985) and defined the degree to which individuals believe that using a particular system would require no effort.

As indicated in graph below 4.3.8, 33.38% of respondents, responded strongly agree that perceived ease of use, most significantly influence customer adoption of electronic banking. Besides that using particular technology required not intellectual and physical efforts like paper work, and 36.32% of respondents agree that ease of use influence the customer adoption of e-banking, which requires effortless to operate the e-banking transactions and services.

Among the respondents 20.44% of significant numbers think neutral, on ease of use to influence customer adoption of e-banking. As-far-as concerned to perceived ease of use, respondents of 4.19% responded strongly disagree ease of use influence customers adoption of e-banking. Moreover 5.66% of respondents' acts in response disagree; ease of use influence customers for adoption of e-banking, which have aggregated mean score of 3.89 rates. As far as perceived ease

of use is concerned, significantly influence adoption of e-banking, according to Kessuwan and Muenjohn (2010).

Figure 4.3.8 Perceived ease of use



Source STATA result of 2016

4.4 Correlation analysis

The correlation coefficient represents the linear relationship between two or more variables. Correlation coefficients should range from -1 to +1. The value of -1 represents a perfect negative correlation while a value of +1 represents a perfect positive correlation. A value of 0 represents a lack of correlation. Therefore coefficient of the correlation matrix is the basic measurement to the degree of linear relationship between the dependent variable and independent variable. The full information about the individual relationship variables is illustrated in table below.

The table 4.4.1 below of the correlation matrix shows both the correlation coefficient and the significant level of all variables stated there (adoption of e-banking (ADOEB)) with independent variables. In this table all p-values of the variables are listed in star on their coefficient value.

Table 4.4.1 correlation between dependent variable and independent variables

	ADOEB	G	A	OCC2	OCC3	OCC4	LE2	LIN3	LIN4	LIN5	LIN6	LE2	LE3	LE5	CA	PB	PK	PS	LFII	OF	PU	PEOU
ADOEB																						
G	0.0828	1.0000																				
	0.1733																					
A	-0.0410	-	1.0000																			
	0.5003	0.0001																				
OCC2	-0.0464	0.0243	0.0045	1.0000																		
	0.4461	0.6895	0.9412																			
OCC3	0.0612	-0.1486**	0.2461*	0.4603*	1.0000																	
	0.3146	0.0142	0.0000	0.0000																		
OCC4	0.1192**	0.0926	-	0.4692*	-0.1216**	1.0000																
	0.0496	0.1276	0.0000	0.0000	0.0450																	
LIN2	-0.0604	-0.0118	0.0044	0.1203**	-0.0687	0.1780*	1.0000															
	0.3206	0.8467	0.9427	0.0475	0.2591	0.0032																
LIN3	0.0303	-0.0709	0.1119***	0.0733	0.0611	-0.0570	0.3612*	1.0000														
	0.6189	0.2436	0.0654	0.2284	0.3152	0.3493	0.0000															
LIN4	-0.0321	-0.0798	0.1656*	-0.0747	0.3232*	-0.1070***	-	0.1979*	0.1686*	1.0000												
	0.5986	0.1896	0.0062	0.2196	0.0000	0.0781	0.0010	0.0053														
LIN5	0.0537	-0.1143***	0.2122*	0.0900	0.0149	-0.0381	-	0.1628*	-0.1387**	-	0.0760	1.0000										
	0.3779	0.0597	0.0004	0.1388	0.8069	0.5311	0.0071	0.0222	0.2116													
LIN6	-0.0425	0.0168	0.0333	0.0457	0.0414	-0.0482	-0.0891	-0.0759	0.0416	0.0342	1.0000											
	0.4854	0.7832	0.5849	0.4530	0.4965	0.4287	0.1427	0.2121	0.4946	0.5743												
LE2	0.0506	0.1021***	0.0439	-0.0910	-0.0892	0.0061	-0.1017***	-0.1432**	-	0.0239	0.0645	0.0353	1.0000									
	0.4061	0.0930	0.4707	0.1346	0.1423	0.9207	0.0941	0.0181	0.6950	0.2888	0.5618											
LE3	-0.0463	-0.0009	0.0904	0.0177	-0.0547	-0.1228**	0.0414	-0.0789	0.0617	0.0674	0.0142	-0.1134***	1.0000									
	0.4466	0.9878	0.1371	0.7709	0.3688	0.0430	0.4964	0.1944	0.3103	0.2680	0.8155	0.0617										
LE5	0.1483**	-0.1001***	0.0870	0.0822	0.0723	-	0.1044*	-0.1342**	0.2487*	0.1037***	-	0.0978	0.0406	-0.0766	-	0.1303**	1.0000					

As indicated in table above, the correlation of adoption e-banking and perceived benefit is found to be positive and significant at one percent. This indicates as the adoption of e-banking would improve in line with an increased the perceived benefit of adoption.

Customer awareness, perceived security, perceived usefulness, perceived ease of use and perceived risk variables are also positively correlated with adoption of e-banking. The correlation matrix clearly indicates that occupation and education level was related positively at 5% significant level with adoption of electronic banking.

On the other hand correlation matrix to adoption e-banking age, income level and gender were correlated with adoption e-banking but weak association. Moreover, organizational factor negatively associated with e-banking. What is more legal framework and ICT infrastructure was positively, correlated with adoption of e-banking.

Correlation matrix analysis

Table 4.4.2 correlation between demographic characteristics and Adoption of e-banking

Demographic characteristics	Correlation coefficient (r)	p-value
Gender	0.0828	0.1733
Age	-0.0410	0.5003
Government employee	-0.0464	0.4461
NGOs employee	0.0612	0.3146
students and other	0.1192**	0.0496
Secondary and/or Certificate holders	0.0506	0.4061
Diploma holder	-0.0463	0.4466
Master's degree and above holder	0.1483**	0.0144
Between 3001-5000	-0.0604	0.3206
Between 5001-7000	0.0303	0.6189
Between 7001-10000	-0.0321	0.5986
Between 10000-15,000	0.0537	0.3779
Above 15000	-0.0425	0.4854

Source; STATA result 2016

From the above result, there is relationship between students group from occupation variable and adoption e-banking that positively correlated at 5% significant level, in addition educational level also correlated positively with adoption e-banking at 5% significant level. However ages, gender and income level have relationship with adoption of electronic banking but weak association.

Table 4.4.3 Correlation among customer awareness and adoption of e-banking

Customer Awareness (CA)	Correlation coefficient (r)	p-value
	0.2688*	0.0000

Source; STATA result 2016

The result indicates that, customer awareness is positively related with adoption of e-banking, with 1% significant level ($p < 0.01$). This result consistent other empirical studies Sathye (1999), Rogers and Shoemaker (1971), and Tiamaru C., (2013) and Abubakar, et al.,(2012). That customer awareness has relationship with adoption of e-banking.

Table 4.4.4 Correlation among perceived benefit and adoption of e-banking

Perceived benefit(PB)	Correlation coefficient (r)	p-value
	0.3782*	0.0000

Source; STATA result 2016

As shown in the table 4.4.4 above, perceived benefit is correlated positively with adoption of e-banking ($p < 0.01$) at 1% significant level. This result is consistent with other empirical studies conducted by Dwumfuo, G. and Dankwah, B. (2013), Mohammed, A. (2014) that perceived benefit has direct relationship with adoption of e-banking.

Table 4.4.5 Correlation among perceived risk and adoption of e-banking

Perceived risk	Correlation coefficient (r)	p-value
	0.1782*	0.0032

Source; STATA result 2016

As shown in the table 4.4.5 above, that perceived risk is related positively with adoption of e-banking ($p < 0.1$) or at 1% significant level. This result as well, consistent with other researches Al-Smadi M.,

(2012) and Nasri, W. (2011) their results revealed a positive and significant impact of perceived risk on the customers' attitudes to use electronic banking services in Saudi Arabia and Tunisia respectively

Table 4.4.6 Correlation between perceived security and adoption of e-banking

Perceived security	Correlation coefficient (r)	p-value
	0.3575*	0.0000

Source; STATA result 2016

As indicated in the table 4.4.6 above, that perceived security is positively and significantly correlated with adoption of e-banking ($p < 0.01$) or at 1% significant level. This result as well, consistent with other researches (Daniel, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Cox and Dale, 2001, Polatoglu and Ekin, 2001, Black et al., 2002, Giglio, 2002; Howcroft et al., 2002) (Kaynak and Harcar, 2005; Liao and Wong, 2007; Altintas and Gürsakal, 2007; and Laforet and Li, 2005). Liao and Cheung (2002), Sathye (1999) and Nasri, W. (2011), there is positive and significant relation between perceived security with adoption electronic banking services.

Table 4.4.7 Correlation between Legal framework and ICT infrastructure and adoption of e-banking

Legal framework and ICT infrastructure	Correlation coefficient (r)	p-value
	0.0988	0.1040

Source; STATA result 2016

As indicated in the table 4.4.7 above, that Legal framework and ICT infrastructure (LFII) is positively correlated with adoption of e-banking ($p > 0.1$). As indicated in table 4.4.1 above (LFII) have a relationship with perceived benefit ($p = 0.0004$ $r = 0.2133$), $p < 0.01$, the effect had shown that, there is at 1% significant level relationship between, (LFII) and (PB). Furthermore (LFII) also correlated with (CA) ($r = 0.1400$, $p = 0.0209$) and PS ($r = 0.1437$, $p = 0.0177$) at 10% significant level but insignificant directly with adoption of e-banking ($p > 0.1$) indicated in the table 4.4.7 above.

Table 4.4.8 Correlation between organizational factor and adoption of e-banking

organizational factor (OF)	Correlation coefficient (r)	p-value
	-0.0574	0.3453

Source; STATA result 2016

With regarded to organizational factor (OF) in the table 4.4.8 above that, there is negatively correlated with adoption of e-banking ($p > 0.1$). Furthermore as shown in table 4.4.1(OF) correlate with (PK), (PU) and (LFI) ($p = 0.0002$, $r = 0.2242$) ($p < 0.1$), ($p = 0.2478$, $p = 0.0000$) and ($p = 0.0000$, $r = 0.2646$) respectively at significant level. Its level of significant have all at 1% rate of significant, in addition correlated with PB ($r = 0.1232$, $p = 0.0423$) with 5% significant level. But (OF) not have direct significant relation with adoption e-banking.

Table 4.4.9 Correlation between perceived usefulness and adoption of e-banking

perceived usefulness (PU)	Correlation coefficient (r)	p-value
	0.2240*	0.0002

Source; STATA result 2016

The table 4.4.9 above indicated that, perceived usefulness (PU) have a positively correlation with adoption of e-banking and ($p < 0.01$). The effect had shown that, there is significant relationship between (PU) and adoption of electronic banking which is at 1% significant level. The research is consistent with, (Yitbarek. T. and Zeleke. S. 2013, Hussein N., (2012), Pfeffer, 1982; Vroom, 1964, Pikkarainen et al., 2004, Alsabbagh & Molla ., 2004 and Dehbini et al., (2015) that usefulness was found to have a positive and direct influence on e-banking adoption.

Table 4.4.10 Correlation between perceived ease of use and adoption of e-banking

perceived ease of use (PEOU)	Correlation coefficient (r)	p-value
	0.1716*	0.0045

Source; STATA result 2016

The table 4.4.10 above indicated, that positively and significantly had correlated between adoption of e-banking and perceived ease of use ($p < 0.01$), means at 1% significant level. Furthermore consistent with other empirical studies conducted by Odumeru J.,(2012),Yitbarek T. and Zeleke S. (2013), Dehbini et al., (2015) and Kamau et al., (2012) shown that, perceived ease of use, positively and significantly determine acceptance of e-banking.

4.5 Results of econometrics regression analysis

To show the detailed parametric relationship and the factors which have a significant influence on adoption of electronic banking an order probit regression model has been utilized. Nine independent variables were identified and the estimation was made to determine to the degree of influence of these

variables on the dependent variable (adoption of electronic banking). The independent variables include demographic characteristics, customer awareness, perceived benefit, perceived security, perceived risk, legal framework and ICT infrastructure, organizational factor, perceived usefulness and perceived ease of use. The ordered probit regression model was used to test the research hypothesis. Summary result of the regression: the factor that influence customers, adoption of e-banking, identified by using P-value of the ordered probit regression model that if the p-value of the model is less than or equal to 1%, it has a significant relationship between dependent variable (adoption of e-banking) and independent variables with a significant level of 1% , if the p-value is greater than 1% and less than or equal to 5% the factor is significantly influence customers, adoption of e-banking at 5% significant level, if the variable is greater than 5% and less than or equal to 10% the factor significantly affects customers, adoption of e-banking at 10% significant level, based on this influential factors hypothesis test had supported but if the p-value is greater than 10% the variable is insignificant to influence adoption of electronic banking or it has not relationship between dependent variable and independent variables significantly to influence adoption of e-banking, the hypothesis test of the variable had rejected .

The coefficient of ordered probit regression result has also shown that direction of relationship between adoption of electronic banking and independent variables. Accordingly a coefficient with a negative sign coefficient has shown that opposite direction between adoption of electronic banking and the independent variables, meaning, the chance of increase in the independent variables coefficient value, if the dependent variable decreases. A positive coefficient sign of independent variables shown that, the independent variable and dependent variables are goes with the some direction, meaning, if the dependent variable increases the independent variables increases by the value of the coefficient.

4.5.1 Summary of Hypotheses Testing

In this study ordered probit regression was used to test the research hypotheses. The table below shows the summarized results of the hypotheses tested.

Table 4.5.2 Ordered probit regression result

Iteration 0:	log likelihood	=	-340.8426			
Iteration 1:	log likelihood	=	-293.0074			
Iteration 2:	log likelihood	=	-292.67232			
Iteration 3:	log likelihood	=	-292.67225			
Iteration 4:	log likelihood	=	-292.67225			
Ordered probit regression						
				Number of obs	=	272
				LR chi2(21)	=	96.34
				Prob > chi2	=	0.0000
Log likelihood	-292.67225			Pseudo R2	=	0.1413
ADOEB	Coef.	Std. Err.	Z	P>z	[95% Conf.	Interval]
G	0.1180532	0.15695	0.75	0.452	-0.1895714	0.42568
A	-0.0038005	0.01352	-0.28	0.779	-0.0303049	0.0227
OC2	0.1896482	0.20822	0.91	0.362	-0.2184547	0.59775
OC3	0.7095021	0.30956	2.29	0.022	0.1027831	1.31622
OC4	0.7159043	0.30689	2.33	0.020	0.1144119	1.3174
LE2	0.34072	0.32548	1.05	0.295	-0.2972038	0.97864
LE3	-0.2094945	0.19718	-1.06	0.288	-0.5959685	0.17698
LE5	0.8014405	0.29818	2.69	0.007	0.2170134	1.38587
LIN2	-0.2348986	0.19696	-1.19	0.233	-0.6209386	0.15114
LIN3	-0.2931214	0.22372	-1.31	0.190	-0.7316127	0.14537
LIN4	-0.4910495	0.30792	-1.59	0.111	-1.094558	0.11246
LIN5	-0.0353627	0.36489	-0.1	0.923	-0.7505436	0.67982
LIN6	-0.1966897	0.52097	-0.38	0.706	-1.21777	0.82439
CA	0.4789799	0.18502	2.59	0.010	0.1163541	0.84161
PB	0.8736437	0.25725	3.4	0.001	0.3694472	1.37784
PR	0.3051927	0.1564	1.95	0.051	-0.0013509	0.61174
PS	0.7132379	0.17706	4.03	0.000	0.3662076	1.06027
LFII	0.0692148	0.16957	0.41	0.683	-0.26313	0.40156
OF	-0.4367863	0.16047	-2.72	0.006	-0.751293	-0.1223

PU	-0.1766641	0.27835	-0.63	0.526	-0.7222255	0.3689
PEOU	0.5618677	0.26582	2.11	0.035	0.0408661	1.08287
/cut1	-0.5339314	0.56516			-1.641624	0.57376
/cut2	0.2677386	0.54579			-0.8019854	1.33746
/cut3	1.204178	0.55327			0.1197929	2.28856
/cut4	2.387138	0.56386			1.281985	3.49229

Note *, ** and *** are the level of significant at 1%, 5% and 10% respectively.

Source: Ordered probit STATA regression result, 2016

4.5.1.1 Demographic characteristics

As indicated on the above table 4.5.1 from demographic variables that occupation is positively influencing, customer adoption of e-banking significantly ($P=0.022$, $P=0.020$) which ($p<0.05$). This result is consistent with previous studies conducted by many researchers Karjaluoto et al., (2002), Mattila et al., 2003, Al-Ashban and Burney (2001), Stavins (2001) and Sathye, (1999). Nasri, W. (2011) indicated that, instruction (education) and occupation are having significant relationships with the usage of internet banking. On the other hand inconsistent with findings of other studies stated by Dehbini et al., (2015). The result shown that, occupation (employment) did not significantly influenced customers for adoption of e-banking.

As point out in the above table that, level of education had positively significant effect on customer's adoption of electronic banking ($p=0.007$) $P<0.01$. This fact that more educated a person is the higher will be his/her degree of acceptance of electronic banking. Likewise the result was consistent with Edwin A., Okpara A., Ochia I., and Mike A., (2014) findings, which indicated the study found that consumers' level of education and ICT knowledge impacts their acceptance of e-banking services. Donnelly (1970); Lee (2000) in their research concluded that, age, income and education have a direct impact on technology adoption. Moreover Nasri, W. (2011) indicated that, instruction (education) and occupation are having significant relationships with the usage of internet banking. This result is also inconsistent with Dehbini et al., (2015) findings of their research shown that age, gender, education, employment and marital status did not significantly related to electronic payment card acceptance.

Gender as shown in the above table does not influence customers for adoption of electronic banking significantly ($p=0.452$) which was $p>0.1$. This result also consistent with the study of Nasri, W. (2011) indicated that gender has not significant relationship with customer adoption of e-banking. In

addition in consistent with findings of Dehbini et al., (2015) as well clearly stated that empirical findings of the research showed that age, gender, education, employment (occupation) and marital status did not significantly related to electronic payment card acceptance. Kamau et al., (2012) study also gender did not correlate with e-banking, meaning males and females perceived characteristics of internet banking in a similar way in Kenya. Similarly Donnelly (1970); Lee (2000) in their research concluded that gender has not direct impact on technology adoption.

Age of customers in this research as shown in the table 4.5.2 above, age did not influence customers for adoption of e-banking ($p=0.779$) that is $p>0.1$, the result is consistent with previous studies conducted by Nasri, W. (2011) Dehbini et al., (2015). On the other hand, inconsistent with findings conducted by Kamau et al., (2012). The results shown that, the younger population are adopting and using internet banking more than the older generation. In addition, the younger generation has a higher exposure to internet use. Donnelly (1970); Lee (2000) in their research concluded that age, have a direct impact on technology adoption.

As indicated in the table 4.5.2 above, income level of customers did not significantly influence customers to adoption of e-banking $p=0.233, 0.190, 0.111, 0.923, 0.706$ to each level of income p -value of LIN2 LIN3 LIN4 LIN5 LIN6 respectively as shown in regression which was $p>0.1$. This study is inconsistent with (Du Plessis and Rousseau, 1999, p.274), stated that income is the most influential demographic variables affecting Internet usage. Typical internet banking users tend relatively high income earners. Farther inconsistent with Karjaluo (2002, p.360) It has been widely recognized that demographic factors have a great impact on consumer attitudes and behavior towards internet banking. Donnelly (1970); Lee (2000) results concluded that income has a direct impact on technology adoption. Tiamaru C., (2013) also empirically indicated that there is a significant relationship between income and customers adoption of electronic banking system. Based on the result, indicated in the regression analysis demographic characteristics, occupation and level of education influence customers for adoption e-banking. Hence, based on others researchers finding Hypothesis1 accepted.

4.5.1.2 Customer awareness

Customer awareness, in many research indicated that it is an important influential factor to customers for adoption of electronic banking. Similarly in this research as indicated above customer awareness had the effect positively influence customer adoption for electronic banking significantly with p -

value of ($p=0.010$) which means at 1% significant level. This outcome is similar with the study conducted by other researchers, Sathye (1999), Rogers and Shoemaker (1971), and Tiamaru C., (2013). Furthermore Abubakar, et al.,(2012) on their empirical research that awareness is the most important and security is seen as the least important and ease of use and reluctant to change are not important factors in influencing their adoption rate. And on the other hand, inconsistent with the study conducted by Hussein N., (2012) argued that awareness was found to have positive and not significant influence on internet banking adoption. Therefore, this result shown, an aware about the new technology, benefits and availability, adds value on the customer acceptance of the new innovation technology product, so because of such reasons e-banking is affected by customer awareness significantly to customer adoption of e-banking. Therefore **Hypothesis 2** is accepted

4.5.1.3 Perceived benefit (PB)

Many researchers, assert that perceived benefit have a significant role for the adoption e-banking, in comparable way, this study shown in the above table 4.5.2, perceived benefit positively influence adoption of e-banking significantly with ($p=0.001$) that is $p<0.01$. This result was also consistent with the studies conducted by (Lu *et al.* 2005; Kuan &Chau 2001 & Iacovou 1995), Gerrard and Cunningham (2003), (Gerson, 1998), (Oumlil and Williams, 2000) Howcroft *et al.*, (2002), and Basu and Muylle (2007). Influence to accept benefits of e-banking in accordance to savings on operational cost, improvement functionality, gain, efficiency, profitability and customer's satisfaction through improved services, improved banking experience. The result as well consistent with findings conducted by Odumeru J.,(2012), that clearly shown age, educational background, perceived benefits, perceived ease of use, income, experience from previous use, perceived risk, peer influence and perceived enjoyment all significantly determines acceptance of e-banking by customers in Nigeria. As well steady with Dwumfuo, G. and Dankwah, B. (2013), the study, it is clear that the benefits to the bank served as a motivating factor for it adopting the Internet banking product. Moreover consistent with Mohammed, A. (2014) the findings clearly indicated that, it is observed that perceived benefit as the most important effect on electronic banking in Ethiopia. That's why Hypothesis 3 is accepted

4.5.1.4 Perceived risk (PR)

To examine if perceived risk variables influence the customer adoption of e-banking using the order probit regression. The result shown that, perceived risk is a factor having positively significant relationships with the customer adoption of e-banking with ($p=0.051$), $p<0.1$ or at 10% significant level. This finding is consistent with the studies done by Al-Smadi M., (2012), the results revealed a positive and significant impact of perceived risk on the customers' attitudes to use electronic banking services in Saudi Arabia. Farther more Nasri, W. (2011) stated that on his/her results of regression equation based on the five independent variables (convenience, security, risk, prior internet knowledge and information online banking) indicate positive and statistically significant relationship with dependent variable of internet banking services adoption. (Bauer 1960; Hsi-Peng et al, 2005, Hsi-Peng et al, 2005 and Zhao et al. 2008 & Laforet 2005). Clearly stated that, risk perceive in terms of uncertainty and negative consequences, associated with consumer's actions. Odumeru J.,(2012) also perceived usefulness, perceived benefits, Age, educational background, income, perceived risk and perceived enjoyment as determinants of acceptance of e-banking. His data analysis had shown the existence of a significant positive relationship between the dependent and independent variables. On the other hand, consistent with the study conducted by Yitbarek T. and Zeleke S. (2013) but on their finding the relationship was negatively related risk to adoption of e-banking. The study clearly stated that perceived risk has negative relationship with intention to adopt e-banking services. In addition Hussein N., (2012) argued that Perceived risk has negative and not significant influence on internet banking adoption on his/her study. Moreover Kamau et al., (2012) risk was found not correlated with most of the research variables suggesting that risk had minimum influence on internet banking in Kenya, which was not perceived from the literature review. But in this result perceived risk had an effect significantly on customer adoption of electronic banking. Hence Hypothesis 4 is supported

4.5.1.5 Perceived security (PS)

Security is one concern of uncertainty of acceptance new e-banking technology and many researchers claim that perceived security influence customers for adoption of electronic banking. Similarly in this research (PS) positively influence e-banking significantly ($p=0.000$), $p<0.01$) indicates at 1% significant level. Several researchers show that perceived security plays an important role when bank customers decide to adopt internet banking services (Daniel, 1999; Hamlet and Strube, 2000; Tan and

Teo, 2000; Cox and Dale, 2001, Polatoglu and Ekin, 2001, Black et al., 2002, Giglio, 2002; Howcroft et al., 2002) (Kaynak and Harcar, 2005; Liao and Wong, 2007; Altintas and Gürsakal, 2007; and Laforet and Li, 2005). Liao and Cheung (2002) and Sathye (1999) show that the more secure the customer perceive internet banking to be, the more likely it is that customer will use internet banking. Nasri, W. (2011) study indicated that, among ‘early adopters’, convenience was a more important indicator of intentions to adopt internet banking. Risk, security and prior internet knowledge is also an important factor influencing customers adopting internet banking after convenience. Therefore H5 is accepted

4.5.1.6 Legal framework and ICT infrastructure

Researchers claim that ICT infrastructure has influence customers for adoption of e-banking but this result as shown in the above table 4.5.2 legal framework and ICT infrastructure was not a significant influential factor, for customer’s adoption of e-banking which had a p-value ($P=0.683$, $p>0.1$) which have above 10% significant rate. This study consists with Hussein et al., (2014) their results indicated that, the relationship between ICT readiness and intention towards internet banking service adoption was not supported in Yemen. This result also inconsistent with study conducted by (Efendioghu 2004 & Scupola 2003) that the findings shown on their study the national ICT infrastructure is a major factor that supports the adoption of e-banking as the case for other e-commerce initiatives. And the study stated by (Kuan 2001 & Iacovou 1995) that 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 (soft) with the community. In this finding, legal framework and ICT infrastructure is not the reason to influences customers to adoption of electronic banking in case of Addis Ababa city. Hence Hypothesis 6 is rejected

4.5.1.7 Organizational factors (OF)

Organization factor as shown in the table 4.5.2 above has significantly negatively influence customers, to adoption of e-banking ($p=0.006$, $p<0.01$) which is at 1% significant rate. This result consistent with previous studies conducted by Hussein et al., (2014) Cleary indicated that within the environmental factors, competitive, pressure from suppliers, supportive regulatory environment for legal protection and e-business supporting law, financial institution support, had a strong influence on intention towards internet banking services adoption among small and middle enterprise in Yemen. Also consistent with (Iacovou 1995 & Grover 1993), as clearly indicted, on their findings

from organizational factor, financial resources are an important factor in facilitating innovation adoption for any organization. Moreover related with (Kuan 2001 & Iacovou 1995), result shown, the availability of financial resources within the adopting firms is important for e-banking adoption. This result farther more consistent with Ayana, G. (2012) findings lack of technical and managerial skills to use and implement the system is considered as barrier for the adoption of e-banking in the Ethiopia. But inconsistent with Ayana, G. (2012) study, that in the case of organizational factor, financial cost as well as human resource is not considered, as barrier for the adoption of e-banking in Ethiopia. Hence hypothesis 7 is accepted

4.5.1.8 Perceived usefulness (PU)

As indicated in the table 4.5.2 above perceived usefulness is not significantly influence customer adoption of electronic banking ($p=0.526$, $p>0.1$) means that greater than 10% significant rate. This result is consistent with Pan et al., (2003) findings showed that usefulness of technology acceptance has not significant relationship among e-banking and perceived usefulness. And the result is contradicts with previous study conducted by many researchers Abdul K. (2013) The empirical results showed that the perceived convenience, perceived credibility, and perceived usefulness all have significant effects on behavioral intention to use internet banking. Al-Smadi M., (2012), study results that perceived usefulness and perceived ease of use has a positive and significant impact on customers' attitude toward electronic banking services. This also inconformity with previous empirical studies indicated by, Yitbarek. T. and Zeleke. S. (2013) The findings revealed that the seven factors included in the models (attitude, subjective norm, perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk were significant in affecting users' behavioral intention to use e-banking. Hussein N., (2012) Usefulness was found to have a positive and direct influence on internet banking adoption. (Pfeffer, 1982; Vroom, 1964, Pikkarainen et al., 2004 and Alsabbagh & Molla ., 2004) PU is related to users' perception of the degree to which using a system will be beneficial. Dehbini et al., (2015) Findings of this research showed that the usefulness has significant effect on the electronic payment card acceptance. Kamau et al., (2012) also evident conducted that perceived usefulness, perceived ease of use, perceived self-efficacy, perceived compatibility, perceived relative advantage and perceived results demonstrability are the key factors that influence internet banking adoption and continued usage in Kenya. Hence hypothesis 8 is rejected

4.5.1.9 Perceived ease of use

As shown in the above table 4.5.2 perceived ease of use has the effect for adoption of electronic banking significantly ($p=0.035$, $p<0.1$) implies that it is significant at 1% rate. This empirical finding is consistent with Al-Smadi M., (2012), study results that, perceived usefulness and perceived ease of use has a positive and significant impact on customers' attitude toward electronic banking services. This research outcome is in conformity with previous empirical studies conducted by Taeb (2009); Mashreghi (2011) Dahlberg and Orni (2007); Lee et al., (2003); Al-Gahtani (2001); Rose and Straub (1998); Baniyadi, Sharifi and Poor nabi, (2009) that perceived eases of use primary relevance for computer acceptance behavior. As clearly indicated by Odumeru J.,(2012)shown that, perceived ease of use, positively and significantly determine acceptance of e-banking by customers in Nigeria. Moreover, Yitbarek T. and Zeleke S. (2013) revealed that, the seven factors included in their models (attitude, subjective norm, perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk were significant in affecting users' behavioral intention to use e-banking. In addition on Dehbini et al., (2015) findings, the research showed that the ease of use has a significant effect on the electronic payment card acceptance. On Kamau et al., (2012) it is also evident that perceived ease of use, was the key factors that influence internet banking adoption in Kenya. On the other hand inconsistent with Abubakar, et al.,(2012), their empirical research indicated that, ease of use and reluctant to change are not important factors in influencing their adoption rate. Likewise the empirical result of Abdul K. (2013), perceived ease of use was not a significant factor in the intention to adopt internet banking. Consequently hypothesis 9 is accepted

Based on the above hypothesis testing the table 4.5.3 below was proposed

Table 4.5.3 hypothesis testing proposed

Hypothesis	Accepted	rejected
H1 Demographic characteristics have a positive effect of the use of e-banking	✓	
H2 Customer Awareness have a significant effect on the adoption of e-banking	✓	
H3 Perceived benefit have a significant effect on the adoption of e-banking	✓	
H4 Perceived risk significantly affects adoption of e-banking	✓	
H5 Perceived security have a significant effect on adoption of e-banking	✓	
H6 Legal framework and ICT infrastructure does not significantly affects adoption of e-banking		✓
H7 organizational factor have a significantly effect on the use adoption of e-banking	✓	
H8 perceived usefulness have not a significant effect on the adoption of e-banking		✓
H9 perceived ease of use have a significant effect on the adoption of e-banking	✓	

Source: developed by the researcher (2016)

4.5.2 Marginal effect after ordered probit regression

The ordered oprobit regression result, does not interprets its coefficient in terms of degree of effect, the dependent variable and independent variables. In this specification, the marginal effect of a change in a regression is not simply the coefficient, so interpretation of the coefficients is not

straightforward. In ordered probit model, the marginal effects for continuous independent variables are however, the sign may be either positive or negative. This makes interpretation of the coefficients complicated, and necessitates special calculations but the dependent variable was likert scale as it from strongly agree to strongly disagree (1-5) level. The technique on the independent variables that the level of respondent's probabilities of strongly agree and agree should sum to 1, and level of respondent's probabilities of strongly disagree, disagree and neutral marginal effects should sum to 0. For example, the marginal effect (0) thus tells us the estimated change in the probability of a respondent reporting that he is 'not too happy, when his adoption e-banking increases one unit. On the other hand, (1) which would mean that the respondent is more likely to report he is 'very happy' otherwise with an increase one unit in adoption of electronic banking. Be either positive or negative and depends on the relative shift in the densities. For dummy variables, the calculation is even more complicated since the variable is not continuous. In this case, we do not look at the marginal effect directly. Instead, we must look at the predicted probabilities for each realization of the dummy variable, the technique described by Greene (1997). Here below shown the marginal effect of significant variables that were identified by ordered probit regression.

Table,4. 5. 5. Marginal effect outcome

. mfx compute, predict (outcome(5))

Marginal effects after oprobit

y = Pr(adoptioneb==5) (predict, outcome(5))
 .= 0.39299017

variable	dy/dx	Std. Err.	Z	P>z	[95%	C.I.]	X
G	0.0455897	0.06085	0.75	0.454	-0.07368	0.164858	0.341912
A	-0.0014613	0.0052	-0.28	0.779	-0.01165	0.00873	28.75
OCC2	0.0722735	0.07853	0.92	0.357	-0.08165	0.226193	0.639706
OCC3	0.2772163	0.11571	2.4	0.017	0.050423	0.50401	0.106618
OCC4	0.2796134	0.11459	2.44	0.015	0.055017	0.50421	0.110294
LIN2	-0.0888777	0.07313	-1.22	0.224	-0.23221	0.054453	0.297794
LIN3	-0.1096797	0.08101	-1.35	0.176	-0.26845	0.049092	0.235294
LIN4	-0.1736054	0.09705	-1.79	0.074	-0.36382	0.016613	0.084559
LIN5	-0.0135373	0.13905	-0.1	0.922	-0.28606	0.258989	0.058824
LIN6	-0.073275	0.18684	-0.39	0.695	-0.43947	0.292922	0.018382

LE2	0.134272	0.12936	1.04	0.299	-0.11926	0.387806	0.0625
LE3	-0.078691	0.07207	-1.09	0.275	-0.21995	0.062571	0.161765
LE5	0.3107633	0.10724	2.9	0.004	0.100582	0.520945	0.080882
CA	0.174	0.06234	2.79	0.005	0.051813	0.296187	0.797794
PB	0.2828166	0.06401	4.42	0.000	0.157365	0.408268	0.893382
PK	0.1151599	0.05763	2	0.046	0.002214	0.228106	0.669118
PS	0.2525879	0.05616	4.5	0.000	0.142526	0.36265	0.753676
LFII	0.0264933	0.0646	0.41	0.682	-0.10011	0.1531	0.724265
OF	-0.1688614	0.06184	-2.73	0.006	-0.29006	-0.04766	0.621324
PU	-0.0689869	0.10996	-0.63	0.530	-0.28451	0.146539	0.900735
PEOU	0.1950057	0.0796	2.45	0.014	0.038984	0.351027	0.922794

(*) dy/dx is for discrete change of dummy variable from 0 to 1

In table 4.6 above the marginal effect after ordered probit regression in occupation variable that, NGOs employee 27.72% points more likely to strongly agree in adopting electronic banking to accept, if adoption of e-banking increase in one unit. Moreover, students also were 27.96% points more likely to strongly agree adoption of e-banking. As far as concerned to demographic characteristics, level of education had an effect on the adoption of e-banking (p=0.004) that masters degree and above holder are 31.078% points more likely to strongly agree adoption of e-banking, in the chance of a unit increase in adoption e-banking.

Customer awareness also had an effect on customer adoption, as shown in marginal effect regression outcome (5) that, P=0.005 and the coefficient indicated positively 17.4% points, more likely strongly agree to increase adoption e-banking, in possibility a unit increase in adoption of e-banking. Moreover perceived benefit indicated positive coefficient 28.28% points, that more likely strongly agree to accept e-banking at the rate, possibility a unit increase in ADOEB and (p=0.000).

With regards to perceived risk indicated that 11.52% points, have more likely strongly agree adoption of e-banking at the level of strongly agree, if likelihood a unit of adoption e-banking increase, (p=0.046). Likewise perceived security had a positive coefficient of 25.26% points, implies that more likely to acceptance of e-banking strongly agree in the improvement of probability a unit in adoption of e-banking (P=0.000).

As concerned to organizational factor which had a negative coefficient 16.89% point's decreased strongly agree chance adoption e-banking, if a unit increase in adoption of e-banking with the p-value of (p=0.006).

Perceived ease of use is 19.50 percentage points more likely strongly agree to adoption of e-banking, if chance of a unit increases in adoption of e-banking, with p-value of (p=0.014)

4.5.3 Test for Multicollinearity

Multicollinearity is an indication for a linear relationship between independent variables (Gujarathi, 2004). To test the existence or not-existence of multicollinearity problem, variable inflation factor (VIF) technique is employed. The variance inflation factor (VIF) is a measure of the reciprocal of the complement of the inter-correlation among the predictors: $VIF=1/(1-r^2)$ Where r^2 is the multiple correlations between the predictor and other predictors. A decision rule for multicollinearity test of the model states a variable whose VIF value are greater than 10 indicates the possible problem of multicollinearity. Tolerance, defined as $1/VIF$ is used by many researchers to check on the degree of co-linearity (Gujarathi, 2004).

Table 4.5.6 variable inflation factor

Variable	VIF	1/VIF
OCC2	2.23	0.447979
LIN3	1.94	0.514951
OCC3	1.91	0.524231
OCC4	1.84	0.544193
LIN2	1.77	0.564393
LIN4	1.6	0.624722
PU	1.57	0.637359
LIN5	1.47	0.682091
PB	1.43	0.697669
A	1.39	0.71838
PS	1.3	0.769263
LE2	1.25	0.802441
CA	1.23	0.812543
OF	1.22	0.821356
LFI	1.2	0.830996
LE5	1.18	0.845327
LE3	1.16	0.862194
PK	1.15	0.870971
G	1.15	0.871762
PEOU	1.14	0.875126
LIN6	1.13	0.888052

Mean VIF	1.44	
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Source: result of STATA regression 2016

From the above table it is clearly observed that all the VIF factors are below the tolerance level i.e. below 10.

LE4 had greater than 10 level of tolerance which had a problem of multicolliniarity then dropped from the list above. Therefore, now there is no problem of multicolliniarity.

CHAPTER FIVE

CONCLUSIONS AND RECOMMEDATIONS

This chapter includes the conclusion and recommendation of the results analyzed and discussed in the previous chapters, firstly the conclusion part were cover, secondly possible recommendation presented for the gaps addressed.

5.1 CONCLUSIONS

The primary objective of this researcher was to investigate the determinants affecting customer's intention to adopt electronic banking. The empirical result shows that the factors that influence customers to adopt electronic banking include, occupation, level of education, perceived benefit, perceived security, perceived risk, organizational factor and perceived ease of use, all with significant effects. The findings from the ordered probit regression analysis shows that from the demographic characteristics gender, age, and level of income, legal framework and ICT infrastructure have no significant effect to influence customers for adoption of electronic banking.

This implies that, customers among occupational classification have more important influence on the intention to adopt electronic banking. Gender and students most likely accept electronic banking than others. Education level groups are another variable that master degree and above holders had more influence on the adoption of e-banking. This implies that, the higher level of education have, higher probability of customers adoption of electronic banking.

Order probit regression analysis and the descriptive analysis shown that customer awareness has a positive and significant influence. This result is in conformity with previous empirical studies. The findings revealed that, makes customers knowledgeable to e-banking technology (mobile banking, internet banking, and post of sales terminal (POS)) benefits, accessibility, on promotion awareness before they are ready to adopt or making aware to effectively diversify the electronic banking technology (Sathye 1999), Rogers and Shoemaker (1971), and Tiamaru C., (2013).Abubakar, et al.,(2012),). Therefore the result of this study indicated that awareness has a positive influencing on e-banking adoption. This implies that, effective customer awareness about the e-banking perceived benefit product is, the higher will be acceptance of e-banking.

With regard to perceived benefit, towards customer's adoption of electronic banking, the ordered probit regression and descriptive analysis result show that, perceived benefit is positively most significant influential factor, of customer's adoption of electronic banking. Majority of customers believe that their decision of usage of e-banking have a benefit of effective delivery of service, time saving, reducing operating cost, complete banking activities more quickly and convenient as well as increases customer's satisfaction, so as to influence customers to accept the new technology. This result is in consistent with previous empirical studies in Nigeria, Saudi Arabia Tunisia and others Odumeru J.,(2012), Al-Smadi M., (2012), Nasri, W. (2011) Mohammed, A.(2014) Howcroft et al., (2002), (Kiang et al., 2000) Dwumfuo O., and Dankwah B., (2013), and Kamau et al., (2012) (Bauer 1960; Hsi-Peng et al, 2005, and Zhao et al. 2008 & Laforet 2005). In this research, perceived benefit is identified to be an influential factor that the more the perceived benefits of e-banking, the higher the rate of its customer acceptance of electronic banking.

On the other hand, perceived risk hinders customers to adopt electronic banking. The result of this finding shows that, adoption of electronic banking and perceived risk are positively related and statistically significant. This implies that majority customer's respondent's intention to electronic banking is influenced by perceived risks such as financial loss, resistance for new technology acceptance, errors, lack of trust and availability of the technology. This research also indicated that the higher the perceived risk happening of using an electronic banking, the lower will be its rate of acceptance. Thus successful uncertainty prevention features, will enhance customer acceptance of e-banking and the result was consistent with previous empirical studies Al-Smadi M., (2012) and Nasri, W. (2011).

Concerned to perceived security as shown in the data analysis, the ordered probit regression result and the descriptive as well indicated that after perceived benefit, perceived security was a major important factor that influences customers positively, to adoption of electronic banking. This involves that customers concerned to threat/fraud, personal information, detection, duplicate transaction, and customer's password threats, have the effect to customer intention, not to adopt electronic banking service. Its implication is, an Effective security attributes will enhance customer confidence and its rate of acceptance. This research was consistent with other researches (Daniel, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Cox and Dale, 2001, Polatoglu and Ekin, 2001, Black et al., 2002, Giglio, 2002; Howcroft et al., 2002, Kaynak and Harcar, 2005; Liao and Wong, 2007; Altintas and

Gürsakal, 2007; and Laforet and Li, 2005). Liao and Cheung (2002), Sathye (1999) and Nasri, W. (2011)

Legal framework and ICT infrastructure of electronic banking technology, in this ordered probit regression analysis result indicated that, there is not significant relationship with customer adoption for e-banking. This means the legal and government regulation, internet access, lack of computation between local and foreign banks, and sustainability of internet connection did not affect at significant rate customers, to adoption electronic banking.

With regards to organization factor, descriptive and regression result has an effect on adoption of e-banking at significant level. This implies the bank's managerial and technical skill, financial resource and government support for e-banking had affected customer's adoption of the new innovative technology. Concerning to this factor, an interview was made, with the bank managers of the five this banks had similar results, that a government support have more important issue on the electric power interruption and related network problems have. This implies that an effective managerial and technical skill and government support increases adoption e-banking but at decreasing rate, If there is highly adoption electronic banking, the need bank's managerial skill becomes limited because transactions and other activities are operated by customers themselves.

As far as perceived usefulness is concerned, the result indicates that, the relationship between adoption of electronic banking and perceived usefulness have not significant effect, to customer adoption of e-banking.

Perceived ease of use is one essential factor; the data analysis indicated that, there was an existence of a significant positive relationship between the perceived ease of use and adoption of electronic banking to influence customers. This implies that customers believed using the technology helps to perform banking task in an effortless approach, using mobile banking, ATM, internet banking and post of sale terminal (POS) technology advancement. This result is also consistent with other empirical studies

5.2 RECOMMEDATIONS

In this sub part, possible actions are recommended for the identified gaps. From this research the outcome was to improve the use of electronic technology in the banking industry service delivery and to have an acceptance towards customers. Moreover the recommendation benefits banks, so banks should give due attention to the following possible proposition.

✓ As far as demographic characteristic is concerned among occupation variables students and NGOs employees 'attitude and behavior are important factors towards adoption electronic banking at significant level. Provision effective service to the occupation group, enhance the adoption electronic banking. Moreover level of education groups also have an effect on the adoption e-banking significantly, so banks should give due attention on the higher education level to improve level of acceptance of e-banking effectively. Banks should focus on demographic characteristic and give an important concern and mechanism to provide quality electronic service to adopt the technology.

✓ Customer awareness and perceived benefits are essential factors for adoption electronic banking by customers; hence banks should obtain available information of e-banking system on time to customers to have an aware of the beneficial technology. If any new approach that had increased e-banking, and its perceived benefits, and importance of the system, as well as its security concern, banks should have been providing necessary guidelines, orientation/training on the role of e-banking technology and on how to use e-banking services. This all banks should perform and exercises fundamental techniques to improve the technology by creating awareness to customer's attitude towards perceived benefits. Awareness may create through the promotion of website viewed as users friendly for customers, advertising, SMS network, on monthly statement, or on mail and brochures. Creation of awareness to customer's intention has an implication, to electronic banking of increasing in customer adoption.

✓ With regard to perceived benefits, plays an important role to adoption of electronic banking that positively influences customers significantly, the higher the perceived benefit the higher customer adoption of electronic banking opportunity establishes. To this point banks should give appropriate attention to the opportunity of acceptance and announce the advantages to customers, towards the benefits of time saving, customer satisfaction rate, convenience, lower operational cost and effective banking transaction from the adoption of electronic banking. The benefits of electronic banking impose customers of adoption e-banking.

✓ Perceived security and perceived risk both hindered customers to adopt electronic banking. Hence banks should give more attention and build advanced strategies and policies to e-banking. Banks moreover performs concrete encryption, firewall, for interruption detection, regarding security and risk perception towards customer's threat/fraud and uncertainty. In addition bank managers should make effective orientation/training for customer's carelessness, of using passwords, incurring errors, wrongly transferring money to other accounts and other technical errors. Moreover

bank managers support customers how to handle and protect to the existing likely customers and maintain substantial answers to security systems and expected uncertainty risk. Besides banks create an awareness concerned on personal information security improvement, guarantee and safeguard for detect for unconditional loss and related advantages and also minimize customer reluctant for new innovative e-banking technology. An improved of security and risk of electronic banking technology services, boost customers accept for electronic banking.

✓ Organization factor has an effect on adoption of e-banking at significant level. This implies the bank's managerial and technical skill, financial resource and government support for e-banking had affected customer's adoption of the new innovative technology. So-far banks should build the capacity of managerial and technical skill of banks officials on e-banking. Likewise deeply collaborate with government sectors to get support on electric power and related network interruption problems.

✓ Perceived ease of use is a crucial factor that influencing customers of adoption electronic banking. Consequently banks should to insure that e-banking provides in a clear and uncomplicated approaches, easier to customers to perform banking transactions and task in a simple way on their own. In addition concerning to technical operation, banks should prepare guidelines, and orient/train customers in advance through promotion or other effective mechanisms.

Implications for further study

Further research will therefore be desirable in investigating influence of customer adoption of e-banking on customer perception towards subjective norm of customer behavior to use e-banking with customers' perspectives.

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Appendix

St. Mary's University
School of Graduate Studies
Department management

Post graduate study for General Master of Business Administration

A: Questionnaires

Dear Sir/Madam

My name is Zeray Kahsay Weldegeberal, I am student of General Master of business Administration (GMBA) in St. Mary's University. First of all I would like to forward my heartily gratitude for administering this questionnaire honestly and responsibly. The questionnaire is designed to identify the factors that influence consumers for adopting or dis-adopting e-banking services in the case of Addis Ababa. The study is likely to provide and understand the basic challenges and benefits of adopting new technology in delivering of service to customers in commercial bank of Ethiopia and private banks. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award. Your participation is considered as a great input to the quality of the research results. Hence, I believe that you will enlarge your assistance by contributing in the study. Your truthful and attentive response is significant.

Thank you in advance, yours sincerely,

Zeray Kahsay

GMBA student in St. Mary's University

December, 2016

General Instruction

This questionnaire contains two sections and 6 pages that will be expected to take approximately 15 to 20 minutes to complete. Please provide your responses to the questions based on the instructions under each section. If you have comments or if you want to provide further explanations, please use the space provided at the end of the questionnaire.

Section I: Demographic profile of respondents

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

1. Gender: Male Female

2. Age: _____

3. Educational level:

Primary school Secondary and/or Certificate

Diploma holder First degree holder

Master's degree and above holder

4. Occupation

Self employed

Government employee

NGOs employee

If students and other specify _____

5. Income States (in Eth. Birr): _____ (if possible)

- Less than 3000 per month
- Between 3001-5000
- Between 5001-7000
- Between 7001-10000
- Between 10000-15,000
- Above 15000

6. I am customer of _____ you can tick more than one.

- Commercial bank of Ethiopia
- Wegagen bank
- Dashin Bank
- Awash Bank
- Hibret bank

Section II: Questionnaires relate d with factors influencing of adopting E-banking system.

Instruction: Below are lists of statements being relevant to Adoption of E-banking. Please indicate whether you agree or disagree with each statement by ticking (√) on the spaces that specify your choice from the options that range from “strongly agree” to “strongly disagree”. Each choice will identify by numbers ranged from 1 to 5.

Note: SA- Strongly Agree, A- Agree, DA- Disagree, N- Neutral, SD- Strongly Disagree

The following are some factors that affect the banks official’s and customer’s faces when adopting E-banking system, please indicate level of your choice.		SA	A	N	D	SD
		1	2	3	4	5
	<u>Adoption of e-banking</u>					
1	Customers are willing to accept E-banking service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Customer Awareness</u>					
1	Bank’s website viewed for users friendly for customers overall (information available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Banks provide guidelines for customers that use of e-banking facility to have the awareness and to adopt for e-banking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Lack of awareness for technical skill to use on the operation of e-banking service provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The bank adopted (or plans to adopt) any new approach that had increased e-banking, customers on promotion for new user, one very monthly statement, or on mail out brochures to customers that do not use e-banking and others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Bank believe more customer training/customer education is needed in promoting e-banking services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	There is procedures for verifying of customer requests for changes to their accounts or customer information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Frequently does your bank update your services and websites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Banks provides necessary orientation/training on how to use e-banking services provided to customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9	Relatively using of Mobile to get banking service is not expensive for customers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Perceived benefits of e-banking</u>					
1	The benefits your bank gained from the adoption of ATM internet banking and mobile banking system in the delivery of service to customers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The bank believe that e-banking services will enhance competitive position in the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Banks believes That e-banking services have helped to reduce the daily operating cost and can benefits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Banks for e-banking such as, Internet banking, Mobile banking, ATM and POS services enables users to complete banking activities more quickly, easily and timely that can profit both as well.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Banks that provides the e-banking service increased the degree of customer satisfaction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Perceived risk to e-banking</u>					
1	Lack of trust by customers to new technology provided by banks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Lack of trust is considered as barriers for the adoption of E banking system in Addis Ababa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	In using e-banking at banks there is guarantee for financial loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Using e-banking, I was not confused and incurred errors feel of risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Customers have phobia for new innovation technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	E-banking is more expensive to provide by banks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Security</u>					
1	Bank employees don't have access to customer passwords	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Your bank believe that the customers' personal information security is better now than it was before	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Banks are secured from any threat/fraud using e-banking services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4	Safeguards in place to detect and prevent duplicate transactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Using e-banking service transactions are certainly operated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Infrastructure and legal framework</u>					
1	There is unstable and slow internet and interrupted power connection to access e-banking of banking services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>Lack of available ICT infrastructure</i>					
2	Mobile banking services may not perform well because of bad network access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Lack of legal frameworks that enforce banking industries to adopt technological innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Using e-banking is difficult, due to low internet access in Addis Ababa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Cross-country legal and regulatory differences will have impact on the adoption of new technological innovation in the banking sector like, ATM, internet banking, mobile banking and Point of sale terminals (POS).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Lack of competition among local bank and foreign banks can be factor that influences adoption of e-banking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Organizational factors</u>					
1	Using e-banking decrease costs to do banking task	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Lack of sufficient government support will affect customers willingness to use technological innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Customers of our bank are not familiar with service provided though ATM, Internet banking, telephone and mobile phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Lack of technical and managerial skills on the use of technological innovation in banks employees.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Lack of skills to implement E-banking system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Perceived Usefulness</u>					
1	Bank established e-banking into banks future strategic planning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2	E-banking improves my performance of banking activities of transactions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E-banking such as, Internet banking ,Mobile banking, ATM and POS are convenient, in terms of time saving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E-banking such as, Internet banking ,Mobile banking, ATM and POS helps to perform, improve customer service, speed and efficiency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Using technological tools like ATM helps to perform transaction at lower cost.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	E-banking is more accessible to users than visiting a bank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perceived Ease of Use						
1	My intention with using e-banking is clear and understandable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E- banking makes it easier for me to do banking activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	In the case of mobile banking, our customers can simply use banking service by using their cell phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The management of the bank provides training courses for its staff when introducing new services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E-banking system helps to perform banking task in a simple Way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If any other benefits? Please specify _____

if any other barriers? Please specify below. _____

The following are some questions that affect the bank manager's face when adopting E-banking system, please indicate level of your choice and explain that you believe or consider that solves the influences of adoption of e-banking.

1. What type of Electronic banking service do you provide? You can tick more than one

A, ATM

B, Internet banking

C, Mobile banking

D, Point of sale terminals (POS)

E, If others Please specify _____

2. Are the following factors considered in your institution as impediments that influence for the adoption of technological innovation? Tick more than one,

A. Security risk

D. Customers reluctance for new technology

C. lack of social and customer awareness

D. cost incurred in the purchase of technological instruments E-banking.

E. lack of competition

F. inadequate ICT infrastructure

Please Add if other _____

3. In your opinion what are the key factors that delay your institution to adopt automated teller machine (ATM) internet banking and mobile banking system? _____

4. Do you see any social, Economic and legal factors that influence adopting ATM, internet banking or mobile banking in your bank? _____

5. Do you think that government policy have impact on the adoption of E-banking system? (Please Specify/explain) _____

6. What sort of support would you expect from the government in relation to the E-banking improvement in Addis Ababa, Ethiopia? _____

7. Why Ethiopian government did not allow foreign banks to operate in the country? Do you think it discourage Ethiopian banking industry from adopting technological innovation and compete with foreign banks? _____

8. What kind of help or assistance do you offer to your customers for them adopting e-banking services?

a) Brochures

b) Training

c) Online banking demo

d) Others (e.g., employee assistance, personal service over the telephone, e-mailed instructions, website 'help' capabilities)

f) Nothing or any other specify any _____

9. What major challenges and difficulties has your bank faced when dealing with e-banking?

More than one can choice

a) Lack of in-house IT professionals

b) Lack of interest from customers

c) Extra workload from processing online banking services

d) Need for employment training in IT technology

e) The innovative nature of e-banking

f) Others (expenses, customers' computer skill, extra workload, user friendliness, user passwords updates)