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ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF MANAGEMENT

**FACTORS AFFECTING CUSTOMERS' ELECTRONIC BANKING
ADOPTION IN COMMERCIAL BANKS WITHIN ADDIS ABABA**

By
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October 2019
ADDIS ABABA, ETHIOPIA

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**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLEGE OF
BUSINESS AND ECONOMICS IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN
BUSINESS ADMINISTRATION**

ADVISOR: TILAHUN TEKLU (Ph.D.)

October 2019

ADDIS ABABA, ETHIOPIA

DECLARATION

I, **Solomon Alene**, declare that this thesis is a result of my independent research work on the topic entitled “**Factors Affecting Customers’ e-banking adoption in Commercial banks within Addis Ababa**” in partial fulfillment of the requirements for the Degree of Masters of Art in Business Administration at Addis Ababa University, School of Graduate Studies. This work is original in nature and has not been submitted for any degree in this university or any other University and all the references used are properly recognized.

Solomon Alene

Name

Signature

Date

CERTIFICATION

Addis Ababa University School of Graduate Studies

This is to certify that the thesis prepared by Solomon Alene entitled: *Factors Affecting Customers' e-banking adoption in Commercial banks within Addis Ababa*, and submitted in partial fulfillment of the requirements for the degree of masters of Business Administration complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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External Examiner

ENDORSEMENT

This is to certify that **Solomon Alene** has carried out this thesis on the topic entitled “***Factors Affecting Customers’ e-banking adoption in Commercial banks within Addis Ababa***” under my supervision. Accordingly, I hereby assure that his work is appropriate and standard enough to be submitted for the partial fulfillment of the requirements for the award of the degree of Masters of Art in Business Administration.

TILAHUN TEKLU (Ph.D.)

Advisor

Signature & Date

ACKNOWLEDGEMENTS

First, I would like to thank the almighty God for letting me finish this thesis. I also thank St. Virgin Marry for her support in my entire journey. My deepest gratitude also goes to my advisor Tilahun Teklu (Ph.D.) for his patience and constructive advice throughout the thesis work. I am indebted to those walk-in individual customers of the selected commercial banks in Addis Ababa and IT managers of the eight selected banks who contributed their genuine feedback for my study.

Numerous friends and colleagues are on the line to be duly acknowledged; though I cannot mention all, few in alphabetical order are Belesty Esubalew, Meshesha Deme, Tigist, Assefa. All deserve my gratitude in every aspect of their effort and support.

Finally yet importantly, I am so grateful to all my family members without their strong support in every aspect all my achievement will not come true. Lemli, you are my energy, I can never be grateful enough for all the push and care.

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ACRONYMS

ATM:	Automatic Teller machines
EDI:	Electronic Data Interchange
E Banking:	Electronic Banking
TAM:	Technology Adoption Model
POS:	Point-of-Sale
TRA:	Theory of Reasoned Action
TPB:	Theory of Planned Behavior
B2B:	Business to Business
B2C:	Business to Customer
PDA:	Personal Digital Assistants
IT:	Information Technology
CBE:	Commercial Bank of Ethiopia
NBE:	National Bank of Ethiopia
TTF:	Task-technology fit
UTATUT:	Unified Theory of Acceptance and Use of Technology
PEOU:	Perceived Ease of Use
PU:	Perceived usefulness
PR:	Perceived risk
PT:	Perceived Trust
PC:	Perceived cost
FC:	Facilitating conditions
SI:	Social Influence

ABSTRACT

This study aimed at identifying factors that affect E-banking adoption in Addis Ababa, Ethiopia. The study used both quantitative and qualitative (mixed) research approach with a survey design to collect and analyze the data. Target population of this study were walk-in individual customers of selected commercial banks in Addis Ababa. Eight Commercial Banks (Commercial Bank of Ethiopia, Awash international Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, Buna International Bank, Oromia International and United Bank) were selected for the purpose of the study. Primary data was collected through questionnaire and interview and secondary data such as annual reports of the National Bank of Ethiopia and the selected eight commercial banks were used. 481 samples of walk-in customers were selected randomly from these selected banks and 387 of them participated in responding to the questionnaire; branch managers of the respective banks also interviewed to have more insight on customers' perspective towards the e-banking offerings. The data was analyzed using descriptive and inferential statistics. Multiple linear regression model was developed and employed to test the hypothesized relationship proposed in this study considering seven psychographic and three demographic variables. The findings of the study revealed that the psychographic variables (perceived ease of use, perceived usefulness, perceived risk, perceived cost and facilitating conditions) have positive and statistically significant effect on E-Banking adoption whereas perceived risk and perceived cost have negative and statistically significant effect on E-banking adoption. On the other hand, perceived trust and Social influence were found to have positive but statistically insignificant effect on E-Banking adoption. Besides, out of the three demographic variables (income, education and age), only income was found to have positive and statistically significant effect on E-Banking adoption while respondents' age and education level were not.

Key words: E-Banking adoption, perceived ease of use, usefulness, risk, trust, cost, facilitating conditions, Technology adoption models

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

The advent of information communication technology plays vital role in all kinds of business endeavor throughout the world. Nowadays, there are no businesses in one way or the other that are not using the ICT innovation across the globe. The beginning of the E-Business age has been changing the business environment and breaking out innovative ways of doing business. One of the latest outcomes of this E-Business is electronic banking or E-Banking. Banking sector is now reengineering it to adopt the change and to be in the race of globalization. Thus, it has become imperative for the banking industry to better gauge the E-Banking phenomenon (Mia et al., 2007). Electronic banking has been evolved in our world following the advent of E-Business accompanied with technological innovations and globalization which constantly propelling the businesses organization to redefine their business operations in terms of value chain reengineering and restructuring business models. According to the Encyclopedia of E-Commerce Development, Implementation, and Management, electronic banking refers to all forms of banking services and transactions performed through electronic means. E-banking includes the systems that enable financial institution customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the internet (IGI Global, 2016). On the other hand, adoption in its marketing aspect is defined as the act of accepting or beginning to use something (Cambridge Academic Content Dictionary); it is the micro process and opposite of diffusion which is a macro process concerned with the spread of a new product from its source to the consuming public. Electronic banking (e-banking) reduces the transaction costs of banking and it is beneficial for both banks and all form of banks' customers. In the developed part of the world, business transactions are usually concluded using an electronic medium and it is only in rare cases where liquid cash involves in business exchanging; it is common to use either debit or credit cards to payout bills and use electronic transfer in the business to business transactions. Thus, electronic banking is no more a

luxury practice in such kinds of developed countries rather it is one of the necessities as it is part of people's day to day life. Thus, the developed countries have experienced widespread e-banking use and enjoyed its many benefits (S.Kurnia et al., 2010). Thus, electronic banking service is highly adopted by customers in the developed nation. However, in developing countries, the adoption rate is too slow and the number of individual customers who are using electronic banking is not proportional to the non-users despite limited commercial banks to geographic area ratio. Electronic banking has triggered massive change in the commercial banking practices since it was first introduced as "home banking" services by the four major New York banks in 1981.

In Africa, innovations in the banking sector are less widespread relative to other regions. The use of electronic payments such as wire transfers is particularly low in Africa. While usual in OECD (Organization for Economic Cooperation and Development) countries (where close to 58% of adults reported using it), only 4% of the adult population uses electronic payments in sub-Saharan Africa (3% in North Africa), relative to 6% in Latin America & Caribbean. In the sub-regions of Africa, Southern Africa reports the highest percentage of adults (8%) using electronic payments, relative to 1% in West Africa and 2% in East Africa. Due to the fact that both the sender and the receiver in a wire transfer transaction must have bank accounts and given the low level of bank penetration in Africa, the low number of wire transfers in the continent is not surprising (Nyantakyi and Mouhamadou, 2015).

In Ethiopia, the appearance of E-banking goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. Later, the National Bank of Ethiopia proclaimed (proclamation No. 718/2011) compelling regulation that obliges all commercial banks to avail electronic infrastructure which would enable customers use electronic banking services. Since then, commercial banks are trying to introduce different related value adding services and compete to attract customers. Electronic banking services bases core banking system which refers to a centralized online real-time exchange. It is a system which allows banking organizations to carry out their transactions at a center through centralized banking services, these services include Automatic Teller machines (ATMs), Electronic Fund Transfer (ETF), mobile banking, online banking, Electronic Data Interchange (EDI) and telecommunication services. Thus, electronic banking system is a new product which has been resulted and presented as modern replacement to the traditional banking system to banking service

users in Ethiopia. Thus, now a days, almost all commercial banks are networked within and among each other through the national e-payment switch, Ethio-Pay, which celebrated its official launch on May 12, 2016, serving the integration of Automated Teller Machines (ATMs) and Point of Sale (POS) machines (Ayana,2014)

Commercial banks in Ethiopia are dreaming provision of paperless and branchless banking services to their customers using electronic banking system and thereby reduce their operating costs and maximize their profit margins. Despite such motive, on the other hand, the number of branches opened by commercial banks shows a steady growth year after year; according to the annual report of National Bank of Ethiopia (NBE annual report, 2017/2018) commercial banks opened 500 new branches in 2017/18 alone which increased the total number of branches to 4,757 from 4,257 a year ago. As a result, bank branch to population ratio stood at 1:20,286.55 people in 2017/18 (taking total population of 96,503,000 as CSA estimation for 2018 in to consideration). Besides, about 35.3 percent of the total bank branches were in Addis Ababa. In addition, being one of the recent phenomena in the history of the country's commercial banks, electronic banking, is launched as a new mode of banking service operation and expected to steadily replace the traditional banking system and thereby reduces banks' operating costs.

The commercial banks in Ethiopia made huge investment on information communication technology to avail the necessary infrastructure for e-banking service channels. However, though commercial banks made huge investment on information communication technology to avail the necessary infrastructure for such service, it is still normal to observe long ques and crowd of individual customers inside banks' premises for different banking services such as balance enquiry, withdrawal and money transfer. For instance, according to the aggregate data of the state-owned commercial bank of Ethiopia, out of the total customers (18.8million), the number of ATM card holders, mobile banking and internet banking service subscribers range less than 23%, 9% and 0.19% respectively (CBE's annual report,2017/2018). Considering the number of ATMs, POS machines, mobile and internet banking service users vis-à-vis the number of individual commercial banks' customers, it is observed that there is huge gap out of which this study is triggered as a result of this to uncover possible explaining reasons on why few customers use the service and why many others not.. Thus, the adoption of electronic banking service by individual customers is yet to be investigated.

Electronic banking is readily available for both individual and business customers. In the supply side, the regulatory and competitive forces pushed all commercial banks to avail the provisioning of electronic banking service product to all kinds of their customers. They are also using it as strategic weapon. However, in the demand side, there is still huge gap between users and non-users. Hence, the target population of this study will be confined to the demand side (i.e. individual commercial bank customers/not business organizations in the frame work of B2C (Business to Customers) business transaction. The study will shed light on additional knowledge on the behavior of individual consumers to the services of commercial banks in Ethiopian context and consequently help commercial banks to streamline their electronic banking services and boost their customer base and stay profitable as they have a posed threat of ‘merger risk’ if they fail to stay competitive and operate efficiently and profitably.

Electronic banking service category include Automatic Teller machines (ATMs), Electronic Fund Transfer (ETF), mobile banking, online banking, Electronic Data Interchange (EDI) and telecommunication services. However, considering the adoption by individual customers of commercial banks, four types of electronic banking services (ATM, mobile banking, internet banking and POS machines) are going to be the focus area. Therefore, this study strives to investigate factors affecting the adoption of electronic banking and elicit relevant information of e-banking adoption pertinent to different demographic, psychographic and other external environmental factors which can commonly be important to all commercial banks.

1.2.Statement of the Problem

E-banking is a new technology in Ethiopia which needs a lot of efforts and resources to be adopted by customers. In order to help banks increase e-banking adoption by customers, it becomes necessary to examine factors that influence customers’ intention to accept e-banking service channels (Zelege, 2014). Various empirical studies had been carried out to investigate factors influencing electronic banking adoption from individual customer’s perspective both in developed and developing countries and resulted in different findings which prove existence of different attributing factors within the context of each country. To explore factors affecting adoption of e-banking services from banks’ individual customers perspectives, many of such studies adopted

models or theories that have been developed so far in the field, including the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), the Theory of Planned Behavior (TPB) (Icek Ajzen, 1991), which is an extension of TRA, the Technology Acceptance Model (TAM) (Davis, 1986) which is based on TRA, and the Extended Technology Acceptance Model (TAM2) (Venkatesh and Davis, 2000), which is an extension of TAM.

In US (Jane et al., 2004) carried out an empirical study based on theories of technology acceptance and the diffusion of innovations to the adoption of three e-banking technologies: automatic bill payment, phone banking, and PC banking and the result revealed that relative advantage, complexity/simplicity, compatibility, observability, risk tolerance, and product involvement are associated with adoption. Besides, Income, assets, education, gender and marital status, and age also affect adoption.

A study which integrated TAM and TPB that incorporates cultural dimensions and perceived risk to explore factors affecting adoption of electronic banking by banks' customers (Mohammed, 2012) in Jordan, found out that uncertainty avoidance has a positive and significant impact on perceived ease of use and perceived usefulness, Perceived risk has the stronger impact on customers' attitude, which in turn influences customers' intention to use electronic banking services.

A modified TAM had been applied by (Bruce et al, 2017) in Zambia to examine factors Influencing E-Banking Adoption by Bank Customers and the result revealed that perceived usefulness, ease of use and trust each significantly and positively influences attitude to e-banking. In turn attitudes to e-banking influence intention and actual adoption of e-banking services.

The findings of a research which was made by (Xiao et al., 2017) in China aiming at identifying Factors influencing people's intention to adopt e-banking using a simplified TAM model highlighted that perceived usefulness and perceived credibility are significant factors which have a positive influence on consumers' intention to utilize E-Banking, while perceived ease of use and perceived cost are less significant.

Customers' trust in the e-banking system was found to be the strongest predictor of Internet and cellphone banking services adoption in a study conducted in South Africa (Daniel K et al, 2014)

unlike previous studies in different environmental-contexts where perceived usefulness and perceived ease of use were widely held to affect the adoption of Internet and cell phone banking

In summary, the studies that have been conducted in many parts of the world to explore and determine factors influencing the adoption of e-banking amongst bank customers based on TBP and TAM established that perceptions of usefulness, ease of use, trust, self-efficacy in using the systems and social norms positively influence the attitude and intentions to adopt e-banking services (Bruce et al., 2017). However, there is very much limited published work that investigate the acceptance of e-banking from the viewpoint of customers in the environment of developing countries like Ethiopia (Zelege, 2014).

In Ethiopia, there are different studies carried out regarding electronic banking; Fekadu (2010) investigated the barriers in e-banking adoption by the commercial banks. Ayana (2010) conducted a study titled 'Factors affecting the adoption of e-banking system by the banking industry' using technology-organization environment model (TOE) developed by Tornatzky and Fleischer. Milkessa et al (2016) carried out study titled 'Perceived Benefits and Challenges of Electronic Banking Adoption in Ethiopian Private Commercial Banks'. The challenges in e-banking service and its impact on profitability was studied by Uvaneswaran et al (2017). Mohammed (2014) studied Ethiopian Banker's Perception of Electronic Banking in Ethiopia for the Case of Adama City. All such previous studies were geared towards the supply side (i.e. from service providers or Commercial Banks side) and excluded customers domain. On the other hand, with the exception of two studies (Gadise and Tekabe, 2017 and Zelege, 2014), there has not been study exploring factors influencing the adoption of e-banking service channels from consumers or individual consumers aspect in the context of Ethiopia. The first study by Zelege (2014) adopted TAM and TPB models in combination with Perceived risk and considered the variables in these models as predictors of attitude which in turn shape the intention to use e-banking; the study considers only psychographic factors and it did not include the potential relationship with demographic variables based on diffusion of innovations theory developed by Rogers (2003). The second study by Gadise & Tekabe (2017) considered only four variables (cost, security, trust and privacy) as determinants of e-banking service adoption. However, the potential factors that affect e-banking service channel adoption are multi folds as evident from different empirical studies summarized above.

Therefore, this study attempts to provide a deeper understanding on the key factors influencing customers' e-banking service adoption and contribute to the current body of literature on e-banking services within the context of Ethiopia in general and Addis Ababa in particular.

1.3. Research questions

This study provides answer to the following specific questions

- Why some individual customers are adopting e-banking services and some others not?
- What are the major factors affecting e-banking service adoption?
- How such factors affect e-banking service adoption by individual bank customers?

1.4. Research Objectives

1.4.1. General

The general objective of the study is to explore factors affecting e-banking services adoption amongst commercial banks' individual customers in Addis Ababa.

1.4.2. Specific

- To explain the effect of perceived ease of use on e-banking service adoption.
- To explain the effect of perceived usefulness on e-banking service adoption.
- To determine the relationship of perceived risk with e-banking service adoption.
- To explain the effect of perceived trust on e-banking service adoption.
- To assess the effect of perceived cost on e-banking service adoption.
- To explain the effect of facilitating conditions on e-banking service adoption
- To determine the relationship of social influence with e-banking service adoption.
- To examine the association of demographic factors (Age, Income and education) with e-banking service adoption.

1.5. Significance of the study

Regardless of the electronic banking service type and a specific commercial bank brand, knowing related factors on why individual customers use one or combination of such services or not using all such services at all and stick to the traditional banking system, what factors are influencing the intent to use or not to use electronic banking services, and which factors are explaining users' preference or behavior on certain service category over the other will help commercial banks to fine-tune their marketing strategy to different market segments and thereby promote their business through efficient service rendering with few branch service centers. Thus, this study will be useful to elicit relevant information pertinent to different demographic and psychographic factors with regards to adoption of e-banking service channel which can commonly be important to all commercial banks. Besides, it will be also helpful for policy makers in understanding influential factors to adoption of e-banking service channel and make necessary adjustments in regulations and policies towards availing better conducive condition of electronic banking service provision by commercial banks.

1.6. Scope of the study

Addis Ababa city is chosen as study area for this research. Because, it is the seat of the Federal government and it is the most significant economic center. Due to an increasing urban agglomeration, it is comprised of people who have come from different parts of the country. Thus, in this study, it is anticipated to elicit more relevant information from sample of individual commercial banks' customers in relation to the research topic out of such heterogeneous population and the key findings of the study is anticipated to have similar important implications at regional levels. On the other hand, all commercial banks have established their head quarter and relatively have more branches in Addis Ababa than they do have elsewhere in the country. Hence, the study is geographically confined to Addis Ababa city which is believed to be better study area on the above study topic than any other parts of the country.

1.7.Limitation of the study

Commercial Banks normally do have two types of customers; businesses and individuals. However, this study will focus only on individual customers from the perspective of business to customer (B2C) in general and particularly from individual customers perspective (demand side); The research will be focusing from demand side perspective and will not look in to supply side. Thus, there might be different result if the research is further extended by including samples of business customers from the perspective of business to business (B2B) and if triangulation is made with the perspective of commercial banks' side (supply side). In addition, due to time and budget constraint data is planned to be taken using survey method through cross- sectional descriptive survey design from walk in customers to selected commercial banks which are geographically located in Addis Ababa in consideration of selected variables which might limit the generalizability of the results at macro level. Because, behavior is anticipated to be changed over time and hence consideration of time serious data in longitudinal approach is believed to elicit more accurate information about customers behavioral intentions towards adoption of e-banking service channels.

1.8.Organization of the study

The final research report was organized in five chapters. The first chapter includes the introduction part where the background of the study, problem statement, objectives, significance, scope and limitation of the study are included as sub sections. Review result of related literature and the research frame work had been included in the second chapter. The third chapter dealt with the methods of the study; the type and design of the research, the research model to be developed based on the information adapted from previous studies, the subjects or participants of the study, sources of data, the data collection tools used, the procedures of data collection and the methods of data analysis had been included under this chapter. The fourth chapter summarized the results/findings of the study as well as the interpretation of findings in light of the literature review. Finally, summary of the findings, conclusions, limitations of the study, recommendations and future areas of the study had been included in chapter five.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

In this chapter, result of literatures reviewed in relation to electronic banking service channel adoption is included. The chapter contains seven subsections. The first sub section deals with the definition and evolution of electronic banking as well as its benefit, the trends of electronic banking in Ethiopia, electronic banking services ranges offered by the commercial banks in Ethiopia. Contextual meaning of new product adoption and different models on technology adoption are presented in the second subsection. The third sub section includes findings of empirical studies made related to adoption of electronic banking from the perspective of customers of commercial banks. Factors affecting customers' adoption of electronic banking service channels are summarized in the fourth subsection based on the result of review of empirical studies. The fifth subsection portrays the research conceptual frame work which is developed based on empirical studies reviewed. The research model adopted and developed for this study is depicted in sub section six. Finally, sub section seven presents list of hypotheses developed and to be tested in this study.

2.1. Electronic Banking

2.1.1. Definition of electronic banking

The definition of electronic banking varies among researchers, because electronic banking refers to several types of services through which bank customers can request information and carry out most retail banking services via computer, television or mobile phone (Mohammed,2012). The definition of electronic banking adopted for this study is the one defined in e-banking booklet prepared by FFIEC. The specific definition of electronic banking given by FFIEC in the booklet named e-banking is given as below (FFIEC,2003):

“e-banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels.”

In other words, customers are allowed, henceforth, to enquire about their accounts, to access their funds and to carry out multiple transactions through networks and intelligent interactive devices such as Personal Computers (PC), Personal Digital Assistants (PDA), Automated Teller Machines (ATM), mobile phones, Minitel, Wireless Application Protocol (WAP), &TV (Azouzi,2009). More specifically, in the context of Ethiopia and through out this study, the term electronic banking refers to banking services through Automatic Teller Machines (ATM), Mobile phones, Internet, and the POS machines.

2.1.2. Evolution of electronic banking

Like any other speedy services in different sectors, the evolution of electronic banking is closely linked with the developments and innovations in information technology (IT). Developments in IT have introduced new business dimensions and are playing a significant role in changing the face of the banking industry (Daniel K et al, 2014). As digital identity technologies have developed, the financial sector has taken steps to incorporate them into core services that safeguard security and make banking easier.

Electronic innovation in banking industry can be traced back to 1970, when the computerization of financial institutions gained momentum (Malak 2007), However; a visible presence of this was evident to the customers since 1980, with the introduction of ATM

Since the late 1990s E-Banking has developed from virtual insignificance to tens of millions of users worldwide. However, E-Banking is the product of different generations of electronic transactions. The current web-based internet or E-Banking is the latest of several generations of systems: Automated Teller machine (ATMs), Phone Banking, PC or House Banking. Automated teller machines (ATMs) were the first well-known machines to provide electronic access to customers where as in phone banking, users call their bank's computer system on their ordinary phone and use the phone keypad to perform banking transactions. PC banking superseded phone banking and allowed users to interact with their bank by means of a computer with a dial-up modem connection to the phone network. Phone and PC banking entailed maintenance costs associated with keeping up to date with diverse modems and with avoiding prohibitively complex

installation procedures. After those generations Deutsche Bank launched the very first Internet banking project in Latin America in 1996 and Citibank has developed a special “e-toolkit” across all its branches worldwide (Abdul et al,2007)

For users, E-Banking provides current information, 24-hours-a-day access to banking services. The primary services provided by e-banks are transferring money among one’s own accounts, paying bills, and checking account balances. Loans, brokering, share trading, service bundling, and a host of other financial services are being added to these primary services. Jeevan (2000) notes that with rigid controls giving way to deregulation, banks are gearing up their communications infrastructure to obtain a competitive edge from E-Banking.

In general, electronic banking is evolved over a period; it reaches to its current form following the most recent technological advancement which resulted in the evolution of e-banking. Electronic banking is the sub set of the broader concept of E-commerce. In electronic banking, various alternative modes of providing banking products are evolved and gained popularity in recent past, such as, tele-banking, Automated Teller Machines, e-banking, credit & debit cards. Thus, the most important electronic delivery channels are the Internet, wireless communication networks, automatic teller machines (ATMs), and telephone banking, services through POS machines which all are collectively referred to as ‘electronic banking’ and are considered in this study as a replacement to the traditional ‘brick and mortar’ banking operation. The evolution of banking technology has been driven by changes in distribution channels as evidenced by devices such as Automated Teller Machine (ATM), Phone- banking, Tele-banking, PC-banking and most recently Internet banking (Simon et al, 2014)

2.1.3. Electronic Banking-trends in Ethiopia

In July 2015, the National Bank of Ethiopia (NBE) instructed all commercial banks in the country to adopt core banking solutions, which is a back-end system that processes daily banking transactions, and posts updates to accounts and other financial records. NBE wants every major bank to use this technology so that eventually there will be a nationwide electronic payment system. Thus, the introduction of core banking system lays the foundation for Ethiopian commercial banks to adopt service provisioning through different electronic banking channels.

New trends are emerging in the recent years in Ethiopian banking environment that are causing banks to realize the urgency of core-banking transformation. Older platforms are proving expensive to maintain and commercial banks are increasingly working on availing different kinds of electronic banking service channels (Negalign and Lisanework, 2016).

The state-owned Commercial Bank of Ethiopia was the first to introduce services through Automated Teller Machine (ATM) in the country followed by younger competitors, such as Dashen, United Bank, Wegagen, Zemen, and Abyssinia who have all implemented core banking system and henceforth avail electronic banking service channels to their customers. For banks in Ethiopia to utilize the CORE banking system was a significant change, since centralized core banking solutions required banks to invest huge amounts of money towards building infrastructure. Once this infrastructure was in place, banks started venturing into newer opportunities in the area of ATMs, debit cards and internet banking, which in turn raised the expectations from core banking solutions (Alemayehu, 2011)

In general, the core banking system enabled commercial banks in Ethiopia to avail the following form of electronic banking service channels (Essayas, 2016):

Automated Teller Machines (ATM): It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. ATM card is useful to a card holder as it helps him/her to withdraw cash from banks even when they are closed. Moreover, a consumer needs an ATM card and a personal identification number (PIN).

Point-of-Sale Transfer Terminals (POS) is typically includes a computer, a cash register and other equipment or software used to sell goods or services. 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

Internet banking: referred as online banking, web banking or virtual banking, an outgrowth of PC banking, is a more developed service, a system that enables bank customers to access accounts and general information on bank products and services or perform account transactions directly with the bank through a personal computer using the internet as the delivery channel

Mobile banking: is best described as the newest channel in a banking to provide a convenient way of performing banking transactions using mobile phones or other mobile device. The potential for mobile banking may be greater than online PC users.

Telephone banking: is a service provided by a bank or other financial institution that enables customers to perform a range of financial transactions over the telephone, without the need to visit a bank branch or automated teller machine offer the service on a 24-hour basis. Most financial institutions have restrictions on which accounts may be accessed through telephone banking, as well as a limit on the amount that can be transacted

PC-banking: A banking service that enables bank customers to access their account information and perform certain bank transactions using a personal computer and a modem. It has become a popular method for people to manage money and pay bills using online servers to log in to their account and pay bills, transfer money between accounts and reconcile check ledgers.

Credit and Debit Card: It is a normal card whereby a holder is able to purchase goods, without having to pay cash immediately. Credit card is built around revolving credit principle. Generally, a limit is set to the amount of money a cardholder can spend a month using the card. At the end of every month, the holder has to pay a percentage of outstanding. Debit card is used for purchasing goods and services or for obtaining advances for which payments is made from existing funds in a bank account.

Ethio pay and electronic banking service in Ethiopia

The national e-payment switch Ethio-Pay, serving the integration of Automated Teller Machines (ATMs) and Point of Sale (POS) machines, celebrated its official launch on May 12, 2016. Founded in 2011, with a capital of 80 million Br, Eth-Switch facilitated transactions worth 2.9 billion Br in the 2016 fiscal year. According to this system, regardless of the commercial banks where customers obtained visa cards, they are allowed to use and can be served by any nearby ATM machine of any commercial bank. Hence, customers are obliged to stick to their client bank at time only when they need other banking services other than ATM service. In fact, commercial banks are also charging different amount of money per a single transaction processed by their respective ATMs. Consequently, commercial banks consider this as a competitive weapon and invest as many as they can in availing ATM services nationwide

2.1.4. Electronic banking-regulatory framework in Ethiopia

E-banking is comparatively new to Ethiopia's banking industry and the country's largest commercial bank, as mentioned above, Commercial Bank of Ethiopia (CBE) pioneered the introduction of Automated Teller Machine (ATM) in 2001. Besides, a company named 'Ethio-pay' remarkably connect ATMs to integrate national payment system regardless of ATM cards to a specific commercial bank. However, the unavailability of legal and regulatory frameworks regarding e-banking at national level is a key challenge the sector has been facing. Ethiopia's electronic banking system needs suitable legal and regulatory frameworks to make the sector internationally competitive. Because, the e-banking practice in the country is growing at a significant level and the government, through National Bank of Ethiopia (NBE), has been playing a pivotal role in supporting the activity by introducing and implementing different electronic payment infrastructures (Bilal, 2014)

2.2. Adoption

2.2.1. Definition of adoption

The definition or contextual meaning of 'adoption' used in this study is adopted from Cambridge Academic Content Dictionary. Adoption is defined as the act of accepting or beginning to use something.

2.2.2. Electronic banking service adoption-Technology acceptance models and theories

Theories provide a set of explanatory variables which can be used to predict a particular phenomenon. A model, on the other hand, is defined as a systematic description of a system, a theory or a phenomenon that accounts for its known or inferred properties which may be used for further study of its characteristics (Samaradiwakara and Gunawardena, 2014). Various models and theories have been developed by different scholars in previous studies which had been conducted in relation to technology acceptance by individual consumers. The worldwide digitized movements that shiver the global business dynamically push all industries towards automation

process. The banking industry is not an exception to this and electronic banking is a result of this paradigm shift as a replacement to the traditional brick and mortar approach. The following theories/models have been designed to explore the acceptance and use of technologies in the environment and to elicit relevant information on what procedures consumers follow and what related factors affect consumers' attitude towards acceptance and use of a certain technological innovation.

2.2.3. Cognitive Dissonance Theory (CDT)

Cognitive Dissonance Theory was formulated by Festinger (1957) to explain how discrepancies (dissonance) between one's cognition and reality change the person's subsequent cognition and/or behaviour (Bhattacharjee 2001). This theory depicts a process model of individual behaviour whereby users form an initial pre-usage expectation (belief) about a technology, experience its usage over time, and then form post-usage perceptions of the technology. The dissonance between users' original expectations and observed performance is captured in the disconfirmation construct

2.2.4. Diffusion of Innovation Theory (DIT)

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Rogers (1995) proposed that the theory of 'diffusion of innovation' was to establish the foundation for conducting research on innovation acceptance and adoption. Rogers synthesized research from over 508 diffusion studies and came out with the 'diffusion of innovation' theory for the adoption of innovations among individuals and organizations. The theory explicates "the process by which an innovation is communicated through certain channels over time among the members of a social system"

Rogers (1962) proposed a model of the diffusion of innovations that included five product or service characteristics postulated to influence consumer acceptance of new products and services: relative advantage, compatibility, simplicity/complexity, observability, and trialability. Several researchers have incorporated pieces of Rogers' model in empirical work that examined technological innovations (Kolodinsky et al, 2004)

Trialability refers to the ability of consumers to experiment with a new innovation and evaluate its benefits. The extent to which various financial institutions offer “introductory” e-banking to their customers impacts the trialability and accessibility of the innovation

Relative advantage is the degree to which consumers perceive a new product or service as different from and better than its substitutes (Rogers, 1962). In the case of e-banking, savings of time, money and convenience have been cited as relative advantages.

Observability is the extent to which an innovation is visible and communicable to consumers. For example, seeing ATMs on the street corners and in grocery stores may make this technology more observable than PC banking conducted inside the home

Simplicity/complexity is the extent to which consumers perceive a new innovation as easy to understand or use. For consumers without previous computer experience, or for those who believe that e-banking is difficult to use, adoption of these innovations may be thwarted.

Compatibility is the extent to which a new product or service is consistent and compatible with consumers’ needs, beliefs, values, experiences, and habits. In the case of e-banking, we must consider the degree to which a given technology fits in with the banking behavior of a consumer, and the way in which they have historically managed their finances. Technological service innovations differ from other commodities insofar as their adoption may require behavior different from consumers’ typical routines (Gatignon and Robertson, 1985). This includes “bricks and mortar” issues such as not having a branch bank to visit, as well as “paper” issues including receiving statements electronically and not in the mail.

2.2.5. Task Technology Fit Model (TTF)

Task-technology fit (TTF) is the degree to which a technology assists an individual in performing his or her portfolio of tasks. More specifically, TTF is the correspondence between task requirements, individual abilities, and the functionality of the technology. Utilization is the behavior of employing the technology in completing tasks. The impact of TTF on utilization is a link between task-technology fit and beliefs about the consequences of using a system. This is

because TTF should be one important determinant of whether systems are believed to be more useful, more important, or give more relative advantage (Goodhue and Thompson, 1995).

2.2.6. Theory of Reasoned Action (TRA)

TRA was one of the first models that studied acceptance of technology. From social psychology, TRA analyzes the determinants of conscious behavior (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975). According to this theory, the specific behavior of a person is determined by his/her intention to carry out this behavior; this is called behavioral intention (BI). At the same time, this BI is determined by his/her attitude (A) and the subjective norms (SN) relating to the conduct in question

TRA is a general model, not designed for a specific behavior or technology, which has allowed it to be applied to countless fields. A particularly notable feature of TRA from the point of view of BI is that any other factors that influence behavior do so only indirectly by influencing A, SN, or their relative weights. This implies that TRA mediates the impact of uncontrollable environmental variables and controllable intentions on user behavior.

The Theory of Reasonable Action (Fishbein and Ajzen, 1975) is one of the most popular theories used and is about one factor that determines behavioural intention of the person's attitudes toward that behavior. Fishbien and Ajzen (1975) defined "attitude" as the individual's evaluation of an object and defined "belief" as a link between an object and some attribute and defined "behaviour" as a result or intention. Attitudes are affective and based upon a set of beliefs about the object of behaviour (e.g: Credit card is convenient). A second factor is the person's subjective norms of what they perceive their immediate community's attitude to certain behaviour (e.g: my peers are using credit card and it's a status to have one).

2.2.7. Theory of Planned Behavior (TPB)

The Theory of Planned Behaviour (Ajzen 1985, 1991) is a successor of TRA and it introduced a third independent determinant of intention, perceived behavior control (PBC). It is determined by the availability of skills, resources, and opportunities, as well as the perceived importance of those skills, resources, and opportunities to achieve outcomes (Kriponant 2007). As Kriponant (2007) emphasized, by changing these three predictors (attitude, subject norm and perceived behavior control), the chance that the person will intend to do a desired action can be increased and thus increases the chance of the person actually doing it.

The Theory of Planned Behavior or also referred to as TPB (Ajzen, 1985) has been useful and considered one of the most influential models in predicting social behaviors

As people may lack complete volitional control over behavior, TPB becomes the successor of the Theory of Reasoned Action (TRA) by adding the Perceived Behavioral Control constructs (Ajzen, 2002) and PBC thereafter has improved the predictions of intentions (Ajzen & Madden, 1986).

TPB consists of three constructs, the first construct is Attitude which is define as the degree to which a person evaluate or appraise the behavior in question to favorable (Crano & Prislin, 2006) or unfavorable captured in a dimension of pleasant or not pleasant, good or bad, harmful or beneficial like or dislike (Ajzen, 2001).According to Rosenberg (1960), the person's attitude toward the object will mediate all responses to that object

Subjective Norms (SN) is the second construct, explained as different social references that exert influence or social pressure to perform a behavior (Dulany, 1968). TPB suggested that one can form a belief based on what other people (important others) expect us to do or based on the observation on the action of the important others. People will possess favorable attitude on certain object, but if the important others pressures not to do it, people will then have negative attitude towards the behavior (Cialdini, Reno, & Kallgren, 1990; Fishbein & Ajzen, 2010).

The Perceived BehavioralControl (PBC) was an addition to the previous model of Theory of Reasoned Action (Ajzen & Madden, 1986) and became the third construct of TPB. Perceived behavioral control indicates the perceived belief of easiness or difficultness in performing behavior. It is also a reflection of beliefs of the availability of resources and opportunities in order

to perform the behavior (Ajzen, 1991; Taylor & Todd, 1995). It explains that, when a person does not have volitional control, it may limit the prediction of behavioral intentions and behavior (Ajzen, 1991; Taylor & Todd, 1995).

Therefore the Theory of Planned Behavior (TPB) has been proposed to remedy this problem which was not addressed in the Theory of Reasoned Action (TRA) earlier (Ajzen, 1985). Perceived Behavioral Control (PBC) is important in explaining people's behavior especially when they do not have whole control due to situational factor (Chiou, 1998). For example, in carrying out a purchase, people need to find more resources before committing to buy, for instance time, information, knowledge, self-confidence and so on.

2.2.8. Technology Acceptance Model (TAM)

TAM model was developed by Davis (1986). It is an adaptation of TRA specifically tailored for modeling user acceptance of IS. The goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations. At the same time, it is both parsimonious and theoretically justified. TAM was formulated to identify a small number of fundamental variables suggested by previous research, dealing with the cognitive and affective determinants of computer acceptance. TAM uses TRA as a theoretical backdrop for modeling the relationships between these variables. Specifically, TAM is based on two particular beliefs, perceived usefulness (PU) and perceived ease of use (PEOU), as the main antecedents of computer acceptance. Like TRA, TAM maintains that the use of computers is determined by BI, although it differs from TRA in that BI is determined by PU, as well as A, toward using the system. In the same way, TAM does not include the construct SN used by TRA because of its uncertain theoretical and psychometric status.

TAM is also an extension of TRA done by Davis [10]. It replaced TRA's attitude toward behavior with two technology acceptance measures which are: perceived usefulness and perceived ease of use. TAM didn't include the TRA's subjective norms in its structure. It was developed after the introduction of information systems into organizations. It is developed in information technology

field while TRA and TPB developed in the psychology field, so that it is less general than TRA and TPB

The development for TAM comes through three phases: adoption, validation, and extension. In the adoption phase, it was tested and adopted through a huge number of information system applications. In the validation phase, researchers noted that TAM uses accurate measurement of users' acceptance behavior in different technologies. The third phase, the extension, where there are many researches introducing some new variables and relationships between the TAM's constructs

TAM2:

TAM2 was developed in information technology field. It had been extended from TAM by Venkatesh and Davis [12] in order to explain perceived usefulness and perceived ease of use from the social influence and cognitive instrumental processes' viewpoints. Social influence processes refer to: subjective norm, voluntariness, and image, while cognitive instrumental processes refer to: job relevance, output quality, result demonstrability, and perceived ease of use. Unlike TAM, Venkatesh and Davis inserted subjective norm as an additional construct by adopting from TRA and TPB models. Subjective norm has direct relations with perceived usefulness and intention of use. Its relation with perceived usefulness is moderated by the user experience, while its relation with intention of use is moderated by the user experience and voluntariness of use. Extending TAM to TAM2 by including some constructs from older theories in addition to some moderators to perceived usefulness and perceived ease of use will enhance the performance to the model. As an example, the existence of experience moderator will show the increase in the level of users' experience in technology over the time, and this will cause a tangible change in technology acceptance to them

The goal of TAM2 (Venkatesh and Davis 2000) is a theoretical extension of the TAM to (1) include additional key determinants of TAM that explains perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes and (2) to understand how the effects of these determinants change with increasing user experience over time with the target technological system (Kriponanat 2007).

According to the study of Venkatesh and Davis (2000) both social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived ease of use) significantly influence user acceptance.

TAM 3:

Venkatesh and Bala (2008) combined TAM2 (Venkatesh & Davis, 2000) and the model of the determinants of perceived ease of use (Venkatesh, 2000), and developed an integrated model of technology acceptance known as TAM3 shown in Figure 9. The authors developed the TAM3 using the four different types including the individual differences, system characteristics, social influence, and facilitating conditions which are determinants of perceived usefulness and perceived ease of use. In TAM3 research model, the perceived ease of use to perceived usefulness, computer anxiety to perceived ease of use and perceived ease of use to behavioral intention were moderated by experiences. The TAM3 research model was tested in real-world settings of IT implementations

2.2.9. Unified Theory of Acceptance and Use of Technology (UTAUT)

Another important theoretical model was proposed as the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Davis and Davis 2003) with four core determinants of intention and usage, and up to four moderators of key relationships. Four constructs, 1) performance expectancy 2) effort expectancy 3) social influence and 4) facilitating conditions, have been theorized in formulating UTAUT with the aim of determining user acceptance and usage behavior on technology. Attitude toward using technology, self-efficacy, and anxiety are theorized not to be direct determinants of intention (Kriponant 2007). The key moderators in the model are gender, age, voluntariness, and experience. From a theoretical perspective, UTAUT (Venkatesh et al. 2003) provides a refined view of how the determinants of intention and behavior evolve over time, and it is important to emphasize that most of the key relationships in the model are moderated (Kriponant 2007).

2.3. Empirical Studies

Different studies have been carried out in different countries to determine the factors which affect customers' intention to adopt electronic banking service channels. The result showed existence of differences among developed and developing countries. Even though there are number of empirical literatures available in this research topic, it would have been quite difficult to present the result of all studies. Thus, some of the international researches conducted related to factors affecting customers' intention towards adoption of electronic banking service are presented here below

In a study aiming to identify and understand factors that affect bank customers' use of electronic banking services in Jordan, Mohammad (2012) surveyed Jordanian individual bank customers of 26 licensed banks through structured questionnaires distributed to 387 individuals to random banking customers. Combination of technology acceptance model and the theory of planned behavior model as well as five cultural dimensions (Power distance, Uncertainty avoidance, Individualism vs. collectivism, Masculinity vs. femininity, Long term vs. short term orientation) and perceived risk were incorporated in the study to construct a model of electronic banking adoption. Multiple regression analysis was employed to test the hypotheses. The main findings of the study were: uncertainty avoidance has a positive and significant impact on perceived ease of use and perceived usefulness. Perceived risk has the stronger impact on customers' attitude, which in turn influences customers' intention to use electronic banking services.

Kolodinsky et al. (2004) studied the adoption of electronic banking technologies by US consumers. In this study, the factors that affect the adoption or intention to adopt three e-banking technologies (automatic bill payment, phone banking, and PC banking) had been explored using the application of theories of technology acceptance and the diffusion of innovations. Data collected from 500 house holds through telephone survey which includes a set of core questions covering consumer attitudes and expectations along with socioeconomic and demographic characteristics. The paper finds that relative advantage, complexity/simplicity, compatibility, observability, risk tolerance, and product involvement are associated with adoption. Demographic factors such as Income, assets, education, gender and marital status, and age also affect adoption. Adoption changed over time, but the impacts of other factors on adoption have not changed.

In a study titled ‘Investigating Determinants of E-banking Adoption by Individuals: Comparing the Impact of System Characteristics and User Traits’, Yusuf et al (2013) surveyed 200 banking customers in Oman and used 46 valid responses for the analysis. The aim of the study was to understand whether the adoption of e-banking systems can better be explained as an outcome of individual characteristics of customers such as self-efficacy, Prior-knowledge, banking activity load, and demographics or as an outcome of the characteristics of the system itself (perceived usefulness, perceived ease-of-use, perceived security, and perceived confidentiality). The study concluded only self-efficacy in the customer-related set of factors showed a significant impact on the willingness to use e-banking and all the system-related factors except perceived confidentiality also showed a significant impact on customers’ willingness to use e-banking technology.

Yan Xiao et al (2017) carried out a research on factors influencing people’s intention to adopt e-banking through valid responses of 52 consumers who are using e-banking services and in the age range of 20-60 with a combination of an interview made to four key market segments in Shandong province of China. The researchers applied a simplified version of TAM as a starting point and extent it with two additional constructs to guide further research. Accordingly, in addition to the two original constructs (perceived usefulness (PU) and perceived ease of use (PEOU)) another two additional variables (perceived credibility and perceived cost) are considered in the study. The findings revealed that perceived usefulness and perceived credibility are significant factors which have a positive influence on consumers’ intention to utilize E-Banking, while perceived ease of use and perceived cost are less significant.

Bruce et al (2017) examined factors influencing e-banking adoption as evident from bank customers in Zambia. In this study, the modified Technology Acceptance Model (TAM) was applied in an under-researched Zambian context. Specifically, it examined the influence of e-banking technology’s perceived usefulness, perceived ease of use and trust (safety and credibility) on e-banking adoption. In a quantitative correlational design, primary sample data were collected from 222 bank customers. The findings indicate that the modified TAM model is applicable in the Zambian context and that perceived usefulness, ease of use and trust each significantly positively influences attitude to e-banking. In turn attitudes to e-banking influence intention and actual adoption of e-banking services. The study shows that improving perceptions of trust (safety,

security and credibility), usefulness and ease of use of e-banking systems would result in increased adoption

In a study titled ‘Customers’ adoption and use of e-banking services: the South African perspective’, Daniel K (2014) adds trust in the e-banking system, customer awareness of e-banking services and perceived self-efficacy, together with the TAM constructs of perceived usefulness and ease of use to improve the understanding of the predictors of Internet and cellphone banking services adoption in South Africa. A cross-sectional descriptive survey design was used to obtain data from 394 customers of the four major retail banks in South Africa through self-administered questionnaires. The findings of the study confirm that the factors mentioned above contribute significantly to Internet and cellphone banking adoption and use. In this study, customers’ trust in the e-banking system was found to be the strongest predictor of Internet and cellphone banking services adoption, unlike previous studies in different environmental-contexts where perceived usefulness and perceived ease of use were widely held to affect the adoption of Internet and cell phone banking.

Maryam Sohrabi et al (2013) carried out a study titled ‘critical success factors for the adoption of e-banking in Malaysia’. The aim of the study was to examine the critical success factors for the adoption of e-banking in the context of Malaysia. Dimensions such as trust, costs, security and privacy were examined. Results from a survey involving 268 respondents in Malaysia show user trust and privacy concerns have the highest effect towards electronic banking adoption in Malaysia.

Maitlo et al (2015) made research titled ‘factors that influence the adoption of online banking services in Hyderabad, Pakistan. The purpose of the research was to determine those factors that influence the adoption of online banking services in Hyderabad. A theoretical model is provided that conceptualizes and links different factors influencing the adoption of online banking in Hyderabad. A total of 302 respondents in Hyderabad were sampled for responding. Factor analyses and regression technique are employed to study the relationship. The results of the model tested clearly that use of online banking is influenced by channel convenience, perceived risk, security perception, prior internet knowledge and information on online banking. The results also determine that demographic factors also impact significantly on online banking.

Dhekra Azouzi (2009) carried out an exploratory study in Tunisia in order to understand the customers' behavior regarding the adoption of electronic banking. To achieve this purpose, an empirical research is carried out in Tunisia and it reveals that a panoply of factors is affecting the customers-attitude toward e-banking. For instance; age, gender and educational qualifications seem to be important and they split up the group into electronic banking adopters and traditional banking defenders and so, they have significant influence on the customers' adoption of e-banking. Furthermore, this study shows that despite the presidential incentives and in spite of being fully aware of the e-banking's benefits, numerous respondents who were considered in the study are using the conventional banking. It is mentioned that the fear of loss because of transactions errors or hackers plays a significant role in alienating Tunisian customers from online banking.

In addition to the above studies which were conducted in other countries, there are limited number of published researches in Ethiopian context. Ayana (2014) used technology-organization environment model (TOE) to identify factors that affect adoption of E-banking in the Ethiopian banking industry. The study was conducted based on the data gathered from four banks in Ethiopia; three private banks (Dashen bank, Zemen bank and Wegagen bank) and one state owned bank (commercial bank of Ethiopia). A mixed research approach was used; primary data collected using self-administered questionnaires distributed to 160 employees of the purposely sampled banks and interviews made to managers of the four banks as well as the banking supervision manager at National Bank of Ethiopia. The result of the study indicated that, the major barriers Ethiopian banking industry faces in the adoption of Electronic banking are: security risk, lack of trust, lack of legal and regulatory frame work, Lack of ICT infrastructure and absence of competition between local and foreign banks. On the other hand, Yitbarek & Zeleke (2013) identified factors such as attitude, subjective norm, perceived behavioral control, perceived usefulness and perceived ease of use and perceived risk were significant in affecting users' intention to use e-banking service channels in a study conducted to analyze factors that influence customers' intention to adopt e-banking service channels in Bahir Dar city through an integration of TPB and TAM models. Besides, Milkessa et al (2016) revealed in their study that low level of infrastructure, lack of legal frame works, security risk which lessen confidence of customer to use those technologies, lack of trust on the use of technological innovation and limited top management support as the major challenges of Ethiopian private commercial banks in respect to technology adoption. But this study is carried out from the banks' perspective as they surveyed 137 employees of the selected banks

and did not look in to individual customers' side. Gadise & Tekabe (2017) studied determinants of e-banking service adoption from customers' perspective in Ethiopia and found out that cost, trust, privacy and security are significant determinants of e-banking service adoption among commercial banks' customers in Ethiopia. Findings of a study by Zeleke (2014) who surveyed sample of 211 people also revealed that variables such as attitude, subjective norms, perceived behavioral control, perceived usefulness, perceived ease of use and perceived risk were significant in affecting users' behavioral intention to use e-banking service channels. The result of same study also revealed that the variable perceived behavioral control plays the most important role, followed by attitudes and perceived usefulness in predicting an individual's intention to accept e-banking service channels.

2.4. Knowledge Gap

There are several studies carried out in different countries to investigate factors influencing customers' behavior in e-banking service channel adoption. Most of such studies are made in developed countries who have been implementing electronic banking service practice during its early stage of introduction. There are also few studies conducted in few African developing countries such as Tunisia, South Africa, Zambia and the likes. All such studies evidenced the presence of different variables affecting customers' intention in e-banking adoption. However, the number of published studies related to factors affecting e-banking service channel adoption by customers in Ethiopian context is very limited. The existing studies carried out in Ethiopia mainly focused from the commercial banks' side. For example, Ayana (2012) studied electronic banking challenges and barriers in Ethiopia. Uvaneswarn. S.M (2017) studied challenges in e-banking service and its impact on banks' profitability in public sector bank in Ethiopia. Teklebrhan (2017) also studied E-business strategy to adopt electronic banking services in Ethiopia from the banks' aspect. Besides, Mohammed (2014) studied banker's perception of electronic banking specific to the case of Adama city. Among the limited number of published studies from customers aspect, Yitbarek & Zeleke (2013) carried out analysis of factors influencing customers' intention to the adoption of e-banking service channels in Bahirdar city through an integration of TAM, TPB and perceived risk. Similar study was carried out by Zeleke (2014) using constructs developed from TAM, TPB and perceived risk.

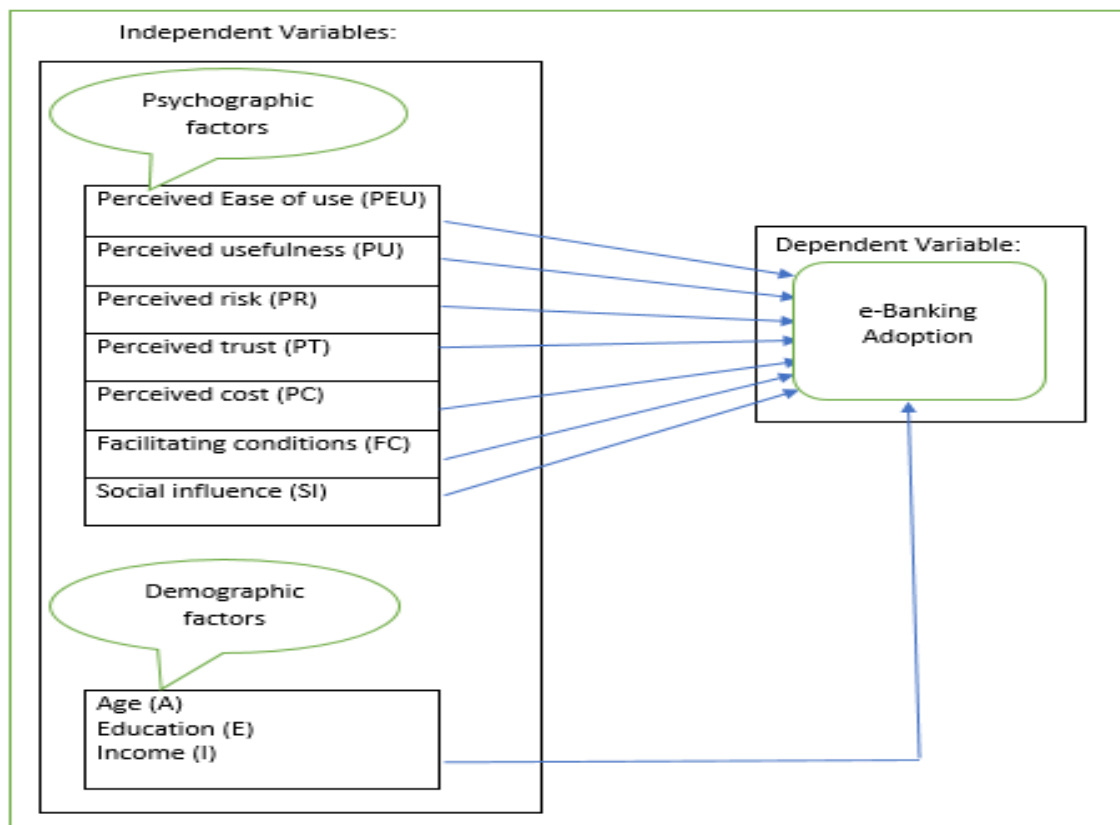
Previous studies in Ethiopia are limited to perceived benefits and challenges of e-banking adoption of commercial banks. On the other hand, those studies which were carried out from individual users' perspective side were targeting only bank officials and bank employees as a study population which excluded customers' domain. Besides, only TAM and TPB were considered to construct predicting variables. As per the researcher's knowledge, there is only one cross sectional study carried out by Gadise & Tekabe (2017) using eleven commercial banks in Ethiopia based on only few factors such as, trust, cost, security and privacy. But the potential influencing factors are anticipated to be more than these. Thus, this study therefore aims at filling such gap by shedding light on issues that influence customer's usage of electronic banking services in order to create better understanding of this new technology in the banking sector of Ethiopia with a particular focus of bank customers in Addis Ababa city using selected additional psychographic variables taken from TAM, DOI, UTAUT and TOE technology acceptance models as well as other demographic variables as shown in the conceptual frame work shown in the next section.

2.5. Conceptual frame work (Research model)

In order to achieve the research objectives and test the research hypotheses, the conceptual frame work or research model is developed in accordance with the existing theories and ideas reviewed from the literature. In TAM developed by Davis et al. (1989), perceived usefulness and perceived ease of use were found to be main determinants of IT adoption. In other words, an individual's intention to use an application is predicted by his/her perception of the technology's usefulness and its simplicity. Thus, the researcher adopts perceived usefulness, perceived ease of use and perceived risk from TAM. TOE model of Tornatzky and Fleischer (1990) covers factors related to technological context, organizational context and external environment. Perceived risk and ICT infrastructure from technology and environmental contexts are considered respectively in this study. In DOI theory, Roger (2003) identified five characteristics of innovations: triability; complexity, relative advantage; compatibility. Out of these five characteristics, the relative advantage dimension includes perceived cost and time and hence it is taken in to consideration in this study. The UTAUT model establishes four constructs: 1) performance expectancy 2) effort expectancy 3) social influence and 4) facilitating conditions (Samaradiwakara et al 2014). Performance Expectancy from the UTAUT, which can be defined as the extent to which an individual believes the technology will help improve job performance is the same as the perceived

usefulness from the TAM and the relative advantage from the DOI. Effort Expectancy can be defined as the extent to which the technology is perceived to be easy to use. The ease of use variable from the TAM and the DOI capture the essence of this construct. Thus, social influence and facilitating conditions are taken in to consideration in this study Arshia Khan et al (2011). Finally, trust is identified as one of the strongest predictors of e-banking adoption behavior by individuals (Daniel K (2014), Maryam Sohrabi et al (2013)) and hence also included in this study. Therefore, the study uses the following conceptual frame work which is developed based on a combination of variables from TAM,DOI,UTAUT and TOE models as well as additional variable from previous studies in other countries to benefit from the combined effect of all such models and to have more precise forecast regarding the factors affecting adoption of e-banking service channels amongst the customers of Commercial Banks in Addis Ababa

Figure 1: Proposed research model (Conceptual framework)



Source: Compiled by the researcher based on variables from TAM, DOI, UTAUT and TOE models.

This research frame work illustrates the interaction between dependent variable and the independent variables. Besides, the research model developed here above posited that perceived ease of use, perceived usefulness, perceived risk, perceived trust, perceived cost, facilitating conditions and social influence have influence on adoption of E banking service channels by commercial banks' individual customers in Addis Ababa with the assumption of any other intermediary variables that affect the relationships are constant.

2.6.Hypotheses Development

The term hypothesis is a tentative statement about the solution of the problem. Hypothesis offers a solution of the problem that is to be verified empirically and based on some rationale (Kabir,2016). In order to achieve the objectives of the study and address the research questions as well, the study is designed to investigate factors that could explain adoption of E banking service from bank customers' perspective in Addis Ababa, which is considered as the dependent variable against list of independent variables indicated in the above research model. The description of both dependent and independent variables with related hypothesis is discussed here below:

2.6.1. Dependent Variable

Dependent variable is the variable that is affected by the independent variable (Kaur, 2013). E-banking service channel adoption by commercial banks' customers in Addis Ababa is considered as dependent variable in this study. For a new technology to be adopted, awareness among users plays fundamental role. There shall be also training to increase knowledge of the technology and enabling infrastructure shall be available. The technology shall also be accessible to the customers and in order to avoid slow adoption rate it shall also be reliable and the innovator should keep on providing information about related updates on the technology (Maduku, 2014).

2.6.2. Independent Variables-Psychographic factors

The independent variable is the antecedent while the dependent variable is the consequent. Independent variable is the cause variables or the one that identifies forces or conditions that acts on something else (Kaur, 2013). In this study, based on the information gathered from the literature

and different empirical studies, it has been found that certain demographic and psychographic factors tend to be associated with electronic banking service adoption. Accordingly, the following hypotheses are formulated related to seven psychographic factors and three demographic factors.

2.6.3. Perceived ease of use

Zeithaml et al. (2002) stated that the degree to which an innovation is easy to understand, or use could be considered as perceived ease of use. Perceived ease of use is one of the variables in the TAM model. Extensive research over the past decade provides evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly (Jahangir and Begum, 2008). Electronic banking service is one of the latest technologies introduced in the Ethiopian Banking industry. Mathieson (1991) affirmed that the drivers of growth in electronic banking are determined by the perceived ease of use which is a combination of convenience provided to those with easy internet access, the availability of secure, high standard electronic banking functionality, and the necessity of banking services. Thus, it can be hypothesized as follows:

H1: There is a significant positive relation between perceived ease of use and adoption of electronic banking services.

2.6.4. Perceived usefulness

According to Davis et al. (1989), perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. Numerous studies underscore the central role that perceived usefulness plays in e-banking acceptance and usage. E-banking presents a radical change in the banking sector as it is known to have improved banking services for customers in a significant manner. However, customers do not seem to be aware of the opportunities and benefits offered by e-banking. Elements required for technology adoption and use are the creation of awareness and delivery of information on the usefulness of electronic banking (Maduku, 2014). Frangos (2009) notes that perceived usefulness is the overriding motive behind customers' use of e-banking. Therefore, it can be hypothesized as:

H2: *There is a significant positive relation between perceived usefulness and adoption of electronic banking services.*

2.6.5. Perceived risk

The concept of perceived risk can be defined as “the amount that would be lost if the consequences of an act were not favorable, and the individual’s subjective feeling of certainty that the consequences will be unfavorable.” (Hassan et al. 2006).

The notion of risk perception has drawn substantial interest from scholars of various fields due to its important consequence on the use of different new technologies. TAM has been considered an excellent model in understanding individual’s perception on the use of the particular technology. In spite of this, when individuals accept technology under security threats, the perceived risk (PR) is generally unnoticed by past TAM studies (Sajjad et al,2010). On the other hand, such risk may be physical or psychological and bring negative consequences on technology adoption process. For instance, the resistance to Internet banking and their connections to values of individuals and concluded that both functional and psychological barriers arise from service, channel, consumer, and communication. ATM services are still preferred by customers, because of their old routine and the Internet’s insecurity, inefficiency, and inconvenience. Besides the fear of possible misuse of changeable passwords and the lack of proof provided by an official receipt. To this effect, customers will fear sharing important information such as credit card or ATM pass word when they are using public network. They may lose confidence sharing sch important secret information in mobile banking or internet banking services. Earlier studies also integrate perceived risk with the other two TAM variables in electronic banking service channel adoption. Hence, it can be hypothesized that

H3: *There is significant negative relation between perceived risk and adoption of electronic banking services*

2.6.6. Perceived trust

Currall and Judge (1995) defined trust as an individual’s reliance on another party under conditions of dependence and risk. Considering that risk is a function of the probability that a hazard arises and the consequences of the hazard (Schneider 1998), an individual’s trusting behavior depends

on the nature of the consequences. In the context of high-consequence systems such as Internet banking, risk avoidance behavior may arise since reducing risk takes precedence over cost savings. Examining the role of initial trust in the adoption of Technology and how it is crucial, initial trust model has gained separate attention in electronic commerce literature due to the presence of high uncertainty and risks associated with the domain. Trust has been widely examined and proven to be a crucial factor predicting customer's perception and intention toward electronic banking such as mobile banking (Lafraxo et al,2018). Accordingly, it is hypothesized as

H4: There is significant positive relation between perceived trust and adoption of electronic banking services

2.6.7. Perceived cost

From M-commerce perspective, Perceived Cost (PC) is the cost involved in using M-commerce facility including transaction cost, equipment cost; applications download cost and access cost. Some researchers argued that access cost, equipment costs, and transaction fees are important factors that create perception in users' mind that M-commerce is expensive to use. Many researchers found negative correlation between perceived cost and consumers' intention to use M-commerce (Rind et al,2017). Electronic banking is one form of M-commerce and in this study, cost is interpreted as the cost of using electronic banking services. Many banks are turning to self-service technologies to provide their customers with many channels to access their products and services. Internet and cell phones are some of the least costly and increasingly very popular financial service delivery channels. In developing countries though, the level of information and communication technology development, the cost of the internet and the limited bandwidth of mobile networks and other access technologies may be elements that may constrain such innovation (Simon Chidindi et al 2014). It is therefore hypothesized that

H5: There is significant negative relation between perceived cost and adoption of electronic banking services

2.6.8. Facilitating conditions

Facilitating condition is one of the constructs included in the UTAUT model. It is defined as the effect of organizational and technical infrastructure to support the use of Internet banking, such as user's knowledge, ability, and resources (Venkatesh et al., 2003). Facilitating conditions are considered to be perceptions of individuals that technical and organizational infrastructure required to use and support an intended system are available and thus intention to adopt new technologies should not be an issue (Paul et al,2015). Facilitation condition was similar as perceived behavioral control and compatibility. Authors like Venkatesh et al. (2012) stated that facilitating condition refers to consumers perception of the resources and support available to perform a behavior. In order to perform internet banking users requires to have certain skills such as configuring and operating computers and connecting to the internet (Martins et al., 2014). Thus, facilitating condition is hypothesized as:

H6: There is significant positive relation between facilitating condition and adoption of electronic banking services

2.6.9. Social influence

Social influence has originally been defined as the change in an individual's thoughts, feelings, attitudes, or behaviors that results from interaction with another individual or a group that is perceived to be similar, desirable, or expert (Lorenz and Buhtz, 2017). Social influence has been incorporated into all major theoretical models that underlie Technology acceptance research, such as the Theory of Planned Behavior (Ajzen, 1991), the Technology Acceptance Model 2 (Venkatesh and Davis, 2000), and the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003).

As the old adage goes, old birds teach the young ones how to fly applies here. Social influence from elders, senior employees (advanced users), top management buy-in/support, peers highly eases intention and the process of technology adoption. Social influence gives confidence to new users of the technology of its usefulness and value, thus new users will easily buy in to adopt it. Different researchers present confirmatory findings in relation to intention to accept high-tech innovations as being positively affected by social influence (Paul et al,2015). It is therefore

reasonable to hypothesize the following relationship of social influence with electronic banking service in the context of the current study where the social bond is anticipated to be higher amongst the study population:

H7: *There is significant positive relation between social influence and adoption of electronic banking services*

2.6.10. Demographic factors

Demographics are known as important factors in technology adoption research and have always been key indicators and predictors of technology use (Yusuf et.al). It has been widely recognized that demographic factors have a great impact on consumer attitudes and behavior towards new technology acceptance such as e-banking. Age, gender, educational level, income and occupation are among the most influential demographic variables affecting e-banking usage (Beza and Dhiraj,2017). This study aims also to investigate the relationship between demographic factors such as Age, Education and Income on consumer willingness to adopt e-banking. Young and more educated peoples are better in their adoption of e-banking as compared to their counter parts. young generation is more familiar with computer and internet, so they are more interested in using the e-banking system particularly ATM and online transaction rather than old and traditional banking services. Besides, high income clients and those who have current account and computer and internet literate are more likely to use e-banking services (Beza and Dhiraj,2017). It is therefore hypothesized as:

H8a: *There is significant positive relation between younger age and adoption of electronic banking services*

H8b: *There is significant positive relation between customers with high level of education and adoption of electronic banking services*

H8c: *There is significant positive relation between customers with higher income and adoption of electronic banking services*

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

This chapter deal with the methods of the study; the type and design of the research, the research model to be developed based on the information adapted from previous studies, the subjects or participants of the study, sources of data, and the data collection tools used, the procedures of data collection and the methods of data analysis.

3.1. Research Design

Research designs are types of inquiry within qualitative, quantitative, and mixed methods approaches that provide specific direction for procedures in a research design. The research design adopted for this study is quantitative and qualitative design (mixed approach). According to Creswell (2003) quantitative approach uses statistical methods in describing patterns of behavior and generalizing findings from samples to population of interest and employs strategies of inquiry such as experiments and surveys. Thus, survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. It includes cross-sectional and longitudinal studies using questionnaires or structured interviews for data collection—with the intent of generalizing from a sample to a population. This study followed cross-sectional approach and primary data has been collected using structured questionnaires that contain questions that would enable elicit information from individual commercial banks' customers on factors affecting the adoption of e-banking service channel from the population and from the interview of branch managers of the selected commercial banks and sampling technique described in the following sub section. Secondary sources of data has been also used using review of relevant documents such as annual reports and web pages.

Furthermore, in order to address the statement of the problem, answer the research questions and meet the research objectives, the design intended for this study is both descriptive and explanatory type. Descriptive research studies are those studies which are concerned with describing the characteristics of an individual, or of a group. The main characteristic of this method is that the researcher has no control over the variables; he/she can only report what has happened or what is

happening (Kothari, 2004). Explanatory designs try to establish cause-and-effect relationships. The primary purpose of explanatory research design is to determine how events occur and which ones may influence particular outcomes (Dawson & Bob 2006). Explanatory studies are characterized by research hypotheses that specify the nature and direction of the relationships between or among variables being studied. Therefore, this study will use both descriptive and explanatory methods in order to explain the factors influencing e- banking adopting in Addis Ababa, Ethiopia.

3.2.Population and Study area

In research methods, population is the entire aggregation of items from which samples can be drawn (Yahiya, 2011). The target population of the study includes individual commercial banks' customers in Addis Ababa city (i.e. those who have accounts at different commercial banks; both users and non-user of electronic banking service channels. Non-users are included in the study frame to know their perception towards electronic banking). Primary data has been collected through structured questionnaire survey that targets at individual banking service users and interview of branch managers of the selected commercial banks. In order to see if there are differences among different demographics towards the factors affecting e-banking adoption, efforts were made to collect data from different consumer groups based on their age, gender, educational qualification, and level of income.

Addis Ababa city is selected as the study area. Because it is the seat of the Federal government and it is the most significant economic center. Due to urban agglomeration, it is comprised of people who have come from different parts of the country. Thus, in this study, it is expected to elicit more relevant information from such heterogeneity and the key findings of the study can have similar important implications at regional levels. On the other hand, all commercial banks have established their head quarter and relatively have more branches in Addis Ababa than they do have elsewhere in the country. Hence, Addis Ababa is believed to be better study area in this study than any other parts of the country.

3.3.Sampling technique

A sample is a percentage of the total population in statistics. It is part of the whole population chosen for a survey or experiment. In this study, both current users of e-banking service channels and non-users are considered; this entails that the population is large. Cochran's formula is considered especially appropriate in situations with large populations. The total number of individual customers within each commercial bank in Addis Ababa is not known at the time when this study is carried out. Thus, the following Cochran's (1977) formula is applied to determine optimal sample size at 95% confidence level and adjusted with anticipated 80% response rate:

$$n_0 = \frac{Z^2 P(1-P)}{e^2}$$

For a confidence level of 95%, $Z = 1.96$, $e = 0.05$, and $p = 0.05$. Thus,

$$\begin{aligned} n_0 &= \frac{(1.96)^2 * 0.05 * 0.05}{0.05^2} \\ &= 385 \end{aligned}$$

n_0 is the minimum sample size required in such unknown population size. However, in this research, it is planned to have a response rate of 80% and thus the optimal sample size is recalculated as hereunder:

$$n_1 = 385/0.8 = 481$$

Where:

Anticipated rate of return = 80%

n_1 = Sample size adjusted for targeted response rate

Minimum sample size = 385

Accordingly, sample size of 480 walk-in customers of commercial banks in Addis Ababa city was taken by using convenience sampling method (or Accidental Sampling). In convenience, sampling (also known as opportunity or grab sampling technique) a sample is taken from the population which is at convenience or in other words which is close at hand and it is a form of non-probability sampling method. According to the annual report of National Bank of Ethiopia (2017/18), there are totally 17 commercial banks (one state owned and sixteen private banks). Walk-in customers to 8 selected commercial banks in Addis Ababa are chosen as samples out of the 17 commercial banks. These are Commercial Bank of Ethiopia, Awash International Bank, Dashen Bank, Bank

of Abyssinia, Wegagen Bank, Buna International Bank, Oromia International Bank, and United Bank. These 8 commercial banks are chosen as a sample because it will be too expensive to address all walk-in customers to other potential sources as well. Besides, they all have adopted electronic Banking technology. Due to lack of financial resources, time constraint and a study conducted by a single researcher, convenience sampling was adopted as the population sampling technique for this research and the survey is planned to be conducted using the procedure illustrated in the next sub section.

3.4.Types of Data and Data Collection Instrument

In order to investigate e-banking adoption phenomenon and identify the most influential factors amongst individual customers of commercial banks in Addis Ababa city, both primary and secondary sources of data have been used. For Primary data collection, 480 questionnaires were distributed to 480 sample walk-in customers to the above eight selected commercial banks in Addis Ababa and 387 valid responses obtained. Besides, an interview was made to branch managers of the selected commercial banks. As a secondary source, annual report of national Bank of Ethiopia and web pages of the respective commercial banks have been used as secondary sources to grab secondary data. The intended primary data will be collected by means of self- administered questionnaire. The questionnaire will have two parts in which the first part targets to collect data related with the overall demographics of the sample respondents and the second part contains close-ended questions to collect data related with factors affecting e-banking adoption.

Participants were asked to rate the relative significance of those factors identified from the literature and review of different empirical studies in five-point Likert scale that was developed ranging from 5 (strongly agree) to 1 (strongly disagree) to elicit information on how such factors affect their e-banking service experience. The factors included in the questionnaire are developed based on past literature in general and in due consideration of the hypothesized relationship which is established in this study. Besides, to obtain personal background of the participants, questions regarding their gender, age, level of education, and income were included in the questionnaire. The draft version of the survey form has been pre-tested using ten individual customers of commercial banks in Addis Ababa to check with possible problems with statement clarity and respondents' understanding as well as ability to complete the survey instrument. Rewording was made when needed.

3.5.Procedures of Data collection

Questionnaires were distributed to 480 sample individual customers of commercial banks in Addis Ababa in the following manner: First, the draft questionnaire has been distributed and tested among ten randomly selected individual customers of commercial banks who were willing to participate in the survey then appropriate rewording was made when needed. Second, the 480 questionnaires were evenly divided in to eight in target of walk-in customers of the above eight selected commercial banks' customers in Addis Ababa city as shown in table 3.5. Accordingly, 60 questionnaires were distributed for each target group. Third, the questionnaires have been distributed to the customers within one-week time through designated focal person at each commercial bank and completed questionnaires were re-collected within 10 days time interval. It was planned to distribute at least 6 questionnaires on daily basis and the entire 60 questionnaires at a single point was expected to be collected within 10 days from all samples and such plan was achieved. Thus, the entire completed questionnaires from all target areas were planned properly and the respective valid or usable data has been collected from 387 walk-in customers within 10 days from date of questionnaire distribution, 10th of May 2019. 67 questionnaires left uncollected and 26 questionnaires were rejected during the editing and coding process.

Table3.5: Sample breakdown

No.	Name of Bank	Sample size
1	Commercial Bank of Ethiopia	60
2	Awash International Branch	60
3	Dashen Bank	60
4	Bank of Abyssinia	60
5	Wegagen Bank S.co	60
6	Buna International Bank	60
7	Oromia International Bank	60
8	United Bank S.co	60
	Total	480

Source: Own computation

3.6.Methods of Data Analysis

Analysis of data will be made in line with three basic stages: 1) Data preparation, 2) tabulation or presentation of data and 3) analysis of relationship of variables as well as hypothesis testing. As part of data preparation, the data collected from the survey has been compiled, sorted for completeness, checked for errors and omissions and coded to have the required quality, accuracy and completeness. In order to make the data ready for analysis, data preparation was aided using Statistical Package for Social Sciences (SPSSv23) software. The data was entered into the computer system using this software. To compile the actual results, frequency tables, percentages and graphs have been generated to determine the number of respondents who express their opinion on a particular item which is included in the questionnaire. Analysis of data was made through descriptive, correlation analysis and inferential statistics with the help of Statistical Package for Social Sciences (SPSSv23). Descriptive statistics such as frequency distribution has been used to assess the demographic profile of the respondents to make the analysis more meaningful, clear and easily interpretable. Descriptive statistics allow the researchers to present the data acquired in a structured, accurate and summarized manner. In order to assess the influence of factors identified on e-banking service channel adoption among commercial banks' customers, the multiple linear regression model, which is constructed in the following section, was used. Besides, Cronbach's alpha test was used to test for reliability and internal consistency of the research variables.

3.7.Validity and Reliability

3.7.1. Validity

The scientific soundness of a research finding is determined by the validity of the instruments used. All possible efforts were exerted to make the data collection instruments easily understandable by the respondents so that the intended information can be collected thereby increasing trustworthiness of the ultimate findings. After the questionnaire was constructed, pre-testing (piloting) was done with 10 respondents who were within the target populations. Constructive comments were collected from the individuals and the questionnaire was adjusted accordingly.

3.7.2. Reliability

Reliability is an indicator of a measure's internal consistency. Consistency is the key to understanding reliability (Zikmund, 2013). A measure is reliable when different attempts at measuring something converge on the same result.

Among the models of reliability, Alpha (Cronbach) was used in this study to estimate the consistency /uniformity of the measurement of collected data.

Scales with a coefficient (α) between 0.80 and 0.95 are considered to have very good reliability. Scales with a coefficient (α) between 0.70 and 0.80 are considered to have good reliability, and when the coefficient (α) is below 0.7, the scale has poor reliability. A coefficient alpha of 0.7 percent and above implies that the data is reliable and can be used for analysis. Therefore, based on this theory, Alpha (Cronbach) was calculated for the dependent variable of E-Banking adoption and the result was 0.784 for the pilot test and 0.793 was for the final survey. This result was within the acceptable range of reliability coefficient. The scale consistencies of the independent variables are described in table 3.7

Table 3.7. Reliability test (Cronbach's alpha)

Dimensions	Alpha coefficients for dimensions
Perceived ease of use	0..823
Perceived usefulness	0.715
Perceived Risk	0.772
Perceived trust	0.701
Perceived cost	0.760
Facilitating conditions	0.719
Social influence	0.753
Income	0.840
Education	0..823
Age	0.725
Reliability of total scale	0.880

Source: Survey Result, SPSS (2019)

3.8. Model specification

Multiple regression is the appropriate method of analysis when the research problem involves a single metric dependent variable presumed to be related to two or more metric independent variables. The objective of multiple regression analysis is to predict the changes in the dependent variable in response to changes in the independent variables. This objective is most often achieved through the statistical rule of least squares. Whenever the researcher is interested in predicting the amount or size of the dependent variable, multiple regression is useful (Hair et al, 2014). In order to achieve the research objective, the following multiple linear regression model is constructed. Due to the continuous nature of the dependent variable (e-banking adoption), multiple linear regression model is considered to fit the purpose of this study. As described in earlier section, the study considers e-banking service channel adoption as dependent variable whereas the psychographic factors such as perceived ease of use, perceived usefulness, perceived risk, trust, cost, facilitating conditions and social influence are categorized as independent variables. The demographic factors (age, level of education and income) are considered as control variables. Considering the findings of similar studies in other country, the assumptions of classical linear regression model are also considered fulfilled in this study as well. Therefore, the model of the study is established as follows:

$$EBA_i = \beta_0 + \beta_1PEOU_i + \beta_2PU_i + \beta_3PR_i + \beta_4T_i + \beta_5C_i + \beta_6FC_i + \beta_7SI_i + \varepsilon_i \dots \dots \dots \text{Eq 1}$$

Where:

EBA= E-banking adoption

β_0 = E-Banking adoption in absence of Perceived Ease of Use, Perceived Usefulness, Perceived risk, Trust, Cost, Facilitating conditions and Social influence

β_1 = The partial change in the usage of Electronic Banking adoption due to one unit change in perceived Ease of Use variable while other things remain constant

β_2 = The partial change in the usage of Electronic Banking adoption due to one unit change in Perceived Usefulness variable while other things remain constant

β_3 = The partial change in the usage of Electronic Banking adoption due to one unit change in Perceived Risk variable while other things remain constant

β_4 = The partial change in the usage of Electronic Banking adoption due to one unit change in Perceived Trust variable while other things remain constant

β_5 = The partial change in the usage of Electronic Banking adoption due to one unit change in Perceived Cost variable while other things remain constant

β_6 = The partial change in the usage of Electronic Banking adoption due to one unit change in Facilitating conditions variable while other things remain constant

β_7 = The partial change in the usage of Electronic Banking adoption due to one unit change in Social Influence variable while other things remain constant

ϵ_i is an error term at time i .

Table 3.8. Measurement of variables

	Notation	Variables	Measurement	Sources
Dependent variable	EBA	E-Banking Adoption	Question 38-44	Maduku, 2014, Laforet and Li,2005
Independent variables	POE	Perceived ease of use	Question 10-12	Gu et. al (2009), Lin (2011)
	PU	Perceived usefulness	Question 13-15	Gu et. al (2009), Lin (2011)
	PR	Perceived risk	Question 16-20	Lee (2009), Rokibul (2013)
	PT	Perceived trust	Question 21-24	Bhattacharje(2002), Rokibul (2013)
	PC	Perceived cost	Question 25-27	Chidindi,2014
	FC	Facilitating conditions	Question 28-30	Martins et al,2014
	SI	Social influence	Question 31-33	Lorenz and Buhtz,2017
	A	Age	Question 36	Dhiraj,2017
	Edu	Education	Question 33	Dhiraj,2017
	Inc	Income	Question 34	Dhiraj,2017

Source: Developed by the researcher

3.9.Ethical consideration

The source of data for the study was questionnaire from walk-in customers of the selected commercial banks. The respondents were assured that the information provided by them is confidential and used exclusively for academic purpose. In addition, respondents were informed not to include any identity detail and personal reference in the questionnaire. This minimized the baseness of the response collected from the respondents. In addition, the different research studies, articles and textbooks used as a reference in the study are exhaustively cited.

Generally, the whole process of the research was controlled to be within acceptable professional ethics.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

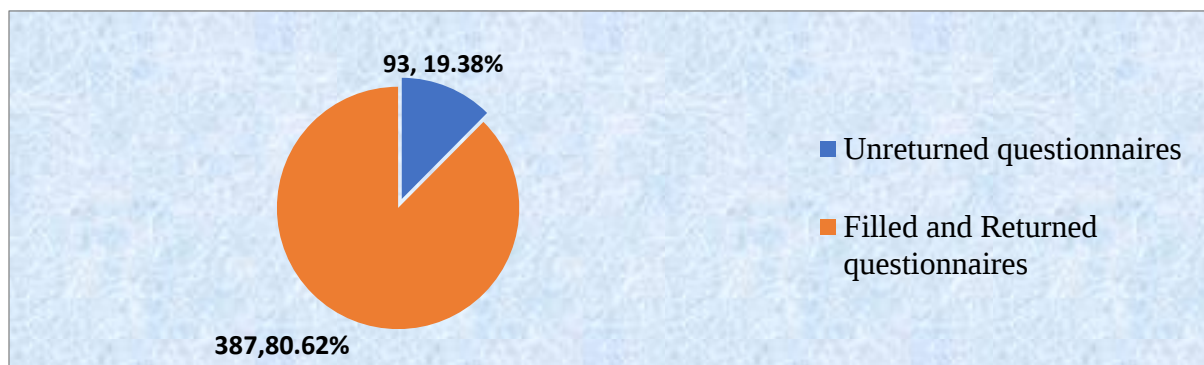
4.1.Introduction

This chapter covers presentation, analysis and interpretation of the data collected from samples drawn in line with the objective of the study and scholarly articles covered in the review of literature. It presents the descriptive analysis on variables of the study and results of the regression analysis that contains the main findings of the study and the conclusion of the hypothesized relationships of the selected variables.

4.2.Response rate

The study involved 480 sample respondents and distribution of questionnaires made accordingly as per the procedures specified earlier. However, out of these targeted respondents, only 387 sample respondents completed and returned the questionnaires. This response rate represented 91.75% the total target population size. Figure 2 here below shows same. This response rate was representative and satisfactory enough to draw conclusions out of this study. Mugenda (1999), explained that a 50% response rate is adequate for reporting and analyzing the results; a response rate of 60% is said to be good while a response rate of 70% and above is said to be excellent which is the case for this research.

Figure 2. Response rate



Source: Survey Result, SPSS (2019)

4.3. Demographic characteristics of respondents

As shown in Table 4.2 below, the respondents' gender profile indicates 58% of the sample respondents were male while the remaining 42% were female. This shows that the majority of sample respondents were males. Considering the age group of sample respondents, the highest age group fall between the ranges of 26-35 years old which accounts for 40.33% followed by the age group range of 36-45, less than 25 years old, 46-55 years old, and above 55 years old, which represent 27.52%, 13.9%, 11.17% and 7.08% respectively. This shows that the highest adopter of electronic banking service falls in the age range of 26-35. Combining the first two largest age group, the age range of sample respondents who fall between 26 to 35 as well as 36 to 45 (67.85%) represent the majority portion of the working population in Ethiopia. It shows also a good opportunity for an increased adoption of electronic banking service channels in the future. The majority of the sample respondents, (38.15%) are first-degree holders while the least (7.9%) were post-graduate degree holders. The remaining (28.06% and 25.89%) are with education profile of diploma certificate and high school or less respectively. Besides, as per the occupational status of the sample respondents, majority of them, who represent 34.88% of the sample respondents are in employed status and the second largest group are self-employed ones who represents 32.43% of sample respondents. This result shows an existence of good opportunity for future expansion of electronic banking service channels as it is anticipated that those who are in employment status do not have sufficient time to visit commercial banks for different services in normal working hours as their regular time is occupied by their regular duty. Hence, electronic banking service channels such as Mobile banking will give them an advantage to carry out banking transactions without traveling to the bank branches. Finally, the results in the said table shows that the highest percentage (25.34%) of respondents earn monthly income of 1,000 to 2,500 birr followed by 23.16% of the respondents who earn 5,001 to 10,000 birr.

Table 4.2. Demographic characteristics of respondents

Variables	Category	Frequency	Percent
Gender	Male	213	58%
	Female	154	42%
Age Group	< 25	51	13.9%
	26-35	148	40.33%
	36-45	101	27.52%
	46-55	41	11.17%
	> 55	26	7.08%
Education	High School or less	95	25.89%
	Diploma	103	28.06%
	Bachelor's degree	140	38.15%
	Postgraduate degree	29	7.9%
Occupation	Student	66	17.98%
	Employed	128	34.88%
	Self-employed	119	32.43%
	Unemployed	54	14.71%
Income	Less than 1,000	74	20.16%
	1,000 – 2,500	93	25.34%
	2,501 – 5,000	80	21.8%
	5001 – 10,000	85	23.16%
	Above 10,000	35	9.54%

Source: Survey Result, SPSS (2019)

4.4.Usage status of e-banking service

Table 4.3 shows e-banking service usage status of sample respondents of the individual customers of the commercial banks in Addis Ababa. Accordingly, out of the total surveyed 387 individual

bank customers, 75.20% of the respondents are using e-banking service channels while the remaining 24.80% are not using. The table also shows that risk, technological complexity and inconvenient infrastructure (which account for 39.56%, 28.57% and 19.78% of sample respondents respectively) were the major prohibiting factors to wards e-banking service channel usage among the non-users of e-banking services. This implies that commercial banks need further consider improvement mechanisms to minimize the potential perceived risk associated with e-banking service usage and to make the service more user friendly so that they can attract more customers. Majority of the respondents (75.72%) are ATM users and mobile banking users that account for 17.75% follow this. POS machine and internet banking users are the least as it can be seen from the table and these represent 3.99% and 2.54% respectively. This implies that majority of the respondents are ATM card holders and it shows availability of an opportunity for commercial banks to improve the functioning of their ATM machines and work more on to expand their customer base for mobile and internet banking services. In addition, according to the responses from those who had signed up for e-banking service, 47.46% of the sample respondents responded as they were influenced by family and friends to sign up and 40.94% were influenced by advertisement messages from commercial banks. On the other hand, 7.61% of respondents indicated that they were influenced by bank's policy and 3.99% of the respondents were influenced by others such as personal decision to sign up.

Table 4.3. E-banking service usage status

Statement	Category	Frequency	Percent
Are you using any form of e-Banking services?	Yes	276	75.20%
	No	91	24.80%
What prohibits you from e-banking service usage?	Don't aware of the service	-	
	Technological complexity	26	28.57%
	Lack of trust	11	12.09%
	Inconvenient infrastructure	18	19.78%
	I feel it is riskier	36	39.56%
	Not affordable:	-	-
	Other	-	-

Which type of e-banking service channel are you using?	ATM	209	75.72%
	Mobile banking	49	17.75%
	Internet banking	7	2.54%
	POS	11	3.99%
Who influence you to register for e-banking service?	Advertisement	113	40.94%
	Family/friends	131	47.46%
	Bank's policy	21	7.61%
	Other	11	3.99%

Source: Survey Result, SPSS (2019)

4.5. Psychographic factors affecting e-banking service adoption

E-banking service adoption can be affected by different psychographic factors such as perceived ease of use, perceived usefulness, perceived risk, trust, cost, facilitating conditions and social influence as stated in the literature review. Commercial banks' customers were requested their level of agreement with different statements under each of these factors and their responses were analyzed and the descriptive results are as presented in each subsequent tables shown here below.

4.5.1. Perceived ease of use

As shown in Table 4.5.1 here below, when asked if learning to use electronic banking services would be easy, majority of the respondents (35.15%) strongly agreed and when asked if it is easy for them to use electronic banking, 33.24% were neutral. In addition, when respondents further asked if they think it would take them lots of time to learn how to use electronic banking services, 50.41% of them strongly disagreed. Thus, it can be observed that for an electronic banking to be adopted smoothly, it shall be with an easy to use functioning. This is also in consistence with the results of past extensive researches over the past decade that provide evidence of the significant effect of perceived ease of use on usage intention, either directly or indirectly (Jahangir and Begum, 2008).

Table 4.5.1. Summary of survey findings for PEOU

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived ease of use							
PEOU1	I think that learning to use electronic banking services would be easy.	23.98%	25.34%	3.81%	11.72%	35.15%	Strongly Agree
PEOU2	I think it is easy to use electronic banking services to accomplish my banking tasks.	4.09%	8.17%	33.24%	32.70%	21.80%	Neutral
PEOU3	It would take me lots of time to learn how to use electronic banking services	50.41%	21.53%	10.63%	15.80%	1.63%	Strongly Disagree

Source: Survey Result, SPSS (2019)

4.5.2. Perceived Usefulness

As it can be seen from the following table (Table 4.5.2), 37.87% of respondents strongly agreed that using electronic banking services would enable them accomplish their tasks more quickly. Besides, 29.97% of respondents strongly agreed that using electronic banking services would make it easier for them to carry out their tasks. Overall, 45.78% of sample respondents strongly agreed that electronic banking service is useful for them. This finding is consistent with Frangos (2009) who noted that perceived usefulness is the overriding motive behind customers' use of e-banking services.

Table 4.5.2. Summary of survey findings for PU

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived usefulness							
PU1	I think that using the electronic banking services would enable me accomplish my tasks more quickly.	1.91%	4.63%	35.15%	20.44%	37.87%	Strongly Agree
PU2	I think that using the electronic banking services would make it easier for me to carry out my tasks.	7.90%	15.80%	28.88%	17.44%	29.97%	Strongly Agree
PU3	I think the electronic banking services is useful	5.99%	3.81%	9.81%	34.60%	45.78%	Strongly Agree

Source: Survey Result, SPSS (2019)

4.5.3. Perceived Risk

The study also attempted to determine if customers perceived risk toward e-banking affect their adoption of the service. According to IL Im et al (2008), perceived risk or uncertainty affects people's confidence in their decisions and if technology fails to deliver its expected outcome, it will result in a loss to the user (financial, psychological, physical, or social). Table 4.5.3 summarized respondents view towards perceived risk as one of e-banking adoption determinant factors and according to the survey results, 37.06% of respondents agreed that e-banking services might not perform well and process payment incorrectly because of network problems.

Furthermore, 37.6% of respondents strongly disagreed if their client bank compensate them at time when transaction error occurs. However, this shows existence of fear out of psychological consequence in the mindset of customers as the result is in contradiction with and not supported by an interview script received from all respondents; there is a mechanism to identify the source and compensate back the customer. On the other hand, when respondents asked their concern related to account privacy, 21.8% of them agreed that they have fear that other people might access their account while they are using e-banking service. In addition, 47.96% of them agreed that they fear loss of social status out of potential attacks by hackers in which case the survey result is in consistence with the above study by Il Im et al (2008).

Table 4.5.3. Summary of survey findings for PR

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived Risk							
PR1	Electronic banking services may not perform well and process payment incorrectly because of network problems.	0%	16.62%	20.44%	37.06%	25.89%	Agree
PR2	When transaction error occurs, I will get compensation from bank	37.6%	3.81%	23.16%	19.62%	15.80%	Strongly Disagree
PR3	I am worried to use electronic banking services because other people may be able to access my account	14.99%	24.25%	17.98%	21.80%	20.98%	Agree

PR4	When my bank account incurs fraud or the hacker invades, I would have potential loss of status in one's social group	18.80%	13.35%	17.71%	47.96%	2.18%	Agree
PR5	It would take me lots of time to learn how to use electronic banking services	16.61%	30.52%	31.88%	12.81%	8.17%	Disagree

Source: Survey Result, SPSS (2019)

4.5.4. Perceived Trust

As shown in Table 4.5.4, when asked if e-banking service provided by their bank has enough safeguards to make them feel comfortable using it, 32.70% of the respondents agreed as the e-banking service is a trusted one. However, when they were asked if there is adequate legal structure to protect them, 37.87% of them strongly disagreed. In addition, 28.61% of respondents are neutral about their view towards availability of security encryption service to protect financial transaction at their bank. Overall, 34.60% of respondents agreed that the e-banking services provided by their bank are trustworthy in terms of safety, security and credibility. This shows that perceived trust does not have effect on customers' decision in e-banking service adoption, which is inconsistent with the results obtained in other countries such as South Africa by Daniel K (2014).

Table 4.5.4. Summary of survey findings for PT

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived Trust							
PT1	I think e- banking service provided by my bank has enough safeguards to make me feel comfortable using it	8.17%	13.90%	14.44%	32.70	30.7%	Agree
PT2	I feel assured that legal structures adequately protect me from problems associated with using e-banking services	37.87%	28.07%	17.17%	10.08%	6.81%	Strongly Disagree
PT3	I feel confident that technological advances (such as encryption) for the Internet / cellphone makes it safe for me to use ATM/Internet/cellphone banking and POS services	24.52%	23.71%	28.61%	13.08%	10.08 %	Neutral
PT4	Overall, I trust e-banking services provided by my bank are trustworthy in terms of safety, security and credibility	25.34%	18.26%	8.72%	34.60%	13.0%	Agree

Source: Survey Result, SPSS (2019)

4.5.5. Perceived Cost

According to Table 4.5.5, when respondents asked whether the cost associated with the use of e banking is a lot, 28.07% of them agreed with it. Besides, 42.78% of the respondents strongly disagreed when asked towards affordability of the fees of internet service subscription & mobile phones. This shows that the fee associated with e-banking service subscription is dependent up on other related tools such as smart phones and internet subscription fee, which are not affordable to the majority of the customers. Thus, perceived cost is one of the hindering factor for e-banking service adoption. This is also consistent with the interview result with the selected banks IT managers who confirmed that customers prefer to go for manual transaction in order to avoid service charge at time when they use their ATM cards in any nearby ATM machines. This survey result is also consistent with similar findings of Chidini et al (2014) who found out that the cost of internet and limited bandwidth constrain the adoption of e-banking services in developing countries.

Table. 4.5.5. Summary of survey findings for PC

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived cost							
PC1	It costs a lot to use e-banking service channels	8.45%	17.17%	26.43%	28.07%	19.89%	Agree
PC2	Fees of internet service subscription & mobile phone are affordable	42.78%	25.89%	13.90%	11.72%	5.72%	Strongly Disagree
PC3	Overall, using e-banking service will increase my banking cost.	25.61%	22.07%	30.79%	12.26%	9.26%	Neutral

Source: Survey Result, SPSS (2019)

4.5.6. Facilitating Conditions

As shown in Table 4.5.6 when asked whether they have the resources to use electronic banking service, 40.05% respondents disagreed. An interview script received from all respondents also supports this result. In addition, 37.60% and 40.05% of respondents strongly disagreed for the question forwarded to them if they have sufficient knowledge and ability for e-banking service usage respectively. This shows that commercial banks need to expand the knowledge scope of their customers on e-banking service.

Table. 4.5.6. Summary of survey findings for FC

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Facilitating Conditions							
FC1	I have the resources to use electronic banking services	24.25%	40.05%	18.80%	10.08%	6.81%	Disagree
FC2	I have the knowledge to use electronic banking service	37.60%	25.34%	16.62%	12.81%	7.63%	Strongly Disagree
FC3	I have the ability to use electronic banking services	40.05%	26.16%	16.62%	11.72%	5.45%	Strongly Disagree

Source: Survey Result, SPSS (2019)

4.5.7. Social Influence

According to Table 4.5.7, when respondents were asked if their decision to adopt e banking was influenced by some else such as family member, friends and colleagues, 28.07% of the respondents disagreed. Besides, 42.78% of the respondents also strongly disagreed when they were asked if they started using e-banking service because someone else is using it. This shows that Social influence does not affect customers' decision towards e-banking service adoption.

Table 4.5.7. Summary of survey findings for SI

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Social Influence							
SI1	My decision to adopt e-banking is influenced by my family, friends and colleagues	19.89%	28.07%	26.43%	17.17%	8.45%	Disagree
SI2	I use e- banking because I have seen someone else using it	42.78%	25.89%	13.90%	11.72%	5.72%	Strongly Disagree
SI3	People who influence my decisions think that I should use electronic banking services	31.61%	37.06%	17.71%	7.36%	6.27%	Disagree

Source: Survey Result, SPSS (2019)

4.6. Demographic Factors affecting e-banking service adoption

Table 4.6 shows that 38.96% of the respondents strongly agreed that people with more income have high tendency of using electronic banking. On the other hand, 36.24% and 34.60% of the respondents disagreed the influence of education and age on e-banking service adoption respectively. This result is in consistence with the finding of similar study carried out in Gondar city by Derbew (2019) but contradicts with the findings of Beza and Dhiraj (2017).

Table 4.6. Summary of survey findings for demographic factors

	Statement to evaluate	Rating point					Remark
		1	2	3	4	5	
Inc	Income: People with more income have high tendency of using electronic banking	6.81%	8.45%	18.26%	27.52%	38.96%	Strongly Agree
Edu	Education: People with high education level becomes more E- banking user	22.62%	36.24%	19.35%	11.72%	10.08%	Disagree
Age	Age: Youth and middle age group use e-banking service more than old age	24.80%	34.60%	16.62%	13.90%	10.08%	Disagree

Source: Survey Result, SPSS (2019)

4.7.E-banking service adoption

Finally, in order to understand the current state of e-banking adoption by commercial banks' individual customers in Addis Ababa (the dependent variable), respondents were asked their level of agreement with availability of enabling situation for e-banking service adoption in its entirety. Such measurement factors for e-banking adoption are awareness, knowledge, ICT infrastructure, accessibility, reliability, and information on the service. Accordingly, Table 4.7 below summarizes the findings of the survey. The majority of the respondents (37.60%) strongly disagreed when they were asked if they are fully aware of the four forms of e-banking services provided by the Commercial banks. In addition to this, 40.60% and 33.24% of the respondents disagreed when they are asked if they have sufficient knowledge and information on all forms of e-banking services. However, when respondents were asked about accessibility of e-banking service, 35.42% of them agreed that e-banking services by commercial banks are accessible. This result shows that the current state of e-banking adoption is slower despite its accessibility. Thus, it is an opportunity for commercial banks to understand the pushing factors that contribute to slower adoption and improve their e-banking service.

Table. 4.7. Summary of survey findings for e-banking service adoption current state

	Statement to evaluate	Rating point					Remark
		1	2	3	4	5	
EBA1	Awareness: Currently I am fully aware of e-banking service channels such as ATM, mobile banking, Internet banking and POS offered by Ethiopian commercial banks.	37.60%	32.97%	10.63%	9.81%	8.99%	Strongly Disagree
EBA2	Knowledge: I have sufficient knowledge on all forms of e-	27.79%	40.60%	14.71%	9.81%	7.08%	Disagree

	banking service channels offered by Ethiopian commercial banks						
EBA3	Infrastructure: There is sufficient enabling infrastructure for e-banking service usage	43.32%	30.79%	15.80%	7.08%	3%	Strongly Disagree
EBA4	Accessibility: There is sufficient effort made by Ethiopian commercial banks for e-banking service accessibility.	12.26%	17.17%	12.53%	35.42%	22.62%	Agree
EBA5	Reliability: E-banking service offered by Ethiopian commercial banks is reliable for my banking transactions	24.25%	28.07%	31.34%	8.99%	7.36%	Neutral
EBA6	Information: There is sufficient information provided by Ethiopian commercial banks regarding e-banking service options through front desk employees, banks' website and product brochures	22.34%	33.24%	21.25%	12.81%	10.35%	Disagree
EBA7	Experience: My e-banking service experience meets my expectation and I'm willing to recommend the service to others	45.5%	24.52%	15.53%	9.54%	4.90%	Strongly Disagree

Source: Survey Result, SPSS (2019)

4.8. Correlation Analysis

In this study, the descriptive statistics output presented in earlier section describes the current phenomenon as per the survey findings. However, research often uses inferential analysis (correlation and regression) to determine if there is a relationship between an intervention and outcome as well as the strength of that relationship. Hence, inferential statistics are used to reach on conclusion about associations between the variables of the study and is designed to test the hypotheses. Accordingly, the student researcher tried to undertake hypothesis testing using correlation and regression analysis to illustrate conclusion in the study area.

Correlation analysis is a statistical method used to evaluate the strength of relationship between two quantitative variables. A high correlation means that two or more variables have a strong relationship with each other; while a weak correlation means that, the variables are hardly related. In other words, it is the process of studying the strength of that relationship with available statistical data. This technique is strictly connected to the linear regression analysis that is a statistical approach for modeling the association between a dependent variable and one or more independent variables.

In measuring correlation and to express the strength of the relationship, we make use of the linear product-moment correlation coefficient, also known as Pearson's correlation coefficient; this coefficient is generally used when variables are of quantitative nature, that is, ratio or interval scale variables. Pearson's correlation coefficient is denoted by r . In this study, the following accepted guidelines for interpreting the correlation coefficient are used (Ratner, 2009)

4.1.0 indicates no linear relationship

4.2.+1 indicates a perfect positive linear relationship-as one variable increases in its values, the other value also increases in its values through an exact linear rule.

4.3.-1 indicates a perfect negative linear relationship- as one variable increases in its values, the other variable decreases in its value through an exact linear rule.

4.4.Values between 0 and 0.3 (0 and -0.3) indicate a weak positive (negative) linear relationship through a shaky linear rule.

4.5.Values between 0.3 and 0.7 (0.3 and -0.7) indicate a moderate positive (negative) linear relationship though a fuzzy – firm linear rule.

4.6.Values between 0.7 and 1.0 (-0.7 and .1.0) indicate a strong positive (negative) linear relationship thorough a firm linear rule.

Therefore, before running regression analysis in order to see the level of cumulative or joint and individual significance of the independent variables on the dependent variable, correlation analysis is carried out to specify the model and test the hypothesized relationship between the independent variables and the dependent variable. Accordingly, Independent Variables with correlation coefficient values between 0 and 0.3 are identified as those which have very weak correlation with the dependent variable.

The correlation output of each independent variable with the dependent variable is summarized under Table 4.8.

Table 4.8. Correlation between independent variables & e-banking adoption

		EBA	PEOU
EBA	Pearson Correlation	1	.813**
	Sig. (2-tailed)		.000
	N	387	387
PEOU	Pearson Correlation	.813**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	PU
EBA	Pearson Correlation	1	.745**
	Sig. (2-tailed)		.000
	N	387	387
PU	Pearson Correlation	.745**	1
	Sig. (2-tailed)	.000	
	N	387	387

		EBA	PR
EBA	Pearson Correlation	1	-0.634**
	Sig. (2-tailed)		.000
	N	387	387
PR	Pearson Correlation	-0.634**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	PT
EBA	Pearson Correlation	1	.245**
	Sig. (2-tailed)		.001
	N	387	387
PT	Pearson Correlation	.245**	1
	Sig. (2-tailed)	.001	
	N	387	387
		EBA	PC
EBA	Pearson Correlation	1	.720**
	Sig. (2-tailed)		.000
	N	387	387
PC	Pearson Correlation	.720**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	FC
EBA	Pearson Correlation	1	.669**
	Sig. (2-tailed)		.000
	N	387	387
FC	Pearson Correlation	.669**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	SI
EBA	Pearson Correlation	1	.217**
	Sig. (2-tailed)		.000
	N	387	387
SI	Pearson Correlation	.217**	1
	Sig. (2-tailed)	.000	
	N	387	387

		EBA	INC
EBA	Pearson Correlation	1	.764**
	Sig. (2-tailed)		.000
	N	387	387
INC	Pearson Correlation	.764**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	SI
EBA	Pearson Correlation	1	.013**
	Sig. (2-tailed)		.000
	N	387	387
EDU	Pearson Correlation	.013**	1
	Sig. (2-tailed)	.000	
	N	387	387
		EBA	AGE
EBA	Pearson Correlation	1	.002**
	Sig. (2-tailed)		.000
	N	387	387
AGE	Pearson Correlation	.002**	1
	Sig. (2-tailed)	.000	
	N	387	387

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Survey Result, SPSS (2019)

Using the accepted guideline on the degree of correlation, the survey result in Table 4.8 is interpreted like this; Out of the ten independent variables included in this study, six of them (perceived ease of use, perceived usefulness, facilitating conditions and Income) have statistically positive strong correlation with the dependent variable (e-banking adoption). In other words, a positive performance/change in these variables will result in better performance of EBA. In addition, the table show existence of statistically negative strong/highly significant correlation between perceived risk with e-banking adoption and perceived cost with e-banking adoption. In other words, a negative performance in these variables will result in better performance of EBA. Whereas the remaining independent variables (perceived trust, Social influence, education and age) have weak or smaller and statistically insignificant positive correlation with the dependent variable (electronic banking adoption). In other words, the change in such factors does not have significant impact on electronic banking adoption.

4.9. Multiple Linear Regression Analysis

Considering the cross-sectional nature of the data, the following three assumption tests were made by the student researcher in order to see if the research model meets the linear regression assumption model and go for multiple linear regression analysis:

4.9.1. Linearity of the relationship Test

This test is used to see if there is linearity dependency between the dependent variable and the independent variables. Linear regression needs the relationship between the independent and dependent variable to be linear. The linearity assumption can be tested with scatter plots. The SPSS survey output is depicted in Appendix II. The visual inspection proves existence of linear relationship between the dependent variable (e-banking adoption) and the independent variables (perceived ease of use, perceived usefulness, perceived risk, perceived cost, facilitating conditions and income). Hence, linearity assumption met between the dependent and independent variables.

4.9.2. Normality Distribution Test

Multiple regressions require the independent variables to be normally distributed. Skewness and kurtosis are statistical tools that enable the researcher to check if the data is normally distributed or not. Skewness is a measure of symmetry. A distribution or data set is symmetric if it looks the same to the left and right of the center point.

If the skewness and kurtosis test results of the data is within the acceptable range (-1.0 to +1.0), it can be concluded that the data is normally distributed. For this purpose and taste of normal distribution, the kurtosis and skewness results are shown in table 4.9.

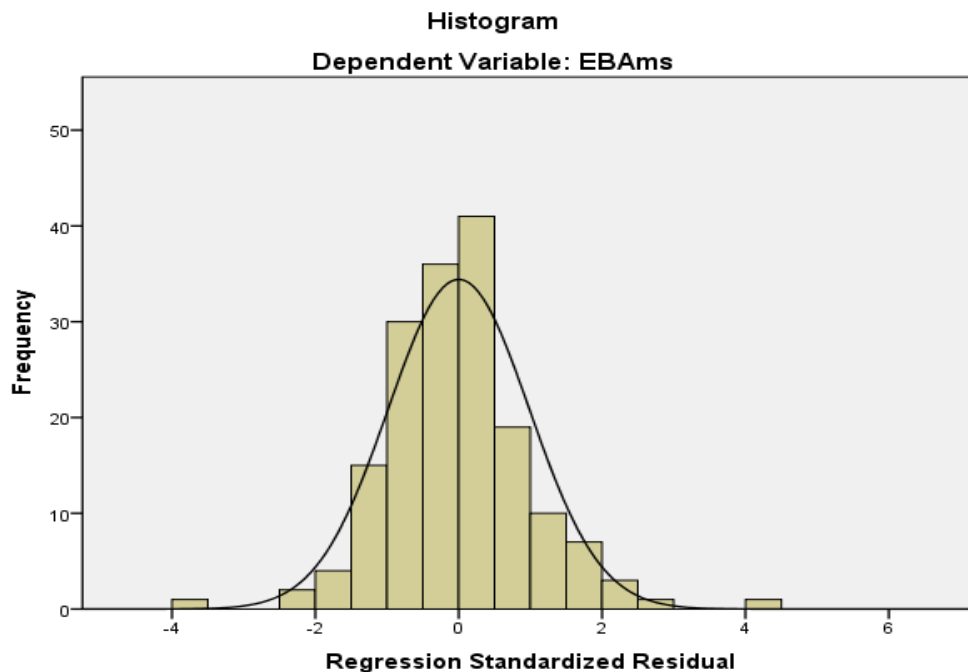
Table 4.9. Normality of data distribution

	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PEOU	387	3.8668	.010	.187	.141	.371
PU	387	3.6524	.302	.187	.329	.371
PR	387	3.6644	.132	.187	.664	.371
PC	387	3.9704	.545	.187	.258	.371
FC	387	4.0793	-.021	.187	-.329	.371
PT	387	3.8765	.423	.187	.325	.371
SI	387	3.1324	.389	.187	.369	.371
INC	387	3.6644	.132	.187	.664	.371
EDU	387	3.5678	.145	.187	.354	.371
AGE	387	3.7315	.453	.187	.249	.371
EBA	387	3.8722	.208	.187	.732	.371
Valid N (listwise)	387					

Source: Survey Result, SPSS (2019)

The acceptable range for normality for both statistics is b/n -1.0 and + 01.0 .as showed in table 4.9, all variables for both of skewness & kurtosis statistics are fall in the acceptable standard of normality (-1.0 - , +01.0). Graphically this normality assumption distribution is shown below in figure 3. Thus, normality distribution assumption also met.

Figure 3: Normality of data distribution



Source: Survey Result, SPSS (2019)

4.9.3. Multicollinearity

Multicollinearity can affect any regression model with more than one predictor. It occurs when two or more predictor variables overlap so much in what they measure that their effects are indistinguishable. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the predictor variables has a significant impact in predicting the dependent variable. This is because when the predictor variables are highly correlated, they share essentially the same information. Thus, together, they may explain a great deal of the dependent variable, but may not individually contribute significantly to the model. Meaning, they can be considered as one variable than two separate variables (Grace, 2012). There are different ways of detecting existence of Multicollinearity problems. However, in this study the student researcher utilized Variance Inflation Factor (VIF) and level Tolerance. These two useful statistics are reciprocals of each other. Therefore, either a high VIF or a low tolerance is indicative of Multicollinearity. VIF is a direct measure of how much the variance of the coefficient (i.e. its standard error) is being inflated due to Multicollinearity.

Tolerance values less than 0.10 and VIF (variance inflation factor) greater than 10 indicates existence of Multicollinearity (Wooldridge, 2012). As it can be seen from appendix III, Multicollinearity is not an issue for this current data. Because, all the VIF values and Tolerance values are less than 10 and 0.1 respectively as per the SPSS survey output.

In summary, the three assumptions were met as described above and thus in the next sub section, the regression analysis to determine the values of the model summary (R and R^2), the model fit (ANOVA) and the beta coefficients are presented to identify the relative effect of independent variables on e-banking adoption. The survey findings and interpretation of the three outputs (Model summary, ANOVA table, and the coefficients table) are presented in the next section

4.10. Model summary

The regression model for this study is re-specified with the construct that consider perceived ease of use, perceived usefulness, perceived risk, perceived cost, facilitating conditions and income as independent variables and electronic banking adoption as a dependent variable. Since there is very weak correlation between perceived trust, social influence, education, age and gender with e-banking adoption in the correlation analysis part presented earlier, the researcher has dropped out these variables.

R-square is a measure of strength of the computed predication equation. It is sometimes also called the coefficient of determination. In the regression model, R-square is the square of the correlation coefficient between the observed and predicated value of dependent variable. If R-square is 1, there exist a perfect linear relationship between the predictors and dependent variable. An R-square of 0 indicates no linear relationship (Wooldridge, 2012). Table 4.10 shows the model summary.

Table: 4.10. Model Summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.834 ^a	.763	.752	.19978	1.734

a. Predictors: (Constant), PEOU, PU, PR, PC, FC, PT, SI, INC, EDU, AGE

b. Dependent Variable: EBA

Source: Survey Result, SPSS (2019)

The above table provides the R and R Square. The R-value represents the simple correlation and is 0.834 (the “R” column, which indicates the degree of correlation between the dependent variable and the independent variables. From the findings shown in the table 4.10, there is a positive relationship of .834 between e-banking adoption and the six independent variables.

The R-Square value (the “R-Square” column) indicates how much of the total variation in the dependent variable can be explained by the independent variables. In the case of this study, the R-Square value of 0.763 reveals that the model accounts for 76.3% of the variation e-banking adoption and is explained by the linear combination of all the independent variables and the remaining 23.7 % of variation is not explained by these factors. In other words, there may be many factors that can explain the variation in banking adoption in Addis Ababa, but the model used in this study, which includes the six factors, can explain 76.3% of it. In other words, 23.7% of the variation in electronic banking adoption in Addis Ababa cannot be explained by these six factors and there must be other variables that have an influence on the outcome, which is accounted as error term in this model. .

4.11. ANOVA Table

The ANOVA table reports how well the regression equation fits the data (i.e. predicts the dependent variable). It provides F value. As per the approval standard rule, the significance (P-value) has to be < 0.05 and the table 4.11 below showed that F is 64.026. This means, the F Statistics is significant at 0.000 levels, which show the fitness of the model. This indicates that, in

general the model fits for this study. Therefore, it can be conclude that further regression can be conducted on the predictors (the different ten independent factors).

Table. 4.11. ANOVA Table.

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	15.014	10	2.676	64.026	.000 ^b
Residual	7.345	376	.040		
Total	21.625	386			

a. Dependent Variable: EBA

b. Predictors: (Constant), PEOU, PU, PR, PT,PC,FC, SI,INC, EDU,AGE

Source: Survey Result, SPSS (2019)

4.12. Beta coefficients

The coefficients table provides us with the necessary information to predict the dependent variable (which is E-banking adoption in the case if this study) from the independent variables as well as determine whether the independent variables contribute statistically significantly to the model (by looking at the “**Sig**” column). Furthermore, we can use the values in the “**B**” column under the “Unstandardized Coefficients” column, as shown under table 4.12.

The regression sum of squares tells us how much variability the regression model accounts for, which is the fitting of the least-squares line. The residual sum of squares tells us how much variability (again, not variance yet) is unaccounted for by the regression model. The total variability is the sum of both regression and residual variability.

The extent to which the regression sum of squares is large relative to the residual sum of squares is the extent to which more variability than not is accounted for by the model. An F ratio was calculated which represented the variance between the groups, divided by the variance within the groups. A large F ratio indicates that there is more variability between the groups (caused by the independent variable) than there is within each group, referred to as the error term.

Table 4.12: Coefficients^a

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.023	.214		.107	.918		
PEOU	.336	.071	.338	4.732	.000	.344	2.911
PU	.366	.076	.278	4.816	.001	.641	1.559
PR	-.349	.065	-.334	-5.369	.000	.682	1.466
PT	.027	.078	.024	.346	.729	.966	1.035
PC	-.399	.103	.226	-3.874	.000	.427	2.343
FC	.225	.055	.221	4.091	.001	.639	1.554
SI	.014	.012	.204	1.167	.086	.319	3.139
INC	.247	.053	.225	4.660	.001	.632	1.557
EDU	.001	.015	.015	.067	.951	.979	1.021
AGE	.015	.014	.075	1.071	.266	.989	1.011

a. Dependent Variable: EBA

Source: Survey Result, SPSS (2019)

The standard errors associated with both the intercept and the slope parameters. The standard errors provide us with a measure of how much we should expect the given sample coefficient to vary under the assumption of each hypothesis.

Predicating the level of e-banking adoption from the ten factors, the above regression coefficient's table values of standardized beta coefficients state that how intensely/strongly/ those ten independent variables predict the behavior of e-banking adoption. The significance tests of the 10 explanatory variables indicate that six of the explanatory variables (PEOU, PU, PR, PC, FC and INC) are statistically significant with p-value ($P < 0.05$) for predicting e-banking adoption. On the other hand, four of the explanatory variables (PT, SI, EDU, AGE) are statistically insignificant with P-value ($p > 0.05$) in predicting e-banking adoption. Accordingly, the later four variables are dropped out and the multiple regression model for e-banking adoption is written as follows:

$$Y_{EBA} = 0.023 + 0.336PEOU + 0.366PU - 0.349PR - 0.399PC + 0.225FC + 0.247INC + \varepsilon$$

The coefficients are further interpreted as here under:

The intercept is the point on the vertical axis where the regression line crosses the Y-axis. The value 0.023 reveals the expected value of e-banking adoption in the absence of all independent variables.

PEOU = 0.336, shows that one unit change in perceived ease of use results in 33.6% improvement in e-banking adoption holding PU,PR,PC,FC, and INC constant.

PU = 0.366, shows that one unit change in perceived usefulness results in 36.6% improvement in e-banking adoption holding PEOU,PR,PC,FC, and INC constant

PR = -0.349, shows that one unit change in perceived risk results in 34.9% decrease in e-banking adoption holding PEOU,PU,PC,FC, and INC constant

PC = -0.399, shows that one unit change in perceived cost results in 39.9% decrease in e-banking adoption holding PEOU,PU,PR,FC, and INC constant.

FC = 0.225, shows that one unit change in facilitating conditions results in 22.5% increase in e-banking adoption holding PEOU,PU,PR,PC, and INC constant.

INC = 0.247, shows that one unit change in income results in 24.7% increase in e-banking adoption holding PEOU,PU,PR,PC, and FC constant.

4.13. Discussion of the results

This section presents hypotheses test results and discussion of the findings of the multiple linear regression analysis.

4.13.1. Hypothesis Testing

As shown in Table 4.10, the model has significant effect on e-banking adoption. The regression analysis also shows 76.3% of the variance of e-banking adoption is explained by the independent variables included in the model. However, the remaining 23.7% changes in e-banking adoption in Addis Ababa city are caused by other factors that are not included in the model. Analysis of the results for each independent variable and their significance in influencing e-banking adoption is presented in the next sub section. Besides, the discussion analyzes the statistical findings of the study in relation to previous empirical evidences.

4.13.2. Perceived Ease of Use

The results in table 4.12 show that perceived ease of use has a coefficient of 0.336 and p-value of 0.000. Holding other explanatory variables constant perceived ease of use was found to have statistically significant positive association with e-banking adoption. Therefore, the first hypothesis which stated, “There is a significant positive relation between perceived ease of use and adoption of electronic banking services” is supported. The finding also confirms previous researches by Jahangir and Begum, 2008 as well as Mathieson (1991) who found out that perceived ease of use has significant effect on usage intention of e-banking services. This finding could imply that e-banking adoption by commercial banks’ customers can be enhanced through easy internet access, availability of secure, high standard electronic banking functionality.

4.13.3. Perceived usefulness

The results in table 4.12 show that perceived ease of use has a coefficient of 0.366 and p-value of 0.001. Holding other explanatory variables constant perceived usefulness was found to have statistically significant positive association with e-banking adoption. Accordingly, the second hypothesis (H2), which was stated as ‘there is significant positive relation between perceived usefulness and adoption of electronic banking services’ is supported. Furthermore, this result is in consistence with previous study made by Frangos (2009) who found out that perceived usefulness is the overriding motive behind customers’ use of e-banking services.

4.13.4. Perceived risk

As it can be seen in table 4.12 has a coefficient of -0.349 and p-value of 0.000. Holding other explanatory variables constant perceived usefulness was found to have statistically significant negative association with e-banking adoption. Thus, the third hypothesis, which was stated as ‘there is significant negative relation between perceived risk and adoption of electronic banking services’ is supported. This finding also confirms previous study made by Sajjad et al (2010); perceived risk will hinder technology adoption process negatively.

4.13.5. Perceived trust

As it is shown in table 4.12, the coefficient of perceived trust is 0.027 with its P-value 0.729. This result reveals that maintaining other explanatory variables constant perceived trust was found to have positive but statistically insignificant impact on adoption of e-banking as its p-value is greater than 0.05. Therefore, this leads to the rejection of the fourth hypothesis (H4) that was stated, as “There is significant positive relation between perceived trust and adoption of electronic banking services”. This finding contradicts with previous study and result in other country’s context by Lafraxo et al (2018). This also implies that the individual commercial banks customers does not have trust concern on their banks.

4.13.6. Perceived cost

Based on table 4.12, the coefficient of perceived cost is -0.399 with its p-value of 0.000. Holding other explanatory variables constant perceived cost was found to have a negative and statistically significant impact on e-banking adoption. This result supported the fifth hypothesis (H5) which was stated, as ‘there is significant negative relation between perceived cost and adoption of electronic banking services’. Such finding is also consistent with previous study made by Chidini et al (2014). Similarly, an interview result also revealed that the cost of other enabling factors such as smart phone, internet subscription fee, computers and the likes seem to be expensive for the customer and not affordable.

4.13.7. Facilitating conditions

Table 4.12 depicted that facilitating condition has coefficient of 0.225 and p-value of 0.001. Holding other explanatory variables, constant facilitating conditions were found to have a positive and statistically significant effect on the adoption of e banking by bank customers. Thus, the sixth hypothesis (H6) which was stated as ‘there is significant positive relation between facilitating condition and adoption of electronic banking services’ is supported. This finding is also consistent with previous study by Martins et al (2014).

4.13.8. Social influence.

As it can be seen from table 4.12, the coefficient of social influence is 0.014 with its p-value 0.086. Holding other explanatory variables, constant social influence has a positive but statistically insignificant effect on the adoption of e banking by commercial banks' individual customers. Thus, the seventh hypothesis, which was stated as 'there is significant positive relation between social influence and adoption of electronic banking services' is not supported. The result also contradicts the findings of previous study carried out by Paul et al (2015) in other countries' situation.

4.13.9. Demographic variables.

From table 4.12, it can be seen that income, education and age has coefficients of 0.247, 0.001, 0.015 and p-values of 0.001, 0.952, 0.266 respectively. Thus, holding other explanatory variables constant income has positive and statistically significant effect on the adoption of e banking. On the other hand, holding other explanatory variables constant education and age has positive but statistically insignificant effect on the adoption of e banking services. Therefore, this result leads to the rejection of H_a and H_b and support H_c.

In general, summary of the hypotheses result are shown in table 4.13

Table 4.13: Summary of hypotheses results

Hypothesis	Sig	Result
H1: There is significant positive relation between perceived ease of use and adoption of e-banking	.000	Accepted
H2: There is a significant positive relation between perceived usefulness and adoption of e-banking service	.001	Accepted
H3: There is significant negative relation between perceived risk and adoption of e-banking services	.000	Accepted
H4: There is significant positive relation between perceived trust and adoption of e-banking services	.729	Rejected
H5: There is significant negative relation between perceived cost and adoption of e-banking services.	.000	Accepted

Hypothesis	Sig	Result
H6: There is significant positive relation between facilitating conditions and adoption of e-banking services.	.001	Accepted
H7: There is significant positive relation between social influence and adoption of e-banking services	.086	Rejected
H8a: There is significant positive relation between younger age and adoption of e-banking services	.001	Rejected
H8b: There is significant positive relation between customers with high level of education and adoption of e-banking services	.951	Rejected
H8c: There is significant positive relation between customers with higher income and adoption of e-banking services.	.266	Accepted

Source: Survey output

CHAPTER FIVE

5. SUMMARY, CONCLUSION, RECOMMENDATION AND FUTURE STUDY

In this section, based on the regression output and analysis presented in the preceding chapter conclusion is made followed by some recommendations by the researcher to provide insight in to factors influencing the adoption of e banking in Addis Ababa, Ethiopia.

5.1.Summary of the findings

This research was designed with structure of sub questions and based on these sub questions the key findings and relevant implications derived from this thesis are summarized and presented in response to each sub question respectively.

- A total of 480 questionnaires were distributed to the respondents out of which, 387 usable questionnaires were found with a response rate of 80.63 %(of which 58% were males and 42% were females. The majority of the participants (40.33%) were under the age group between 26 and 35. 38.15% and 7.9% have first and second degree respectively while 28.06% and 25.89% have diploma and less than high school records respectively. Besides, most of the participants were employed (34.88%) earning average of less than ETB 10,000.
- From those who were willing to participate in the study, 75.20% were using e-banking while the remaining 24.80% were not using at the time when the study was carried out. ATM was found to be used by majority of the respondents (75.72%) followed by mobile banking (17.75%).
- Ten independent variables (PEOU, PU, PR, PT, PC, FC, SI, A, EDU, INC) as well as EBA as dependent variable were considered in the study. The sum of the independent variables average Cronbach's alpha value is ($\alpha = 0.880$) and the reliability test of the study is located on "Acceptable" range.
- The descriptive statistics results shows existence of statistically significant positive correlation between EBA and PEOU, PU, FC, SI, INC and statistically significant negative

correlation between EBA with PR and PC. The output from regression analysis also revealed that these factors are statistically strong predictors of EBA. On the other hand, PT, SI, A, and EDU were found to be statistically insignificant in predicting EBA.

5.2. Conclusion

The study provides an understanding of the factors that influence mobile banking adoption in Ethiopia by incorporating ten constructs; seven of these are associated with customers' psychology, which are attitudinal (psychographic) variables (perceived ease of use, perceived usefulness, perceived risk, perceived trust, perceived cost, facilitating conditions and social influence), and the rest three were demographic factors (income, education and age). These factors were used as explanatory variables for the purpose of this study and the effect of these variables on e-banking banking adoption was the main concern of this research work.

The result from the study revealed that factors such as perceived ease of use, perceived usefulness, perceived risk, perceived cost, facilitating condition and income do have significant effect on customers' adoption and usage of e-banking service. It was found that perceived ease of use, perceived usefulness, facilitating conditions, and income have positive and significant influence on e-banking adoption by the customers' of the commercial banks in Addis Ababa while perceived risk and perceived cost do have negative and statistically significant influence on e-banking adoption by customers' of the commercial banks in Addis Ababa. On the other hand, perceived trust and social influence do have positive but statistically insignificant influence on e-banking adoption by the customers' of the commercial banks in Addis Ababa. These results entail that the commercial banks need to understand to come up with an e-banking functionality, which has ease of use features, and promote its usefulness to ensure continual usage of customers and attract non-users towards e-banking service usage. The commercial banks have to also come up with risk reducing mechanisms and promote the benefit of e-banking usage. Consequently, they can reduce their operational cost and thereby boost their profits.

5.3. Recommendation

Based on the above findings, the following suggestions to improve customer's usage of electronic banking are put forward for local banks in Addis Ababa, Ethiopia.

The result of the study revealed that the adoption rate of e banking in Ethiopia is at lower level when it is compared with the number customers of the commercial banks and similar experiences in other African countries. With this in mind, commercial banks in Ethiopia should promote their e-banking offerings in light of the following factors which are considered in this study:

In order to increase the perceived ease of use and before making huge investment that enable them offer e-banking services, commercial banks should make detail analysis of the needs of their customers at early stage of the system development. The commercial banks also shall consider ‘language’ customization in their mobile banking service offering and come up with clear usage instruction. As per the findings of this study ease of use, usefulness and facilitating conditions have significant impact on e-banking adoption. In order to create positive attitude and increase the intention to use e-banking service channels, Commercial banks should invest in line with an idea towards improvement of such factors. In other words, they should base customers’ orientation and realize continual usage of e-banking by ascertaining all enabling features of e-banking service provisioning that encompass and address customers’ concern as to ease of use, usefulness, risk, cost and facilitating conditions. For example, most of the ATM machines are frequently down or out of service due to power, network and money replenishment issues. Sometimes commercial banks fail to rent an office for their branch set up where there is no guarantee for uninterrupted power supply and it is common to observe ATM machines that are out of service because of power. This forces customer to go back to the traditional approach and create load a certain branch of the commercial banks. It is highly recommended for commercial banks to avail alternative power sources such as generator and UPS to realize an interrupted power supply and as a backup for the commercial line. It will also help them realize the ‘7/24 availability’ promise to their customers. For the ICT infrastructure, they can also deploy a backup wireless network as a backup to the fiber link as introduced lately by the state telecom solution provider, Ethio telecom. The name of such solution is known as ‘Point to Multipoint Wireless communication’. Because, despite ethio switch came in to practice and all banks are connected, it is difficult to get the service if there is a network problem in the data center of the ATM card-issuing bank. This will help them realize their uninterrupted e-banking services such as internet banking. They can also sign a service level agreement with Ethio telecom to ascertain uninterrupted services. This is because; it is common to hear ‘no system’ from front line customer service agents. Such kind of solution will help them the difficulty to assure uninterrupted e-banking services.

Besides, it is clear that there is an increasing trend of services, which require electronic payment in Ethiopia. Services such as utility bill settlement, school fee settlement, transportation fee settlement and the likes will attract the attention of commercial banks. Thus, commercial banks should periodically assess how their customers are satisfied with their e-banking service experience and do continual improvement.

5.4. Future study

The contribution of other demographic factors such as gender, life style and culture are not included in this study and they are areas yet to be investigated in the future study. Besides, this study carried out mainly from individual customers' perspective and future study may focus from the commercial banks side too.

References

Abdul Hannan Mia, Mohammad Anisur Rahman and Main Uddin, (2007). E-Banking: Evolution, Status and Prospects, the Cost and Management Vol. 35 No. 1 January-February, 2007 pp. 36-48

Abdul Hannan Mia, Mohammad Anisur, Dhaka and Main Uddin (2007). E-Banking: Evolution, The Cost and Management Vol. 35 No. 1 January-February, 2007 pp. 36-48

Ajzen, I. (1991). "The theory of planned behavior." Organizational behavior and human decision processes 50(2): 179-211

Ajzen, I. and Fishbein, M (1980), —Understanding Attitudes And Predicting Social Behavior, Eaglewood Cliffs, NT: Prentice-Hall

Alemayehu R. Mobile Commerce First from Dashed, Addis Fortune News, 2011. Available at: [http://: www.addisfortune.com/archive/2013/January/week4](http://www.addisfortune.com/archive/2013/January/week4).

Arshia Khan and John M. Woosley (2011). Comparison of Contemporary Technology Acceptance Models and Evaluation of the Best Fit for Health Industry Organizations, IJCSET |December 2011 Vol 1, Issue 11, 709-717

Ayana Gemechu, (2014). Factors Affecting Adoption of Electronic Banking System in Ethiopian Banking Industry, Journal of Management Information System and E-commerce Vol. 1, No. 1; June 2014

Azouzi ,D. (2009). The adoption of electronic banking in Tunisia: an exploratory study. Journal of Internet Banking and Commerce, 14(3), 1-11.

Banking' , Expert Systems with Applications, 36(9), 11605-11616

Beza Muche Teka (2017). INFLUENCE OF DEMOGRAPHIC FACTORS ON USERS' ADOPTION OF ELECTRONIC BANKING IN ETHIOPIA, *Journal of Internet Banking and Commerce*, Jan 2017, vol. 22, no. S7

Bhattacharjee, A., 2002, 'Individual Trust in Online Firms: Scale Development and Initial Test', *Journal of Management Information Systems*, 19(1), 211-241

Bilal Derso (2018). Ethiopia: Legal Framework for Effective E-Banking Service. Accessed from <https://allafrica.com/stories/201804040305.html>

Bruce Mwiya, Felix Chikumbi, Chanda Shikaputo, Edna Kabala, Bernadette Kaulung'ombe, Beenzu Siachinji (2017). Examining Factors Influencing E-Banking Adoption: Evidence from Bank Customers in Zambia. *American Journal of Industrial and Business Management*, 2017, 7, 741-759

Bruce Ratner (2009). The Correlation coefficient: Its value range between +1/-1, or do they?. *Journal of Targeting, measurement and Analysis for Marketing*, Volume 17, Issue 22, pp 139-142.

Currall, S., and Judge, T. (1995) "Measuring Trust Between Organizational Boundary Role Persons," *Organizational Behavior and Human Decision Processes* (64), 1995

Daniel K. Maduku (2014). Customers' adoption and use of e-banking services: the South African perspective. *Banks and Bank Systems*, Volume 9, Issue 2, 2014

Davis, F. D., (1989), Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, vol. 13 (3), pp. 319-340

Dawson R. Hancock & Bob Algozzine (2006), *Doing case study research: A practical guide for beginning researchers*: Teachers college, Colombia University New York.

Derbew Kenubeh (2019), Factors Affecting E-Banking Adoption in Ethiopia: from commercial bank customers' perspective in case of Gondar City, The International Journal Research Publication's ISSN:2251 1571

Dr. Uvaneswaran. S.M And Ms .Eldana Chera Kassa & Mr. Seid Muhammed Hamid (2017), "Challenges In E- Banking Services And Its Impact On Profitability Of Public Sector Bank In Ethiopia", International Journal of Marketing & Financial Management, ISSN: 2348 –3954 (online) ISSN: 2349 –2546 (print), Volume 5,(Issue7, Jul-2017), pp 36-46, DOI URL: <http://doi.org/10.5281/zenodo.834863>

Essayas Taye. (2016). Core Banking System Effectiveness in Ethiopia: The case of Buna International Bank (BIB). International Journal of Management Research and Review (IJMRR)/Feb 2016/ Volume 6/Issue 2/Article No-19/267-277

Eugene Bempong Nyantakyi and Mouhamadou Sy (2015). The Banking System in Africa: Main Facts and Challenges, Chief Economist Complex | AEB Volume 6 Issue 5201

F. Davis (1986), A technology acceptance model for empirically testing new end-user information systems: Theory and results unpublished dissertation . , MIT (1986).

Festinger, L. A. A (1957). Theory of Cognitive Dissonance, Row and Peterson, Evanston, IL, 1957

FFIEC. IT Examination Handbook. (2003). E-banking booklet. 1-10

Frangos, C.C. (2009). Qualitative and quantitative methodologies in the economic and administrative sciences, Technological Educational Institute of Athens, Athens.

G D M N Samaradiwakara and C G Gunawardena. (2014). Comparison of Existing technology Acceptance theories and Models to suggest a well improved Tehory/Model. International Technical Sciences Journal (ITSJ) June 2014 edition Vol.1, No.1

Gadise Gezu and Tekabe Sinatayehu. (2017). Determinants of E-Banking Services Adoption among Commercial Banks in Ethiopia: Analysis of Banks' Customers Perspectives. International Journal of Scientific & Engineering Research Volume 8, Issue 6, June-2017

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. MIS quarterly, 213-236.

Gu, J.C., Lee, S.C., and Suh, YH ,2009 , 'Determinants of Behavioral Intention to Mobile

Hair, J., Anderson, R., Tatham, R. L., & Black, W. C. (1995). Multivariate data analysis with readings. Englewood Cliffs: Prentice-Hall.

Hassan AM, Kunz MB, Pearson AW, Mohamed FA. (2006). Conceptualization and measurement of perceived risk in online shopping. Mark. Manage. J., 16(1): 138-147

IGI Global. (2016), Encyclopedia of E-Commerce Development, Implementation, and Management, Western Illinois University, USA

IL IM, Yongbeom Kim, Hyo-Joo Han (2008). The effects of perceived risk and technology type on users' acceptance of technologies. Information and Management 45 (2008) 1-9

Jahangir and Begum (2008). The role of perceived usefulness, perceived ease of use, security and privacy, and customer attitude to engender customer adaptation in the context of electronic banking, African Journal of Business Management Vol.2 (1), pp. 032-040

Jane M. Kolodinsky (2004). The adoption of electronic banking technologies by US consumers, The International Journal of Bank Marketing Vol. 22 No. 4, 2004 pp. 238-259 Emerald Group Publishing Limited 0265-2323 DOI 10.1108/02652320410542536

Jane M. Kolodinsky, Jeanne M. Hogarth and Marianne A. Hilgert (2004). The adoption of electronic banking technologies by US consumers. The International Journal of Bank Marketing Vol. 22 No. 4, 2004 pp. 238-259

Jeevan M T. (2000), “Only Banks - No Bricks”, Voice and Data, November 11 th, Available [online] <http://www.voicendata.com/content/convergence/trends/100111102.asp>; Accessed on 7 January 2001.

Jeffrey M. Wooldridge (2012). Introductory Econometrics, A modern Approach 5th Edition

Kabir, Syed Muhammad. (2016). FORMULATING AND TESTING HYPOTHESIS.

Karen Grace (2012). Eight Ways to Detect Multicollinearity. Journal of Targeting, measurement and Analysis for Marketing, Volume 17

Kaur SP (2013). Variables in research, IJRRMS VOL-3 No.4 OCT - DEC 2013

Kothari C.R., 2004, Research Methodology: Methods and Techniques, 2nd ed., New age international limited publishers, New Delhi,

Kripanont, N. (2007). Using technology acceptance model of Internet usage by academics within Thai Business Schools. PhD thesis submitted to the Victoria University. Available at:<http://wallaby.vu.edu.au/adtVVUT/public/adtVVUT20070911.152902/index.html>[Accessed on 6 January 2012].

Lafraxo, Y., Hadri, F., Amhal, H. and Rossafi, A (2018). The Effect of Trust, Perceived Risk and Security on the Adoption of Mobile Banking in Morocco In Proceedings of the 20th International Conference on Enterprise Information Systems (ICEIS 2018) - Volume 2, pages 497-502 ISBN: 978-989-758-298-1

Lee, M-C., 2009, 'Factors Influencing the Adoption of Internet Banking: An Integration of TAM and TPB With Perceived Risk and Perceived Benefit', *Electronic Commerce Research and Applications*, 8(3), 130-141

Lorenz, Graf-Vlachy and Buhtz, Katharina, (2017). "SOCIAL INFLUENCE IN TECHNOLOGY ADOPTION RESEARCH: A LITERATURE REVIEW AND RESEARCH AGENDA". In Proceedings of the 25th European Conference on Information Systems (ECIS), Guimarães, Portugal, June 5-10, 2017 (pp. 2331-2351). ISBN 978-989-20-7655-3 Research Papers. http://aisel.aisnet.org/ecis2017_rp/148

Maitlo, Kazi, Khaskheley, and Faiz (2015). Factors that Influence the Adoption of Online Banking Services in Hyderabad, *Int J Econ Manag Sci* ISSN: 2162-6359 *IJEMS*, an open access journal, Volume 4 • Issue 1 • 1000216

Malak, J 2007, Readiness of the Palestinian banking sector in adopting the electronic banking system :exploratory study, MA thesis, The Islamic University of Palestine

Maryam Sohrabi, Julie yew mei, and Robert (2013). Critical Success Factors for the Adoption of e-banking in Malaysia, *International Arab Journal of e-Technology*, Vol 3, No. 2

Mathieson K (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Info. Syst. Res.* 2(3): 173-191

Milkessa, Tadele, and Demis (2016). Perceived Benefits and Challenges of Electronic Banking, Adoption in Ethiopian Private Commercial Banks, *European Journal of Business and Management* ISSN 2222- 1905 (Paper) ISSN 2222-2839 (Online) Vol.8, No.19, 2016

Mohammad O. Al-Smadi (2012). Factors Affecting Adoption of Electronic Banking: An Analysis of the Perspectives of Banks' Customers. *International Journal of Business and Social Science* Vol. 3 No. 17; September 2012

Mohammed Arif Shaikh (2014). Ethiopian Banker's Perception of Electronic Banking in Ethiopia –A Case of Adama City, *International Journal of Scientific and Research Publications*, Volume 4, Issue 9, September 20 ISSN 2250-3153

Negalign and Lisanework. (2016). The Development of Core Banking System in Ethiopia: Challenges and Prospects (Case Study on Ethiopian Commercial Banks). *Research Journal of Finance and Accounting* ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) Vol.7, No.19, 2016

Paul, Musa and Nansubuga (2015). Facilitating Condition for E-learning Adoption—Case of Ugandan Universities, *Journal of Communication and Computer* 12 (2015) 244-249 doi: 10.17265/1548-7709/2015.05.004

PC Lai (2017). The Literature review of Technology Adoption Models and Theories for the Novelty Technology. *JISTEM - Journal of Information Systems and Technology Management* Vol. 14, No. 1, Jan/Apr. 2017 pp. 21-38

Rind, Hyder, Saand, Alzabi, Nawaz and Ujan (2017). Impact Investigation of Perceived Cost and Perceived Risk in Mobile Commerce: Analytical Study of Pakistan, *IJCSNS International Journal of Computer Science and Network Security*, VOL.17 No.11, November 2017

Rogers, E. M. *Diffusion of Innovations* (4th ed.), Free Press, New York, 1995.

S. Kurnia, F. Peng and Y. R. Liu, (2010), "Understanding the Adoption of Electronic Banking in China," *2010 43rd Hawaii International Conference on System Sciences*, Honolulu, HI, 2010, pp. 1-10. doi: 10.1109/HICSS.2010.421

Sajjad, Humayoun and Khan (2010). Risk perception and adoption of technology: An empirical study of personal computer use for Pakistani managers, *African Journal of Business Management* Vol. 4(14), pp. 3080-3086, 18 October 2010 Available online at <http://www.academicjournals.org/AJBM> ISSN 1993-8233 ©2010 Academic Journals

Schneider, F. (ed.). *Trust in Cyberspace*, Washington, DC: National Academy Press, 1998.

Simon Chidindi, J. T. van Niekerk , Tafadzwa Matiza . (2014). Perceptions of Electronic Banking Services by Clients in the Limpopo Province of South Africa. *Mediterranean Journal of Social Sciences*, Vol 5 No 10, June 2014

Siraye, Z. (2014) ‘Customers’ adoption of electronic banking service channels in Ethiopia: an integration of technology acceptance model and perceived risk with theory of planned behaviour’, *Int. J. Electronic Finance*, Vol. 8, No. 1, pp.21–34

Siraye, Z. (2014) ‘Customers’ adoption of electronic banking service channels in Ethiopia: an integration of technology acceptance model and perceived risk with theory of planned behaviour’, *Int. J. Electronic Finance*, Vol. 8, No. 1, pp.21–34.

Sumani Yahiya (2011), *Prospects and Challenges Of Electronic Banking in Ghana, A Case Study of SG-SSB Bank Limited*, research paper, Nkrumah University of Science and Technology, Accra.

Teklebrhan (2017). *E-Business Strategy to Adopt Electronic Banking Services in Ethiopia*, Walden Dissertations and Doctoral Studies Collection

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478

Wadie Nasri (2011). Factors Influencing the Adoption of Internet Banking in Tunisia, *International Journal of Business and Management*, Vol. 6, No. 8; August 2011

Xiao, Y, Sukumar, APC, Tipi, L & Edgar, D 2017, 'Factors influencing people's intention to adopt e-banking: an empirical study of consumers in Shandong Province, China' *Asian Journal of Computer and Information Systems*, vol 5, no. 3, pp. 26-43

Yitbarek (2013). Analysis of Factors Influencing Customers' Intention to the Adoption of E-banking Service Channels In Bahirdar City: An Integration of TAM, TPB AND PR. *European Scientific Journal* May 2013 edition vol.9, No.13 ISSN: 1857 – 7881 (Print) e - ISSN 1857-7431

Yousuf, Ali, Hafedh and,Khamis (2013). Investigating Determinants of E-banking Adoption by Individuals: Comparing the Impact of System Characteristics and User Traits. *International Review of Management and Business Research* Vol 2, Issue 2

Zeithaml VA, Parasuraman A, Malhotra A (2002). Service quality delivery through Web sites: a critical review of extant knowledge. *J. Acad. Mark. Sci.*30(4): 362-375

Zikmund, W., Babin, B., Carr, J. and Griffin, M. (2013). *Business research methods*. Mason, Ohio: South-Western

Appendix I. Questionnaire

Questionnaire

Dear Respondents,

This research is being undertaken to investigate the factors affecting e-banking adoption amongst individual customers of commercial banks in Addis Ababa city. This survey questionnaire is prepared and being distributed to get relevant information from randomly selected customers of commercial banks and participation is totally on voluntary basis. Your responses will be valuable to apprehend the demographic and psychographic factors that explain consumers' adoption of electronic banking service channels. Thus, the investigator respectfully requests your kind cooperation in answering the whole questions as frankly as possible. The questionnaire will take only few minutes to fill out. Please be assured that your responses will be recorded anonymously, handled strictly confidential and will exclusively be used only for the purpose of achieving academic award and you are not supposed to disclose your identity.

Thank you in advance

Section 1. Demographic profile of respondents

Please put a check mark (✓) in the box against the alternative, you fit in.

1. Gender

☐ Male ☐ Female

2. Age Group

☐ < 25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ > 55

3. Education

☐ High School or less ☐ Diploma ☐ Bachelor's degree ☐ Postgraduate degree

4. Occupational status

☐ Student ☐ Employed ☐ Self-employed ☐ Unemployed

5. Monthly income in Ethiopian Birr

☐ Less than 1,000 ☐ 1,000 – 2,500 ☐ 2,501 – 5,000 ☐ 5001 – 10,000 ☐ Above 10,000

Section 2: Questions related to e-banking service experience

6. Are you using any form of e-Banking services (such as ATM, mobile Banking, Internet banking and POS)?

☐Yes ☐No

7. If your answer for question No. 6 is 'No', what prohibits you?

☐ Don't aware of the service ☐ Technological complexity ☐ Lack of trust ☐
Inconvenience of infrastructure ☐ I feel it is riskier ☐ Not affordable ☐ other (Please
specify) -----

8. If your answer for question No. 6 is 'Yes', which type of e-banking service channel are you using?

ATM	
Mobile banking	
Internet Banking	
POS	

9. Following your response to question No. 8 by whom are you influenced to register for e-banking service channel that you are using currently?

☐Advertisement ☐Family/friends ☐Bank's policy ☐others (Please specify)-

Section 3. Psychographic Factors affecting e-banking service adoption

Please indicate the extent of your level of agreement and disagreement with the following statement. Please tick (✓) your appropriate answer based on the following rating.

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	Statement to evaluate	Rating point				
		1	2	3	4	5
Perceived ease of use						
10	I think that learning to use electronic banking services would be easy.					
11	I think it is easy to use electronic banking services to accomplish my banking tasks.					
12	It would take me lots of time to learn how to use electronic banking services					
Perceived usefulness						
13	I think that using the electronic banking services would enable me to accomplish my tasks more quickly					
14	I think that using the electronic banking services would make it easier for me to carry out my tasks					
15	I think the electronic banking services is useful					
Perceived risk						
16	Electronic banking services may not perform well and process payment incorrectly because of network problems					
17	When transaction error occurs, I will get compensation from bank					

	Statement to evaluate	Rating point				
		1	2	3	4	5
18	I am worried to use electronic banking services because other people may be able to access my account					
19	When my bank account incurs fraud or the hacker invades, I would have potential loss of status in one's social group					
20	It would take me lots of time to learn how to use electronic banking services					
Perceived trust						
21	I think e- banking service provided by my bank has enough safeguards to make me feel comfortable using it					
22	I feel assured that legal structures adequately protect me from problems associated with using e-banking services					
23	I feel confident that technological advances (such as encryption) for the Internet / cellphone makes it safe for me to use ATM/Internet/cellphone banking and POS services					
24	Overall, I trust e-banking services provided by my bank are trustworthy in terms of safety, security and credibility					

	Statement to evaluate	Rating point				
		1	2	3	4	5
Perceived cost						
25	It costs a lot to use e- banking service channels					
26	Fees of internet service subscription & mobile phone are affordable					
27	Overall, using e-banking service will increase my banking cost.					
Facilitating Conditions						
28	I have the resources to use electronic banking services					
29	I have the knowledge to use electronic banking service					
30	I have the ability to use electronic banking services					
Social influence						
31	My decision to adopt e-banking is influenced by my family, friends and colleagues					
32	I use e- banking because I have seen someone else using it					
33	People who influence my decisions think that I should use electronic banking services					

Section 4. Demographic Factors affecting e-banking service adoption

Please indicate the extent of your level of agreement and disagreement with the following

Statement. Please tick (✓) your appropriate answer based on the following rating.

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	Statement to evaluate	Rating Point				
		1	2	3	4	5
34	Income: People with more income have high tendency of using electronic banking					
35	Education: People with high education level becomes more E- banking user					
36	Age: Youth and middle age group use e-banking service more than old age					
37	Gender: People's Gender orientation affect their e-banking service usage behavior					

Section 5: existing state of electronic banking service adoption

These factors are identified to assess the current state of e-banking adoption. Please tick (✓) your appropriate answer based on the following rating according to your concerns and needs when using electronic banking.

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

	Adoption Factors	Rating point				
		1	2	3	4	5
38	Awareness: Currently I am fully aware of e-banking service channels such as ATM, mobile banking, Internet banking and POS offered by Ethiopian commercial banks.					
39	Knowledge: I have sufficient knowledge on all forms of e-banking service channels offered by Ethiopian commercial banks					

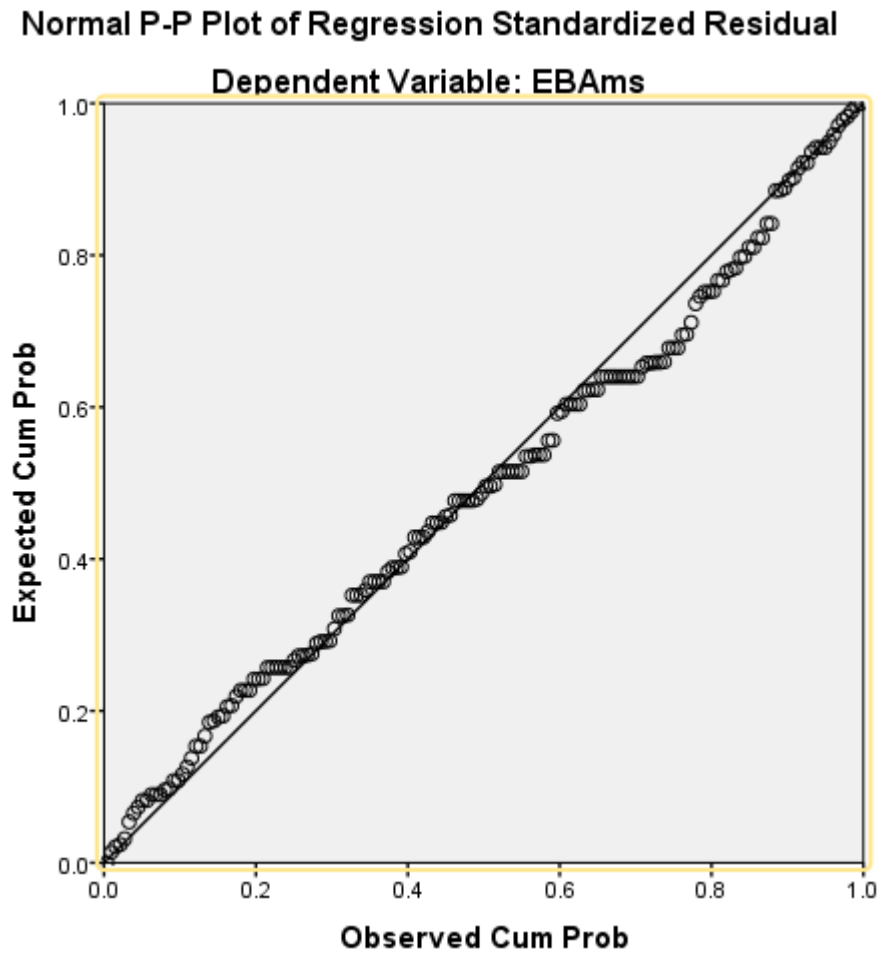
	Adoption Factors	Rating point				
40	Infrastructure: There is sufficient enabling infrastructure for e-banking service usage					
41	Accessibility: There is sufficient effort made by Ethiopian commercial banks for e-banking service accessibility.					
42	Reliability: E-banking service offered by Ethiopian commercial banks is reliable for my banking transactions					
43	Information: There is sufficient information provided by Ethiopian commercial banks regarding e-banking service options through front desk employees, banks' website and product brochures					
44	Experience: My e-banking service experience meets my expectation and I'm willing to recommend the service to others					

Appendix II. Interview

Interview questionnaires designed for the managers of the eight selected commercial banks.

1. What kind of e-banking service does your bank provide (such as ATM, phone Banking, Internet, POS, or combination all of these)?
2. How do you rate the number of individual (not firm level) e-banking customers vis-a vis your entire customer base (very low, low, medium, high, very high)
3. If your answer is low or medium, In your opinion what kind of factors could attribute for slower adoption rate
4. Is there any help desk or unique department for e-banking services to serve customers
5. On which type of services customers your bank usual receive complain from customers
6. How do you rate service down time for your ATM machines
7. How do you rate the ICT infrastructure to avail e-banking service smoothly

Appendix III: Linearity of the Relationship Test



Appendix IV: Multicollinearity Test Table

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constant)		
PEOU	.344	2.911
PU	.641	1.559
PR	.682	1.466
PC	.598	1.673
FC	.427	2.343
PT	.567	2.179
SI	.419	1.658
INC	.422	2.369
EDU	.627	2.193
AGE	.557	1.619

a. Dependent Variable: EBA