Sanity Mary's University

School of Graduate Studies

Factors Affecting on Electronic Banking Adoption of Customers In Commercial Bank of Ethiopia, Addis Ababa

By

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Addis Ababa, Ethiopia

June, 2014

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Approved By the Board of Examiners

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June, 2014

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DECLARATION

I, Estibel Tamiru hereby declare that this study entitled, factors affecting electronic banking adoption of customers in Commercial bank of Ethiopia, Addis Ababa is my own work. All information in this document has been obtained and presented in accordance with academic rules and ethical conduct. This study has not been submitted for award of any degree or Masters program in this or any other institution and, I have fully cited, acknowledged and referenced all material and results that are not original to this work.

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Addis Ababa, Ethiopia

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies with my approval as a university advisor.

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Advisor Signature

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Estibel Tamiru

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LIST OF ACRONYMS AND ABBREVIATIONS

ATM	Automated Teller Machine
(B2B)	Business-to-Business
CAD	Cash Against Documents
CBE	Commercial Bank of Ethiopia
E-banking	Electronic banking
E-business	Electronic business
ECX	Ethiopian commodity exchange
E- Payments	Electronic Payments
ICT	Information and Communications Technology
NBE	National Bank of Ethiopia
POS	Point of Sales Machines
OLTP	Online Transaction Processing
SMS	Short Message Service
SPSS	Statistical Package for Social Science
TOE	Technology Organization Environment
TAM	Technology Acceptance Model
TOE	Technology Organization Environment
TPB	Technology Planned Behavior
WWW	World Wide Web

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ABSTRACT

The purpose of this study is to identify and analyze factors affecting on customers in the adoption of e-banking of Commercial bank of Ethiopia, Addis Ababa. In this study both primary and secondary sources of data were employed. Primary data was collected through questionnaires and interviews. Questionnaires were distributed to 384 customers of the bank using multistage sampling techniques and interviews were conducted from CBE and NBE. Secondary data were also extracted from studies conducted, company manuals and reports in the area of the study. Data were analyzed using descriptive and inferential statistics (percentage, mean, standard deviation and reliability analysis, Pearson correlation and multiple regression analysis). The regression analysis of this study indicates that there are positive and strong relationships exists between infrastructure, security ,trust, perceived ease of use ,subjective norms , perceived behavioral control and perceived usefulness with customers' adoption of e-banking. But, security was a better predictor of customers' adoption of e-banking followed by trust and infrastructure. Moreover, the correlation analysis reveals that there is a positive and strong relationship exist among independent variables(security, perceived risk, perceived ease of use, perceived behavioral control, trust, perceived usefulness, subjective norms and infrastructure) and customers adoption of e-banking, however, perceived risk has negative and strong effect on customers' adoption of e-banking followed by security in Commercial Bank of Ethiopia. The overall e-banking adoption of CBE was low. The factors identified above were 75.2 % effect on the adoption of e-banking of CBE and had 86.7% level of relationship with customers' e-banking adoption of the bank. The government of Ethiopia should formulate strategies to enhance the e- banking infrastructure and enabling policy environment in collaboration with different actors and stakeholders. In addition to this, CBE should take part in creation of awareness through developing different awareness raising campaigns. It is recommended that future research to determine additional factors that are pertinent to Commercial Bank of Ethiopia future and current strategies and other commercial banks in the adoption of e-banking.

Keywords: E-banking, Information Technology, Technology Adoption, E- payment, E-commerce, Commercial Bank of Ethiopia.

CHAPTER ONE

INTRODUCTION

This section briefly introduces about the study area, the gaps on Ethiopian commercial banks in the adoption of e-banking including CBE and the respective objectives of the study and others were presented as follows.

1.1. BCKGROUND OF THE STUDY

E-business, a term originally coined by Lou Gerstner, CEO of IBM, is the use of the Internet and other networks and information technologies to support e-commerce, enterprise communications and collaboration, and Web-enabled business processes, both within a networked enterprise and with its customers and business partners. E-business includes *e-commerce,* which involves the buying, and selling and marketing and servicing of products, services, and information over the Internet and other networks.

Many companies today are using information technology to develop integrated cross functional Enterprise systems that cross the boundaries of traditional business functions in order to reengineer and improve vital business processes all across the enterprise. These organizations view cross-functional enterprise systems as a strategic way to use IT to share information resources and improve the efficiency and effectiveness of business processes, and develop strategic relationships with customers, suppliers, and business partners (James A.Brien, 2009).

Companies first moved from functional mainframe-based legacy systems to integrated cross-functional client/server applications. This typically involved installing enterprise resource planning, supply chain management, or customer relationship management software from SAP America, PeopleSoft, Oracle, and others. Instead of focusing on the information processing requirements of business functions, such enterprise software focuses on supporting integrated clusters of business processes involved in the operations of a business.

Transaction processing systems (TPS) are cross-functional information systems that process data resulting from the occurrence of business transactions.

Online transaction processing systems play a strategic role in Web-enabled businesses. Many firms are using the Internet and other networks that tie them electronically to their customers or

suppliers for online transaction processing (OLTP). Such *real-time* systems, which capture and process transactions immediately, can help firms provide superior service to customers and other trading partners. This capability adds value to their products and services, and thus gives them an important way to differentiate themselves from their competitors (Magembe, B A S and Shemi A P (2002)).

E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to with draw cash, transfer funds, to pay bills, or to obtain commercial information and advices are not well known in Ethiopia. The Internet is the driving force for the growth of e-commerce. The information and communication applications are paramount concern to the banks in today's business environment and Internet has become the major platform for all financial, banking and commercial transactions in the present scenario. Statistics show that Africa is lagging behind in the adoption of E-commerce. However, according to Jensen (2003), there is some e-commerce activity in Africa, with South Africa, Egypt, Morocco, and Tunisia taking the lead. Most rural areas in Africa, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities (Brien, 2009).

According to Jensen (2003), most countries in Africa, except South Africa, have Internet infrastructure only in their major cities."The slow diffusion of e-commerce has been attributed to a number of issues some of which may be unique to the African continent. Recently, several African countries have already made progress in their e-commerce links to integrate themselves with the global connectivity roadmap (Magembe, B A S and Shemi A P (2002)).

Electronic banking services have benefits for both banks and customers. For banks, electronic banking is conceded a strategy weapon; help them to achieve competitive advantage and increase their market share. Furthermore, using electronic services can save the cost of resources, which are needed for traditional banking services (Jayaward hena and Foley, 2000). From the customers' point of view, Aladwani, (2001) found that electronic banking provide faster, easier and more reliable services to customers.

However, customers are still hesitant to use electronic banking services, because they are concerned with security issues, and they may do not have sufficient ability to deal with the applications of electronic banking (Ayana, 2011).

At the end of the fiscal year ended in June 2012/13, there are sixteen commercial banks operating in Ethiopia, of these fourteen are private commercial banks while the rest three are state owned banks. Despite a rapid increase in the number of financial institutions since financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world. Cash is still the most dominant medium of exchange. The use of checks is mostly limited to government institutions, NGOs and some private business.

1.1.1 Profile of Commercial Bank Ethiopia

Commercial Bank of Ethiopia is the leading Bank in Ethiopia, established in 1942 G.C and Pioneer to introduce modern banking to the country. Commercial Bank of Ethiopia has 675 branches stretched across the country. It is the leading African bank with assets of over Birr 200.00 billion as on Dec. 30th 2013 and Plays a catalytic role in the economic progress & development of the country. It is the first bank in Ethiopia to introduce Automated Teller Machine (ATM) service for local users and pioneer to introduce Western Union Money Transfer Services in Ethiopia. Currently CBE has more than 7 million account holders. It has strong correspondent relationship with more than 50 renowned foreign banks and a SWIFT bilateral arrangement with 500 others. CBE combines a wide capital base with more than 12,800 talented and committed employees. CBE has reliable and long-standing relationships with many internationally acclaimed banks throughout the world.

The Vision of Commercial Bank of Ethiopian to become a world-class commercial bank by the year 2025. The Mission of Commercial Bank of Ethiopia is that, committed to realize stakeholder's needs through enhanced financial intermediation globally and supporting national development priorities, by deploying highly motivated, skilled and disciplined employees as well as state of the art technology. (www.combank.com).

The values of Commercial bank of Ethiopia are that Corporate Citizenship, Customer Satisfaction, Quality Service, Innovation, Teamwork, Integrity, and Public Confidence.

CBE provides e-banking service ultimate customers through Mobile, POS, internet and ATM and the bank endeavors to satisfy customers by striving to excel their business, by offering quality service to their customers' and aspire to be branded with quality in the minds of their

customers and the general public. Commercial bank of Ethiopia provides Products and services such as:

- Account Opening (Local currency and foreign currency)
- Deposit (cash/Negotiable instruments)
- Payment
- Cheque clearance and money transfer (Local currency and foreign currency).

CBE extends the following credit facilities to its esteemed customers: Overdraft, Merchandise loan facility, Pre-shipment Export Credit facility, Revolving Export Credit Facility, Special Truck Loan Financing, Short term loan, Medium and long term loans, Agricultural Input Loan, Agricultural Investment Loan, Coffee farming Term Loan Financing, Micro–Finance Institution's Loan (www.combank.com).

1.2. Statement of the problems

Over the years, we have experienced a progression of value transfer systems starting from barter, through bank notes, payments orders, cheques, and later Debit and Credit Cards (Asokan, et. al., 2000) .This has finally evolved into Electronic payment systems which enables commerce on the Internet. Modern trends indicate that electronic payment systems have become a significant element in all trade and commerce activities globally. The scope of electronic payments extends from under one dollar to Multi-Million dollar transactions in the world.

Despite the benefits that electronic banking systems has brought to other economies such as the western developed countries, economies in Africa, which are still in the early stages of applying electronic payment systems are yet to experience its maximum economic and operational impact (Ackorlie, 2009). Consequently, they have been slow to restructure and adapt to the new global economic reality resulting in lost opportunity and diminished competitiveness.

Unlike the developed world, electronic banking systems are rare in developing countries like Ethiopia where cash is still king. Implementing such a system in a developing nation where majority of citizens are used to cash and cheque based transactions requires a lot more effort. Since the implementation of E- payment system in Ethiopia, which is a debit card payment system, but not have been a credit card payment system which enables to use internationally, and hence there has not been any due diligence work in this area.

Besides, the recently introduced e-banking system by CBE is not familiar to the current existed and potential customers of the bank, since majority of the bank card holders are still using the banking service through face to face contact with the bank tellers which further increases the waiting time of the banking services of the bank. On the other hand, the global market e-banking has been practicing and is growing at a dramatic pace, so that it has significantly changing customer and business market behavior. As result, the service time of the bank still needs to be improved through stimulating customers for using e-banking system provided by the bank.

In addition to this, Ethiopian commercial banks are working and offering on the same and quite similar product and service lines in e-banking adoption without due considering nature and type of their customers, CBE is amongst the banks. These homogeneous natures of the banking business make product differentiation very difficult and costly and hence create very strong competitive pressure in the sector. Against this backdrop, CBE is expected to shift its focus towards understanding the factors that affect the utilization of e-banking, specifically in the perspective of customers to continue the leadership role in the financial industry of the country and to get better profit from the services. Hence, this research study would contribute to filling the existing research gap. Thus, the following basic research questions were set:-

1.2.1. Research questions

- What are the major factors affecting customers on the adoption of e-banking Practices in CBE?
- What is the strength of relationship among factors on customers' e-banking adoption in CBE?
- How do customers perceive about e- banking practice of CBE?
- To What extent the factors are affecting customers on e-banking adoption in CBE?

1.3. Objectives of the study

The main objective of this research is to identify and analyses factors affecting on the adoption of E-banking of customers in CBE.

Thus, the specific objectives of this research are:

- ✓ To identify factors affecting on the adoption of e-banking in the perspectives of customers of CBE.
- ✓ To prioritize factors affecting on the adoption of e-banking of customers of CBE.
- ✓ To develop and validate the relationship between factors that affects e-banking customers of the bank.
- ✓ To examine customers perception on e-banking practice of CBE.

1.4. Significance of the study

Introduction of new technologies allowed banking institutions to offer new channels of service outlets like ATM facility, Internet Banking, Telephone Banking, SMS banking and Mobile Banking. Ethiopian consumers recently too have access to many new channels to interact with their bank. Banks race against each other in bringing the latest technology for the benefit of their customers and themselves. But not many studies have been conducted to evaluate the factors affecting on customers electronics banking in Ethiopia, and hence this research would have the following significances:

- ➢ This study would provide a significant role to identify the major factors affecting in the adoption of e-banking of customers of the bank and to adjust accordingly.
- ➢ The study also would helps to know customers perception and level of e-banking adoption not only CBE but also other similar banks, and
- ➢ Finally, this study can be used as a guide line and reference for policy makers, practionaries and would also serve as a spring board for other researchers who want to conduct detailed research on the issue. So apart from providing a useful insight, is strongly expected to instigate other researchers to undertake a meaningful investigation by enlarging the scope of the issue.

1.5. Scope of the study

In order to ensure that the research project is manageable, it is necessary to demarcate the research, although this research is limited to Commercial Bank of Ethiopia, Addis Ababa city. This is because of Commercial Bank of Ethiopia is now the leading banks in e- banking including mobile banking technology and have many branches and service provided to target customer in the country.

In addition with given the limited time allocated and budget constraints, the study did not cover all Banks and many branches of Commercial Bank of Ethiopia in different regions of the country. Thus, the scope of this study is confined to assess factors affecting on the adoption of e-banking of CBE customers in Addis Ababa. This study also tries to examine only the level of e-banking adoption of customers of CBE using secondary sources of data from 2010/11 to 2013/14.

Business-to-business (B2B) e-commerce is by far the largest category of e - business, and accounts for the lion's share of web transactions today (Corritore,et. al., 2004). However, this study was focused on business to consumer aspect of e- banking.

1.6. Conceptual definition of terms

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

E-business - E-business includes e-commerce but also covers internal processes such as production, inventory management, product development, risk management, finance, knowledge management and human resources. www.computerworld.com

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

1.7. Organization of the study

This research paper is divided into five chapters. Chapter one presents the introduction part, which contains, back ground of the study, statement of the problem, research questions, and objectives of the study, organization of the study, conceptual definition of terms, scope and significance of the study. Chapter two presents the literature review regarding the definition of E-banking, Evolution of E-banking system, frameworks for the research and sets out some empirical studies regarding the issues under investigated.

Chapter three presents research methodology, which contains: research design, methods of data collection, data collection instruments, sampling and sampling techniques, measurement of reliability and methods of analysis. Chapter four presents results and discussion of the data and the final part of the study, chapters five summarize the findings, concludes, and forwarded suggestion for future research and recommendations. Generally, the outlined of the study is presented as follows.

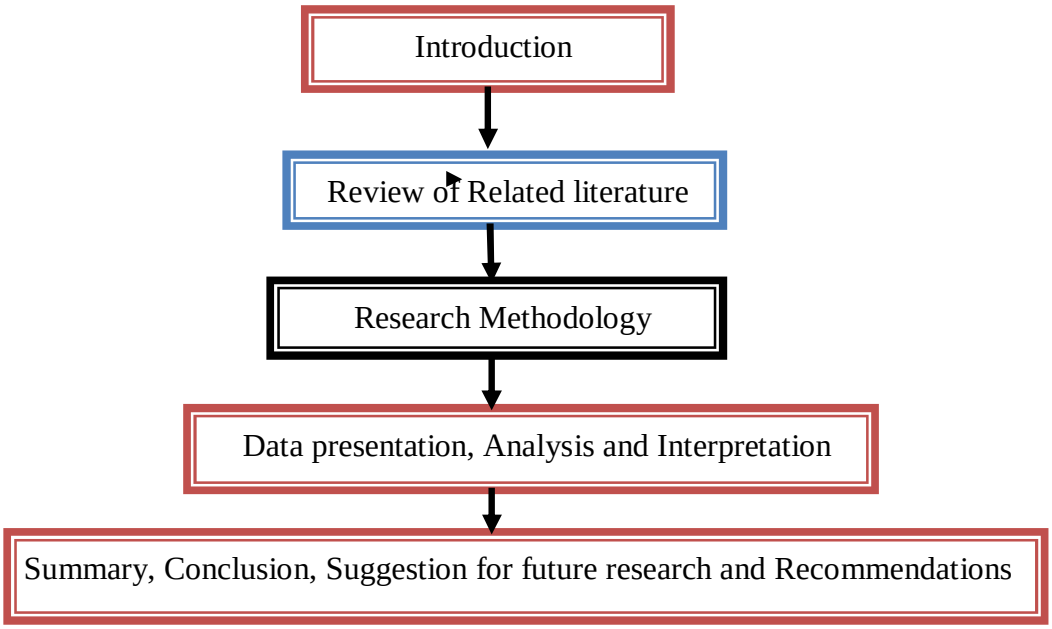


Figure: 1.1 Organization of the study

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This section both theoretically and empirical reviews related with e-banking adoption of customers and in the subject area of the study about Ethiopian Commercial banks were reviewed and the respective research hypothesis based on the reviews was developed.

2.1. Evolution and historical development of E-Banking

Technological developments have brought new opportunities for banks. The evolution of the e-banking industry can be traced to the early 1970s. Banks began to look at e-banking as a means to replace some of their traditional bank functions, for two reasons. Firstly, branches were very expensive to set up and maintain due to the large overheads associated with them. Secondly e-banking product/services like ATM and electronic fund transfer were a source of differentiation for banks that utilized them. Being in a fiercely competitive industry, the ability of banks to differentiate themselves on the basis of price is limited.

E-banking is the newest delivery channel for banking services. In recent years, internet banking usage has become one of the most important e-commerce environments (Wang, Y. et al., 2003). Sohail and Shanmugham (2003) pointed out that a bank's promotional efforts indeed facilitate awareness of internet banking adoption and its benefits. Technology has introduced new ways of delivering banking to the customer, such as ATMs and Internet Banking. Hence, Banks have found themselves at the forefront of technology adoption for the past three decades. Increasing labor costs in the 1960s placed pressure on labor intensive industries like banking to look forward automating some of their functions. Barclays Bank was the first to envisage the potential. *http://my.safaribooksonline.com*

Financial institutions took steps to implement e-banking services in the mid-1990s; many consumers were hesitant to conduct monetary transactions over the web. It took widespread adoption of electronic commerce, based on trailblazing companies such as America Online, Amazon.com and eBay, to make the idea of paying for items online widespread. By 2000, 80 percent of U.S. banks offered e-banking. Customer use grew slowly. At Bank of America, for example, it took 10 years to acquire 2 million e-banking customers.

In 2001, Bank of America became the first bank to top 3 million online banking customers, more than 20 percent of its customer base. In comparison, larger national institutions, such as Citigroup claimed 2.2 million online relationships globally, while J.P. Morgan Chase estimated it had more than 750,000 online banking customers. Wells Fargo had 2.5 million online banking customers, including small businesses. Online customers proved more loyal and profitable than regular customers. In October 2001, Bank of America customers executed a record 3.1 million electronic bill payments, totaling more than $1 billion. In 2009, a report by Gartner Group estimated that 47 percent of U.S. adults and 30 percent in the United Kingdom bank online. *http://www.ehow.com*

2.2. Definition of electronic banking

E-banking has a variety of definitions all refer to the same meaning, the following section show some of these definitions. E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul, 2009). E-banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to another, rather than by check or cash (Malak, 2007)**.**

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 (Daniel, 1999).

Banks have used electronic channels to do banking operations with both domestic and international customers. Currently, banks are mostly using electronic channels to receive instructions and deliver their products and services to their customers. Although the range of services provided by banks over the electronic channel varies widely in content, this form of banking is generally referred to as electronic banking (Azouzi, 2009).

The definition of electronic banking used in this study is adopted from the Basel committee report which defined it the provision of retail and small value banking products and services through electronic channels as well as a large value electronic payment and other wholesale banking services which are delivered electronically. Such products and services can include deposit taking, lending,

account management, the provision of financial device, electronic bill payment, and the provision for other products and services such as electronic money.[1]

Another definition of E-banking is that 'E-banking' is the use of a computer to retrieve and process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers, requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network (Yang 1997). It should be noted that electronic banking is a bigger platform than just banking via the internet.

E-banking can be also defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or touch tone telephone (Alagheband, 2006).

2.3. Different forms of E-banking

1. **Automated Teller Machines (ATM) -** It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. To withdraw cash, make deposits or transfer funds between accounts, a consumer needs an ATM card and a personal identification number (PIN) (Malak, 2007).

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

3. **Internet / extranet banking-** It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers (Malak, 2007).

[1] Adapted from Basel committee on banking supervision, 2003.

4. **Mobile banking-** Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS). Banks offer Internet banking in two main ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional delivery channels. A second alternative is to establish virtual branchless or Internet-only, Bank almost without physical offices. Virtual banks may offer their customers the ability to make deposits and withdraw funds via ATMs or other remote delivery channels owned by other institutions (Furst & Nolle 2002). In the context of this study E-banking were not considered as only transferring of service by using internet connection rather it considered as multi channel service provided through ATM, internet banking, Mobile banking (Mod birr system), point sale terminal and telephone banking (Azouzi, 2009).

5. **TV Based:** The use of satellite or cable to deliver account information to the TV screen of customers (it is internet Based). (Kajaluto, 2003).

6. **Tele-banking:** Tele-banking service is provided by phone. To access an account it is required to dial a particular telephone number and there are several options of services.[2]

2.4. Levels/Scope of e-banking business

I. **Basic information e-banking**/web sites that just disseminate information on banking products and services offered to bank customers and the general public;

II. **Simple transactional e-banking**/web sites that allow bank customers to submit applications for different services, make queries on their account balances, and submit instructions to the bank, but do not permit any account transfers;

III. **Advanced transactional e-banking**/web sites that allow bank customers to electronically Transfer funds to/from their accounts pay bills, and conduct other banking transaction online. Usually, E-banking refers to types II and III.[3]

2.4. Factors influencing Banks to adopt E-banking system

[2] Adapted from Jiaqin Yang* and Kh Tanveer Ahmed, Georgia College & State University, Recent trends and developments in e-banking in an underdeveloped nation. *Int. J. Electronic Finance, Vol. 3, No. 2, 2009.*

[3] Paper presented on the development and supervision of e- banking at Shanghaie (MU Yibin Financial Economist, The World Bank, 2003).

Many researchers have been used different frame works in the study of adopting new technological innovation. Among frameworks that have been developed based on the past studies includes, the Technology-Organization-Environment framework (TOE) (Tornatzky & Fleischer, 1990), which identifies three basic Factors for the adoption of technological innovation, i.e., technological factors, organizational and environmental factors.

Technology Acceptance Model(TAM) (Davis, 1989), which posit the two sets of beliefs, i.e. perceived ease of use (PEOU) and perceived usefulness (PU) to determine individual's acceptance of a technology. PEOU refers to the degree to which an individual believes that using a particular system would be free of physical and mental effort, PU on the other hand is related to users. (Alsabbagh & Molla, 2004).

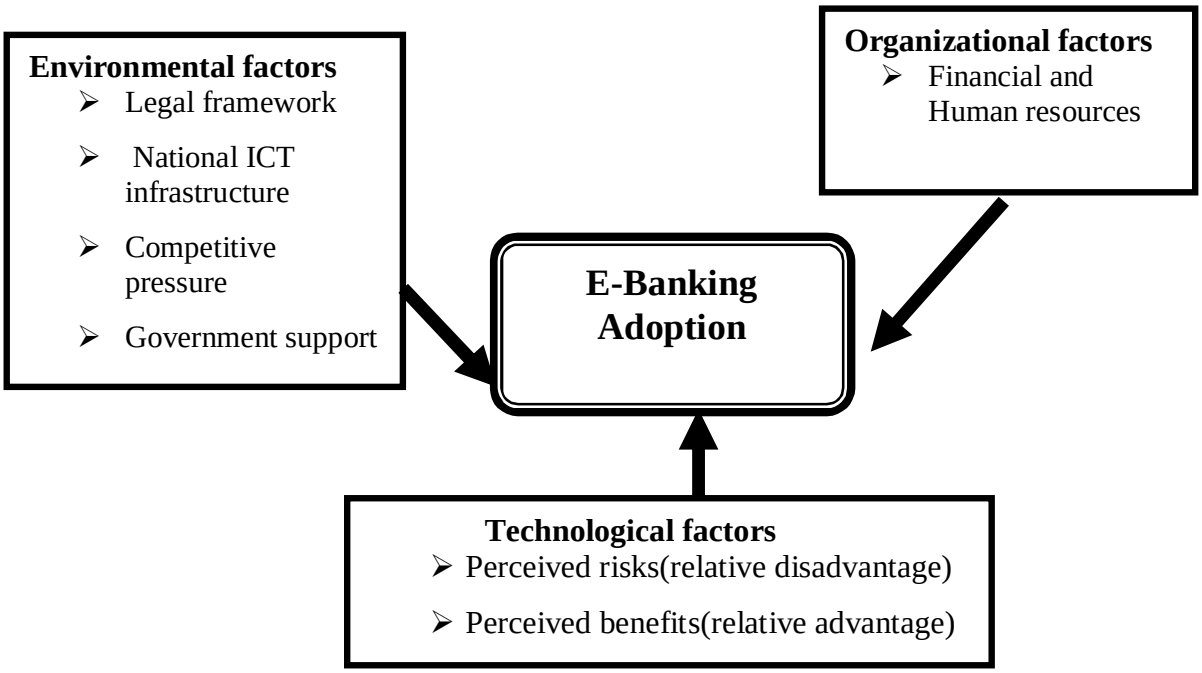
2.4.1. Technology- Organization- Environment Framework

TOE framework was proposed by Tornatzky and Fleischer; it is designed for studying the likelihood of adoption success of technology innovations. This framework is a comprehensive and well received framework in the context of innovation adoption by organizations and has been used in many studies (Salwani, *et al,* & Ellis 2009; Chang *et al* 2007, Zhu & Kraemer 2006). According to Tornatzky and Fleischer (1990), technology adoption within an organization is influenced by factors pertaining to the technological context, the organizational context, and the external environment.

Based on this, the researchers adopt the TOE framework to summarize possible key factors affecting E-banking adoption as shown in Figure 2.1. The technological factor refers to adopter's perception of E-banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Rogers' diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).While the organizational factor refers to the organization's characteristics that influence its ability to adopt and use of E-banking system. The environmental factor refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services.

For each context, various factors have been identified from the literature but only those that are considered relevant for E-banking adoption are included in the framework. Details of factors considered in this study are discussed below.

Figure: 2:1.Technology-Organization-Environment framework



Source: Tornatzky and Fleischer (1990)

2.4.1.1 Technological Factors

It appears that there is a lack of consensus on what factors belong to this context. For example, one study (Salwani, 2009) includes technology competence covering existing technology infrastructure and skills to utilize the technology in this context, while other studies (Ellias 2009 & Chang 2007) consider some relevant characteristics of technology.

To avoid overlapping between technology and organizational contexts, researcher chooses two basic factors related to technology competence, which have relevant to the organizational factors, i.e. perceived benefits and perceived risks are considered in this study from the technological factors.

1. **Perceived benefits: -** Perceived benefits of E-banking cover both direct and indirect benefits for the banking industry as well as for the consumers. Direct benefits include the savings on operational cost, improved organizational functionality, productivity gain, improved efficiency and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer's satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Lu *et al*. 2005; Kuan &Chau 2001 & Iacovou 1995).

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

Previous studies mentioned that perceived risk was a major factor that influences the adoption of electronic banking services (Polatoglu and Ekin, 2001; Tan and Teo, 2000). Featherman MS and Pavlou PA (2003) defined perceived risk as the potentiality of loss in the pursuit of a desired outcome of using electronic services. It increases with the higher level of uncertainty or with an increased chance of negative consequences (Lu, Hsu, and Hsu, 2005). Most of the researchers noted that customers' perceived risk was a kind of multi dimensional construct, and such dimensions may vary according to the product or service type. Five dimensions of perceived risk have been identified in the previous studies (Featherman MS and Pavlou PA, 2003; Kuisma et al., 2007; Lu et al., 2005; Natarajan et al., 2010). These dimensions are: performance risk, social risk, financial risk, privacy risk and time risk. Performance risk refers to losses incurred deficiencies of electronic services.

Customers are often worried that a break down in the system servers will occur while conducting electronic services, because these situations may result in unexpected losses (Kuisma et al., 2007). Littler and Melanthiou (2006) noted that a break down in the system could reduce customers' willingness to use online banking. Social risk refers to the potential loss of status in one's social group as a result of adopting a product or service (Featherman MS and Pavlou PA, 2003). It is possible that one's social standing may be enhanced or diminished depending on how electronic banking services are viewed. Yang, Park, and Park (2007) found that social risk has a negative impact on attitude for consumers. Financial risk is defined as the potential for monetary loss due to transaction error or bank account misuse. Many customers resist using online banking because they fear from such losses (Kuisma et al., 2007). Privacy risk refers to the potential loss of control over personal information which is used without knowledge or permeation (Featherman MS and Pavlou PA, 2003). Horst et al. (2007) stated that the greatest challenge of the electronic banking sector will be winning the trust of customers over the issue of privacy and security. Finally, time risk refers to the loss of time in implementing, learning how to use and troubleshooting a new electronic service (Natarajan et al.,

2010). Consumers are less likely to adopt an electronic service that they consider having high setup and maintenance costs (Featherman MS and Pavlou PA, 2003).

2.4.1.2. Organizational Factors

Organizations are different in their preference to adopt technological innovation (Iacovou 1995 & Grover 1993) influenced by a number of factors, like firm size, top management support and financial and human resources. In the framework for this study, researcher uses one basic organizational factor as discussed below.

Financial and human resources: Financial resources are an important factor in facilitating innovation adoption for any organization and they are often correlated with the firm size (Kuan 2001 & Iacovou 1995). Therefore, it is expected that the availability of financial resources within the adopting firms is important for E-banking adoption. These resources enable banking institutions to obtain human related resources including the required skills and expertise to develop and support provision of E-banking service.

2.4.1.3. Environmental factors

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

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

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

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

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

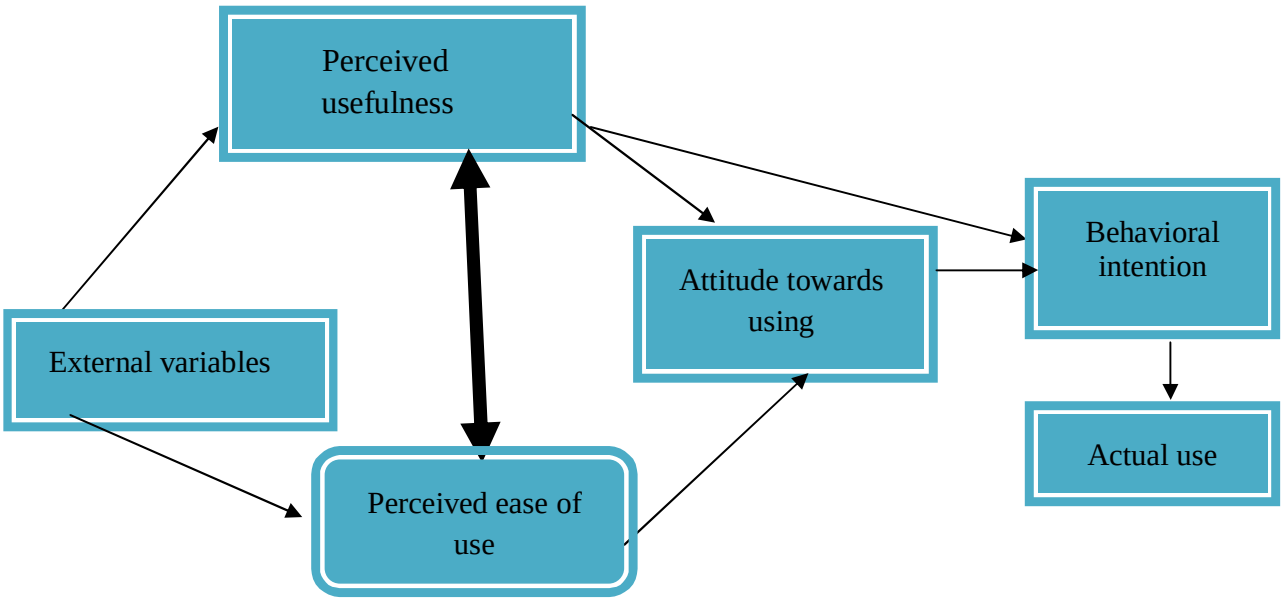
2.4.2. Technology Acceptance Model (TAM)

To understand, predict and explain why people accept or reject information systems; researchers have developed and used various models to understand the acceptance of users of the information systems. The technology acceptance model (TAM) that was introduced by Davis, Bagozzi, and Warshaw (1989) is one of the most cited models that researchers used to study underlying factors that motivate users to accept and adopt a new information system (Al Shibly, 2011). The primary goal of TAM is to provide an explanation of factors affecting computer applications' acceptance in general. In addition, this model helps researchers and practitioners to identify why a particular system is unacceptable (Davis, 1989). Davis suggested that using an information system is directly determined by the behavioral intention to use it, which is in turn influenced by the users' attitudes toward using the system and the perceived usefulness of the system. Attitude and perceived usefulness are also affected by the perceived ease of use.

According to TAM, greater perceived usefulness and the perceived ease of use of an information system will positively influence the attitude toward this system. The attitude, in turn leads to a greater intention to use the system, which positively affects one's actual use of the system.

TAM supposes that, other thing being equal, perceived usefulness is influenced by the perceived ease of use because the easier a technology to use, the more useful it can be. Figure 2.2 shows the links between all the factors found in TAM.

Figure .2.2. Technology Acceptance Model (TAM)



Source: Davis (1986)

Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her job performance.

Perceived ease of use (PEU) refers to the degree to which a person believes that using the system will be free of effort.

Attitude (ATT) explains a person's favorable or unfavorable assessment regarding the behavior in question. Intention (INT) is a measure of the strength of a person's willingness to use effort while performing a certain behavior.

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

In addition, several studies have applied TAM to evaluate users' adoption in different settings such as electronic commerce (Gefen, Karahanna, and Straub, 2003); electronic learning (Arbaugh, 2000); internet banking (Al Sukkar and Hasan, 2005) and e-government (Alhujran, 2009).

2.4.3. Theory of Planned Behavior (TPB)

The theory of planned behavior (TPB) suggested that human behavior is determined by intention to perform the behavior, which is affected jointly by attitude toward behavior, subjective norm and perceived behavioral control (Ajzen, 1991, 2002).

Attitude (ATT) is the general feeling of people about the desirability or undesirability of a specific behavior. Subjective norm (SN) expresses the perceived organizational or social pressure of a person who intends to perform a particular behavior.

Perceived behavioral control (PBC) reflects a person's perception of the ease or difficulty of implementing a particular behavior.

The ability of TBP in providing a useful theoretical framework for understanding and predicting the acceptance of new information systems is demonstrated (Ajzen, 2002).

2.4.4. Socio-Cultural factors

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

Consumer’s confidence and trust in the traditional payments system has made customers less likely to adopt new technologies. New technologies will not dominate the market until customers are confident that their privacy will be protected and adequate assurance of security is guaranteed. (Taddesse & Kidan, 2005). New technologies also requires the test of time in order to earn the confidence of the people, even if it is easier to use and cheaper than older methods.

Previous studies stressed the importance of culture (CUL) toward a better understanding of information system adoption (Al-Gahtani, Hubona, and Wang, 2007; Veiga, Floyd, and Dechant, 2001).

Shore and Venkatachalam, (1996) emphasis the role of culture when transferring information technology applications across culture, before any technology transfer, it is necessary to study user requirements and needs. Those needs and requirement are heavily influenced by culture. Hence, there is a need to explore the role of national culture as one of the factors that is likely to influence the acceptance or resistance of electronic banking services. There is no generally accepted definition for culture. Hofstede (1997) defines culture as the collective programming of the mind which distinguishes the member of one human group from another. Culture can also refer to the variation between values, beliefs and motivation of a diverse group (Goodman and Green, 1992). Shore and Venkatachalam (1996) stated that culture reflects individual core values and beliefs. These values and beliefs are formed through childhood and reinforced all through their life

2.4.5. Major factors influencing the adoption E-banking of consumers

It is a well established fact that individual user's preferences and beliefs impact on the performance or practice of almost every system. This review examines factors that influence the choices of consumers influencing factors the following eight factors have been used more often than others in relation to ICT technology based system or e-banking system based on different research models, reviews and objectives of the research. Perceived risk, perceived usefulness, ease to use, infrastructures, security, trust, behavioral control and subjective norm are the most popular factors employed to explain e-banking consumer practice.

Perceived risk

The study of perceived risk has a long history in the marketing literature. Researchers generally agree that perceived risk is a combination of the perception of the likelihood that something will go wrong and the perception of the seriousness of the consequences. According to Grazioli and Jarvenpaa (2000), a perceived risk refers to a consumer's perceptions of uncertainty and adverse consequences of buying from the web. Consumer behavior involves risk in the sense that any action of a consumer will produce consequence which he/she can't anticipate with anything appreciating certainty, and some of which are likely to be unpleasant (Stone and Gronhaug, 1993).

Perceived usefulness

Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his or her job performance (Davis 1989). It explained that an individual's

choice of behavior is based on the probability that an action will provoke a specific consequence.

Ease of use

Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible. Although most researchers have found perceived ease of use to be directly related to usage, the findings of Ndubisi et. al., (2001) revealed that perceived ease of use had no effect on usage of technology. This was because their study was conducted on a sample of women entrepreneurs who were not aware of or exposed to technology as they were small entrepreneurs who had to deal with day-to-day activities rather than using technology to enhance their performance.

Behavioral control

Control beliefs give rise to perceived ease or difficulty of performing the behavior. According to Ajzen (1991) explained that perceived behavioral control reflects beliefs regarding the access to resources and opportunities needed to perform a behavior. They also divided perceive behavioral control into two components. The first component reflects the availability of resources needed to engage in the behavior. This includes access to financial resources, time and other resources. The second component reflects the focal person's self confidence in the ability to conduct the behavior.

Subjective norm

Subjective norms deal with studying those respondents who use e-banking in a given company's website or through an agent. It applies by asking them how important could their opinions be influencing the attitude of others in their personal decision-making. Subjective norm refers to one's perception of social pressure to perform or not to perform the behavior under consideration and its effect in the initial stages of system implementation (Athiyaman, 2002). It explained that when applying new technology/system social pressure needs at the begging of the system.

Trust

Trust is a necessary part of any relationship. Against this backdrop, the objective of e-banking is creating a long lasting relationship with customers by making the service trustable. Knowing the definition of trust and identifying the different categories of actors involved in the practice of new technology helps assess the influence of trust on the perception of a new technology. Trust

is defined as the willingness to relay on an exchanging partner in whom one has confidence (Moorman, 1993).

Security

Security refers to the need to protect data, equipment and processing time. Organizations restrict access to certain data and protect data and applications from manipulation or contamination. According to Bargh et, al. (2008), security services offering protection from security threats are: identification, authentication, confidentiality, integrity, access control, and non-reputation. Online environment differs in terms of access and usage of transaction and privacy information exchange during buying and selling.

Infrastructure

According to Groucutt and Griseri (2004) Investing in the infrastructure necessary to enable widespread use of the internet represent a massive capital cost for many nations. They also explain about the key elements of an effective internet infrastructure. Such as:

- The necessary improvement in telecommunication service, from archaic analogue to state of the-art digital systems;
- The acquisition of reliable hardware and software system;
- The provision of reliable uninterrupted power supplies, particularly inclusive to many African countries;
- The necessary training, although this can be obtained on line. However, basic computer skills must be achieved prior to gaining access to the internet.

Infrastructure is an integral part in implementing technology-based system. Infrastructure has been playing a crucial role in implementing e-business including e-banking in a given organization. Particularly the internet, LAN and WAN network tools are playing a pivotal role in communicating users with organization, making online payment anywhere and any place, and delivery and distribution while performing e-business.

2.5. The Ethiopian financial sector and e-banking practice

The Ethiopian financial sector is one of the least developed in Sub-Saharan Africa. On a financial liberalization index, this measures banking security and independence from government control on a scale of 10 to 100. The sector is characterized by a shallow financial market, a closed nature, and strong government Control. With a growing number of import-export businesses, and increased

international trades and international relations, the current banking system is short of providing efficient and dependable services (Kiyota et al., 2007).

2.5.1. E-banking challenges in Ethiopia

Banking and Finance is an important sector for establishing e-commerce. There are some roles of banking sector in ecommerce such as, online corporate banking, electronic fund transfer, automated teller machines (ATM), debit card, credit card etc. Bank is the only authorized organization which can store and transact money.

Technological developments in banking sector make trading activities much easier and cheaper for customers. It provides convenience in terms of the capital, labor, time and all the resources needed to make a transaction (Uppal, 2008).

Banking in Ethiopia faces numerous challenges to fully adopt and adapt E-Banking applications and seize the opportunities presented by ICT applications in general. Key Challenges for E-Banking applications are:

- Low level of internet penetration and poorly developed telecommunication infrastructure: Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvements in e-commerce in Ethiopia. Most rural areas of the country, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities.
- Lack of suitable legal and regulatory framework for e-commerce and e-payment: Ethiopian current laws do not accommodate electronic contracts and signatures. Ethiopia has not yet enacted legislation that deals with e-commerce concerns including enforceability of the validity of electronic contracts, digital signatures and intellectual copyright and restrict the use of encryption technologies.
- Inadequate banking system:
- Political instabilities in neighboring countries: Political and economic instabilities in Somalia, Southern Sudan, and Eritrea are threatening traits that do not provide a very conducive environment for e-banking in Ethiopia. Political instabilities inevitably disturb smooth operations of business and free flow of goods and services.

- High rates of illiteracy: Low literacy rate is a serious impediment for the adoption of E-Banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of E-Banking, they should not only know how to read and write but also possess basic ICT literacy.
- High cost of Internet: The cost of Internet access relative to per capita income is a critical factor. Compared to the developed countries, there are higher costs of entry into the e-commerce market in Ethiopia. These include high start-up investment costs, high costs of computers and telecommunication and licensing requirements.
- Absence of financial networks that links different banks (Banks are not yet automated: Most of the banking-transactions currently taking place use credit and debit cards supplied by Visa and MasterCard. For conducting e-banking, the use of credit or debit cards is mandatory. Thus requiring the need for specialized systems which are not currently available.
- Frequent power interruption: Lack of reliable power supply is a key challenge for smoothly running e-banking in Ethiopia.
- Resistance to changes in technology among customers and staff due to:
    - Lack of awareness on the benefits of new technologies,
    - Fear of risk,
    - Lack of trained personnel in key organizations,
    - Tendency to be content with the existing structures,
    - People may be resistant to new payment mechanisms

Cyber security issues: Cyber security is a global challenge that requires global and multi dimensional response with respect to policy, socio-economic, legal and technological aspects.

2.5.2. Payment Systems in Ethiopia

A payment is the transfer of money from one party (such as a person or company) to another. A payment is usually made in exchange for the provision of goods, services or both, or to fulfill a legal obligation. The simplest and oldest form of payment is barter, the exchange of one good or service for another.

In the modern world, common means of payment by an individual include money, cheque, debit card, credit card, or bank transfer. Currently cash and checking transfer are the dominant payment system in Ethiopia (Wondwossen & Tsegai, 2005).

Currently the usage of credit card in Ethiopia is very low. There is no issuer of local and international credit cards. But there are some business firms (e.g. Hotels, supermarkets, etc) that accept international credit card. This payment system is mainly used by foreigners and Ethiopians residing abroad as they come to Ethiopia and want to get money using their credit card. The Ethiopian airlines currently provide an option for its customers to buy flight tickets online using their credit card (Wondwossen &Tsegai, 2005).

2.6. Benefit of adopting E-banking system

It is essential for the banks to have the official bank website providing the possibility to do transactions so that banks can be qualified as providing the online banking services (Pikkarainen *et al.,* 2004). According to Giglio (2002) and Robinson (2000) in delivering banking products the cheapest way can be done only through the Online Banking. According to Karjaluoto *et al.* (2002) with the help of online banking services, the branch networks of banks have reduced and also the staff for working in banks and customers are satisfied to use the online banking services as it will save a lot of time and effort to go to branch of bank and perform these transactions. So the main reason behind accepting the E-banking system is that the service is the time and cost saving and freedom from the place (Polatoglu and Ekin 2001).

Business organizations are trying to uncover the new technologies coming from the E-commerce applications which has a lower transaction cost resulted to eliminate association in distributing channels (Salman & Kashif 2010).

The cost can be reduced to zero in some services like information and manufactured goods information. Transaction of low cost and easiness provides to adopt the new trend of technology to trade information among different groups and business parties. Information and Communication technology adoption transformed business to go from local and global. However, it has been said that E-banking is vital in the banking sector of developing countries (Polatoglu and Ekin 2001).

The online payment system is quite new in banking institutions and dispersion of these innovations can result in more competent online banking systems which resulted in lots of changes in the technologies of the banking sector.

Polatoglu and Ekin (2001) argued that early adopters and heavy users of E-banking services were more satisfied with the services compared to the other customer groups. According to Joseph and Stone (2003), the ability of delivering services via technology appears to be correlated with high satisfaction with services deemed most important to customers. Furthermore, Joseph & Stone

(2003) emphasized that human and technology based delivery channels were greatly linked with the customers perceptions of how these bank services were delivered to them and pointed out that these perceptual outcomes would affect the level of bank customer satisfaction, retention, and switching.

Before the shift of technology, customers were facing a lot of problems like handling a lot of money and transferring of that money, submission of utility bills and waiting in a long queue as there was no online transferring facility, and there was no information about new services offered by banks and mostly deposit holders were unaware of how to get benefits from bank products and services like bank loans, credit cards, ATM cards etc.

2.6.1. Benefit of E-banking for Banks

It should be noted that E-banking can bring about various benefits for banks and their customers as well. It is obvious that cost savings, efficiency, gaining new segments of customers, improvement of the banks reputation and better customer services and satisfaction are primary benefits to banks (Jayawardhena & Foley, 2000). In addition, Jayawardhena & Foley (2000) noted that setting up a specialized E-banking infrastructure costs about US $1 to $2 million, which is much lower than setting up a banking branch. In addition, the authors conclude that costs for running a traditional bank account for 50% to 60% of its revenues.

Under the view of Robinson (2000), relevant costs for conducting a banking transaction via online are much lower than via a brick and mortar branch. Moreover, Sheshunoff (2000) contends that one of the most important factors influencing the adoption of E-banking by banks is the need to build up strong barriers to customer exiting.
Under the view of the author, once customers become familiar with the utilization of full service E-banking, it is unlikely that they will change to another financial institution.

Such an argument can be supported by the consumer behavior theory that switching costs are often very high in terms of time and efforts by consumers. Finally, the author emphasizes that the implementation of E-banking can bring about many competitive advantages for banks in todays highly competitive banking market.

A research on E-banking has been carried out in Denmark by Mol's (1998). The author argues that E-banking can play an important role in enhancing cross-selling and price differentiation. E-

banking can make favorable conditions for banks to provide customers numerous services 24 hours a day and 7 days a week.

E-banking can improve customer satisfaction with the bank due to the fact that it makes customers less price sensitive, and improve their intention to repurchase, and more loyalty to the bank via providing more positive words of mouth about the bank than other bank customers.

2.6.2. Benefits of E- banking to the Economy

E-banking usage makes the economy more efficient and enables consumers' access to credit. E-banking also provides opportunities to the banking sector to enlarge its customer's base. It has consequence to increase the volume of credit creation which intern results in better economic condition. Ibrahim, (2009) states the positive impact of e-banking is immense for economic development of a nation. Some of the economic benefits of e-banking as identified by him are discussed as follows.

Reduction of the cost for printing cash notes and its related distribution: In cash based economy government are required to invest a great deal of fund on printing of cash notes and distributing same to the public. As a result of frequent wear and tear of cash notes, the magnitude and frequency of investment on cash note printing as well as its related distribution cost is significant. E- Payment system enhances fund transfer from one account to another by means of electronic, which reduces the need of cash notes distribution and cash notes printing as well as other related expenditure (Ibrahim, 2009).

Enhancement of aggregate deposit: In a well organized e-payment infrastructure, people don't need to carry cash note for their day to day expenditure as well as contingencies. They rather are encouraged to deposit their fund in the banking system and obtain in a single plastic to access their fund at any time of the day when the need arises.

Banking the unbanked: E-payment infrastructure is diversified: payroll for employees can be handled to this system. Besides creating easy and convenience, both for the employer as well as the employee, e-payment enables individuals to enter into the banking system which may not be interested otherwise. Such impact of e-banking, the unbanked population also has benefit in increasing aggregate deposits (Ibrahim, 2009).

Increasing the potential for hard currency generation: Many countries in the world especially for developing nations, earning of hard currency /foreign currency is very essential to manage the

countries balance of payment. E-payment card system can bring a good potential of enabling economies to earn more foreign currency. This can be realized through attracting tourists by encouraging spending more. Into day's world, availability of payment card infrastructure is one of the criteria that tourists set while they decide to which country to visit (Ibrahim, 2009).

E-payment has its own contribution to generate foreign currency to the extent of the limited cash while they stay in another country. Travelers who are outside their home country feel more unsafe and uncomfortable to carry bulk amount of cash while on travel. Due to the fact that they can easily access their account in abroad while staying in any other country, where the payment card infrastructure well established and their chance of spending is great.

2.6.3. Benefit of E-banking for Customers

It should be noted that E-banking is not only brings about benefits to banks but also to their customers. Thanks to the emergence of the Internet, banking transactions are no longer limited to time and geography. It is very easy for consumers throughout the world to access to their bank accounts 24 hours per day and seven days a week. Customers can enjoy a variety of services, especially services which are not provided by traditional bank branches (Pham, 2010).It is argued that one of the greatest benefits that E-banking brings about is that it is not expensive or even free for customers to utilize E-banking products/services.

However, some people believe that prices appear to be one factor that is impedimental to the diffusion of E-banking (Sathye, 1999). The price debates often revolve around geographical differences and disparities between costs of Internet connections and telephone call pricing. It has also been believed that E-banks have been changing to respond to customers increasingly changing demands (Pham, 2010). There has been a tendency that customers don't want to travel to or from a bank branch to conduct some banking transactions. In other words, they want to utilize E-banking to save time and money. E-banking can bring about convenience and accessibility, which will have positive effects on customer satisfaction and loyalty (Pham, 2010).

It is totally possible for customers to manage their banking transactions whenever they want and to enjoy improved privacy in their interactions with the bank. In addition, customers can enjoy more benefits at lower cost levels by utilizing E-banking (Mol's, 1998).

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

2.7. Empirical review of the study

Wondwossen and Tsegai (2005) studied on the challenges and opportunities of E-payments in Ethiopia; their objective was studying of E-payment practices in developing countries, Africa and Ethiopia. The authors found that, the main obstacles to the development of E-payments are lack of customers trust in the initiatives, Unavailability of payment laws and regulations particularly for E-payment, Lack of skilled manpower and frequent power disruption.

Zaribaf and et al (2011) studied behavioral preferences of users of Electronic and traditional banking of Mellat banks across Semnan province. Results of their work showed that the faster the access to new banking is, and the more familiar the customers are with e-banking, and the more dependent the new e-banking is on e-networks, and the better images the customers have about advantages of using E-banking, the higher the tendency customers show to use e-banking. An empirical investigation conducted by Sathye (1999) on the adoption of Internet Banking by Australian consumers also identified, security concerns as key factor in internet banking adoption. A report on Internet Banking in Australia finds that, security concerns among banks and customers are keeping both away from Internet Banking. According to Sathye (1999) Security was identified as the biggest obstacle in adoption; it was found that 78 percent of personal and 73 percent of business respondents had security concerns when it comes to the use of Internet Banking.

Mahmoudi Meimand and et al (2009) studied adoption pattern of internet banking of Tehran Melli bank. Results showed that perceptions of usefulness and ease of use, and also security have the most effect on E-banking adoption by customers.

Polatoglu & Ekin (2001) conducted a research on an empirical investigation of Turkish consumer acceptance of internet banking and mention reliability as the prime factor in their finding for the adoption of new technological innovations, reliability consists of security and privacy in Internet Banking transactions. They go on to state that risks (security concern) include financial, physical or social risks associated when trying an innovation.

Gilaninia and Mousavian (2009) identified factors influencing customers' tendency to use E-banking services in this industry on the basis of Davis model. Results showed that different factors influence customer's tendencies (perceived ease, perceived usefulness, and perceived security) to use e-banking services differently.

Krauter and Faullant (2008) examined factors influencing E-banking adoption by Australian customers. Result indicated that confidence with internet has some effects on perceived risks and attitude toward using internet banking and finally, Clik (2008) studied factors affecting in adopting E-banking by Turkish customers.

Results indicated that perceptions of easy use and of usefulness determine customer's attitudes toward using internet banking. Similarly, Moughli (2008) addressed adoption of E-banking among customers of Shiraz city bank. Results indicated that easy use, usefulness, and customer trust are effective in adopting E-banking. Also, he noted that education level of customers has an important effect on E-banking adoption, but no relationship was found between demographic characteristics and e-banking adoption.

In general, Review of Empirical studies shows that understanding the critical success factors (CSFs) in E-banking is important for banking industries because it would potentially help them improve the technology adoption rate there by accordingly changing the strategic planning process of banks.

As the empirical review, the main factors influencing E-banking adoption are security, trust, privacy of information, infrastructure and others factors related to the behavior of customers.

Besides this, the theoretical review indicates that in the perspective of customers there are different factors that influence the adoption of E-banking such as, perceived usefulness. Ease of use, security, perceived risk, infrastructure, trust and many others. However, the level of acceptance and e-banking usage by the customers differ from country to country, reflecting the different economic, socio-cultural, legal, political and technological development of the country. Based on these empirical and theoretical reviews, the researcher was developed research model and presented as follows.

2.8. Research Model and Hypothesis Development

Many researchers have been used different frame works in the study of adopting new technological innovation including e-banking. Among the frameworks that have been developed based on the past studies include, Technology Organization Environment (TOE), the Technology Acceptance model (TAM) and Theory of planned behavior (TPB) which were discussed in the literature.

Based on the theoretical review, the researcher reviewed these three different frameworks and empirical reviews on the study area that are hypothesized to affect on the dependent variable (e-banking adoption). Different variables within these three frame works were analyzed in this study that adoption of e-banking would be affected by these variables either positively or negatively as follows.

Therefore, after careful consideration of all independent variables within the three frame works and the dependent variable of the study, the following hypotheses are developed to be tested using Analysis of correlation and multiple regressions techniques, which are presented as follows in the following figure:

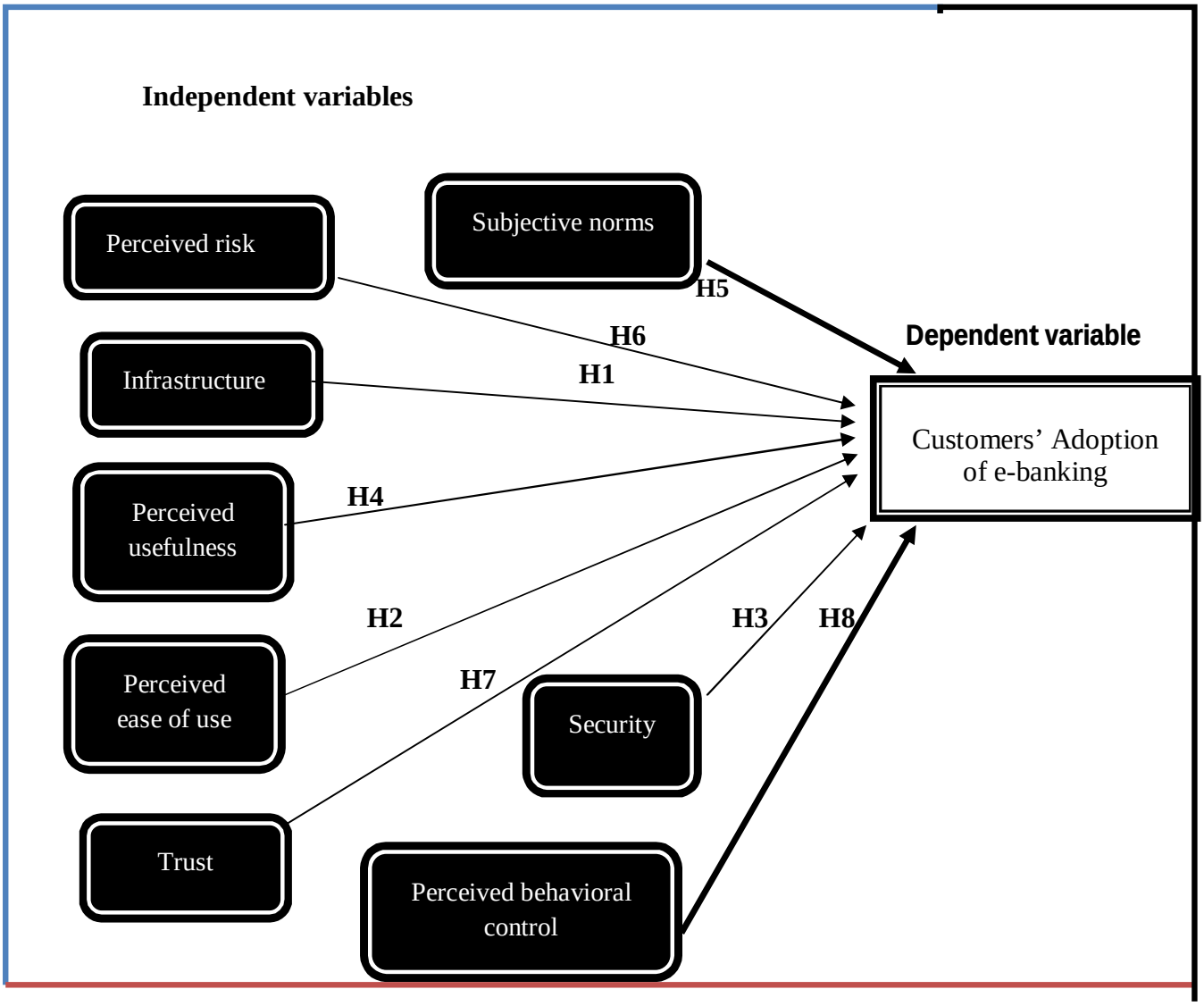


Figure 2.3: Research Model

- ✓ H1: Infrastructure has positively related to customers adoption of e-banking in CBE.
- ✓ H2: Perceived ease of use has positively related to customers adoption of e-banking in CBE
- ✓ H3: Security has positively related to customers adoption of e-banking in CBE
- ✓ H4: Perceived usefulness has positively related to customers adoption of e- banking in CBE
- ✓ H5: Subjective norms has positively related to customers adoption of e- banking in CBE
- ✓ H6: Perceived risk has negatively related to customers adoption of e-banking in CBE
- ✓ H7: Trust has positively related to customers adoption of e-banking in CBE and
- ✓ H8: Perceived behavioral control has positively related to customers adoption of E-banking in CBE

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter elaborates research methodology. The researcher explains research design, the target population, the sampling methods, the data collection method and instruments, measurement of reliability and method of data analysis as follows.

3.1. Research design

A research design is a frame work or blue print for conducting any research project. It details the procedures necessary for obtaining the information or solving research problems (Zikmund, 2002).

This research was a descriptive type of research which describes the characteristics of customers of the banks and the problems in e-banking adoption in general. In order to achieve the main research objectives a mixed methods approach (both quantitative and qualitative) was adopted. The purpose of using such a mixed methods approach was to gather data that could not be obtained by adopting a single method and for triangulation so that the findings with a single approach could be substantiated with others wherever possible.

The idea of mixed approach methods is supported by different scholars by mentioning it's advantageous over using a single method. A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g. consequence-oriented, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problem. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g. on interviews) so that the final database represents both quantitative and qualitative information (Creswell, 2003).

A basic description of a mixed methodology is simply that it is a methodology with methods that have comparisons between quantitative and qualitative data (Jones, 2004).

Quantitative data is data in numerical form, often derived from questionnaires or structured interviews. Qualitative data is descriptive data from observation or unstructured interviews (Taylor et al.1995).

The separation of methodologies into quantitative and qualitative is a common distinction; the tendency has been to link quantitative methods with a natural science (positivist) and qualitative methods with a social science (Mingers, 2001). However, this simple distinction has caused much debate concerning its accuracy and validity. In the first place, the distinction can be argued to apply to the data rather than the methodology (Yin, 1989) and also that the underlying paradigms are incompatible.

On this latter point, there is a view within social research that the two are equally informing (Bryman, 2001). A brief explanation about each of the main data collection methods adopted is given below.

3.2. Source of Data

In the subject study (in this study), the researcher were uses two types of data, primary and secondary data which were obtained from primary and secondary sources. Primary data were collected from customers, experts and managers of CBE and NBE who directly concerning to the problem and secondary data were gathered from both published and unpublished materials available in the banks.

3.3. Method of data collection

There are four methods of obtaining primary data, survey method, observation, panel research and experiment (Zikmund, 2002).

From the above stated four methods, cross sectional survey method particularly multiple cross-section design will be used for this study.

Survey method has three alternative ways, questionnaire, telephone and personal interview. Thus, in this research the researcher were used these three types of survey methods.

In addition to questionnaires, the primary data were also collected through observation while customers are in the process of using e-banking service. Interviews were conducted through

structured and un structured interviews techniques of both CBE and NBE whom experts and managers of e-banking related areas.

Questionnaires are both open ended and close ended form. For open ended questions the respondent are asked to answer their own ideas/suggestion on the issues pertaining to e-banking service, and for the close ended questions respondents are answer from list of provided questions. Close ended questionnaires includes likert scaled and other types of multiple choice questions. So the data measurement for the questions used likert method, a self report techniques for attitude measurement in which customers of the bank will be asked to indicate there degree of agreement or disagreement with each of a number of statements (Churchil, 1989). In relation to the number of scale points, there is no clear rule indicating an ideal number. However, researchers acknowledge that opinions can be captured best with five to seven point scales (Aaker et al., 2000; Malhotra ,1999). In fact, researchers indicate that a five-point scale is just as good as any other (Malhotra, 1999; Parasuraman, 1991). That is, an increase in scale does not improve the reliability of the ratings (Elmore &Beggs, 1975) and may cause confusion to the respondents (Aaker et al., 2000; Hair et al., 2003). Thus, five-point Likert scales were used in this research, specifically the response options are:

1=strongly disagree, 2= disagree, 3= undecided, 4= agree, 5 strongly agree (Level of agreement)

1= Very low, 2= Low, 3= Medium/average, 4= High, 5= Very high/choice their own response from list of provided questions.

3.4. Measurement of Reliability

Primary data collected through questionnaires, interviews and observations are worthwhile if and only if they are not recorded in accurate ways. For any measurement to be valid, it must demonstrate reliability (Frey and others, 2002). Questionnaires were developed after reviewing the literature to identify the factors affecting on customers e-banking adoption. Scales to measure are the five point rating scales as pointed above.

Concerning reliability, the Cronbach's alpha should be exceeding the threshold of .70, although a .60 can be used in exploratory research. Since this research is a descriptive type of research, the Cronbach's alpha should exceed .70. For checking the reliability, the questionnaires were pre tested with the collected questionnaires from respondents.

As a result, the Cronbach's alpha of all variables (dependent and independent variables) showed that above 70 % and the weighted reliability of all variables were 96.4 %. This indicates that there was a high degree of internal consistency amongst the tested items and variables of the study.

Table 3.1: Measurement of reliability of variables

No	Variables	Number of items tested	Cronbach's alpha
1	Infrastructure	5	77.1
2	Security	4	96.8
3	Trust	3	76.2
4	Perceived risk	4	99.1
5	Perceived ease of use	5	81.4
6	Perceived behavioral control	4	70.6
7	Subjective norm	4	95.0
8	Perceived usefulness	7	97.3
9	Dependent variables(E-banking adoption of customers)	9	97.5
All variables		9 variables	96.4

Source: own survey (2014)

In addition to this, to ensure the validity of data questionnaires were distributed to customers as a pilot to test the validity issues and frequent suggestion as well as comments were collected from advisor and other colleagues.

3.5. Method of sampling and sampling techniques

Sampling is important because, in almost all cases, it is not practical to study all the members of a population (Vanderstoep, Johnston, 2009). In a population of several thousand a sample of a few hundred can be representative and (especially in self completion surveys), researchers can 'over-sample' to compensate for non-response. In groups likely to be under-represented additional 'booster samples' can be taken (Williams, 2003). A common goal of survey research is to collect

data representative of a population. The researcher used information gathered from the survey to generalize findings from a drawn sample back to a population, within the limits of random error (Wunsch, 1986). Within a quantitative survey design, determining sample size and dealing with non response bias is essential. “One of the real advantages of quantitative methods is their ability to use smaller groups of people to make inferences about larger groups that would be prohibitively expensive to study” (Holton & Burnett, 1997).

The traditional method of increasing reliability of estimates is to increase sample size. But increasing the sample size has its own problems as reported by (Bakan, 1966). So, the researcher determines the sample size and gathered representative information by stratified the population based on special features, since the researcher have three different populations. The first population was managers and experts of E-banking at head quarter CBE, managers and experts of NBE and prospective potential as well as actual customers of Commercial Bank of Ethiopia.

From managers and experts of CBE and NBE, data were gathered through interview using simple random sampling, in CBE information from e-payment directorate director and three divisions under e-payment directorate: business development division, internet and mobile banking division and E-Banking operation division. In these divisions and directorate one higher manager and 3 middle level managers as well as three experts from each division were interviewed. Thus, of the total 15 experts 4 managers (one higher and the rest 3 middle level managers) and 9 experts were interviewed. Because according to some research books when the population is very small, it is better to take large sample in to account as participant.

In addition one middle level managers and experts were also interviewed from NBE e- banking related departments to triangulate information with the primary data collected from customers and interviews collected in CBE.

The researchers also determine the sample size from the third population that is the ultimate customers of the bank, the e-banking customers of the bank population size is not available and infinite in this case statistical books recommend using multistage sample technique’s. As per Jakson, 2007,”multistage cluster sampling is used when an appropriate sampling does not exist or cannot be obtained.” This author recommended, because of this multistage process, the likelihood of sampling bias increases. This creates a lack of sampling precision known as a design effect. It is recommended to consider the design effect during sample size determination.

E-banking customers of CBE is many and it is difficult to determine, because customers of the bank includes existed and they would be / potential/ customers. The total existed customers of CBE at country level till 2013 were 808,000, of which 75.8 %(531,000) of the e-banking customers were lived at the capital city, Addis Ababa (CBE, 2013 annual report).

To determine sample size the researcher used Taro Yamane's (1973) sample selection formulas. According to him, for any sample, given the estimated population proportion of 0.05 and 95 % confidence level, the sample size is given by:

$$n = \frac{N}{1+N(e)^2}$$

Where; n = sample size, N= population, 1 = constant, e = error estimate (0.05%) at 95% confidence interval

In order to gather pertinent information with respect to factors affecting e-banking adoptions of consumers of CBE, the questionnaires were distributed to 400 customers of the bank as the sample frame is computed as follows:

$$n = \frac{N}{1+N(e)^2} = \frac{531{,}500}{1+531{,}000\,(0.05)^2} = \frac{531{,}500}{1{,}328.75} = 400$$

So, the researcher was taken 400 samples from the infinite population of customers of the bank in order to avoid design effect and due to time and budget constraints. These sampled customers were selected using multistage sampling techniques on the basis of southern, eastern, central, western and northern parts of Addis Ababa and accordingly 100 questionnaires were distributed on each stratum. Customers of the bank in Addis Ababa in also further demarcates in to customers from Gullel, Arada sub city and Addis Katema two well known CBE branches which was Shegre and Takle Haymanot branch, at Bole and Yeka sub city at Bole and Gurd Shola branch and finally at lidata, Kirkos, Akaki, Nifas Silk lafto and Kolfea sub city Addis Ababa, Kiera,Saries and Alert CBE branch were selected respectively, and accordingly 50 questionnaires for each CBE branches were distributed for diversifying the types customers under study, which enables the researcher to see the factors in detail in identifying the factors of e-banking adoption pertaining to different socio-economic, cultural, political and many other internal and external factors on customers in the adoption of e-banking technology of the bank.

3.6. Data processing and Analysis

In order to analyze the data, both descriptive and inferential statistics were used. Data collected from e-banking customers, CBE and NBE were analyzed through descriptive statistics using tabulation and charts, percentages, mean and standard deviation.

Besides, inferential statistics particularly parametric statistics were used to see the relationship between dependent and the independent variables. Of the Inferential statistics techniques, correlation and multiple regression techniques were employed and computed as follows:

$$Y' = a_Y + b_{Y1}X_{PU} + b_{Y2}X_{PEU} + b_{Y3}X_{SN+} b_{Y4}X_{SC+} b_{Y5}X_{INF+} b_{Y6}X_{PBC+} b_{Y7}X_{T+} b_{Y8}X_{PR+} b_{Y9}X_e$$

Where:

- Y' = predicted or estimated value of electronic banking adoption of customers
- a_Y = Y axis intercept for minimizing errors in predicting e-banking adoption of customers
- b_Y = slope of the line for minimizing errors in predicting e-banking adoption of customers, e = error estimate
- In = intention to use, AT= attitude, PBC = perceived behavioral control, T= trust, PU= perceived usefulness, PEU = perceived ease of use, SN= subjective norms, INF = infrastructure, SC= security and PR= perceived risk.

The Statistical Package for Social Sciences (SPSS) computer software version 20 was used specifically for the purpose of quantifying the qualitative data and presenting it inform of table, figures and charts.

2.7. Ethical consideration

The researcher was considering the following ethical values and approaches while collecting both primary and secondary data for conducting this thesis as presented below:

Confidentiality: The researcher was assured that the respondents were not be confused and that their response will remain confidential and used for only academic purpose.

Organizational approval: A written letter that explains the research objectives as well as a cooperation letter were written by the university and submitted to CBE concerned department

(human resource development and management department of the bank, head quarter), the department was also written cooperation letter to the E- payment directorate for giving the researcher necessary information and supports in the under taking of the study.

Informed consent: Cover letters explain the purpose of the questionnaire and the right to accept or refuse to participate in any time of the research activities were told and given choices to the respondents of this study while collecting data's. The researcher was also explaining the purpose of the study and also clearly stating in the introduction of each questionnaire's. In addition, the researcher was told that the respondents were not written their name or any form of their identity about it.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

In this study, both primary data and secondary data were collected by the researcher. Primary data were collected through the use of questionnaires. The interviews were both structured and un structured form while questionnaire was structured, open ended and closed ended form which were dropped and then picked later. Primary data were also coded and tested for completeness. Secondary data were mainly collected from CBE's office by analyzing official documents and past records inferences. Raw data were collected from the field was sorted and summarized in tables and diagrams. The process of data analysis involved several stages. Completed questionnaires were edited for completeness and consistency. The data were then coded and checked for any errors and omissions (Kaewsonth & Harding, 1992). The responses from the open-ended questions were coded and then compressed; mean and standard deviation were used for likert scale responses. Content analysis was also used in the analysis of some of the open-ended questions.

This section contains data analysis, results and interpretation, discussions of the results and its implications of the study would be carried out. Data were collected from three different populations and out of the total population of customers of the bank in Addis Ababa city, the sample sizes were 400 to whom the questionnaires were administered. However, only 384 questionnaires were returned which gives a response rate of 96 %. In addition to this, data were collected through interviews of experts and managers from of electronic banking from CBE and NBE.

4.1. Descriptive Analysis

4.1.1. Demographic profile of respondents

The first part of the questionnaires consists of the demographic profiles of the respondent. Demographic information of respondents was not hypothesized to see their relationship with the dependent variable customers' adoption of e-banking. Therefore, demographic information of respondents has excluded from correlation and regression analysis. Accordingly, the following table shows demographic information of the respondents.

Table 4.1 Demographic information of respondent

Variable	Classification Of variable	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Gender	Male	248	64.6	248	64.6
	Female	136	35.4	384	100
	Total	384	100	632	-
Age	Less than 18	21	5.5	21	5.5
	Between 18- 29 years	113	26.8	134	32.3
	29- 40 years	133	34.6	267	67
	40-50 years	87	22.7	354	89.6
	50 – 65 years	30	7.8	384	98
	Older than 65	-	-	-	100
	Total	384	100	-	-
Educational Status	Primary school	27	7.03	27	7.03
	Secondary school	65	16.93	92	23.9
	Diploma	81	21.1	173	45.06
	Degree	168	43.8	341	88.86
	Masters and above	43	11.2	384	100
	Total	384	100	-	-
Income	Less than 2,000 birr	29	7.5	29	7.5
	2,000 – 3,000 birr	83	21.6	112	29.1
	3,000 – 5,000 birr	117	30.5	229	59.6
	5,001 – 8,000 birr	85	22.1	314	81.7
	8,001 – 10,000 birr	51	13.3	365	95
	10,000 – 15,000 birr	16	4.2	381	99.2
	Above 15,000 birr	3	0.8	384	100
	Total	384	100	-	-

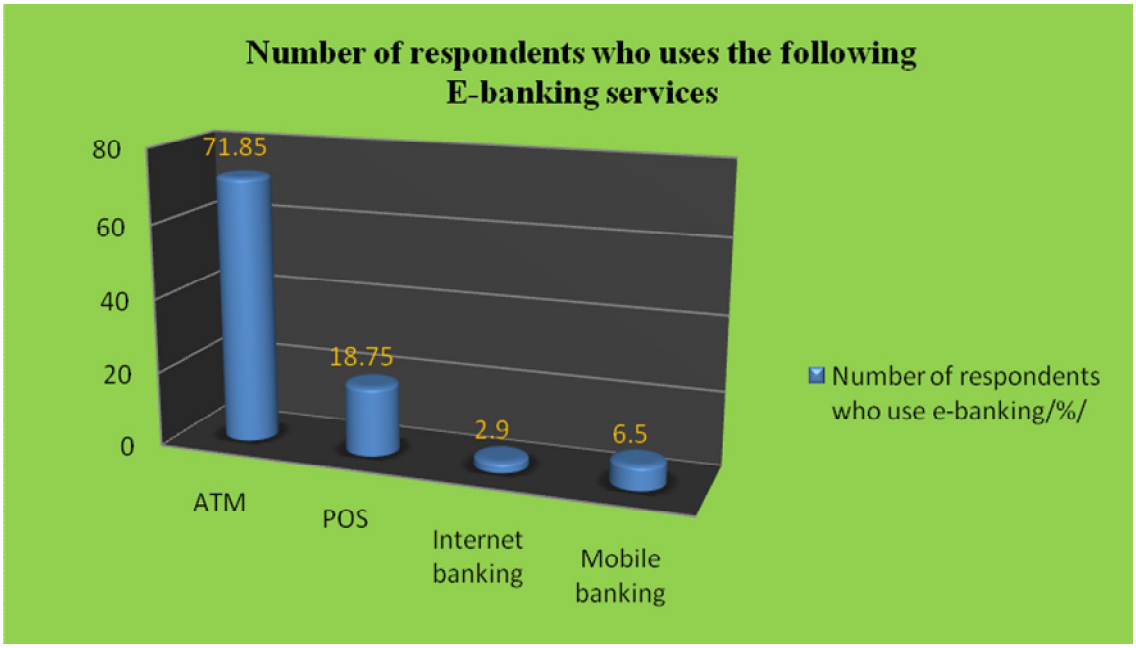
Source: own survey (2014)

As displayed in the table 1, the highest numbers of respondents were males and the rest were female respondents, which indicates that both sex were not equally involved in these study. With regard to age, the highest number of respondents were with the age between 29- 40 followed by with the ages of 18 – 29 years, which indicates that between the age group 50-65 and above the age group of 65 years were not practicing in e-banking services which further indicates that CBE can take advantage of the middle age group (from 18 to 50) of target potential customers. Thus, the CBE can be targeting those age groups to make interactive interface, advertisement or any modification on the part of e-banking system.

With regarding to academic status, the majority of respondents were shown to be trained professionals holding certificates and first degrees. While the second and third largest percentages of respondents were those have diploma and below diploma level certificates. Lastly, less than 4% belongs to other qualifications. This finding is a tangible proof that majority of respondents possess better educational background to be able to use the CBE e- banking system. Moreover, the data indicates that respondents were capable of responding to the queries with good know-how.

Lastly, when we see the income level of the respondents, majority of the target study were with the income level between 3,000 – 5,000 ETB per month followed by respondents with the income level between 5,000- 8,000 ETB per month. It suggests that CBE has to promote e-banking to increase potential customers of the service as there are many able and potential customers that can afford to use e-banking services.

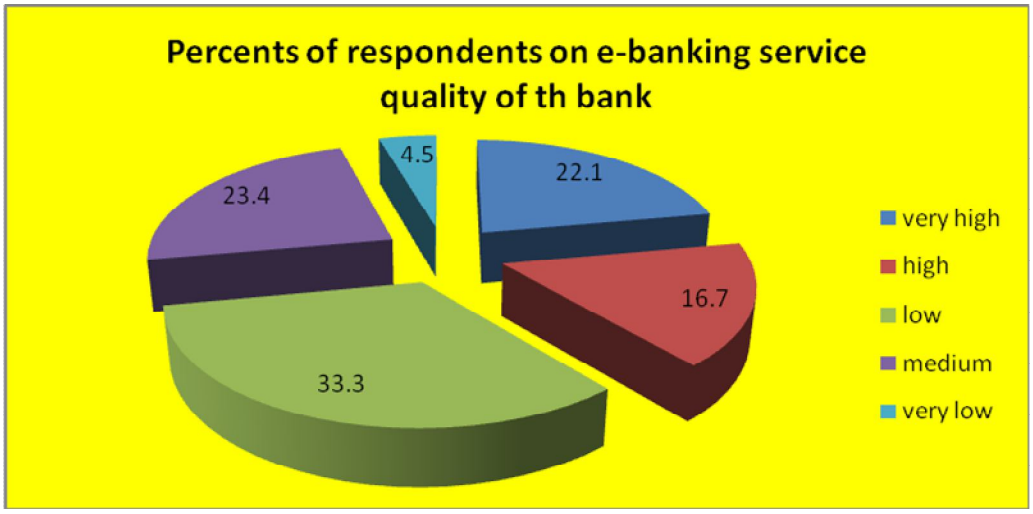
Chart 4.1: Number of E- Banking users of the respondents



As portrays in the above chart majority of respondents were ATM users (71.8) followed by POS and the rest around 10 % of the respondents were accounted in internet and mobile banking customers. This shows that debit card has experienced the largest portion; this seems to be not the case in terms of volume transaction offered by CBE via traditional cash withdrawal in the country. Thus, physical cash and paper work are still most common mode of e-payment system in the bank and remain popular in spite of the introduction of the digital payment cards.

Moreover, it implies that even though the bank introduces internet and mobile banking, the number of service users were limited.

Chart 4.2: Customers opinion on E-banking service quality of CBE



Source: own survey (2014)

As it is displayed above in the chart 4.2 , majority of bank customers 128(33.3%) argue that the service quality of e-banking delivered to customers are low followed by 90(23.4%) medium and the rest, 85(22.1%), 64(16.7) and 17(4.5%) of customers said very high, high and very low respectively. This data indicates most customers perceive that the level of service quality of e-banking services provided by the bank is not satisfactory.

Moreover, as they respond to the open ended questions provided to them, the main reason that they feel the e-banking service quality of the bank is low, was due to problems related to network failure and power interruptions mainly attributed to infrastructure as well as both ATM and POS machines were most frequently stopped off services due to absence of money were among the major impediments of using e-banking system raised by majority of respondents.

Table 4.2: Forms of e-banking of CBE and its overall performance (2011 -2013)

No	Machines		Number of machines for the last three years		
			2011	2012	2013
1	ATM	Country level	50	400	450
		Addis Ababa	46	280	300
2	POS	Country level	250	300	500
		Addis Ababa	50	100	250
Number of customers of the bank					
3	ATM	Country level	70,000	200,000	750,000
		Addis Ababa	60,000	150,000	500,000
4	Internet banking	Country level	450	800	2000
		Addis Ababa	437	650	1,500
5	M- banking	Country level	-	-	56,000
		Addis Ababa	-	-	30,000
Total e-banking users		Country level	70,450	200,800	808,000
		Addis Ababa	60,437	150,650	531,500
Percentage of e-banking customers of Addis Ababa			85.8	75.2	65.8
Number of e-banking customers of the bank					
Forms of e-banking			2011	2012	2013
ATM			70,000	200,000	750,000
Internet			450	800	2000
M- banking			-	-	56,000
Total			70,450	200,800	808,000
Growth rate of e-banking users (%)			-	185	302.4
Total e-banking users of the bank in the country			70,450	200,800	808,000
Total number of account holders at country level			3.5 million	4 million	7 million
Percentage of e-banking users as per account holders			2.01	5.02	11.5

Source: CBE (2014)

As it is depicted above the numbers of ATM and POS machines were increased at a dramatic rate especially from the year 2011 to 2012. The total number of ATM and POS machines in 2013 was reached to 450 and 500 respectively. Off the total ATM and POS machines of the bank 66.7 % and 50 % of the machines were installed in Addis Ababa.

This data indicates that majority of ATM were installed in Addis Ababa, but gradually the proportion of POS machines installed in the country side and Addis Ababa were evenly distributed. Thus, half of the total POS machines were accounted in Addis Ababa.

Concerning the number of electronic banking customers of CBE, till 2013 the number of customers reached about 808,000, where 531, 5000 (65.8 %) customers were in Addis Ababa.

Though the number percentage shares of e-banking customers were high at Addis Ababa, the percentage share becomes diminishing from 2011 to 2013. This further indicates that the number of customers in different regions of the country increased, and hence the share of Addis Ababa 85.8 %(60,437), 75.2 (150,650) and 65.8 % (531,500) during 2011, 2012 and 2013 respectively. However, the overall growth rate of e-banking customers in the country is at alarming rate.

When we see the total number customers in terms of the different forms of e-banking services, 93.8 (750,000) ATM, 2.5(2,000) internet banking and the rest 6.9 %(56,000) were mobile banking customers of the bank. This reveals that most customers of CBE were not further than entertaining through the seamless of the traditional cash payment system.

The total number of customers who have an account at CBE in 2011, 2012 and 2013, there were about 3.5 million, 4 million and 7 million respectively. Thus, the percentage shares of e-banking customers with the total account holders of the bank were 2.01%, 5.25% and11.5% in 2011, 2012 and 2013 respectively.

This indicates that the numbers of e-banking users were increasing but as per the total account holders of the bank, still the growths of e-banking users were at an infant stage.

4.2. Factors influencing customers' perception on e-banking adoption

In order to elaborate the narrative results, the researcher used criterion referenced definition for rating scales to describe the collected data. Since the questionnaire has used 1 to 5 rating likert scales, this descriptive analysis used mean as a method to analyze the degree of agreement, the neutral value has excluded from analysis.

Table 4.3: Criterion referenced definition

Mean of rating	Degree of agreement	descriptions
1.00 to 2.00	Strongly disagree	Very low
2.01 to 3.00	Disagree	low
3.01 to 4.00	Agree	high
4.01 to 5.00	Strongly agree	Very high

In the following section, the researcher was elaborated the results of descriptive statistics of each construct as outlined in the above table 4.3, criterion referenced definition of each construct.

Thus, the data collected from customers of the bank were discussed through descriptive data analysis techniques using the primary data collected through questionnaires from the prospective customers of the bank as follows.

Table 4.4: Customers' perception on e-banking adoption of CBE

No	Variable		Mean	Standard deviation	Degree of agreement
1	Infrastructure		2.43	0.80	Dies agree
		INF 1	2.29	1.1	
		INF 2	2.82	1.309	
		INF 3	2.74	1.315	
		INF 4	2.75	1.249	
		INF 5	2.72	1.301	
2	Ease of use		2.9	0.90	Dies Agree
		PEU 1	2.24	1.18	
		PEU 2	2.29	1.186	
		PEU 3	2.27	1.151	
		PEU 4	3.15	1.196	
		PEU 5	3.75	1.196	
		PEU 6	2.5	1.28	
3	Security		2.87	1.29	Dies agree
		SC 1	2.82	1.301	
		SC 2	2.82	1.405	
		SC 3	2.61	1.336	
		SC 4	2.78	1.318	
4	Subjective norm		3.04	1.2	Agree
		SN 1	2.57	1.280	
		SN 2	3.08	1.239	
		SN 3	3.61	1.358	
		SN 4	3.51	1.137	
5	Trust		2.18	1.08	Dies agree
		T 1	2.17	1.155	
		T 2	2.29	1.195	
		T 3	2.05	0,955	
6	Perceived behavioral control		2.78	0.89	Dies agree
		PBC 1	2.89	1.394	
		PBC 2	2.16	1.155	
		PBC 3	2.03	0.932	
		PBC 4	3.97	0.865	

Source: own survey (2014)

No	Variables		Mean	Standard deviation	Degree of Agreement
7	Perceived usefulness		3.33	1.21	Agree
		PU 1	3.76	1.166	
		PU 2	3.71	1.166	
		PU 3	3.83	1.168	
		PU 4	3.80	1.36	
		PU 5	3.79	1.11	
		PU 6	3.87	1.121	
		PU 7	3.64	1.218	
8	Perceived risk		3.23	1.29	Agree
		PR 1	3.12	1.296	
		PR 2	3.32	1.256	
		PR 3	3.23	1.292	
		PR 4	3.28	1.384	
9	E-banking adoption of customers		3.00	0.91	Dies Agree
		EBAC 1	3.35	1.41	
		EBAC 2	3.78	1.09	
		EBAC 3	3.65	1.35	
		EBAC 4	4.03	0.929	
		EBAC 5	2.29	1.10	
		EBAC 6	2.99	1.134	
		EBAC 7	2.13	0.906	
		EBAC 8	2.48	1.105	
		EBAC 9	2.28	1.067	

Source: own survey (2014)

As shown in the Table 4.4, there are infrastructures problems as customers' are dies agreement to the statements (2.43). Moreover, this table shows that there is a stable and fast internet connection to access e-banking system of the CBE (2.29), the banking service provided were not easily available (2.82) so that it is difficult to get the service within short period of time dated from application (2.74), have the required knowledge to buy e-banking service from the company website and on the operation of the service in general (2.24) also CBE provides necessary training or orientation on how to use e-banking (2.72). In general, from those indicators weighted mean of infrastructure is 2.43. That is, customers are disagreeing with the infrastructure facility.

It suggests that customers perceived the infrastructure facility as not fulfilled by the CBE and concerned other stake holders for effectively using or adopting as well as practicing e-banking.

Regarding respondents' perception about ease of use, the response level is similar with the above approach of disagreement (2.9), i.e., customers' discomfort to navigate the CBE website (2.29), the website is difficult to understand for majority of customers' (2.24), has many steps, rules and procedures, while, the website interface language is is not user friendly and directs appropriately (2.32), and convenient and learning to use e-banking service is easy for customers (2.5). This reveals that customers of the bank feel that it is difficult to operate the e-banking technology provided to it.

The respondents' personal perceptions towards security issues were disagreement in the use of e-banking system (2.87). With regards the system to ensure certainty on all credit/debit card payments for e-banking (2.78), customers feel that CBE e-banking system is secure from any threat/fraud (2.82), customers perceived personal information and transactional information is secured (2.58), and the website offer various pop-up windows from other organizations to ensure security during transaction on using e- banking services (2.61). It implies that the majority of customers perceived to use CBE e- banking system as unsecured. However, according to the information gathered from interviews, the CBE apply different kinds of security mechanisms to make the system secured. In general, the majority of respondents had no idea about the security mechanisms put in place by the bank. It seems that the CBE did not promote its system in a way that could raise the awareness of its customers. However, the CBE have put in place some security mechanism according to the data collected through interview from the bank.

Regarding respondents' perception about perceived usefulness, the response level lied to agree (3.33), i.e., customers are aware of the significance of the e-banking technology Such as, e-banking system makes easier of doing banking operations and banking activities in particular, it improves customer service ,convenient to customers to access their accounts and many other uses and hence customers who said that e-banking improves the performance of banking operations or activities(3.76),increases the quality of banking transactions(3.71), it enables to perform banking activities quickly(3.83) at lower cost (3.79) and improves customer service(3.87) through accessible at anytime and anywhere to use the technology. In general, it implies that e-banking system simplifies the process of banking transactions by using this latest technology. On the other hand, due to low infrastructure facilities and low internet connection to the technology, customers

are not still getting the expected benefit from the technology (customers respond on the open ended question).

Moreover, it did not reduce cost associated to banking service due to these and other different problems. Therefore, it seems that CBE did not provide the necessary infrastructural facilities, didn't do to raise the awareness of its customers about e- banking and its benefits and also the system by itself did not adjust as customers' demand and expectation.

Concerning to subjective norm, the response level approaches agreement (3.04). the respondents respond the quires as that the decision to use e-banking were influenced by media ,friends and family (3.5), employees support to use e-banking (2.57),customers who use e-banking service are more prestigious than those who do not (3.08), the bank uses influential/opinion leaders to promote e-banking service provided to customers (3.61).

In addition, customers of the bank replied that CBE were promoting intensively the products and services provided to the customers, but the promotion campaign doesn't include about the e-banking services technical and operational procedures, which implies that CBE was not uses influential personalities or opinion leaders as referent group to promote e-banking system. So, customers perceived the system with their personal intention rather than subjective norm. However, the existence of subjective norm could be changes the opinion of individuals on making decisions to use e-banking service. Since, the data portrays customers of the bank are influenced by friends, opinion leaders, media and many others who would promote the technology, thus, it is an opportunity to accordingly promoting the e-banking products and services to enhance their technology adoption of users.

With regards to perceived risk, the response level approaches agree (3.36). These statements were focusing on the risk of e-banking system. In using e- banking system there is no guarantee for financial loss, using e-banking service is risky as poor internet and frequent interrupted power connection, while using e-banking in the bank they were confused , creates many errors and full of risks while the CBE website was not frequently updated thereby obtaining risk from non-updated information to the viewer .

Therefore, customers perceived the CBE e- banking system as a threat and there was no guarantee for financial loss or other related problems while using either of e-banking system. Similarly, perception about trust on CBE e-banking system, the response level approaches to dies

agreement (2.18). Thus, customers replied that, using e- banking service through CBE are trustable (2.17), CBE keeps customers best interest in mind (2.29), and they feel confidence while using e-banking service of the bank (2.08). It implies that customers have not trust on the banks e-banking system. In addition to this, customers were also asked to give there suggestion about the e-banking service provided to them , as majority of the respondents said , the bank web site is not frequently updated, this has the potential to create fear and doughty to practice e-banking services of the bank.

With regards to respondents' perception about perceived behavioral Control, the response level was dies agree (2.76), i.e. they would be able to operate e-banking and they feel that the bank e-banking system is easy (2.25), they had the resource to operate mobile and internet e-banking service (2.03), they feel better when using e-banking service than through personal contact with bank officers (3.97). Thus, the above indicator shows that customers feel the operation of using e-banking is difficult, even though the majority of the respondents lack the resource of using the technology. However, majority of customers of the banks preferences lies on using e-banking than through personal contact to officers which further indicates that if the factors of using the technology explained above are solved, customers' attitude and intention to use the technology would be enhanced which inter leads to the increments of the number of e-banking adopters of the bank.

Finally concerning e-banking adoption of customers as displayed above in the table 4.5, level of e-banking acceptance of customers of the bank was low(3.00). Existed customers' were satisfied by their decision to wards the use of e-banking technology and they were positive perception on e-banking as well as their intention and attitude towards the technology was encouraging to further adopting and customizing while introducing e-banking services to different target customers. Moreover, the usage rate of existed customers and potential customers of the products and service would be easily adopting e-banking services if they would be effectively communicated about the technology and also if infrastructural problems are solved there by reducing security, perceived risk and others by developing trust on it, which further leads to enhances the usage pattern of the technology. Besides, the customers' decisions to use e-banking system are influenced by different mode of communications like media through opinion leaders, friends and others. But, CBE was not effectively and adequately promoting the products and

services provided to customers focusing on the above stated factors that customers were affected by the negative perception towards e-banking adoption.

Generally, according to the descriptive analysis of mean and standard deviation on customers perception towards e-banking service provided by the bank, majority of the respondents confirms that infrastructure, security, perceived risk, perceived behavioral control, trust and ease of use were the factors influencing the customers perception of the acceptance of e-banking technology. However, most customers were aware of the significance of the technology.

4.3 . Testing of Research Hypothesis

According to Richard (1990), the following guidelines are used to interpret the significance of relationships among variables:

Low	$r \leq 0.35$
Moderate	r = 0.36 to 0.67
High	r = 0.68 to 1.0

4.3.1. Correlation among constructs

The researcher has attempted to establish the correlation between variables that characterize the factors affecting on customers' towards the adoption of e-banking. The Pearson correlation was used to explore a correlation between customers' e-banking adoption and the variables (factors affecting of its e- banking adoption).

The researcher was proposed the following research hypothesis after reviewing the literature from chapter 2; the statistical results are shown in the table 4.5 below.

H1: Infrastructure has positively related to customers adoption on e-banking in CBE.

H2: Perceived ease of use has positively related to customers e-banking adoption in CBE.

H3: Security has positively related to customers e-banking adoption in CBE.

H4: Perceived usefulness has positively related to customers e-banking adoption in CBE.

H5: Subjective norms has positively related to customers e-banking adoption in CBE.

H6: Perceived risk has negatively related to customers e-banking adoption in CBE.

H7: Trust has positively related to customers e-banking adoption in CBE.

H8: Perceived behavioral control has positively related to customers e-banking adoption in CBE.

The researcher has denoted the following notations for the determinants for e-banking adoption of customers (CEBA): INF – Infrastructure, PEU – Perceived Ease of Use, SC – Security
PU – Perceived Usefulness, SN – Subjective Norms, PR – Perceived Risk, T – Trust, PBC – Perceived Behavioral Control.

Table 4.5: Pearson correlations for factors affecting customers' e-banking adoption

Constructs	CEBA	SC	T	PBC	PR	PEU	PU	INF	SN
CEBA	1	.921**	.783**	.882**	-.923**	.662**	.590**	.819**	.913**
		.000	.000	.000	.000	.000	.000	.000	.000
SC	.921**	1	.802**	.921**	-.934**	.630**	.582**	.900**	.955**
	.000		.000	.000	.000	.000	.000	.000	.000
T	.783**	.802**	1	.821**	-.701**	.428**	.511**	.715**	.794**
	.000	.000		.000	.000	.000	.000	.000	.000
PBC	.882**	.921**	.821**	1	-.887**	.657**	.670**	.878**	.919**
	.000	.000	.000		.000	.000	.000	.000	.000
PR	- .923**	-.934**	-.701**	-.887**	1	-.644**	-.514**	-.810**	-.926**
	.000	.000	.000	.000		.000	.000	.000	.000
PEU	.662**	.630**	.428**	.657**	-.644**	1	.541**	.615**	.659**
	.000	.000	.000	.000	.000		.000	.000	.000
PU	.590**	.582**	.511**	.670**	-.514**	.541**	1	.618**	.616**
	.000	.000	.000	.000	.000	.000		.000	.000
INF	.819**	.900**	.715**	.878**	-.810**	.615**	.618**	1	.871**
	.000	.000	.000	.000	.000	.000	.000		.000
SN	.913**	.955**	.794**	.919**	-.926**	.659**	.616**	.871**	1
	.000	.000	.000	.000	.000	.000	.000	.000	
**. Correlation is significance at 0.01 level (2- tailed)									

Source: own survey (2014)

The above table 4.5 shows that the simple bi-variant correlations between various variables under study. It can be explained that the dependent variable (adoption of e-banking) was found to be significantly ($p< 0.01$) associated positively and negatively with the independent variables (Security, Infrastructure, Perceived Usefulness, Perceived Risk, Trust, Ease of Use, Behavioral Control and Subjective Norm). The significant association between the dependent variable and the independent variables was reported from higher to lower as follows, perceived risk (0.923), Security (0.921), Subjective norms(0.93), Perceived behavioral control (0.882), Infrastructure (0.819), Trust (0.783), perceived ease of use (66.2) and Perceived usefulness (0.59) and correlate with significant at the 0.01. Since, the value of 'r' is greater or near to 1, that independent variable is highly correlated. Thus, all independent variables are significantly correlate with e-banking adoption of customers in CBE.

As it is shown in table above 4.5, a positive and significant relationship exist between infrastructure and customers e-banking adoption ($r = 0.819$, $p < 0.01$). This was in line with the research hypothesis (H1: there is a positive relation exists between infrastructure and customers e-banking adoption in CBE) and also the strength of relationship was high. This implies that the higher the availability of infrastructure would lead to increase customer's level of adoption of electronic banking of CBE and vice versa. The study also reveals a positive and significant relationship exist between perceived usefulness with e-banking adoption of customers of CBE ($r=0.590$, $p< 0.01$). This was supported the hypothesis 4 of this research study.

A positive significant relationship exist between perceived ease of use and e-banking adoption of customers of CBE ($r=0.662$, $p< 0.01$). This was supported hypothesis 2, which implies that the higher the e-banking system perceived to be easy of use, the higher the level of adoption of e-banking service provided to customers. Security and trust are also positively associated with e-banking adoption of customers($r= 0.921$, $p< 0.01$) and ($r= 0.783$, $p< 0.01$) of CBE respectively, which indicates that the higher the customers perception of trust and security on the e-banking service provided would lead to the higher the customers e-banking acceptance of the service provided to them. These are also supported the research hypothesis H3 and H7 of this study.

Perceived behavioral control and subjective norms have positive and significant relationship with e-banking adoption of customers($r= 0.882$, $p< 0.01$) and ($r= 0.913$, $p< 0.01$) respectively.

These correlations also in line with the research hypothesis (H5: a subjective norm has positive relationship with e-banking adoption of customers and H10: Perceived behavioral control has positively related to customers e-banking adoption in CBE.

Finally, perceived risk has negative and had significant relationship with e-banking adoption of customers($r=92.3$, $p< 0.01$), which also confirms the research hypothesis (H6: Perceived risk has negatively related to customers e-banking adoption in CBE).

Generally, the correlation analysis of the study reveals that all independent variables except perceived risk are positive and significantly related with customers' e-banking adoption and with among independent variables such as trust, security, infrastructure, perceived usefulness, and perceived ease of use, perceived behavioral control and subjective norm in CBE.

The correlations result show that the constructs are strongly correlated to each other in customers' adoption of e-banking services provided by the bank. Thus, the adoption of e-banking as perceived by the users indicates the condition of multi-co linearity problem.

However, the researcher was avoiding perceived risk which makes the correlation results inflated. Since, the effect of perceived risk will be explained by the remaining variables on e-banking adoption of customers of the bank. After such measures were taken by the researcher, regression analysis was employed for predicting and forecasting the forms and extent of relationship among dependent and independent variables of the study depicted in table 4.9 as follows.

Table 4.6: Summery of the result of hypothesis testing

The result indicates that infrastructure, Perceived ease of use, Security, Perceived usefulness, Subjective norms, Perceived risk, Trust and Perceived behavioral control are imperative for the overall acceptance of e-banking of customers of the bank. Thus, in this study all hypotheses are supported and on the other hand all the null hypotheses of the research are rejected.

Hypothesis	Relationships	Strength of relationship	Results
H1	Infrastructure has positively related to customers e-banking adoption in CBE	high	Supported
H2	Perceived ease of use has positively related to customers e-banking adoption in CBE	high	Supported
H3	Security has positively related to customers e-banking adoption in CBE	high	Supported
H4	Perceived usefulness has positively related to customers e-banking adoption in CBE	high	Supported
H5	Subjective norms has positively related to customers e-banking adoption in CBE	high	Supported
H6	Perceived risk has negatively related to customers e-banking adoption in CBE	high	Supported
H7	Trust has positively related to customers e-banking adoption in CBE	high	Supported
H8	Perceived behavioral control has positively related to Customers e-banking adoption in CBE	high	Supported

Source: own survey (2014)

4.3.2. Regression Analysis of Constructs

Regression analysis includes techniques for modeling and analyzing several variables when the researcher focuses on the relationship between dependent and one more independent variables. Further, it helps the researcher to understand how the typical value of the dependent variable changes when any of the independent variables varied, while other independent variables held fixed. Regression analysis is widely used for predicting and forecasting as well as exploring the forms of relationships.

Table 4.7: Model Summery for respondents

Model	R	R Square	Adjusted R Square	Std. error of the estimate
1	.867[a]	.752	.747	.1604
a. Predictor: (constant), infrastructure, perceived ease of use, security, perceived usefulness, subjective norms trust and perceived behavioral control				
b. Dependent variable: customers' e-banking adoption				

Table shows that $R^2 = 0.752$. This result shows that the variance of the dependent variable was explained 75.2 % by the independent variables. This is a satisfactory result to understand that the independent variable have effect on the dependent variable.

Table 4.8: ANOVA results of respondents

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.314	7	4.817	162.674	.000[b]
	Residual	9.678	376	.026		
	Total	38.989	383			

a. Predictor: (constant), Infrastructure, Perceived ease of use, Security, Perceived usefulness, Subjective norms, Trust and Perceived behavioral control

b. Dependent variable: Customers' adoption of e- banking

Table 4.9: Regression coefficient of customers adoption of e-banking

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.	Co linearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.574	.040	-	14.498	.000	-	-
Security	.171	.018	.694	9.661	.000	.131	7.622
Trust	.097	.017	.328	5.700	.000	.205	4.881
Perceived ease of use	.071	.013	.201	5.580	.000	.521	1.921
Perceived usefulness	.011	.009	.041	1.205	.0229	.574	1.742
Infrastructure	.082	.026	.207	3.212	.001	.163	6.151
Subjective norms	0.80	0.025	.204	3.281	0.000	4.96	2.01
Perceived behavioral control	.036	.020	.102	1.786	.045	.208	4.814
a. Dependent Variable: customers' e-banking adoption practice							

Source own survey (2014)

The multiple correlation coefficients(r), with a value of 0.867, represent the correlation ratio indicating the existence of link between customers' e-banking adoption practice and its main factors. The regression analysis explains the extent to which the independent variables predict the customers' level of e-banking adoption practice. The factors R^2 has the value of 0.752 and expressed that 75.2% of the variation of e-banking adoption of customers of CBE can be explained by the variables taken into consideration. The adjusted correlation ratio shows that 0.747 of the total variation is due to the regression line, given the number of degrees of freedom. Test F shows the role of the independent variable to explain the evolution of the dependent variable. The value of test F (162.674) and the ANOVA table, the mode reaches statistical significance (sig. =.000, $p \leq 0.01$) shows the regression mode is valid and can be used to analyzed the dependent between variables.

As portrays from the above table 4.9, the Beta coefficient for the security construct was $\beta = 0.694$, Beta coefficient for the trust $\beta = 0.328$, Beta coefficient for the Perceived ease of use $\beta = 0.201$, Beta coefficient for the Perceived usefulness $\beta = 0.041$, Beta coefficient for the Infrastructure $\beta = 0.207$, Beta coefficient for the subjective norm $\beta = 0.204$ and $\beta = 0.102$ for perceived behavioral control. The results demonstrate that these variables influence on the adoption of e-banking of customers of

CBE. It found that security, trust, infrastructure, subjective norm and perceived ease of use had the highest beta value of 0.694, 0.328, 0.207, 0.204 and 0.201 respectively.

The regression analysis support that 7 constructs were positively related to customers adoption of e-banking in the same direction. That is the standard beta coefficients (β) gave a measure of the contribution of each variable to the dependent variables. A large value indicates that a unit change in this independent variable has a large effect on the dependent variable.

Since the value of Security shows highly predicator on the dependent variable ($\beta=0.695$, $p<0.05$), it implies that Security is a major influencing factor on customers adoption of e-banking. Similarly, Trust was found to be significantly affecting customers in the adoption of e-banking system ($\beta=0.328$, $p<0.05$), the effect of trust on e-banking practice is shown in its contribution to the system's trustworthiness and increased customers perception towards using e-banking.

Infrastructures has also impact on customers adoption of e-banking system at third level ($\beta=0.207$, $p<0.05$). Finally, subjective norm the fourth factor and Perceived ease of use the fifth ($\beta=0.201$, $p<0.05$) factor that affect customers adoption of e-banking of CBE. Perceived usefulness ($\beta=0.41$, $p<0.05$) and perceived behavioral control were statistically significant ($\beta=0.102$, $p<0.05$), hence, they are also the significant factor for customers' e-banking adoption. However, their effects on e-banking adoption of customers were lower than the others.

In addition, as displayed above in table 4.9, when the level of security increase by 1, the level of e-banking adoption of customers also increased by 0.171, when the level of trust increase by 1,the level of customers e-banking adoption also increased by 0.097, when the level of subjective norm increase by 1, the level of e-banking adoption by customers also increased by 0.080, when the level of perceived ease of use increase by 1, the level of e-banking adoption by customers also increased by 0.071,when the level of perceived usefulness by customers increase by 1, the level of customers adoption of e-banking service provided by CBE also increased by 0.011, when the level of infrastructure increased by 1, the degree of acceptance of e-banking provided by the bank also increased by 0.082 and when customers perceived behavioral control increased by 1, the level of customers adoption e-banking technology also increased by 0.036. Thus, the relationship of variables through regression analysis reveals that all independent variables (security, trust, perceived ease of use and usefulness, infrastructure, subjective norms and perceived behavioral control were positively related to the dependent variable (customers level of e-banking adoption).

After avoiding the variables that causes inflated among variables (perceived risk), the level of relationship doesn't causes multi co linearity. Therefore, they can be used the regression analysis to predict customers adoption of e-banking. Thus, as per the regression analysis (table 4.9) the result of equation of customers' adoption of e-banking in CBE is:

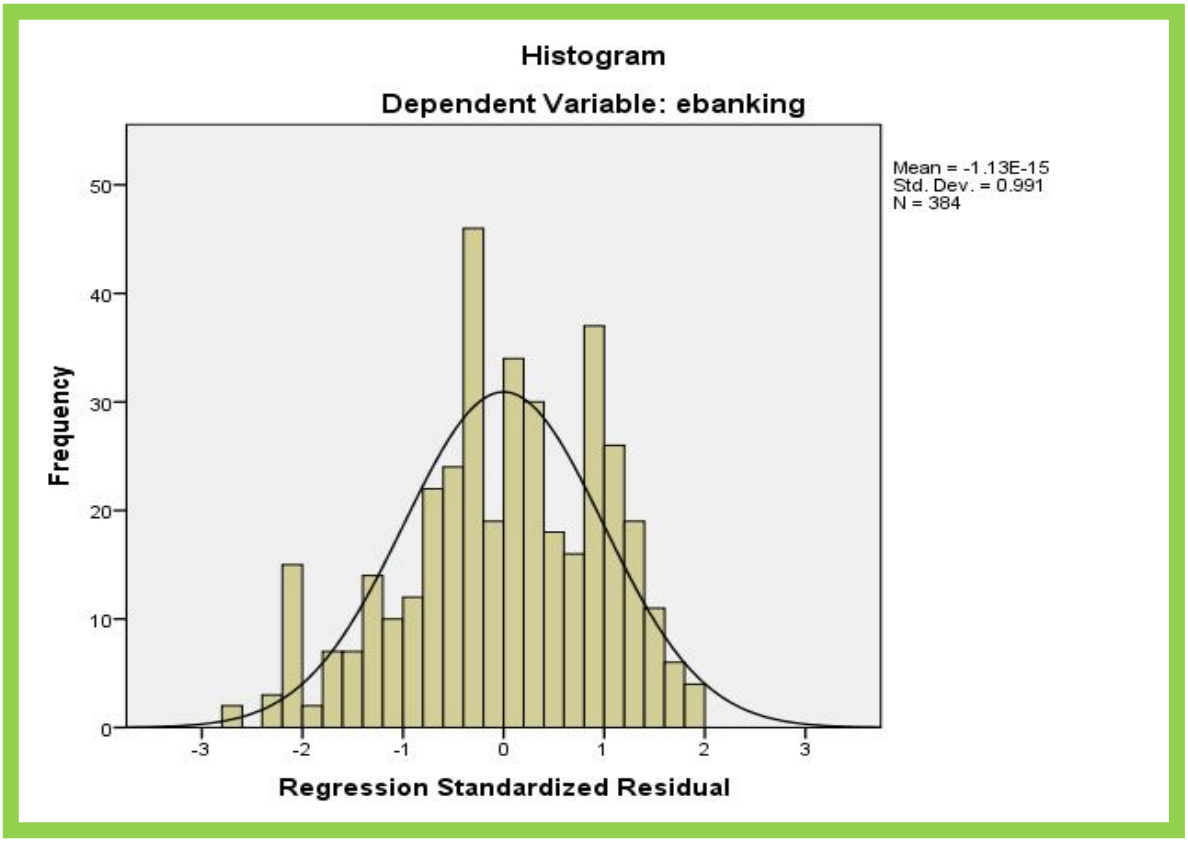
$$Y= 0.574 +0.171_{SC}+0.097_{TR}+ 0.082_{INF} + 0.80_{SN} + 0.071_{PEU}+ 0.036_{PBC} +0.011_{PU}+e$$

Where,

Y = Estimated value of customers' adoption of e-banking of CBE

SC= Security, T= Trust, INF = Infrastructure, SN=Subjective norms, PEU = Perceived ease of use, PBC= perceived behavioral control and PU= Perceived usefulness

Figure 4.1: Histogram for customers of Commercial Bank of Ethiopia (respondents)



Source: own survey (2014)

As revealed from the above figure 4.1, the histogram is bar-type for quantitative data. It was developed from the dependent variable customers' e-banking adoption and the predictive variables. The common boundaries between adjacent bars are emphasizing the continuity of data, as with continuous variables (Witte, 2007).

This graph shows that dense concentration of the predictive variables has an impact on customers' e-banking adoption.

The highest bar on the graph has the greatest impact on customers' e-banking adoption. These were security (0.000), trust (0.000), and perceived ease of use (0.000), infrastructural development (0.000) and subjective norms (0.000) respectively.

4.4. Descriptive analysis of Interviews conducted from CBE and NBE

The researcher was conducted interviews from both NBE and CBE managers and experts of e-banking to triangulate the primary data collected through questionnaires from customers of the bank. The responses of the interviewee are presented as follows.

4.4.1. Interviews conducted from NBE

As NBE managers and experts, there are no rules, procedures and directives that enhance the use of e- banking of customers. This is because of the rules and procedures were goes back to many years and have not done through over sighting the ongoing development of e-banking business of the country. And hence today's rapidly introduced innovative banking activities are entertained by existed rules and procedures.

As the interviews of managers and experts of NBE, the major factors of e-banking business are experienced and skilled man power in the area, Poorly developed telecommunication infrastructure, less understanding by majority of card holders of the bank, less knowledge about the technology, financial constraints to reach and serve majority of the public , lack of suitable legal and regulatory framework , frequent electric power interruption, lack of mutual understanding with commercial banks, government monopoly of service sector like banking and

other service industries are the most important factors for the development of e-banking in Ethiopia. Such problem not only affects the development of banks but also international business at large. However, it is to be underlined that there are some promising future opportunities: such as expansion of education, stable political climate in the country, sustained economic growth, some government initiatives in ICT and other big project in the country.

With regard to e-banking directives, the interviewees respond that they aren't electronic banking directives in the country except for Mobile, agent banking and remittances. As they said, Even in the stated above areas the directives are not well addressed many issues in e-banking business especially in the perspectives of assuring the risks and securities while facing customers problem in using e-banking services provided by banks.

Concerning the supervision of NBE on the operation of e-banking , they argue that there is no formally acknowledged for supervision of e- banking operation in the country, rather it says on giving license, approving/dining products and services of e-banking based on the request of banks.

In addition for the questions raised in the issues of the interconnection of commercial banks for the development of e-banking and the financial sector in general, they said that they have plane to interlinking among banks in the country and hopefully in the coming 1-3 years, they are planned to implement such system.

4.4.2. Interviews conducted from CBE

In Ethiopia E-banking system was started by the largest government owned commercial bank (CBE). CBE introduced to use ATM to deliver service to customers beyond their brick and mortar banking system in 2001(Ayana, 2012).

As experts and managers of e-payment directors of CBE, The major problems on the use of e-banking of customers are resistance to accept the new technology due to fear of risk, attitude towards the service, ability to understand on the operation of the technology, illiteracy of many card holders, lack of trust on the technology, infrastructure problem and many other socio-cultural factors were the main factors that hinders the adoption of e-banking of customers of the bank. In CBE it is possible to withdraw in cash and transacts per day using the following different forms e-banking system as shown below.

Forms of E-banking and daily amount of withdrawals using e-banking

Tools provided by the bank

No	E-banking service type provided by CBE		Daily amount of withdrawals/transaction	
			ETB	Cents
1	ATM		6000	00
2	POS	On cash	50,000	00
		Purchase	100,000	00
3	M-banking		100,000	00
4	Internet banking		100,000	00

Source: survey date of CBE

As we observed from the above table the maximum amount of money that could withdraw from the bank using different forms of e-banking tools such as in using ATM machines 6,000 ETB is allowed to withdraw while through the POS machines about 6, 0000 ETB if it is on cash and 100,000 ETB during purchasing products or getting services from supermarkets, hotels and many others. In addition to these e-banking services, it is also possible make payment or transfer money using mobile and internet banking to the same bank with the a maximum amount of 100,000 ETB. Though the experts and managers told that there were not any forms of complaints regarding the allotted amount of money that can withdraw and make payment using e-banking system, the permitted amount of money needs adjustments based on different circumstances. According to (Ackorlie, 2009) in developed countries the amount of money that can withdraw, transfer or making any other electronic payments in a daily basis extends from under one dollar to Multi-Million dollar transactions.

Concerning suggestions and feedbacks received from customers on the process of using e - banking service, accordingly they were received many feed backs but the major ones were about enthused of fast delivery and system robust. However, they were situations where both technical and operational difficulties as well as grievance that they were come from their respective customers. In addition, there were many complaints due to frequent breakdown of ATM machine service delivery mainly because of insufficient cash in the machine and system problems. They also indicate that operational and technical problems because of frequent power interruption and telecommunication network were the major sources of grievance that affect delivery of e-banking service.

Moreover, there is a problem of skilled staff mainly in CBE branches that had the capability in guiding customers on the operation of the system especially while customers wants to transfer money through ATM, Mobile and Internet banking.

Concerning government support for the development of e-banking, managers and experts of the bank said that government have great role for the development of e-banking business through solving problems of infrastructure, formulating clear rules, directives and legal framework, interlinking among banks in the country and permitting credit card that enables to transact internationally which enables to enhances the general economic development of the country. Though the bank is working on customers for attitudinal change through giving on training, orientation, providing user guidelines and as well as broachers, they also added that the bank should work further intensively for the development of the service through providing necessary training and orientation on the operation of the service as well as ensuring that there will not have any problems that may faced in using the technology especially in security, privacy and other related risks that customers may fear and anticipate.

With regard to introducing new product and service in the e-banking technology, they replied that they are working and on the way of introducing agent banking for the coming next year 2014/15. Besides to this as interviewee, they said that there is no risk in the process of using e-banking service provided by the bank even when there is power interruption and automatically network connection problems have been faced. This is because of the latest nature of technology that the bank currently used and previously many experiences taken in other countries on the implementation of security system on e-banking tools provided to customers, however, customers are not well aware in the level of security on the system. The interviewee also suggests that these perceptional problems on e-banking service will gradually solved in the process of using technologies. Finally, questions were also raised for interviewee on how long time it takes to provide e-banking service tools like having ATM card and other services, they said that in the very beginning of the technology it takes up to 6 months but recently it takes to 7-15 days dated up on application of services. This data also confirms that there were customer service quality problems as discussed in the closed ended questions provided by customers (pie chart 4.1). And hence, this implies that the level of waiting time for getting e-banking service were still needs an adjustments and becomes reduced further up to a hours and minutes for satisfying and enhancing the e-banking service quality of the bank.

4.5. Discussion

The paper was melt to examine the factors affecting customers' adoption of e- banking. The result indicates that there is a significant and positive relationship exist between securities, perceived ease of use, infrastructure, perceived behavioral control, perceived usefulness, subjective norms and trust with the customers attitude towards the adoption of e-banking. However, perceived risk was the major predictor and negative relationship with e-banking adoption of customers. This finding confirms as many authors Tornatzky, Fleischer (1990) and Davies (1986) as well as (Ajzen, 1991, 2002 reviewed in this research thesis. But unlike study conducted by Mr. Essayes Tseye(2013), articles on the factors affecting consumers' perception of e-ticketing practice in Ethiopian air lines, this thesis found that there is positive and significant relationship among the independent variables.

But from the descriptive data analysis, Pearson correlation constructs and multiple regression analysis as well as per the interviews conducted from CBE and NBE, the major factor which contributes to customers e-banking adoption were described as follows:

Perceived risk

According to Grazioli and Jarvenpaa (2000), perceived risk was great effect on the adoption of e-banking of customers through creating perception of uncertainties and droughts while using in the electronic banking system. In addition to this, as study conducted by Mr. Essayes Tseye(2013), articles on the consumers perception of e-ticketing practice in Ethiopian air lines, Ayana Gemechu (2012) and Belaynah Asrie (2012) study on the challenges of implementing e-banking and e-commerce respectively ,the result of the study indicates that perceived risk was the major factor affecting consumers to purchase e-tickets and also on the adoption of e-banking as well as e-commerce in general. This study also confirms that perceived risk was the major factor on the adoption of e-banking in CBE which is quite familiar with many authors in the areas and researches made on different times.

Security

According to Bargh et, al. (2008), security services offering protection from security threats are: identification, authentication, confidentiality, integrity, access control, and non-reputation.

In line with this factor, the study confirms that security was the second major factor of e-banking adoption of CBE. This implies that the bank lacks security and also had gap in communicating the level of security issues through different modes of communication channels and doesn't have any assurance in the process of transacting through e-banking services.

Subjective Norms

According to (Athiyaman, 2002) Subjective norm refers to one's perception of social pressure to perform or not to perform the behavior under consideration and its effect in the initial stages of system implementation. The study also reveals a subjective norm has significant and positive relationship with customers in the adoption of e-banking of CBE. As defined here above it is mainly caused by social pressures, families, friends and both printed and broadcast Medias, which had influence in the decision of using e-banking system. This indicates that CBE had not work well in communicating about the importance, usage procedures, security and many other related issues in the electronic system, which enables to reduce pressures arises from in different sides in one hand as well as it pushes or facilitating the acceptance of the e-banking system on the other hand.

Infrastructure

The study indicates that infrastructure has positive and also significant relationship in the customer's adoption of e-banking system of CBE. According to Groucutt and Griseri (2004) infrastructure includes the necessary improvement in telecommunication service, the acquisition of reliable hardware and software system, the provision of reliable uninterrupted power supplies and the necessary training and orientation on the system. However, as the customers were given both the open and close ended questions concerning infrastructure, the main problem in implementing and using e-banking system in Ethiopia was both telecommunication and disrupted power supply which lies the problem on the side of government support and also lack of training and orientation on the system in the CBE were the root causes of infrastructural problem in the adoption of e-banking system.

Trust

As (Moorman, 1993) trust is the necessary part of any relationship including e-banking systems. Customers should have confidence on the e-banking system. But this study indicates that customers were lacks confidence on the e-banking services provided by CBE. This factor literally has direct relationship with security of the system. Thus, based on these CBE was not developing customers' confidence on the e-banking system.

Perceived behavioral control

Perceived behavioral control was also the significant and positive relationship with e-banking adoption of customers of CBE. According to Ajzen (1991) explained that perceived behavioral control reflects beliefs regarding the access to resources and opportunities needed to perform a behavior. They also divided perceive behavioral control into two components. The first component reflects the availability of resources needed to engage in the behavior. This includes access to financial resources, time and other resources. The second component reflects the focal person's self confidence in the ability to conduct the behavior.

Based on Ajzen (1991) view on perceived behavioral control customers of the bank who had the required skills on e-banking operation, time and other resources as well as customers who have confidence are a potential target customers of e-banking service provided. However the data indicates that customers of CBE had not the technical and operational skills, financial resources as well as confidence on e-banking system. Thus, the bank should identify and segmenting customers accordingly for enhancing the number of customers. In this regard the bank also not doing well.

Perceived ease of use and usefulness

Perceived usefulness and ease of use both are the basis for e-banking practice including in banking industries. However, the finding showed that majority of customers perceived that the system is not easy to perform and less users friendly. As a new technology based system implementation in an organization the end user or customer needs to have appropriate support. For supporting customers on the e-banking system, CBE employees were lacked adequate training on helping customers on how to utilize the operation e-banking service provided especially mobile and internet banking.

Moreover, the data collected through interview from NBE reveals that lack of legal and regulatory frame works for addressing problems with regard to security and privacy of customers and also to protect customer's bio data's, financial transactions and other related information and to take measures accordingly were the major challenges that Ethiopian commercial banks currently faced. Besides according to the interview result of CBE, factors such as Economic, social, cultural, legal and technological factors were also identified for effectively serving customers on the banks and it has its own influence on the adoption of e-banking of customers of the bank.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

The study intended to identify and analyses the main factors affecting on customers in the adoption of electronic banking services of Commercial Bank of Ethiopia, through adopting mixed research approach. In this section summary of findings, conclusion and recommendations of the study is presented as follows.

5.1. Summary of findings

As the purpose of this study was to identify and analyses the factors affecting on customers e-banking adoption. The following eight major factors were identified through correlation analysis (table 4.5 and 4.6) that has been significant effect on the adoption of e-banking of customers of Commercial Bank of Ethiopia.

These were:

- ✓ Perceived risk has a significant and negative relationship with customers on the adoption of e-banking services.
- ✓ Security and privacy has positive and a significant relationship with customers on the adoption of e-banking services.
- ✓ Perceived ease of use has positive and a significant relationship with customers on the adoption of e-banking services.
- ✓ Infrastructure has positive and a significant relationship with customers on the adoption of e-banking services.
- ✓ Perceived usefulness has positive and a significant relationship with customers on the adoption of e-banking services.
- ✓ Perceived behavioral control has positive and a significant relationship with customers on the adoption of e-banking services
- ✓ Trust has positive and a significant relationship with customers on the adoption of e-banking services.

- ✓ Subjective norm also has positive and a significant relationship with customers on the adoption of e-banking services.

Therefore, all the projected hypothesized variables are supported. The dependent variable customers' e-banking adoption practice was explained by 75.2 % by the independent variables.

Besides, the regression analysis of the study portrays that security, trust, infrastructure, subjective norms and perceived ease of use were the major factor that affect positively and significantly on 1^{st} ,2^{nd} ,3^{rd} ,4^{th} and fifthly on the adoption of e-banking of customers of CBE respectively. Hence, as the regression analysis, the equation of the estimated value of e-banking adoption practice of customers of CBE is:

$$Y= 0.574 +0.171_{SC}+0.097_{TR}+ 0.082_{INF} + 0.80_{SN} + 0.071_{PEU}+ 0.036_{PBC} +0.011_{PU}+e$$

Where,

Y = Estimated value of customers' adoption of e-banking of CBESC= Security, T= Trust,

INF = Infrastructure, SN=Subjective norms, PEU = Perceived ease of use, PBC= perceived behavioral control and PU= Perceived usefulness

Finally, In addition to the identified factors affecting on the adoption of e-banking through questionnaires from customers of the bank, the interview result indicates that the level of trust on the system, security associated with e-banking product or service, such as ATM, internet banking, mobile banking, infrastructure, legal framework, lack of skills to operate the system, socio-economic, cultural and others factors were pose effect on to customers in the adoption of e-banking service, which confirms the factors identified through questionnaires from customers of the bank.

5.2. Conclusions

E-banking system, such as ATM, mobile banking, internet banking and other e-banking system were not well adopted by CBE as compared with the number account holders. This is due to the limited number of ATM and POS in the country as well as due to low level of infrastructural development and lack of legal frame works at NBE and many other factors on the side of customers and the bank.

This study reveals that the factors that significantly affect the adoption of e-banking system of customers in CBE were security, perceived ease of use, infrastructure, perceived behavioral control, perceived usefulness, subjective norms, perceived risk and trust. However, except perceived risk, all factors were positively and significantly correlated among each other and with customers' e-banking

adoption of CBE. But perceived risk was negatively and significantly related with all independent variables and customers e-banking adoption in CBE.

Besides, perceived risk, security, trust, infrastructure, subjective norms and perceived ease of use were the major factors influencing the adoption of e-banking system respectively. The major factors such as trust and ease of use was similar to the research findings on the factors influencing the adoption of internet banking of consumers in Iranian banks by Sara Naimi Bargahnie (2007) MSC thesis in Industrial marketing and e-commerce, lulea University of technology.

Finally, based on the finding of the study the student researcher can conclude that CBE were not effectively working on customers in the adoption of e-banking system. And hence the numbers of e-banking users were limited.

Moreover, the technical and managerial skills available in Commercial Banks of Ethiopia for the adoption of E-banking and NBE were limited. This had influence on the choice and implementation of e-banking technology in banks including CBE.

5.3. Limitation of the study and Suggestion for Further Research

This study is one of a few and it is new research area in the perspectives of factors affecting on customers in e-banking adoption in Ethiopia since banks adopts these different forms of e-banking system before three years. So, areas of further research that were identified include a similar study to be carried out on others place, banks and on other relative issue about customers including how demographic factors influencing on customers in e-banking adoption, how e-banking is efficient to help the business and its contribution to banks' financial performance should be measured and to what extent can the benefits if any be quantified by the banks.

Crucially further research is also should be done to determine the factors affecting on Business to Business aspects of e-banking as ''Business-to-business (B2B) e-commerce is by far the largest category of e - business, and accounts for the lion's share of web transactions today'' (Corritore,et. al., 2004), Furthermore, the research conducted on Addis Ababa City only. Hence, the scope needs to be widened to cover the rest of the country.

5.4. Recommendation

E-banking system is a new financial evolution in Ethiopia, but it's an important issue, because it has a great impact on the whole banking system and the overall general economic development of the country, at the same time its difficult and need a lot of efforts to be adopted and accepted by the banking industry and the target customers in particular, so it need a lot efforts to enhance the development of e-banking service system in the country and CBE in particular. This is because of many socio-economic, cultural, technological, political and legal factors as well as other related factors. Hence, based on the findings of this study, the research has forwarded two practical and most important implications and recommendation, in addition to other recommendations pertinent to the concerned parties forwarded as follows:

5.4.1. Push strategy

Awareness of e-banking process is essential at every stages of customer technology adoption process especially at the early stages. As e-banking is still new in Ethiopian Commercial banks including CBE, effective marketing communication and presentation of the products and service should be implemented. This will be done through advertizing in different printed and broad cast Medias: printed Medias such as leaflets, broachers and different guidelines and broad cast Medias such as radios, television and through web Pages…etc will enrich to a wider audience of both potential and actual customers of e-banking of CBE. Besides, information and orientation about e-banking should also provided by bank tellers and bank assistance at branches. This information should include time and cost saving, convenience at any where any time, ease of use, level of security and other information that would enhance customers' perception towards the technology. In addition, bank should design their websites as effectively delivery channels through designing the web sites in a user friendly manner to attract potential adopters of the technology. Information and other instruction should be offered in a multilingual feature in order to be comfortable by easily understanding to e-banking adopters.

Moreover, the bank should attract customers by ease of access, this will be addressed through regularly monitoring the access by implementing traffic management system for internal and external users in collaboration with Ethio-Telecom. The bank should also develop customers' confidence by presenting the level of security used in both technical and non technical terms

through outlining the procedure and information on how to come up with problems if they may occur and providing instructions on how to use e-banking services safely.

5.4.2. Pull Strategy

Banks should work with different stakeholders, since increased diffusion would increase the number of e-banking adopters, because, support from the government and the banking industry regulator influences the e-banking services positively and negatively in different ways. And hence the bank should work in collaboration with banks, regulatory bodies and different government organizations to increase the e-banking service value. E.g. By working with Ethio-telecom: offer free internet service access to users, expand e-banking service across banks in the country and increase linkages with other stake holders as well as to enact e-banking laws and e-commerce in general with NBE.

In addition to this the concerned bodies should take part of their own responsibility for the development of e-banking in different ways. Among these:

- In order to successfully facilitate E-banking adoption in Ethiopia, national bank of Ethiopia (NBE) should establish a clear set of legal and regulatory frame works on the use of technological innovation E-business in general and e-banking in particular.

- According to (Azouzi, 2009), Banks have used electronic channels to do banking operations with both domestic and International customers. But the current e-banking product of CBE doesn't consider both domestic and international customers interest in e-banking operation. Thus, NBE should permit credit card system for effectively serving both domestic and international customers interest and for the development of e-banking system as well as the financial industries.

- The regression analysis of the study reveals that security and trust was the major factor for e-banking adoption of customers of CBE respectively. Thus, the bank should assure that the privacy or personal information's of customers are protected and confidential. In addition, NBE should have rules, procedures and legal protection on these regard.

- E-banking products and services are getting more and more advanced and increasing in variety in industrialized countries and in many African countries. From providing information at the early stage to providing transactional activities. However, e- banking services provided by Ethiopian commercial banks including CBE are homogeneous and lacks variety, and hence it should have to have many e-banking service for ease work, minimizing of many costs and facilitating transactions as well as for effectively serving customers especially CBE, since it is the leading government banks in Ethiopia in having many branches in different parts of the country and also have branches in other countries abroad. Surprisingly, there is no Banks who introduce e-banking system which enables to save many in Ethiopia, as the very mission of most of private and government banks is facilitating the saving habits of customers of the country and which intern uses financing for private investors and other many government big projects including projects in our growth and transformation plan of the country. Therefore, since CBE has government banks and the leading bank as well, also should have to adopt e-banking system which enhances the saving system of the customers. The recommended service type have multipurpose role for CBE: it enhance saving and on the other hand it enables to solve customers' problems currently faced as the research findings that ATM machines services offered to customers were stopped off due to absence of money in the machine , on the other hand it also reduces the queue time/ service time of customers as well as it makes convenience for customers who wants to save money which generally enhances the modes and quality of service delivery of the bank.

- For the development of e- business in general including E-banking system in Ethiopia infrastructure is the major prerequisite, so government should support e-business for the development of banking sector and other technology based operations in the country through investing on infrastructural development including ICT infrastructure.

- The Government should encourage foreign ICT company to invest in Ethiopia, support local ICT companies by improving access to credit, providing subsidy and other incentives and creating an enabling policy environment for enhancing e-business in general and e-banking in particular.

- In order to have many e-banking customers, CBE need to move away from traditional bases of retail bank competition to a new technology based form of competition by focusing on cost reduction, customer retention, awareness, credibility, security, ease of use, and wider scope of products and services or in general focusing and developing on customers of the bank .

- According to the correlation analysis of this study, perceived risk was negatively related and significantly affects customers' e-banking adoption. In addition many Previous studies mentioned that perceived risk was a major factor that influences the adoption of electronic banking services (Polatoglu and Ekin, 2001; Tan and Teo, 2000). Thus, Commercial Bank of Ethiopia works vigorously to develop customers' confidence on e-banking services.

- To exploit the benefit of E-banking system, CBE needs to familiarize their customers with the processes of e-banking operations and benefits from the system. This would be done through developing programs which increase the awareness level of customers about the technology especially focusing on the operation of the system and on the procedures by using documentary films and regularly giving orientation at their branches as well as using broadcast medias particularly Television programs through showing the process of e-banking operation and many other issues similar to what is doing by Unity university for promoting ICT in our country of the so called CLICK ETHIOPIA PROGRAME on ETV programs.

- The bank should build the capacity of its human resources especially staff employees who are working in e-banking service related operations in order to effectively and competitively practices e-banking service.

- CBE should pay special attention to deliver service to customers using E- banking system in different regional branches in the country. Moreover, the e- banking system should incorporate in its website one click shopping, more structured and colorful graphics and in a multi-lingual ways.

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APPENDICES

Appendices I

Questioners for customers of CBE

Dear Respondents,

First of all I would like to forward my heartfelt gratitude for administering this questionnaire honestly and responsibly. The questionnaire is designed to collect the necessary information to undertake a research on **"factors affecting customers on the adoption of e-banking of Commercial bank of Ethiopia, Addis Ababa'',** For the partial fulfillment of the requirements of the degree of Masters of Business Administration.

This questionnaire contains two sections and 5 pages that will be expected to take approximately 10 to 15 minutes to complete. Please provide your responses to the questions based on the instructions under each section. If you have comments or if you want to provide further explanations, please use the space provided at the end of the questionnaire.

Therefore, your genuine, frank and timely responses are quite vital to determine the success of this study. So, I kindly request your contribution in filling the questionnaire honestly and responsibly.

Finally, I would like to confirm you that all the information you provide in this Questionnaire will be strictly confidential and will exclusively be used for academic research purpose.

NB: No need of writing your name

Thank you very much ahead for your cooperation!

Section I: Demographic profile of respondents

1. **Gender:** ☐ Male ☐ Female
2. **Age:** ☐ less than 18 ☐ between 18 – 29 years old
   ☐ 29 – 40 years old ☐ 40 – 50 years old
   ☐ 50- 65 years old ☐ older than 65 years
3. **Education:** ☐ Primary school ☐ Secondary school
   ☐ Diploma ☐ 1st degree
   ☐ Master and above

If any other different from these please specify ----------

4. **Income:** ☐ less than 3000 birr per month ☐ 3000 – 5000 birr per month
   ☐ 5001 – 8000 birr per month ☐ 8000 – 10,000 birr per month
   ☐ 10,000 – 15,000 birr per month ☐ above 15000 birr

Section II: Questionnaires related with factors of adopting Electronic banking

Instruction: Below are lists of statements pertaining to Adoption of E-banking. Please indicate whether you agree or disagree with each statement by ticking (√) on the spaces that specify your choice from the options that range from "strongly agree" to "strongly disagree" and circle statements from list of choices provided.

NOT: E-banking refers in this study transaction using internet, ATM and mobile banking, POS terminal.

- CEBA= customers e-banking adoption, PBC = perceived behavioral control, T= trust, PU= perceived usefulness, PEU = perceived ease of use, SN= subjective norms, INF = infrastructure, SC= security and PR= perceived risk.

2.1. Basic questions

1. Do you have bank account at CBE? A/ Yes B/ No
2. If" yes", do you have an experience of using either of the following e-banking services provided to the customers?

   A/ ATM B/ through POS terminal C/ Tele banking

   D/ Mobile banking E/ Internet banking

   F/ if any ----------

3. If No, what is the possible reason of not using e-banking services available to customers?

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4. How do you rate the level of customer services with respect to e-banking services of CBE?

   A/ very high B/ high C/ medium

   D/ low F/ very low

5. If your answer is "low "or "very low", what should be done to enhance e-banking services of the bank?

- The following questions are statements about e-banking. Please ticking each of (√) the questions for expressing your level of agreement of the statements. Each choice was identified by numbers ranged from 1 to 5 which stands: DA- Disagree, SD- Strongly Disagree, UN, undecided, A- Agree, SA- Strongly Agree.

No.	Variables	Questionnaires	Scales				
			SA	A	N	DA	SD
			5	4	3	2	1
		E-banking adoption of customers					
1	EBA1	I feel my decision of using e- banking was a wise idea					
2	EBA2	I intend to use e- banking in the near future					
3	EBA3	I plan to use e - banking such as Mobile, internet ,POS and ATM					
4	EBA4	I determined to use e- banking soon					
5	EBA5	I expect to use e- banking in the future					
6	EBA7	I like to use e- banking than others					
7	EBA8	I feel using e- banking is a good idea					
8	EBA 9	Using internet banking site is a pleasant idea					
		Perceived behavioral control					
9	PBC 1	I would be able to operate e- banking					
10	PBC 2	I have the resource to use internet banking					
11	PBC 3	I feel better when using e-banking service than through personal contact with officer of the bank					
12	PBC 4	Educational status affect decision to use e-banking service of the bank					
		Trust					
13	T 1	Payments made through CBE e-banking are trustable					
14	T 2	E - Banking keeps customers best interest in mind.					
15	T 3	I feel confidence while using e-banking services on the bank website					
		Perceived usefulness					
16	PU 1	E- banking improves my performance of banking activities or operation					
17	PU 2	Using e- banking would increase the quality of banking transaction					
18	PU 3	E-banking makes easier of doing banking transactions					
19	PU 4	E- banking enables me to accomplish banking activities more quickly					
20	PU 5	E- Banking such as internet, ATM, POS and Mobile banking are convenient.					
21	PU 6	Using e - banking helps to perform banking tasks at lower cost					
22	PU 7	I feel Using e-banking improves customer service					
		Perceived ease of use					
23	PEU1	My interaction with using e- banking is clear and understandable					

No	Variables	Questionnaires	SA	A	UN	DA	SD
			5	4	3	2	1
24	PEU 2	The website of the bank is comfortable for users					
25	PEU 3	The website of the bank is easy to understand for majority of customers					
26	PEU 5	The bank interference language in the website is user friendly and directs customers appropriately					
27	PEU 6	It is easy to use e- banking					
28	PEU 7	I find easy to do what I want to do in e- banking					
29	PEU 8	Learning to use e- banking is easy for me					
		Subjective norms					
30	SN 1	My decision to use e- banking is influenced by: friends, media and family					
31	SN 2	Employees support to use e –banking service of the bank					
32	SN 3	Peoples who use e- banking service are more of prestigious than who do not					
33	SN 4	The bank uses influential/opinion leaders to promote e-banking services					
		Infrastructure					
34	INF 1	There is stable and fast internet and uninterrupted power connection to access e-banking of CBE					
35	INF 2	e-banking services are easily available from the bank					
36	INF 3	I had got e-banking service within short period of time dated up on application on service					
37	INF 4	I have the technical skill on the operation of e-banking service provided by CBE					
38	INF 5	CBE provides necessary orientation/training on how to use e banking services provided to customers					
		Security					
39	SC 1	I feel CBE e-banking service is secure from any threat/fraud during using services provided.					
40	SC 2	I feel all personal and transaction information is secure while using e-banking service of the bank					
41	SC 3	The bank website offers various popup windows to assure security while transacting on using e-banking service of the bank.					
42	SC 4	I feel certain while making e-payment to others using e-banking such as Mobile and ATM service of the bank					
		Perceived risk					

No	Variables		SA	A	UN	DA	SD
			5	4	3	2	1
43	PR 1	Using e-banking in CBE is risky as poor internet and un interrupted power connection					
44	PR 2	In using e-banking at CBE, there is no guarantee for financial loss					
45	PR 3	While using e-banking at CBE, I was confused, create many errors and feel full of risk					
46	PR 4	CBE website is not frequently updated thereby obtaining risk from non updated information to the viewers/users					

47. Finally, If you have any opinions/suggestions/problems pertaining to the use of e-banking, please specify/explain to the space provided ----------

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Thank you in advance for your cooperation!!

Appendices II

Structured Interview questioners for CBE (For experts and managers)

Dear Sir/Madam,

First of all I would like to forward my heartfelt gratitude for administering this questionnaire honestly and responsibly. The questionnaire is designed to collect the necessary information to undertake a research on the topic **"factors affecting customers on the adoption of e-banking of Commercial bank of Ethiopia, Addis Ababa''** for the partial fulfillment of the requirements of the degree of Masters of Business Administration. Therefore, please give genuine, frank and timely responses for the questions as follows:

Note: all the information you provide in this Questionnaire will be strictly confidential and will exclusively be used for academic research purpose.

Thank you very much ahead for your cooperation!

1. What type of Electronic banking service do you provide? ATM, Internet banking, mobile banking or POS? If any please specify
2. What are the major factors affecting on new technological innovations like ATM, internet banking, mobile banking and POS terminal especially in the side of customers of the bank?(Please specify/explain)
3. Do you think that socio-cultural, Economic and a legal barrier hinders customers to the adoption of ATM, internet banking and mobile banking in your institution? (Please Specify/explain)
4. Do you think that government policy have impact on customers in the adoption of E- banking system? (Please specify/explain)
5. Does customer of the bank have the capability of using ATM, internet banking, mobile banking and POS TERMINAL? If not what will be done to encourage the use of e-banking service in the growth of financial sector?
6. What sort of support would you expect from the government in relation to E-banking improvement in Ethiopia?
7. Does CBE provide training /orientation on the process of using ATM, internet banking, mobile banking and POS TERMINAL to customers?
8. What will be done to ensure security/fear of risk/ privacy and many others which enhances customers on the use of e-banking service?
9. How long time it takes to provide e-banking service such as ATM, internet banking, and mobile banking and POS services to the customers from the date of application?
10. Does the bank have planned to adopt new products of e-banking service which encourages/enables customers to save electronically?
11. What were the feedbacks with regard to e-banking services provided to customers?

Appendices III

Interview questionnaires designed for NBE

1. As your opinion what are the factors affecting on the adopting of new technological innovation like e-banking in Ethiopian banking industry?

2. Do you have any legal and regulatory frameworks at central bank to enforce banking industries in the use of E-banking system, such as ATM/debit card, telephone/mobile banking/internet banking?

3. Does NBE plan to interconnect each other in e-banking services transactions for betterment of customer service and for the development of financial sector in the country in general?

4. Does NBE have rule, guidelines and regulation that enhance banking industries in the adoption of E-banking system?

4. Why Ethiopian government did not allow foreign banks to operate in the country?

5. Does NBE have E-banking directives? If yes how the content is and how well the bank supervises those banks operated in the country? If not why not?

6. What are the major problems that were faced the bank that you were identified in e-banking supervision?