Addis Ababa University

School of Business and Public Administration

Department of Accounting and Finance

(Graduate Program)

Adoption of Electronic banking system in Ethiopian Banking industry: Barriers and Drivers

A Thesis Submitted to the School of Graduate studies of Addis Ababa University in Partial Fulfilment of the Requirements for the Degree of Master of Science in Accounting and Finance.

By

Ayana Gemechu

May, 2012

Addis Ababa, Ethiopia

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Advisor:

Ulaganathan Subramanian (PhD)

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Declaration

I, the undersigned, declare that this thesis is my original work, has not been presented for degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Ayana Gemechu

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Place and date of submission: Addis Ababa University, May, 2012

Certification

This is to certify that Ayana Gemechu Bultum has carried out his research work on the topic entitled "**Adoption of Electronic banking system in Ethiopian Banking industry: Barriers and Drivers**"". The work is original in nature and is suitable for the submission for the reward of MSc Degree in Accounting and Finance.

Advisor: Ulaganathan S. (PhD):_____

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Approved by the Board of Examiners:

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Advisor	**Signature**
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Examiner	**Signature**
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Examiner	**Signature**

Abstract

This thesis aims to examine adoption of E-banking in the Ethiopian banking industry with respect to the barriers which can influence firms from taking advantage of E-banking system and expected benefits derived by adopting the system. The study was conducted based on the data gathered from four banks in Ethiopia; three private banks (Dashen bank, Zemen bank and Wegagen bank) and one state owned bank (commercial bank of Ethiopia).

A mixed research approach was used to answer the research questions that emerge through the review of existing literature and the experiences of the researcher in respect of the E-banking system in Ethiopia. The study statistically analyse data obtained from the survey questionnaire. A research framework developed based on technology-organization-environment framework and Technology acceptance model to guide the study.

The result of the study indicated that, the major barriers Ethiopian banking industry faces in the adoption of Electronic banking are, security risk, lack of trust, lack of legal and regulatory frame work, Lack of ICT infrastructure and absence of competition between local and foreign banks. The study also identified perceived ease of use and perceived usefulness as a driver of adopting E-banking system.

The study suggests a series of measures which could be taken by the banking industry and by government to address various challenges identified in the thesis. These measures include: Establishing a clear set of legal frame work on the use of technology in banking industry, supporting banking industry by investing on ICT infrastructure and banks needs to be focused on technological innovation competition rather than traditional bases of retail bank competition.

Acknowledgements

I am most grateful to Almighty God who through His infinite mercy and love guided me throughout the duration of the programme.

I am deeply grateful to my advisor **Dr. Ulaganathan** for his precious comments and suggestions during the course of this study. In addition to his contribution to this thesis, I also like to thank his thoughtful contributions to my stock of knowledge. Also I have great appreciation to **Dr. Alemayehu Molla** for his constructive comments and suggestions during the beginning of this study.

I am extremely indebted to my family especially, my mother Dandessu Abetu for her moral and financial support since the beginning of my education. I am also grateful to my brothers; Israel & John and my sisters; Dinqe, Obse, Tolashe and Kamashi for their support and encouragement throughout my life.

Last but not least, I would like to express my deep gratitude to the staffs and managers of the four banks who participated in this study during the data collection process. Finally i would like to thank Ambo University for granting me a study leave.

Table of Contents **page**

List of tables

List of Figures

List of abbreviations

ATM	Automated teller machine
AVR	Automated voice response
CBE	Commercial bank of Ethiopia
CSFs	Critical success factors
DIT	Diffusion of innovation theory
E-banking	Electronic banking
E-commerce	Electronic commerce
ECX	Ethiopian commodity exchange
EFT	Electronic fund transfer
E-payment	Electronic payment
ICT	Information communication technology
IT	Information technology
NBE	National bank of Ethiopia
PC	Personal computer
PDA	Personal digital assistance
PEOU	Perceived ease of use
POS	Point of sale
PIN	Personal identification number
PSBs	Public service banks
PU	Perceived usefulness
SME	Small and Medium enterprise
SMS	Short message service
SPSS	Statistical package for social science
TA	Technology associates
TAM	Technology acceptance model
TOE	Technology organization environment

Chapter One: Introduction

1.1. Back ground of the study

The rapidly growing information and communication technology (ICT) is knocking the front-door of every organization in the world, where Ethiopian banks would never be exceptional. In the face of rapid expansion of electronic payment (E-payment) systems throughout the developed and the developing world, Ethiopian‟s financial sector cannot remain an exception in expanding the use of the system (Gardachew 2010, p.2). Technological innovations play a crucial role in banking industry by creating value for banks and customers, that it enable customers to perform banking transactions without visiting a brick and mortar banking system. On the other hand E-banking has enabled banking institutions to compete more effectively in the global environment by extending their products and services beyond the restriction of time and space (Turban 2008). However, mirroring the development of E-commerce, the adoption and diffusion of electronic banking (E-banking) system is not well developed in Ethiopia.

All banks in Ethiopia are too late to move with technological advancement and they should clearly chart out the time schedule for their integration and technological advancement. Some of the banks even today do not have their own websites which can help them to provide at least the information on financial services offered by them.

All most, all banks operated in Ethiopia with some exemptions[1] provide service to customers by using traditional systems, that is why every bank customer is highly dissatisfied by the disappointing status of financial development in Ethiopia. Even the time wasted in travelling

[1] Some Banks like the largest government owned Commercial Bank of Ethiopia (CBE), Zemen Bank, Dashen bank and Wegagen bank uses ATM machine and other technological tools to provide service to the customers in addition to service provided at bank office.

for search of bank branches and the long waiting time to access the account is really disappointing. This is particularly because of the non-integration of branches of the same bank, i.e. even within individual banks their branches are not linked to each other and it is a must to physically visit the branch in which an account has been opened.

As it is stated in different E-banking literature some of the problems related with adoption of E-banking are: Low level of internet penetration and poorly developed telecommunication infrastructure. According to Jensen (2003), most countries in Africa, except South Africa, have Internet infrastructure only in their major cities. Lack of suitable legal and regulatory framework for E-commerce and E-payment is another impediment for the adoption of new technology in banking industry. 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 and 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 (Gardachew 2010). But risks related with security issue, lack of competition among local & foreign banks and social awareness on the E-banking system were not addressed.

In order to encourage further E-banking adoption in developing countries, a better understanding of the barriers and drivers impacting E-banking adoption is critical (Zhao *et al*. 2008). By gaining an in-depth understanding of the factors and conditions that influence developing country‟s ability to fully adopt and realise its benefits, strategic implications can be generated for the researchers and practitioners regarding how to promote the growth of E-banking in the developing countries. However, despite the importance of these adoptions,

limited studies are currently available in developing countries, especially in Ethiopia. Therefore, more studies are still required to understand the relevance of E-banking in the country to identify areas in which the country lags behind that inhibit their E-banking adoption and diffusion. Therefore, to address the current gap in the literature, this study is designed to examine the E-banking adoption situation in Ethiopia and commonly focusing on the investigation of barriers and drivers of adopting E-banking system in Ethiopia and recommend appropriate actions to be taken to promote E-banking system in the country.

The remaining parts of the chapter are organized as follows. The second section presents statement of the problem. The third section sets out the research questions. The fourth section provides objectives of the study. The fifth section provides the highlighted research method adopted while the sixth section shows the scope and limitation of the study. The significance of the study is offered in the seventh section. Finally, structure of the paper is presented in the eighth section.

1.2. Statement of the problem

When compared with the banking industry operated in developed country, without doubt the banking industry in Ethiopia is underdeveloped and therefore, there is an all immediate need to embark on capacity building arrangements and modernize the banking system by employing the state of the art of technology being used any where in the world. With a growing number of import-export businesses, and increased international trades and international relations, the current banking system is short of providing efficient and dependable services (Gardachew 2010).

In E-banking system, information is electronically transmitted over wireless communication channels and the internet. These processes raise issues of how users are authenticated, how

integrity of data is maintained and importantly the confidentiality of this data. One of the issues raised with adoption of new technology is Perceived risk or uncertainty about the outcome of the use of the innovation (Gerrard & Cunningham 2003) or uncertainty that the use of the innovation is secure. Uncertainty arises from a predictive validity of the attributes (for example functionality and security) that is, how well users of new technology will predict future performance (Cox 1967). Risk is a subjective determined expectation of loss; the greater the expected probability of loss, the higher the risk perceived (Mitchell 1999), and thus the lower the motivation to adopt an innovation.

Even though E-banking has a lot of benefit in delivering service to customers, in Ethiopia customers were missed to enjoy with the technological advancement in banking sector which has been entertained elsewhere in Africa and the rest of the world. This is due to lack of awareness or competition among banking industries. The modern E-banking methods like Automated teller machine (ATM), Debit cards, Credit cards, Tele banking, Internet banking, Mobile banking and others are new to the Ethiopian banking sectors. E-banking which refers to the use of modern technology that allows customers to access banking services electronically whether it is to withdraw cash, transfer funds, and to pay bills, or to obtain commercial information and advices are not well known in Ethiopia.

Considering the low extent of development of ICT infrastructure in developing countries, when compared with the developed countries E-banking has not really been able to diffuse into society given the low rate of internet access (Banji & Catherine 2004). There fore this study intended to identify factors that positively or adversely affect adoption of E- banking system based on the research problems discussed above.

1.3. Research questions

Based on the problem stated in this study, researcher develops the following research questions.

Main question: *What are the dimensions affecting the adoption of E-banking system in Ethiopian banking industries?*

To gain a comprehensive understanding of the phenomenon under investigation, and in order to be able to provide a sufficient justification for answering that question, the following three questions needs to be addressed. For the purpose of the present research, these questions are:

1) What are the barriers to E-banking adoption in Ethiopia?

2) What are the Drivers for E-banking adoption in Ethiopian banking industry?

3) What are the benefits of E-banking?

1.4. Objective of the study

The Ethiopian banking industry is one of the service industries crucial to the growth of its emerging economy. Banking is important in the role it plays in capital mobilization and granting of financial facilities that is crucial to business development and growth. As business always need to find ways of improving its products and service deliveries, it will be useful to understand how different factors affect the adoption of E-banking system and in which way the technological innovations can benefit the banking industries to provide service to customers. There fore, the purpose of this study is to identify various barriers of adopting E-banking in Ethiopia and identify the motive behind using of new technology in delivering service to customers in Ethiopian banking industries.

Specifically the study is intended to:

- Investigate the main barriers or challenges that inhibit banking industries to adopt technological innovations in the delivery of service to their customers.

- Identify the perceived benefits/drivers that can be obtained from the adoption of E-banking system in Ethiopia.
- Recommend appropriate actions to be taken to promote E-banking system in Ethiopia.

1.5. Methods adopted

In order to attain the objective of the study and answer the research questions; researcher adopts both quantitative and qualitative (Mixed) research approach. The rationale of using such a mixed approach is to gather data that could not be obtained by adopting a single method and for triangulation (Creswell 2003).The method of data collection techniques consists of Survey, interviews and document analysis. With regard to survey, questionnaire was distributed to the staff of the 4 purposely selected banks (one state owned bank and three private commercial banks) to identify their intension on the adoption of E-banking systems. The questionnaire was distributed to 160 employees, all staff of E-payment or IT department of each bank was participated in the study. Interviews were conducted with the managers of the purposely sampled banks found in Addis Ababa and with one person (banking supervision department manager) at National Bank of Ethiopia (NBE). Collecting of data by using questionnaire and interview were supported by different documents obtained from records and reports of the industry, from web site, books, articles and Journals.

Finally the data obtained from survey were analysed by using descriptive statistics, statistical package for social science (SPSS).

1.6. Scope and limitation of the study

Initially the study was confined itself to surveying, interviewing and documentary analysis of the purposely selected banks, four[2] commercial banks were purposely selected, one state owned bank & three private banks and it excluded other financial institutions to explore the intent of the study. Those banks were selected from the total population; based on their familiarity with technological innovations in Ethiopia. Any way the purposive sampling procedure decreases the generalizability of findings and this study might not be generalizable to all areas of financial institutions.

1.7. Significance of the study

The outcomes and results of this research will have potential value to financial institutions, particularly banks to understand the challenges and opportunities related with adoption of new technology and its advantages in providing service to their customers. In addition, this study expected to help other researchers who will be interested to conduct further study regarding the issue under investigated by providing use full information. Finally based on the factors found to be influencing bankers‟ decision on E-banking system, the study may provide recommendations for banks about changes needed to accelerate adoption of the system to deliver service to customers through technological innovation.

1.8. Structure of the paper

The 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, objectives of the study, research method adopted, scope & limitations of the study and significance of the research paper. Chapter two presents the literature review regarding the

[2] The four banks [i.e Commercial bank of Ethiopia (CBE), Dashen bank, Zemen and Wegagen bank] were selected based on the technological innovation they are using in the delivery of service to customers.

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 four basic headings: first, introduce research purpose; second the research approach used in the study, third, research strategy, and finally the research method adopted. The research results and discussion is presented in chapter four. The final part chapter five summarize the findings, concludes the paper, and forward some recommendations.

Chapter Two: Literature Review

The purpose of this chapter is to review the literature in the area of E-banking adoption and mainly focused on the barriers and drivers of adopting E-banking system. This review of literature establishes a framework, which can guide the study.

The review has eight sections. Section 2.1, presents the definition of E-banking followed by the evolution of E-banking system in section 2.2. A review of E-banking in Ethiopia were presented in section 2.3, The literature on factors influencing adoption of E-banking system and two basic frame works used to guide the study were presented in section 2.4, while the empirical studies related with E-banking system is presented in section 2.5. The literature related with barriers and benefits of E-banking were presented in section 2.6 & 2.7 respectively. Finally, Summary of the literature review was presented in section 2.8.

2.1. Definition of E-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 term of E-banking often refers to online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services (Furst & Nolle 2002, p.5). With the help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week.

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, p.2). 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, p.11). Different forms of E-banking system were discussed as follows.

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

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

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.

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

Banks offer Internet banking in two main ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional delivery channels. A second alternative is to establish virtual branchless or Internet-only, Bank almost without physical offices. Virtual banks may offer their customers the ability to make deposits and withdraw funds via ATMs or other remote delivery channels owned by other institutions (Furst & Nolle 2002, p.5). 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 (Modbirr system), point sale terminal and telephone banking.

2.2. The evolution of E- banking system

Electronic innovation in banking industry can be traced back to 1970, when the computerization of financial institutions gained momentum (Malak 2007**)**, However; a visible presence of this was evident to the customers since 1980, with the introduction of ATM. Innovative banking has grown since then, aided by technological developments in the telecommunications and information technology industry. The early decade of the 1990s witnessed the emergence of automated voice response (AVR) technology. By using the AVR Technology, banks could offer telephone banking facilities for financial services. With further advancements in technology, banks were able to offer services, through PC owned and operated by costumers at their convenience, through the use of intranet propriety software. The users of these services were, however, mainly corporate customers rather than retail ones (Sohail & shanmugham 2003). The security first network bank was the first

Internet banking in the world that was built in 1995 in USA. After that some famous banks introduced their internet banking one after another, such as Citibank and bank of America.

2.3. E-banking system in Ethiopian banking industry

The appearance of E-banking in Ethiopia goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. In addition to eight ATM Located in Addis Ababa, CBE has had Visa membership since November 14, 2005. But, due to lack of appropriate infrastructure it failed to reap the fruit of its membership. Despite being the pioneer in introducing ATM based payment system and acquired visa membership, CBE Lagged behind Dashen bank, which worked aggressively to maintain its lead in E-payment system. As CBE continues to move at a snail's pace in its turnkey solution for Card Based Payment system, Dashen Bank remains so far the sole player in the field of E-Banking since 2006. (Gardachew 2010)

Dashen bank, a forerunner in introducing E-banking in Ethiopia, has installed ATMs at convenient locations for its own cardholders. Dashen‟s ATM is available 24 hours a day, seven days a week and 365 days a year providing service to Debit Cardholders and International Visa Cardholders coming to the country. At the end of June 2009, Dashen bank has installed more than 40 ATMs in its area branches, university compounds, shopping malls, restaurants and hotels. In the year 2011 the payment card services have witnessed significant strides, Dashen‟s ATM service expanded to 70 and 704 POS terminals (Annual report of the bank 2011).

Available services on Dashen Bank ATMs are: Cash withdrawal, Balance Inquiry, Mini statement, Fund transfer between accounts attached to a single card and Personal Identification Number (PIN) change. Currently, the bank gives debit card service only for

Visa cards. Dashen bank clients can withdraw up to 5,000 birr in cash and can buy goods and services up to 8,000 to 13000 birr per day. Expanding its leadership, Dashen Bank has begun accepting MasterCard in addition to Visa cards. Dashen won the membership license from MasterCard in 2008.

Harnessing its leadership with advanced banking technology, Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce in April 21, 2009. According to the agreement, iVery Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank. Dashen‟s Modbirr users can transfer 500 birr to other Modbirr users in 24 hours a day. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions (Amanyehun 2011). Although Dashen‟s new technology is one step ahead in that it allows transfer of funds from one‟s account to others, the first ever E-banking gateway was signed between Ethiopian Commodity Exchange (ECX) and Dashen Bank and CBE. The E-banking system being developed with both banks is designed to give a secure electronic data sharing gateway between clients, banks and ECX, by facilitating a smooth transaction **(**Abiy 2008)

By the end of 2008 Wegagen Bank has signed an agreement with Technology Associates (TA), a Kenyan based information technology (IT) firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008,

Zemen Bank, the only Ethiopian bank anchored in the idea of single branch banking, by launching full-blown internet banking, a service which is new to Ethiopian banking industry in the year 2010. The bank tested the venture through its first phase of the online service, and now it is already started the full-fledged version, which enable customers to make online

money transfer freely. Previously, the online banking service, delivered by the bank, only gave access to bank statements and exchange rate information. The new and never-been-tried service proposed by the bank is to include free account money transfer, corporate payroll uploading system where employers could upload payroll to the system and make payments to individual worker‟s accounts online and online utility bill settlement system, when utility companies are ready(Asrat 2010).

The agreement signed by three private commercial banks to launch ATM and POS terminal network, in February 2009 is welcoming strategy to improve electronic card payment system in Ethiopia. Three private commercial banks - Awash International Bank S.C., Nib International Bank S.C. and United Bank S.C. have agreed in principle to establish an ATM network called Fettan ATM network. If everything goes as planned, Fettan ATM will install over 140 ATM machines and over 340 POSs across Ethiopia. There will be one ATM at every branch of the consortium banks, all domestic airports serviced by Commercial service, shopping complexes and merchants. The agreement is the first significant cooperation between competing banks in Ethiopia, which others should be encouraged to follow as there is no single bank in Ethiopia that can afford to provide Extensive geographical coverage and access (Binyam 2009).The following table 2.1 provides the E-banking services, which are available in the Ethiopia banking industries at present.

Table. 2.1. E-Banking services provided by four Ethiopian banks.

	Banks	Services
1	Commercial Bank of Ethiopia(CBE)	Automated teller machine,(ATM) and Telephone bill payments, point of sales terminal(POS)
2	Dashen bank	Automated teller machine (ATM), Mobile Banking (Modbirr), point of sale (POS) terminals, Telephone banking.
3	Wegagen Bank	Automated teller machine, (ATM), point of sale (POS) terminals and Telephone banking service.
4	Zemen Bank	Automated teller machine, (ATM), online banking. Point of sale (POS) terminals, internet banking, Mobile/phone banking

Source: The researcher, 2012

2.4. Factors influencing Banks to adopt E-banking system

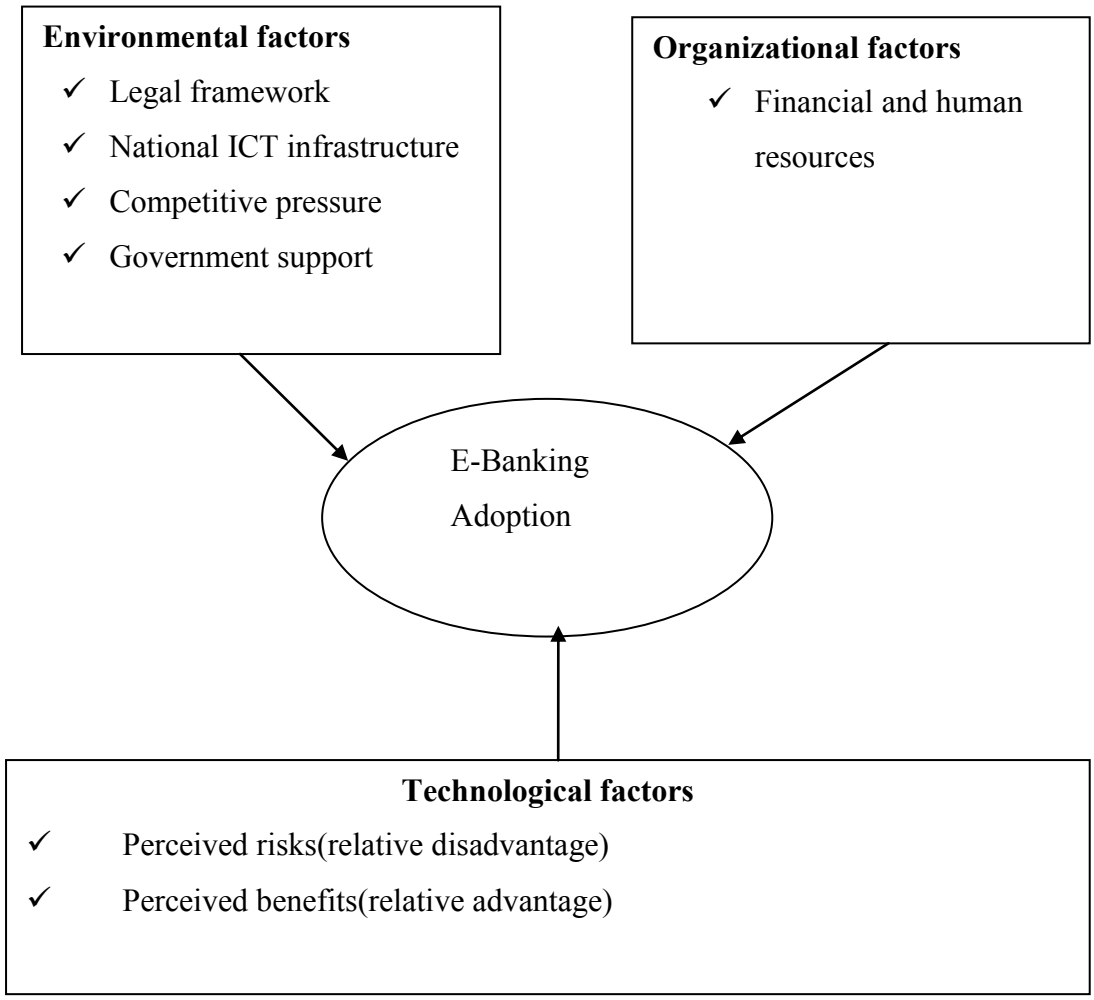
Many researchers have been used different frame works in the study of adopting new technological innovation. Among frameworks that have been developed based on the past studies includes, the Technology-organization-Environment framework (TOE) (Tornatzky & Fleischer 1990),which identifies three basic 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'

perception of the degree to which using a system will be beneficial (Alsabbagh & Molla 2004).

2.4.1. Technology- organization- Environment (TOE) 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 researcher 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 Roger‟s diffusion of innovation (Rogers 2003), Which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).While the *organizational factor* refers to the organization‟s characteristics that influence its ability to adopt and use of E-banking system. The *environmental factor* refers to the external environment in which an organization operates and its condition for supporting the development of E-banking services. For each context, various factors have been identified from the literature but only those that are considered relevant for E-banking adoption 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 organisational 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 organisational 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 fulfilment of their changing needs and lifestyle (Lu *et al*. 2005; Kuan &Chau 2001 & Iacovou 1995)

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

2.4.1.2. 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 services.

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:-

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

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

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

4. Government Support:-Government can either directly or indirectly affect the adoption of E-banking in terms of creating a favourable 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)

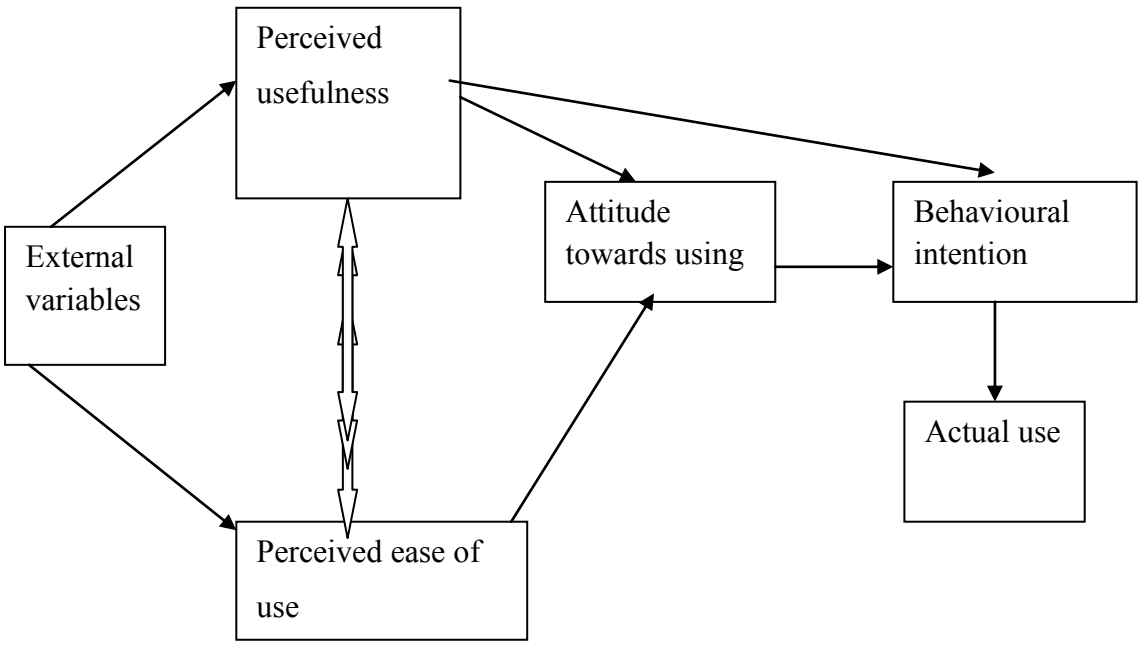
TAM was developed by Davis (1986) to explain the computer-usage behaviour. According to the model, in explaining the adoption of any information system, perceived ease of use (PEOU) and perceived usefulness (PU) are the two most important determinants.

1. Perceived ease of use: - refers to the degree to which a person that using a particular system would be free from effort (Davis 1986).

2. Perceived usefulness: - refers to the degree to which an organization that using a particular system would enhance or improve its job performance.

According to Masrom and Hussein (2008) the adoption of whether to use an information system for a particular individual is very much dependent on the perceived usefulness and perceived ease of use of the information system. Figure 2.2 shows the links between all the factors found in TAM.

Figure .2.2. Technology Acceptance Model (TAM)



Source: Davis (1986)

TAM was developed to explain and predict particular IT usages. However, this particular Model has been using by many researchers in studying adoption and diffusion of various IT technologies. For this study researcher uses two basic factors of TAM, i.e, perceived ease of use and Perceived usefulness to analyse the perception of users on the adoption of E-banking system in Ethiopia.

The frameworks discussed above have their own advantage and disadvantages based on the nature of the study. In this study, Technology-organization-environment framework and technology acceptance model were used to have a more precise forecast on the barriers and drivers of adopting E-banking system in Ethiopian banking industry.

2.5. Empirical studies related with E-banking adoption

Some related studies are conducted by different researchers in different parts of the world. However, there are limited numbers of studies conducted in Ethiopia on the adoption of technological innovation. Specifically, Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analysing the status of electronic banking in Ethiopia and investigates the main challenges and opportunities of implementing E-banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using E-banking system, such as, lack of suitable legal and regulatory frame works for E-commerce and E- payments, political instability in neighbouring countries, high rates of illiteracy and absence of financial networks that links different banks. According to Gardachew (2010), Opportunities offered by ICT through e-learning programs and Commitment of the governments on development of ICT infrastructures is considered as drivers of using E-commerce and E-payment systems.

Wondwossen and Tsegai (2005) also 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 employs interview and on site observation to investigate challenges to E-payment in Ethiopia and 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. According to Wondwossen and Tsegai (2005), an adequate legal structure and security framework could foster the use of E-payments, which is contradicting with the finding of the previous study.

On the other hand the study conducted by Daghfous and Toufaily (2007) on the success and critical factors in adoption of E-banking by Lebanese banks. The research was conducted on the factors that can lead to success the adoption of E-banking and the other factors that can constitute as barrier to it‟s adoption, it focus on the organizational, structural and strategic factors which can accelerate or, on the contrary, slow the adoption of this electronic mode of distribution and communication by the banks, through analyzing the case of the Lebanese market. In order to test the validity of the theoretical framework, structured survey was used, interview questionnaire that was given to E-banking managers or to information technology managers of all the banks on the official list of institutions operating on the Lebanese market, with a total of 57 banks, 31 of them operate internationally and 26 are strictly local were used to gather data. The results of their study shows that the organizational variables (bank size, functional divisions, technical staff, technical infrastructure, perceived risks, decision makers` international experience and mastery of innovation) are variables which exert significant impact on the adoption of E-banking, among the structural characteristics, the result revealed that internal technological environment of the bank is a very important factor

in determining the adoption of E-banking, also the result shows that banks which are developing in the international scale are more likely to adopt E-banking innovations. Finally the result of the study indicated that extent of penetration of E-banking in the growth phase of an emerging market has an important correlation with the improvement of commercial performance.

The other descriptive case study analysis conducted by Khalfan *et al* (2006) on „Factors influencing the adoption of internet banking in Oman, aimed to identify the main potential factors or impediments that are currently inhibiting the incorporation or adoption of E-commerce applications in the Omani Banking sector. Data, used in their study were collected using semi structured interviews and survey questionnaire as well as reviewing some bank documents. The results of their study provide a Pragmatic picture about the adoption of E-Commerce applications in the core financial sector domain of Oman. One of the main findings is that security and data confidentiality issues have been a major barrier. The banking sector was reluctant to use E-commerce applications as they felt that transactions conducted electronically were open to hackers and viruses, which are beyond their control. Lack of top management support is the other inhibiting factor in the adoption of electronic commerce applications as per their finding. Similarly the study of Ghazi and Khalid (2012), found that, the most important barriers for E-business growth are technological issues, such as, security risk, quality of internet and cost of implementation to be the most prominent.

The study of Shah *et al.* (2005) on critical success factors (CSF) in E-Banking conducted in United Kingdom, aims to determine the critical issues related to financial sector organizations when they establish businesses online. The survey method was used by researchers which target the financial sector in the UK. The study indicates that Understanding the CSFs in E-banking is important for senior management of banking related organizations, because it

would potentially help them improve their strategic planning process. The analysis of the study indicates two major types of statistical analyses were conducted, descriptive statistical analyses and factor analysis. In descriptive analyses, the factors (or variables) were ranked in order of their mean score, the highest score being the most important and so on. The top six factors in order of importance were: user-friendly website, systems security, support from top management, fast responsive customer service, promotion of electronic commerce within organization, and all time availability of services and rapid delivery of services.

Factor analysis, which was done to group together, related variables to uncover factors (in terms of factor analyses), found the following factors to be critical for the success in E-banking. Issues related to organizational flexibility and speed of services delivery were found to be at the top of the importance list. Issues related to organizational flexibility and speed of services delivery were found to be at the top of the importance list. Business processes and systems integration and enhanced customer services were next in the list of importance.

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. They say that security risk is known to be as one of the major barriers in online banking adoption. Zhao *et al*. (2010) in their study of" adoption of internet banking service in china" says trust in a bank is the fundamental because it deals with customers financial activities. Trust is not only important to reduce risk in Internet Banking in general but also it helps banks to build trust to be more competitive in the industry

Gerrard *et al.* (2006) in their study in Singapore identify risk to be an important factor for Internet Banking adoption. All respondents who did not use Internet Banking services had a negative perception of the security in Internet Banking. The respondents perceived that there were many security risks when using the internet. They felt the privacy was a concern, feeling all their financial information could be in jeopardy. Risk was one of the two most frequently mentioned factors in their study, "Concern about risk was mentioned by all respondents. 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" Sathye (1999). 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. Thus, pointing out that personal users have more security concerns than business users. Sathye (1999) further state that, a survey conducted by Thorton Consulting (1996) in USA concluded that 67 percent of banks in the USA felt that security is a key anxiety in Internet Banking adoption. Banks tend to promote their security features in their services using technical terminology. This makes it difficult for normal customers to comprehend and resulting to a squander in the whole promotion.

Similarly the study of Yang (1997) on the, security of electronic banking" aimed to identify the challenges that oppose electronic banking which are the concerns of security and privacy of information. The study suggests that solutions to the security issues require the use of software-based systems or hardware-based systems or a hybrid of the two. These software-

based solutions involve the use of encryption algorithms, private and public keys, and digital signatures to form software packets known as Secure Electronic Transaction used by MasterCard and Pretty Good Privacy. Hardware-based solutions such as the Smartcard and the Me Chip provide better protection for the confidentiality of personal information. Software-based solutions have the advantage over hardware-based solutions in that they are easy to distribute and are generally less expensive. In Laukkanen (2008) research, risk is considered as the most intense barrier and the greatest concern in the adoption of Internet Banking. However, in this study consumers feel human errors by themselves could cause a threat to their financial services. For example, losing their Personal identification number (PIN) codes and it may get it to the wrong hands and result in crime or theft. "A higher determinant of resistance appears to be the risk related to the individual‟s perceived ability to use the innovation successfully, i.e. self-efficacy" Laukkanen (2008). Sathye (1999) suggests that banks use positive publicity to its customers to help ease the response from customer on security. One of the major banks in Australia has taken responsibility in undertaking losses for any unauthorised use, with exception of certain circumstances. However, in an empirical investigation in Turkey by Polatoglu & Ekin (2001) states that Internet Banking services introduced by large, well-known and trusted banks, because customer perceived security risk in these banks is assumed to be decreasing significantly. On the other hand the risk factor is a barrier to corporate customers of banks as well. Balachandher *et al.* (2010) have completed a study on the barriers to internet usage on a corporate customer perspective and found that lack of trust on security issue is the main barrier. The study shows that corporate customers only use Internet Banking to a certain extent and feel banks should invest more on security infrastructure and banks should be willing to take full responsibility. These results are similar to the findings of different studies. For example in the study of Booz *et al*. (1997), security concern was the top ranked factor for users not adopting Internet Banking in Latin America.

Ram and Sheth (1989) argue that consumer resistance to the innovation is caused by functional barriers and psychological barriers. Functional barriers can be divided into three: the usage barrier, the value barrier and the risk barrier, where as psychological barriers can be divided into tradition barrier and image barrier. According to Ram and Sheth (1989) functional barriers arise when consumers perceive changes would take place when adopting innovation and the psychological barriers are caused by consumer‟s beliefs. On the other hand Khanfar *et al* (2006) conducted study on the customer satisfaction with internet banking web site in the Arab Bank. The study identified some factors which can determine customer‟s satisfaction in the use of internet banking service. Such as; customer supports, security, ease of use, digital products/services, transaction and payment, information content, and innovation. Researchers employ a survey questionnaire to gather data and their results showed that there is a narrow-based satisfaction with internet banking in all factors through a multi-regression; the researchers found out that all factors have an impact on the customer satisfaction, and they have found that the relation was positive.

A research conducted by D‟Souza (2002) on the comparative performance of public and private sector banks in the decade of the 1990s shows that though the turnover ratio rose in public sector banks (PSBs), the turnover per employee in private and foreign banks doubled relative to the ratio for PSBs. Also, this is not due to the presence of a large rural and semi-urban concentration of bank branches amongst PSBs but rather due to technological up gradation in the private and foreign banks. Private and foreign banks have changed the structure of their employment towards a higher skilled workforce by increasing the recruitment of officers and reducing clerical and subordinate staff. The combination of higher technology and higher skills have posted a higher turnover for these banks as they have been able to provide better customer support and have managed their assets well.

The study of Aghdassi *et al* (2007) on „Association between strategic values and E-banking adoption in Iranian banks" attempts to understand strategic value of E-banking for Iranian banks and examine the causal effect of perceiving E-banking as a value and its adoption. The researchers propose an E-banking adoption model that is identifying five factors that have been found to be influential in the perception of strategic value of IT: performance support, operational support, managerial productivity, and strategic decision aids. They also identified eight factors that influence electronic banking adoption: organizational readiness, Infrastructural readiness, external dependency, Intangible pressure, persuasive pressure, perceived ease of use, and perceived usefulness. Data are collected via a questionnaire-based survey from Decision maker unit of Iranian Banks. In order to test the model, a statistical analysis was conducted in two stages. The first step employed factor analysis to measure whether the number of factors and loadings of items involved in the two main constructs (perceived strategic value and adoption) conform to the proposed model, canonical analysis was utilized in the second step in order to explore how the perceptions of strategic value influence the decision to adopt E-commerce. The finding of their study indicated, that in a developing country like Iran and a big industry like banking, although the items of the adoption factors model are applied, the story is a bit different. In Iran the E-commerce adoption specifically E-banking adoption is in its beginning stages and still there are lots of gaps. These gaps could be technological, economical, socio-cultural, geopolitical and other gaps. Also the result of their study expressed, that bank managers' perception through E-commerce is very positive and effective in their adoption trend.

The other study reviewed was the study of Kassim (2005) focused on E-banking service quality: gaps in the Qatari banking industry investigates the discrepancy between customer's

expectation and perception towards the E-banking services in Qatar. A questionnaire was distributed to 100 retail-banking customers in Doha. Out of a total of 100 questionnaires, only 62 were useable. A cross-sectional survey design was adopted which questioned respondents on E-banking services. The findings of the study showed that there were some differences in magnitude of gap score among the five items of the E-banking services: Internet/Telephone/SMS, personnel assistance, instructions, ATM machines and functionality of the ATM machines. The result also showed that one item of E-banking services had positive gap score, that is, the quality of the Internet/Telephone/SMS banking services. All the other four items indicated that the quality of service fell short of the customer's expectation; customers were generally not satisfied with the service providers. Nevertheless, each item of quality of the E-banking services showed differences with respect to the size and gap score. On the other hand the study of Leelapongprasut *et al* (2005) on a Quality Study of Internet Banking in Thailand aimed to study a level of Internet Banking services quality in Thailand and compare the overall services quality of Internet Banking and factor of Internet Banking service between each bank and each dimension of quality by David A. Garvin. The research tools used in this study were questionnaires in the Web page form.

Questionnaires are adopted from the tools that are used to evaluate the service quality called „The dimension of quality by David A. Garvin" by evaluating the quality of eight dimensional services: Performance, Features, Reliability, Conformance, Durability, Aesthetics, Serviceability and Perceived quality. The result of the study reveals that, the quality level of internet banking service of commercial banks in Thailand in the perspective of performance was different in each bank and by weighting the importance of criteria used to evaluate the Internet Banking service quality in Thailand, the most important was the dimension of reliability, serviceability and durability. The less important was in dimension of perceived quality.

The study of Kerem (2003) on the adoption of electronic banking: underlying consumer behaviour and critical success factors conducted in Estonia, was intended to study the further understanding of, how consumers perceive electronic banking in the heyday of interactive channels in Estonia, as Estonia is internationally renowned for being a pioneer in the acceptance of new technologies. A series of an in depth interviews was conducted with leading industry experts in Estonia. The selection criterion for the respondent was mainly their involvement with the development of Internet banking systems from the early days of its emergence. The survey conducted for this research addressed six different issues influencing the adoption of Internet banking (Better prices, Recommendations, Better service, Marketing efforts, Better access and higher privacy). The most important factors in starting to use Internet banking are first and foremost better access to the services (convenience), better prices and higher privacy. Better service (i.e. preferring self service over office service) was also of above the average importance. Two factors that the respondents did not consider relevant to their adoption decision were banks' marketing activities and personal recommendations from friends and colleagues. Also the survey conducted six main obstacles (computers are difficult, no access to internet, internet banking is expensive, low security, have had no chance to try and I prefer personal contact) in adopting Internet banking (results of a preliminary study, 100 respondents), the most important factors discouraging the use of Internet banking are lack of Internet access and not having a chance to try out Internet banking in a safe environment. Finally the research indicates that banking activities alone may not be sufficient in achieving growth if general infrastructure, economic environment and government initiatives are not supportive. The research conducted on identifying the attitudinal, social and perceived behavioural control factors that might influence the adoption of Internet banking by Hoppe *et al.* (2001**)** were based on theory of planned behaviour (TPB) and the diffusion of innovations theory (DIT) developed by a previous research in

Singapore. The aim of the study was to collect South African data in order to test out the hypotheses regarding the factors, which affect adoption of Internet banking and compare these results with those collected in other countries. Online questionnaire was used to collect empirical data and the results of the study shows that intention to adopt Internet banking can be predicted by attitudinal factors, perceived behavioural control factors to a lesser degree, and not by subjective norms. All attitudinal factors except banking needs are found to be significant, with complexity and risk showing a negative relationship.

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 their strategic planning process. The main obstacles and barriers that oppose E-banking adoption are the concerns of security, privacy of information and technology investment cost. Also the literature review indicates that according to the customers there are different factors that influencing the adoption of E-banking such as, perceived advantages and other factors related to the services itself & how to be accepted and used by the customers, which differ from country to country, reflecting the economical and technological development in each country. In this study researcher has identified the main barriers and drivers of adopting E-banking in Ethiopian banking industries by using survey and interview conducted with managers of the selected banks. The following section, thus, reviews literature related with barriers and benefits/drivers of adopting E-banking system.

2.6. Barriers related to the adoption of E-banking

There are a lot of reasons which hinders the popularity of E-banking services in spite of the fact that bankers and customers can get benefit from online banking. The majority of private

banks are still lacking behind the online banking channel. According to Pikkarainen *et al*. (2004) the reasons behind banks are not using the online banking services are as follows:

1. The internet connection is very important prerequisite for customers to use online banking services.
2. Before using these online banking services the new users need to learn how to use these internet services.
3. Some non user‟s complaint that the face to face banking situation is quite different from doing banking online so there are no social dimensions while doing online banking (Mattila 2003).
4. The security issue hinders some customers to use the online banking services.

Mattila (2003) noted that perceived difficulty in using computers combined with the lack of personal service in electronic banking were the main barriers while Sathye (1999) identified the security concerns and lack of awareness about Internet Banking as the main obstacles to non adoption. He pointed that young, educated and wealthy groups of customers were the most relevant customer segments for the rapid development of Internet banking market.

2.6.1. Challenges of adopting E-banking in Ethiopia

According to Gardachew (2010) Ethiopian banking industry faces numerous challenges to adopt E-banking system and grab the opportunities presented by ICT applications in general. The 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 neighbouring 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 institutions 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.

2.7. Benefit of adopting E-banking system

It‟s 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 organization‟s 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.

2.7.1. 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 bank‟s 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 behaviour theory that switching costs are often very high in terms of time and efforts by consumers. Finally, the author emphasizes that the implementation of E-banking can bring about many competitive advantages for banks in today‟s highly competitive banking market.

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

2.7.2. 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 (Mols 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.

2.8. Summary

E-banking is a form of banking where funds are transferred through an exchange of Electronic signal between financial institutions or/and customers, rather than exchange of cash, checks, or other negotiable instruments and it is an online banking/Internet banking which is the use of the Internet as a remote delivery channel for banking services. E-banking innovation was traced back to 1970s when the computerization of financial institutions gained impetus. Innovative banking has grown since then, aided by technological developments in the telecommunications and information technology industry. The early decade of the 1990s witnessed the emergence of automated voice response technology. The

security first network bank was the first internet banking in the world that was built in 1995, in USA.

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. Following the introduction of ATM in commercial bank of Ethiopia, Dashen bank, the largest private bank in the country started to use ATM machine to deliver service to it‟s customers in 2006, and the bank adopts mobile banking (Modbirr) in the year 2009. Another two private banks, Zemen bank and Wegagen bank also use different technological innovation in their banking system.

In relation with the study of technology adoption different frame works were used by different researchers, in this study two basic frame works has been reviewed, which can guide the study, these are: Technology-organization-environment (TOE) framework and Technology acceptance model (TAM), Some of the challenges deals with adoption of E-banking are lack of personal service in E-banking, security concerns, Lack of enough IT infrastructures and lack of legal frame works. However, some of the barriers such as, lack of competition between local and foreign bank and lack of social awareness were not addressed. Despite the stated challenges E-banking has advantages for both banks and customers, by saving time and costs.

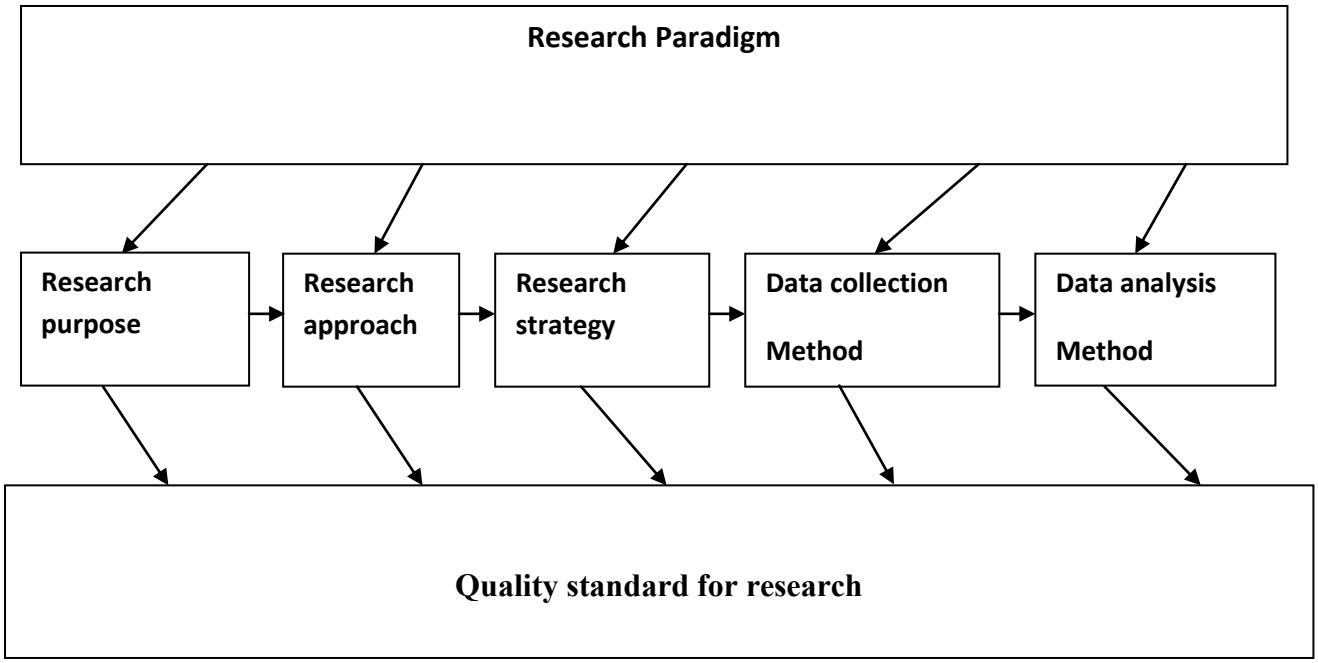
Chapter Three: Research methodology

In the previous chapter, the literature review, which shows the factors affecting adoption of E-banking system and review of issues related with barriers and benefits of E-banking, has been presented. This chapter presents the detail methodology, showing the logical frame work that discusses research purpose, research approaches, Research strategy, data collection and data analysis method (research method adopted). For the purpose of understanding all the content of this chapter, it is arranged as follows. Section 3.1 shows an overview of the research methodology, the research purpose is presented in section 3.2 and followed by research approach in section 3.3, the research strategy and specific research method adopted are shown in section 3.4 and section 3.5 respectively. Finally the last section, section 3.6 presents summary of the over all methodology.

3.1. Overview of the methodology

Many researchers have written extensively on research methodology. The underlying factor in most studies on research methodology is that the selection of methodology is based on the research problem and stated research questions. Methodologies cannot be true or false, only more or less useful (Silverman, 2001). Nachamias *et al.* (1996) for instance states that methodologies are considered to be systems of explicit rules and produced, upon which research is based, and against which claims for knowledge are evaluated. Conducting any type of research should be governed by a well-defined research methodology based on scientific principles. Eldabi (2002) suggested that a series of steps as a research paradigm to be followed in a methodology part of a research. Based on this suggestion researcher follows the basic framework of research paradigm developed by Foster.

Figure 3.1.Frame work for the research paradigm



Source: Foster (1998)

3.2. Research purpose

There are three types of academic researches depending on the problem area and the nature of the phenomenon that it studies. The purpose of the research can be Exploratory which deals with unknown problem, Descriptive in which there is an awareness of the problem and Explanatory, where the problem is clearly defined (Ahmed 2011).

The purpose of this thesis is to conduct an exploratory and descriptive research in order to gather as much information as possible concerning the adoption of E-banking as an option in a competitive business environment in Ethiopia. Specifically this will be in respect of the perspective of banking institution in Ethiopia. According to Yin (1994) exploratory research is designed to allow a researcher to just look around with respect to some phenomenon, with the aim to develop suggestive ideas. Exploratory research is often used when a problem is not well known, or the available knowledge is not absolute. The technique that is best suited for information gathering when performing an exploratory research is

interview (Yin, 1994). In this study researcher aimed to explore the main barriers and drivers of adopting E-banking in Ethiopia. To do that, an exploratory type of the study was selected. Because it gives valuable insight of the problem and result drawn from this study resolve firms grasp of essential characters. It has also been demonstrated that exploratory research provides suggestive ideas through reviewing information from problem area.

On the other hand this research were focused on describing the current situation of the problem and answer the research questions which are in the form of „what", and to highlight the most important factors that can negatively or positively affect the adoption of E-banking in Ethiopia. Moreover, this research aims to explain the phenomenon and assess the current situation of E-banking. Therefore, Descriptive research is being used in to fulfil this approach.

3.3. Research approach

Research approach is selected by researcher(s) based on the research purpose, the nature of the research, the problem area, and research questions (Alhamdani *et al.* 2006).The research approach in this study is chosen based on the purpose and the research questions set out to be addressed. According to Creswell (2003, p.13-15) There are three basic types of research approaches, quantitative, qualitative, and Mixed approach.

3.3.1. Quantitative research approach

Quantitative research approach is based on the philosophy of post positivism world view. It is also reductionist in that the intent is to reduce the ideas into a small, discrete set of ideas to test, such as the variables that constitute hypotheses and research questions. In addition, quantitative approach uses statistical methods in describing patterns of behaviour and

generalizing findings from samples to population of interest, and employs strategies of inquiry such as experiments and surveys (Creswell 2003).

3.3.2. Qualitative research approach

Under qualitative approach or social-constructivist world view, inquirers generate or inductively develop a theory or pattern of meaning rather than starting with a theory as in post positivism. Qualitative researchers tend to use open-ended questions so that participants can express their views and meanings are constructed by human beings as they engage with the world they are interpreting (Creswell 2003).

3.3.3. Mixed research approach

Mixed research approach or pragmatist world view is not committed to any one system of philosophy and reality. In this approach, inquirers draw liberally from both quantitative and qualitative assumptions.

In order to achieve the objective of this study and answer the research questions researcher adopts mixed research approach to examine the Barriers and drivers of adopting E-banking in Ethiopian banking industry to converge across qualitative and quantitative methods (triangulating data sources). Employing this approach is used to neutralize or cancel the biases of applying any of a single approach and a means to offset the weaknesses inherent in a single method with the strengths of the other method (Creswell 2003). Mixed research approach opens door to multiple methods of data collection and helps to generate the findings to a population and develop a detailed view of the meaning of a phenomenon or concept for individuals (Creswell, 2003; pp. 12-22). This research approach pose the researcher to the challenges that need for extensive data collection, the time-intensive nature of analyzing both

text and numeric data, and the requirement for the researcher to be familiar with both quantitative and qualitative forms of research (Creswell, 2003; pp. 210).

Mixed methods approach can be implemented in different ways. The literature identifies three strategies in integrating the two approaches, i.e quantitative and qualitative methods (Wollela 2009, P.92). First concurrent, in which the quantitative and qualitative phases occur simultaneously; second, sequential, in which the researcher starts with gathering qualitative data and then gathers quantitative data or vice versa in two different phases; and third, transformative where the researcher (either concurrently or sequentially) may be able to give voice to diverse perspectives, to better advocate for participants or to better understand a phenomenon or process that is changing as a result of being studied.

In this study, Concurrent procedure is employed to triangulate quantitative and qualitative data to provide a comprehensive analysis of the research problem. Moreover, researcher was collected both forms of data at the same time during the study and integrates the information in the interpretation of the overall results (Creswell, 2003).

3.4. **Research strategy**

The most important condition for differentiating among the various research strategies is to identify the type of research question being asked (Creswell, 2003; Hair *et al.* 2006; Leedy, 1989; McNabb, 2004; and Yin, 1989). It is possible to identify some situations in which all research strategies might be relevant and other situations in which two strategies might be considered equally attractive. We can also use more than one strategy in any given study. To this extent, the various strategies are not mutually exclusive. But we can also identify some situations in which a specific strategy has a distinct advantage (Yin, 1989; p. 20).

According to Yin (1994), there are five strategies to collect data and get results: experiment, survey, archival analysis, history and case study. In addition, there are three criteria to determine the research strategy: types of research questions, control over behavioural events, and focus on present events. But it is important to notice that boundaries among the above methods are not completely clear, they may overlap each other. The relevant situation for different research strategy were summarised in table 3.1 as follows.

Table 3.1.Research strategy

Strategy	Nature of questions	Requires control over behavioural events	Focus on contemporary event
Experiment	How, Why	Yes	Yes
Survey	Who, what ,where, How, many, How	No	Yes
Archival Analysis	Who, What, Where ,How many, How much	No	Yes/No
History	How, Why	No	No
Case Study	How, Why	No	Yes

Source: Ahmed, 2011

In this study, Survey approach has been chosen, because the research questions are focused on: What are the barriers to E-banking adoption in Ethiopia? What are the Drivers for E-banking adoption in Ethiopian banking industry? And what are the benefits of E-banking? So the types of questions are in the form of „what". This research does not require control over behavioural events but it focuses on current issues.

3.4.1 Study Area

This section describes the banking environment in Ethiopia with respect to the policy and legal framework under which the banking industry operates. The banking industry in Ethiopia is controlled by the National bank of Ethiopia (NBE) acting as the central bank of the country. There are 15 commercial banks registered under the NBE up to 2010(Access Capital 2010), these comprises 3 state owned banks and 12 other private commercial banks. Four banks were selected for this study and they were found in the capital city of the country, Addis Ababa.

3.4.2. Type of Data

Primary data was used in this study. The data was collected through, interviews, and questionnaires. This gives specific responses to the research questions. Primary data is recognized as data is gathered for a specific research in response to a particular problem through interviews and questionnaires. Additional data were obtained by examining various documents, including, banks annual reports, local and international news paper related with issues of E-banking system, Research reports, books and journal articles.

3.5. Research Method

This research paper intended to examine the main barriers and drivers of adopting E-banking in four (4) purposely sampled banks of both state owned and private commercial banks. To undertake this research, the specific methods of data collection used were survey, semi-structured interview and document sources. Survey for the quantitative strategy was used through distributing self-administered questionnaires. Questionnaires were distributed to all E-payment department professional staff of the selected banks. Those respondents were selected because, they are deemed to be knowledgeable about E-banking system and could provide important perspectives on its adoption.

3.5.1 Survey design

Since the research questions mainly focus on "what" questions; it is justifiable rationale for conducting an exploratory study and more likely to favour survey than others (Yin, 1989; pp. 17-18). Survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. Its purpose is to generalize from a sample to a population so that inferences can be made and it is also economical and rapid turnaround in data collection (Creswell, 2003; pp.153-154); and this method is important for collecting large amounts of raw data using question and answer formats (Hair *et al.* 2006). Survey had conducted via self-administered questionnaire from the purposely sampled bank staff; because questionnaire is a common place instrument for observing data beyond the physical reach of the observer (Leedy, 1989; pp. 142). The main advantage of survey is its ability to accommodate large sample sizes at relatively low costs, ease of administration and ability to tap in to factors that are not directly observable (Hair *et al.*, 2006).

As briefly discussed in the above, questionnaire was distributed to the purposely sampled commercial bank staffs, and semi-structured interview was conducted with the management (E-payment/IT managers) of the sampled commercial banks and with the bank supervision manager at NBE to get more evidence regarding the theme.

The questionnaire was divided into two sections. Section I captured basic demographic information of the respondents such as age and educational back ground, Section II captured information about the nature of the barriers faced in the adoption and usage of E-banking services and sought to determine the perceived benefits of using E-banking system.

3.5.2. Sample Design

Sampling is the process of choosing, from a much large population, a group about which wish to make generalized statements so that the selected part represent the total group (Leedy, 1989; pp. 158). Commercial banks have been operated and the additional banks which make an initial public offering to begin their operation were taken as population, and purposely draw a sample from the total to got rich evidence. According to Access Capital (2010), the total number of Commercial Banks which had been operated in the year 2010 is 12 private banks and 3 state-owned banks. Moreover, looking ahead Ethiopian banking industry enjoying high growth, high profits, and high dividends, there are 6 new entry banks and the total number of commercial banks is 21. However, to undertake this research paper, the researcher purposely sampled four banks, which are currently, adopted some technological innovation. Those banks are Commercial bank of Ethiopia, Dashen bank, Zemen bank and Wegagen bank.

The procedure used for drawing the sample from the available lists was based on the banks currently use different technological instruments to deliver service to customers (or based on

their familiarity with technology). Thus, this research paper used purposive sampling method to draw the sample from the population.

The banking industry in Ethiopia were categorized in to two main blocks i) Three State owned banks, and ii) Twelve Private-owned commercial banks, From each category four banks was used as a sample units that can be based on the managers responsible for E-banking and the total of 160 bank staff, were sampled to see their intention on the challenges and benefits of adopting E-banking system in Ethiopia. The researcher chooses to take 4 banks; one state owned bank and three private banks as a sample, because it is often impossible or too much expensive to collect data from all the potential units. Hence samples are chosen to represent the relevant attributes of the whole population. In this respect I note the caution by Graziano and Raulin (1997) because the samples are not perfectly representative of the population from which they are drawn, there fore the researcher unlikely to be able to generalize the conclusions to the entire population.

3.5.3. Method of data collection

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

3.5.3.1. Questionnaires

As indicated in the above, the staffs of the purposely sampled four commercial banks were included in the survey. A questionnaire was distributed to all 160 professional staffs of four purposely sampled commercial banks. Questions present in the form of affirmative

statements, relating to the concepts on E-banking and to identify their intention on the challenge and opportunities of using electronic banking system, in such a way to enable measurement of the respondent‟s opinions.

The questionnaires were structured in close-ended type and responses to the questions were measured on a five Likert rating scale where: Strongly Agree (SA) = 1; Agree (A) = 2; Neutral (N)=3, Disagree (D) = 1; and Strongly Disagree (SD) = 5; The use of Likert scale is to make it easier for respondents to answer question in a simple way. In addition, this research instrument will permit an efficient use of statistics for the interpretation of data. Moreover, the central issue to argue that likert scales is that it produce ordinal data. Johns (2010) noted that in statistical terms the level of measurement of the likert response scale is ordinal rather than interval: that is, we can make assumptions about the order but not the spacing of the response options. Thus, the permissible descriptive statistics that can perform on ordinal data is median (or average response) and mode (or more frequent responses) (Hole 2011).

3.5.3.2. Interviews

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

3.5.3.3. Other information's

The most important use of this information is to corroborate and augment evidence from other sources (Yin, 1989; pp. 86). Thus, the document examination helps to corroborate the patterns that evolved from the data collected via questionnaires and interview, so that the validity of the findings could be enhanced. The data was obtained mainly from records and reports of the industry, from the website, magazine, books, articles and journals.

3.5.4. Method of data Analysis.

Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study (Yin, 1989; pp. 105). The researcher analyzed the data collected through survey to statistical population concerning the adoption of E-banking system. The data collected via questionnaires was analyzed with descriptive statistics using statistical package for social scientists (SPSS). Furthermore, Wolcott (1994) cited in Creswell (2003; pp. 184), suggested that qualitative research is fundamentally interpretative i.e. the researcher makes an interpretation of the data. Thus, the data that was collected from the interview and reviews of documents were interpreted qualitatively. To sum, the analysis of quantitative data and interpretation of qualitative data combines to seek convergence among the results (Creswell, 2003).

3.6. Summary of the methodology

The methodology part of this study was based on the research paradigm developed by Foster (1998) as: Research purpose, research approach, Research strategy and specific research methods employed. The purpose of the study was to explore the main barriers and drivers of adopting E-banking system and describe the current situation in the adoption of the system in Ethiopian banking industry. The research approach employed in this study was both quantitative as well as qualitative (mixed) approach. The research strategy used in the study was survey study. In the case of research method used in this study, data was collected by using questionnaire and interview. Finally data collected from various sources were analysed by using statistical package for social scientists (SPSS).

Chapter Four: Results and discussion

In the previous chapter, the over all methodology, which was focused on research purpose, research approach, research strategy and the specific method of data collection and data analysis used in the study, has been presented. On the other hand this chapter presents the results and analysis of data collected via questionnaire, interviews and document analysis. The remaining part of this chapter is organised as follows. Section.4.1 presents the overview of the chapter and followed by demographic information of the respondents in section 4.2, Section 4.3 presents the result and discussion regarding the barriers of adopting E-banking in Ethiopia. Information regarding the perceived benefits/Drivers of adopting E-banking are presented in section 4.4. The last section summarizes the chapter.

4.1. Introduction

As it is discussed in the methodology part of this study, data collected by using different techniques were analysed in this chapter by using triangulation approach. A total of 160 questionnaires were distributed to four purposely sampled commercial bank staffs, one state owned bank (commercial bank of Ethiopia) and three private banks (Dashen bank, Zemen bank and Wegagen bank).Out of the total 160 questionnaires, 126 Useable questionnaires were obtained (79% response rate). In addition to questionnaire, the researcher conducted an interview with only E-payment/IT managers for the reason that it was not well-situated to interview all bank managers; and reviews some bank documents regarding E-banking system. In order to analyse the research results, Statistical Package for the Social Sciences (SPSS) software is used. SPSS is a computer program used for statistical analysis. SPSS fit with quantitative approach and survey strategy which were adopted in this research; SPSS has many features and properties which can provide appropriate results, these results lead to achieve research purposes. SPSS can provide several statistics for each element in the research questionnaire (DeCoster 2004). Descriptive measures of each questions response

and an interview conducted with E-payment managers of selected banks results are presented in the following sections.

4.2. Demographic information of the respondents

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

Table 4.1, Respondents' Demographic profile

Variable	Classification of variables	Frequency	Percentage
Gender	Male	99	79%
	Female	23	18%
	Missing	4	3%
Age	20-30	76	60%
	31-40	35	28%
	41-50	6	5%
	51-60	0	0%
	Missing	9	7%
Educational level	Diploma	4	3%
	Bachelor degree	113	90%
	Masters degree	0	0%
	Missing	9	7%
Employer	State owned bank	40	32%
	Private bank	86	68%
	Missing	0	0%
Monthly income(in Eth.Birr)	800-1400	0	0%
	1401-2000	7	5%
	2001- 3000	25	20%
	3001-4000	49	39%
	Above 4000	30	24%
	Missing	15	12%

Source: Survey result, 2012

As it is shown on the above table, the highest percentage of participants in this study was males who form 79% of respondents. In the case of classification of respondents by age the highest percentage of participants are young (20-30 years old) who form 60% of total respondents. Regarding the educational level of the study participants, the highest percentage of them has bachelor degree that form 90% of total participants. The largest percentage of participants was selected from the private banks that form 68% of total respondents. On the other hand, the highest percentage of participants has monthly income ranges between 3001 to 4000 Eth birr; their percentage in participation is 39%.

The following section discusses the barriers and drivers to the adoption of E-banking system in Ethiopia. These barriers and drivers are identified based on two basic frameworks, technology- organization- environment (TOE) frame work and technology acceptance model (TAM).

4.3. Barriers of adopting E-banking system in Ethiopia

Although there are many associated benefits with the adoption of E-banking, there are many reasons which obstruct implementation of the system. In case of Ethiopian banking industries, many private banks still using old banking system and don‟t have access to take advantage from electronic banking facilities. Wondwossen & Tsegai (2005) observed the following reasons which may be considered as hindrance factors for the use of electronic payment system in Ethiopia. These hindrance factors include, lack of appropriate infrastructure for E-payment, lack of internet facilities with customer and learning how to interact with bank website. Moreover, factors that can affect adoption of E-banking in the country regarding the technological factor, organizational factor and Environmental factor were analyzed in the following sections.

4.3.1. Technological factor

The issues raised in this study in relation with technological factor are the relative advantages (perceived benefit) the firm gained from adoption of E-banking system and the relative disadvantages (perceived risk) which hinder banking industries from the adoption of new technological innovations.

4.3.1.1. Perceived Risk

One of the basic barrier a firm faces, while adopting technological innovation is the perceived risks. For example the study of Sohail and Shanmugham (2003) suggests that one of the barriers in the adoption of electronic banking is fear of security risks. More over, all of the bank manager"s participated in this study were asked whether security issue is raised with the use of technological facility in the banking industries, and all of them stated that security is the main concern that hinders our bank to use technological facilities. These were also supported by the survey result shown on table 4.2, as follows.

Table 4.2, Technological factor

		Customers fear risk to use ATM	Lack of confidence with the security	In the case of using mobile banking, ATM and others, security risk affect users decision to use the system	Customers do not trust the technology provided by banks	Lack of trust is considered as barriers for the adoption of E-banking system.
N	Valid	126	126	126	126	126
	Missing	0	0	0	0	0
Median		2.0000	2.0000	2.0000	3.0000	2.0000
Mode		2.00	2.00	2.00	2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Disagree and 5-Strongly disagree.

Source: survey result, 2012

The result presented in the above table shows that, the respondents asked whether customers of banks fear risk to use ATM, and the descriptive statistics result gives median and mode of 2.00, that means the largest number of respondent were agreed on the issue, therefore fear of risk is one of the factor that hinder adoption of E-banking system in the country. Similarly the result shown on the above table revealed that lack of confidence with the security issue is considered as barrier for the adoption E-banking system, were median and mode value for the second question is 2.00. This result were consistent with the findings of Ghazi and Khalid (2012, p.9); Khalfan *et al* (2006) in which all indicted that, technological barriers, such as security risk as hindrance factor for the adoption of E-banking.

Also the result shown on the above table indicated that lack of trust on the use of technological facility provided by bank is another factor that can hinder adoption of technological innovation by Ethiopian banking industries. Large number of respondents 36 out of the total 126 or about 29%, median of 3.00 and mode of 2.00(Appendix B,2) agreed with the idea that trust is one basic factor in the adoption of E-banking system. This result confirms the finding of Sathye (1999) which suggests; the greatest challenge among the electronic banking sector is winning the trust of customers in the issue of security or perceived security risk as a key inhibitor in the adoption of online banking.

4.3.2. Organizational factor

One of the basic issue related with organizational factor is, the availability of financial as well skilled human resource to implement the system. In this study costs related with the use of E-banking instrument and technical or managerial skills required to implement E-banking system were considered as organizational factors.

As it is shown in the following table 4.3, regarding the cost incurred on the use of different E-banking system like internet/online banking and mobile banking the largest number of

respondents 51 out of the total or 40%(Appendix B,6) did not agreed with the idea. Similarly the descriptive statistics result shows that, median and mode value for the first two questions in the table is 4.00. On the other hand the result presented on table 4.3. Blow revealed that unfamiliarity with the service provided though ATM, Internet banking, telephone and mobile phone by customers**,** Lack of technical and managerial skills on the use of technological innovation and Lack of skills to implement E-banking system are considered as barriers for the adoption of E-banking system.

Table 4.3. Organizational Factor.

		Using internet banking increases cost to do banking task	Relatively using of Mobile to get banking service is expensive for customers	Customers of our bank were not familiar with service provided though ATM, Internet banking, telephone and mobile phone	Lack of technical and managerial skills on the use of technological innovation.	Lack of skills to implement E-banking system
N	Valid	126	126	126	126	126
	Missing	0	0	0	0	0
Median		4.0000	4.0000	3.0000	2.0000	3.0000
Mode		4.00	4.00	2.00	2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree

Source: survey result, 2012

The above results were also supported by an interview script received from all respondents, which indicated that, „compared with traditional banking system, using different technological innovation in banking industry is used to perform banking activities at lower costs. This finding is consistent with the finding of Rasoulina & Javaheri(2006) which suggests, cost, infrastructure, Socio-cultural, time, information, legislation and regulation and economic as the most effective issues affecting the electronic activities. These issues can be either drivers or barriers. For instance, if a country has managed to achieve a cost reduction greater than the investment made in adoption of new technology, then the cost factor can be considered as a driver rather than as barrier.

In general, using of E-banking service such as internet banking, mobile banking and others is not expensive when compared with traditional banking system. On the other hand lack of social awareness/lack of familiarity with different technology and lack of sufficient skills to use and implement E-banking system were considered as barriers to adopt E-banking system in Ethiopia.

4.3.3. Environmental factor

Another factor which can affect the adoption of technological innovation in banking industry is an external environment: in this study four basic environmental factors are considered, these are legal frame works, national ICT infrastructure, competitive pressure and government support. The result obtained from survey, interview and literature regarding those four issues were presented in the following sections.

4.3.3.1 Lack of legal and regulatory framework

Electronic payments are not currently covered in Ethiopian legal system. Lack of such legal framework may thus hinder the introduction of cost effective modern electronic payment instrument such as ATMs, credit and debit cards, mobile/telephone/internet

banking. Other policy initiative which is currently under consideration is the development of securities market, particularly, that of long term debt instruments (Getahun 2008). Similarly the study of Gardachew (2010) revealed that lack of legal frame work is one of the challenges for E-banking system in Ethiopia. In contrary the study of Wondwossen and Tsegai (2005) revealed that an adequate legal structure and security framework could encourage the use of E-payments in Ethiopia. However, the result of survey presented in table 4.4 about legal frame work on implementation of E-banking system revealed that lack of legal frame works and cross country legal and regulatory difference is considered as barriers faced by banking industries for the adoption of E-banking system in Ethiopia.

Table 4.4.Environmental factor(Lack of legal and regulatory frame work)

		Lack of legal frame works that enforce banking industries to adopt technological innovation	Cross-country legal and regulatory differences will have impact on the adoption of new technological innovation in the banking sector like, ATM, internet banking, mobile banking and Point of sale terminals (POS).
N	Valid	126	126
	Missing	0	0
Median		2.0000	2.0000
Mode		2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Disagree and 5-strongly disagree

Source: Survey result, 2012

Results reported on table 4.4, shows that the median and mode value for the first questions were 2.00, that means, the largest number of respondents 42 or 33% out of the total respondents(Appendix B, 14) were agreed that there is no legal frame works in Ethiopia. Likewise, the median and mode value for the second question in the above table were 2.00, largest number of respondents 67 or 53% (Appendix B, 15) were agreed that the differences on banking regulation in different country will have impact on the adoption of new technological innovation. Similarly, An interview conducted with one of the bank supervision manager at national bank of Ethiopia (NBE) also prove that, Ethiopia does not have special rule on the use of E-banking system or it is not yet included in the banking regulation. Since there is no legal frame works on the adoption of technological innovation at central bank, Ethiopian banking industry can not be enforced to implement E-banking system. So lack of legal frame work for the implementation of E-banking system is one basic barrier for Ethiopian banking industry. The finding of this study were also consistent with the study of Tan and Ouyang (2002), they found that lack of legislation is an initial barrier that influence E-banking adoption in china.

4.3.3.2. Lack of adequate ICT infrastructure

Despite the recent improvements made by Ethiopian government on the national infrastructure, the overall ICT infrastructure in Ethiopia remains inadequate. Card-based payment systems in Ethiopia have been growing fast in recent years. Four commercial banks in the country (including the state owned Commercial Bank of Ethiopia), Dashen bank, Zemen bank and Wegagen bank have introduced wider use of debit or ATM cards. Commercial banks in Ethiopia also cited plans to use new technologies for remittance transfers, including mobile-phone transfers and remittance-linked financial products such as prepaid cards. However, significant

challenges to these plans include, lack of adequate financial and telecommunications infrastructure for the new technologies (Alemayehu & Jacqueline 2011). Similarly the study of Wondwossen and Tsegai (2005) stated that lack of sufficient telecommunication infrastructure is one of the basic challenges in the development of E-payment in Ethiopia. More over the questionnaire result in this study presents four questions to examine the perception of bank staff on the issue.

Table 4.5.Environmental factor(Lack of adequate ICT infrastructure)

		Using internet banking is difficult due to low internet access in Ethiopia	Internet connection was not good enough to perform online transactions in Ethiopia	Lack of available ICT infrastructure	Mobile banking services may not perform well because of network problems
N	Valid	126	126	126	126
	Missing	0	0	0	0
Median		2.0000	2.0000	2.0000	2.0000
Mode		2.00	2.00	2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree

Source: Survey result, 2012

The above table 4.5 shows that ICT infrastructure in Ethiopia for internet access is not sufficient to use online banking service, were the median and mode value for the first question is 2.00. Similarly the median and mode value of the rest three questions is 2.00, which indicated that lack of available ICT infrastructure in the country inhibits

to use E-banking system. Similarly, an interview script received from the CBE E-payment manager indicates that „the poor quality of telecommunication network service is a major obstacle for all banks in Ethiopia to effectively deliver some services such as internet banking, mobile banking and others.

Inevitable

Moreover, the IT manager of Zemen bank, indicated that: Our bank were aggressively doing on the provision of high quality service to customers by employing different technological innovation, for example the bank purchase CORE banking system soft ware, which offers service to customers more than the sophisticated ATM machine. It would enable banks to provide Internet banking to deliver product/service to customers. It helps customers to view their balances, transfer funds, and pay bills online. Banks could also offer mobile banking services through which customers can check their balance and transfer funds by short message service (SMS), as well as phone banking to check balances and make account inquires by phone. However, some experts in the banking industry speculate that underdeveloped telecommunications infrastructure may hinder the visibility and practicality of the CORE banking system.

Therefore, one of the major obstacle factor identified in this study is lack of ICT infrastructure, to use E-banking service, such as internet banking, mobile banking, ATM and others.

4.3.3.3. Lack of competition

As it is stated in different E-banking literature, competitive pressure is considered as driver for the adoption of E-banking in developed country. For example, the study of Laforet & Lu (2005) and Salwani (2009) suggests that, the foreign funded banks are more competitive in securing corporate clients over the Chinese banks because they

are perceived to offer better services and more stringent security measures given their longer experience in E-banking development. However, lack of competition in Ethiopia among local and foreign bank hinders Ethiopian banking industries to adopt E-banking system. Respondents were asked whether lack of competition among local and foreign banks influence adoption of E-banking and the result obtained from survey is shown on the following table.

Table 4.6.Environmental factor(Lack of competition)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	20	15.9	15.9	15.9
	Agree	59	46.8	46.8	62.7
	Neutral	13	10.3	10.3	73.0
	Disagree	29	23.0	23.0	96.0
	Strongly disagree	5	4.0	4.0	100.0
	Total	126	100.0	100.0	

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree.

Source: Survey result, 2012

The above table 4.6 shows that the largest number of respondents 59 or 46.8%, were agreed with the idea that lack of competition between Ethiopian banking sector and foreign bank is considered as barrier for the adoption of E-banking system. Similarly, an interview result revealed that, Ethiopian government did not allow

foreign banks to operate in the country, these is due to protecting of local banks from the well developed foreign bank competition. Therefore, Ethiopian banking industry did not consider about competition with foreign banks and such policies could discourage banking sector of the country from the adoption of E-banking system.

4.3.3.4 Government support

In addition to the competitive pressure, the study of Chong and Pervan‟s (2007) survey of Australian SME suggest that, government initiatives are the most significant factor determining the extent and deployment of E-business adoption. Similarly the study of Sherah *et al* (2009) noted that government support is the major driver for the adoption of E-banking in china. The questionnaire result about government support was shown on table 4.6 as follows.

Table 4.7, Environmental factor(Government support)

		Lack of sufficient government support will affect customers willingness to use technological innovation	Customers may not willing to accept E-banking service
N	Valid	126	126
	Missing	0	0
Median		3.0000	4.0000
Mode		4.00	4.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree

Source: survey result, 2012

As it is depicted on the above table, respondents were asked whether, lack of government support is an inhabiting factor for the adoption of E-banking in Ethiopia and the median and mode value gives 3.00 and 4.00 respectively. by looking the mode value of 4.00, the largest number of respondents 32 or 25.2%(Appendix B, 17) out of the total did not agreed with the idea that lack of government support affect adoption of E-banking system in Ethiopia. For the second question the median and mode value is 4.00, it implies that unwillingness of customers to accept E-banking system is not considered as barrier for the adoption of technological innovation.

On the other hand an interview conducted with IT managers /E-payment managers confirms that, Ethiopian government were doing on improvement of national infrastructure, it will encourage our bank to adopt different technological innovation.

4.4. Perceived benefits/Drivers of adopting E- banking system in Ethiopian Banking industry

An advantage that is expected to be gained from the adoption of E-banking covers both direct and indirect benefits for the banking industries. Direct benefits include savings on operational cost, improved organisational functionality, productivity gain, improved efficiency, saving of time and increased profitability. Indirect benefits include the opportunity or intangible benefits such as improved customer‟s satisfaction through improved services, improved banking experience and fulfilment of their changing needs and lifestyle (Lu 2005; Kuan 2001 & Iacouou 1995).

Perceived benefit of adopting E-banking system considered in this study were classified based on technology acceptance model (TAM), as perceived ease of use (PEU) and perceived usefulness (PU). PU was classified in terms of time and cost saving. Also other benefits beyond cost and time saving were analysed at the end.

In order to access online banking services, it is important that bank should have ICT infrastructure and internet facility available to facilitate their customers with all kinds of online banking services. Pikkarainen et al. (2004) argued that bank must have an official website which facilitates customers to perform all kinds of online transaction so that, It saves customer cost and time as adopting E-banking system. Customer can make transactions from their home. Polatoglu *et al*. (2001) suggests many benefits associated with online banking. Customer can pay their bills, can pay their loans, credit and debit card facilities. In other words it provides freedom from location, saves time and cost.

4.4.1. Perceived ease of use

One of the basic benefits related with the use of E-banking system is the perceived ease of use. Giglio (2002) suggests that adopting online banking services reduce the workload over the banking staff and it"s easy to have more satisfied customers. On the other hand Robinson (2000) indicated that online banking provides convenience not only to bank and also to customers. The data obtained from the survey in this study also confirms the finding of Giglio (2002) and Robinson (2000) and the result were shown in table 4.8 as follows.

Table 4.8, Perceived Ease of use

		E- banking makes it easier for me to do banking	In the case of mobile banking, our customers can simply use banking service by using	From the bank perspective it is easy to use mobile banking to accomplish	Using E-payment system (like debit card,	Our bank provide guidelines on the use of electronic	The management of the bank provides training	E-banking system helps to perform banking task in a simple way
N	Valid	126	126	126	126	126	126	126
	Missing	0	0	0	0	0	0	0
Median		2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000
Mode		2.00	2.00	2.00	1.00	2.00	2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree

Source: Survey result,2012

Regarding ease of use as a benefit of adopting E-banking system, respondents were asked whether they `strongly agreed, Agreed, Neutral, and Disagreed or strongly disagreed‟ based on seven questions shown in the above table 4.8. The result for all statements of the field indicated that, Median and Mode value is 2.00, which means that respondents of the sampled agreed with the idea that perceived ease of use in terms of, simplifying banking activity, is a good factor for the ability to adopt E-banking system. More over an interview result were also support the result of questionnaire that it indicated, it is an option less to implement E-banking to simplify the banking activity and improve customer satisfaction.

This study were consistent with the finding of Khalid *et al* (2006) which shows that there is a clear agreement about the importance of making the E-banking service because of it is easy to deliver service to customers, also the finding of this study is in line with the result found by Hoppe *et al.* (2001) which suggest that the more complex a new technology is perceived to be, the less likely it will be adopted and the more ease of use the more likely to be adopted.

4.4.2. Perceived usefulness

Perceived Usefulness is a good factor to measure the success of E-banking adoption. Hoppe *et al.* (2001) indicated that perceived relative advantage has a positive influence on the adoption of Internet Banking and it is compatible with their values to be adopted by users.

4.4.2.1. Time saving

According to an interview result, one of the basic benefits considered in the adoption of E-banking system, is that it saves time to accomplish banking activities both for banks as well to customers. Using the system to get banking service is fast and

available 24 hours a day and 7 days a week. This were in line with the study of Karjaluoto *et al.* (2002), which identifies time saving as a major benefit of adopting online banking system.

Regarding time saving as driver for the adoption of E-banking system, respondents were asked whether they are strongly agreed, Agreed, Neutral, disagreed or strongly disagreed and the result of survey were shown on the following table.

Table 4.9.Percieved Usefulness(Time saving)

		Using E-banking such as, Internet banking ,Mobile banking, ATM and other services enables users to complete banking activities more quickly and easily	E-banking such as, Internet banking ,Mobile banking, ATM and POS services are convenient, in terms of time saving	E-banking such as, Internet banking ,Mobile banking, ATM and POS services are convenient, in terms of 7 days and 24 hours services	E-banking is more accessible to users than visiting a bank
N	Valid	126	126	126	126
	Missing	0	0	0	0
Median		2.0000	1.0000	1.0000	2.0000
Mode		1.00	1.00	1.00	1.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral,4-Dis agree and 5-strongly disagree

Source: Survey result, 2012

The median and mode responses of the question „using E-banking such as internet banking, mobile banking, ATM and other services enables users to complete banking activities more quickly and easily" were 2.00 and 1.00 respectively. It means that the largest number of respondents 60 or 47.6% (Appendix B, 26) out of the total was strongly agreed. These result implies, that using online banking system helps to perform banking activities within a short period of time. Clients can simply check their balance, transfer funds and pay their bills on line with just a click of mouse and a touch of button. On the other hand using internet banking is more convenient in terms of saving time and delivering of bank service to customer 24 hours a day and 7 days a week, were the median and mode value is 1.00. The result shown on the above table 4.9 also revealed that the median and mode value for the last question is 2.00 and 1.00 respectively, which indicates that, with out visiting brick and mortar, customers can get bank service by using E-banking system. In line with this finding Balachandher *et al. (*2010) suggests that, one of the implications of E-banking is that it should reduce the need to visit bank branches to get services.

4.4.2.2. Cost saving

Cost minimization is an important goal for business organization in addition to profit maximization. we can see cost minimization as an advantage of using the system from two perspectives, first from the bank perspectives, by using E-banking system like, ATM, internet banking, mobile banking and others, banks save a lot of costs. In the long run a bank can save money by not paying for tellers or for managing branches. This way of cutting transaction cost results in higher profit margin for the banks. D"Souza (2002) noted that, the combination of higher technology and higher skills have posted a higher turnover for banks as they have been able to provide better

customer support and have managed their assets well. Second, customers can get banking service at lower costs compared with traditional banking service, because, it is cheaper to make transaction over Electronic fund transfer. Similarly, the study of, Balachandher *et al. (*2010), noted that, online banking fees have reduced over the years and less expensive when compared with traditional system. More over, the survey result regarding cost factor is shown on table 4.10 as follows.

Table 4.10.Percieved Usefulness (Cost saving)

		The transactions in Internet banking are at a lower price, or at no cost	Using technological tools like ATM helps to perform transaction at lower cost.
N	Valid	126	126
	Missing	0	0
Median		2.0000	2.0000
Mode		2.00	2.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Dis agree and 5-strongly disagree

Source: Survey result, 2012

The median and mode responses for both questions; "The transactions in Internet banking are at a lower price, or at no cost and using technological tools like ATM helps to perform transaction at lower cost" were 2.00. These result implies, using of technological tools such as internet and ATM were resulted in performing of banking duties at lower prises. Similarly, an interview result also indicates that, the basic benefit a firm or customers gained from the adoption of E-banking is cost

minimization. This finding is consistent with the previous studies of Poon (2008), and Balachandher *et al. (*2010), in which all of whom found, cost minimization as an important factor for the adoption of E-banking system.

4.4.3. Other Benefits

In addition to, perceived ease of use, and perceived usefulness, in terms cost and time saving, there are also different benefits which, banking industry can attain from adoption of E-banking system.

The other benefit of E-banking system identified in this study are ,improving of customer satisfaction, through enhancing speed and efficiency, reduce number of customers come to banking hall, while it reduces the work load of bank staff, increase the productivity of banks, by creating foreign currency, increase reliability and accessibility of banking service ,create better relation ship among banks and clients, used as better information control and unlimited time to access bank account and information. Selected respondents were asked whether the above listed benefits are considered in their organization as success factor for the adoption of E-banking system and the result obtained from survey were shown on the following table.

Table 4.11.other benefits of E-banking system

		Improve customer service	Speed and efficiency	Reduce number of customers come to the banking hall	Increased the productivity of bank	Increase reliability and accessibility	Create better relationship among banks and clients	Used as better information control tools	No time limit to access bank account and information
N	Valid	126	126	126	126	126	126	126	126
	Missing	0	0	0	0	0	0	0	0
Median		2.0000	2.0000	1.0000	2.0000	2.0000	2.0000	2.00000	1.0000
Mode		2.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00

Note: N-Number of responses; Response measurements, 1-strongly agree, 2-Agree, 3-Neutral, 4-Disagree and 5-strongly disagree

Source: Survey result, 2012

Table 4.11, shows that the median and mode value for the first question, „E-banking is considered as improving of customer‟s service‟ were 2.00. This result implies that, by using the system banks can improve customer satisfaction. More over, an interview result were also support this idea, that one of the key factor that push banking industry to adopt technological innovation is enhancing of customer satisfaction. Similarly the median and mode value for the second question is 2.00 and 1.00 respectively; it indicated using of E-banking system helps bank staff to perform banking activity quickly by employing a low amount of resources. On the other hand customers can get banking services with out visiting bank office, were the median and mode value for the third question is 1.00. If banks can use sufficient technological tools to deliver service, such as ATM, Internet, Mobile and POS terminal, it would not be limited by geographical location to get banking service. So, it can reduce number of customers come to banking hall compared with traditional banking system. The other benefits gained from using of E-banking system is that it increase the productivity/profitability of bank, were the median and mode value for the fourth question in the above table is 2.00 and 1.00 respectively. In addition to increasing the productivity of bank, the system also increase reliability and accessibility of banking services, were the median and mode value for the question related with reliability and accessibility as a benefit are 2.00 and 1.00, respectively.

More over, E-banking system create better relationship between banks and clients, were the median and mode value for this question is 2.00. Customers of the bank who uses on line banking service can view all information posted by banks on their website. The other benefit listed on the above table is that the system is used as a better control for confidential information, were the median and mode value for this question is 2.00. For example, the bank provide PIN code for each individual users of ATM in which, information regarding clients

account balance is accessible only to each individual customers and banks. Lastly, E-banking service were not limited by time, were the median and mode response for this issue is 1.00. Customers of the bank who uses online banking can get 24/7/365/6 (24 hours a day, 7 days a week and 365/6 days a year) banking service.

4.5. Summary of the chapter

In this chapter, data obtained from survey, interview and documents has been analysed. Three basic factors were used to analyse the barriers of adopting E-banking system, technological factor, organizational factor and Environmental factor. On the other hand perceived ease of use and perceived usefulness, are two basic factors used as a driver for the adoption of E-banking. Also some other benefits of the system has been analysed in the chapter.

Chapter Five

Summary of the findings, Conclusion and Recommendation

The study intended to examine the main barriers and drivers in the adoption of E-banking system in Ethiopia, through adopting mixed research approach. On the other hand, the purpose of this chapter is to delineate the summary of findings in section 5.1, followed by conclusion in section 5.2 and presents some recommendations forwarded in section 5.3.

5.1. Summary of findings

Guided by the technology-organization–environment (TOE) framework and technology acceptance model (TAM), this study has identified a number of barriers and benefits/drivers for E-banking adoption. TOE, is classified in to three factors to determine barriers for the adoption of E-banking system. The technological barriers, identified in this study were security risk and lack of trust on the technological innovation used by banking industries. The finding identified under technological factor were also consistent with other studies on technology adoption in different countries, Ghazi and Khalid (2012) & Sathye (1999), both of them found that security risk is the major barrier for the adoption of E-banking system.

In the case of organizational factor, financial cost as well as human resource is considered, in this study financial cost were not considered as barrier for the adoption of E-banking in Ethiopia and it is consistent with the finding of Rasoulina (2006). On the other hand lack of technical and managerial skills to use and implement the system is considered as barrier for the adoption of E-banking in the country.

Most barriers to E-banking adoption identified in this study were come from external Environments; specifically those are lack of legal framework regarding E-banking system at

national level, lack of ICT infrastructure, and Absence of competition between local and foreign banks. Interestingly, lack of Government support was not taken as barriers for the adoption of E-banking system in Ethiopia.

The study also identified basic benefit a firm could get from the adoption of E-banking system. Those benefits were considered as a driving force for the adoption of the system. The benefits were classified based on technology acceptance model (TAM) as perceived ease of use and perceived use fullness. Perceived ease of use is taken as a major benefit of using E-banking system. At the same time this finding supports the study of Giglio(2002) and Robinson (2000).The other benefit found in the study were based on its usefulness in terms of time and cost saving. These are two basic benefits that drive banking industry to adopt technological innovations.

In general the finding of the study, offer other benefit for the adoption of E-banking, such as enhancing customer satisfaction, reduce the number of customers come to banking hall, increase the productivity of banks, increase reliability and accessibility of banking service, creating good relation ship between clients & bank and also used as a better information control.

5.2. Conclusion

This study aims at investigating the main barriers and drivers of adopting E-banking in Ethiopia. To achieve the proposed objective two basic frame works were used, i.e. Technology-organization-Environment (TOE) and technology acceptance model (TAM). On the other hand both quantitative as well as qualitative (mixed) research approach was employed in the study.

E-banking system, such as ATM, mobile banking, internet banking and others were not well adopted by Ethiopian banking industry. This is due to low level of ICT infrastructure and lack of legal frame works at NBE, which can initiate banking industry to implement the system. In addition to the above two basic factors affecting adoption of E-banking in Ethiopia, Result of the study also shows that security risk and lack of trust on the use of technological adoption are other major barriers for the system. The level of security risk associated with E-banking product or service, such as ATM, internet banking, mobile banking and others, pose different challenges to different banks. Improvements are required to ensure client confidence. Lack of competition among local and foreign banks is also another challenge for the adoption of E-banking in the country.

Technical and managerial skills available in Ethiopian banks for the adoption of E-banking are also limited. This is influencing the choice of technology in Ethiopian banks.

On the other hand, the study reveals that the benefits of technological innovation are well known to the banks and represent a formidable force to drive adoption of the system. In general perceived Ease of use is one of the basic benefits for E-banking, in which it enables bank staff to perform banking activities in a simple way. The other driving force for the adoption of the system is perceived usefulness, in which, it is used for time saving and cost reduction. This and the other benefit identified in the study were considered as a very great potential for banks to improve their public image.

In general, the findings of this study offer additional insights into the current E-banking adoption situation and its implications for E-banking growth in Ethiopia as an example of a developing country. Furthermore, the understanding of the barriers to E-banking adoption identified in this study may help to identify the best course of actions to promote its

development. It will also be valuable to all banking industries of the country to increase their awareness and understanding of E-banking benefits.

5.3. Recommendations

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, at the same time it‟s difficult and need a lot of efforts to be adopted and accepted by the banking industry, so it need a lot of efforts to succeed. Based on the above conclusion, the researcher recommends the following points:

- In order to successfully facilitate E-banking adoption in Ethiopia, national bank of Ethiopia, (NBE) needs to urgently establish a clear set of legal frame works on the use of technological innovation in banking sector.
- For the successful implementation of E-banking system ICT infrastructure, is a major prerequisite, so government, should support banking sector by investing on ICT infrastructure development.
- In order to survive, Ethiopian banking industry 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.
- To exploit the benefit of E-banking system, banking industry operated in Ethiopia needs to familiarise their customers with the processes and benefits of the system.
- Banks should pay special attention to deliver service to customers by using E-banking system, which can easily be accessible.

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Appendix A: Questionnaires and interview guide.

I. Questionnaire

Dear Sir/Madam

My name is Ayana Gemechu Bultum, Msc student in department of Accounting and Finance at Addis Ababa University. The aim of this questionnaire is to identify the *Barriers and Drivers of adopting E-banking in Ethiopian banking industries.* The information you provide in response to the items in the questionnaire will be used as part of the data needed for a study of *Adopting E-banking, mainly focused on barriers and perceived benefits.* The results of the study are anticipated to supply to the understanding of the basic challenges and benefits of adopting new technology in delivering of service to customers in commercial banks of Ethiopia. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award. Your involvement is regarded as a great input to the quality of the research results. Hence, I believe that you will enlarge your assistance by participating in the study. Your honest and thoughtful response is invaluable.

Thank you for your participation

Best regards,

Ayana Gemechu Bultum,

MSc student at Addis Ababa University

School of Business and Public Administration

Department of Accounting and Finance

February, 2012

General Instruction

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

Section I: Demographic profile of respondents

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

1. Gender: Male ☐ Female ☐

2. Age: 20-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐

3. Educational level: Diploma holder ☐ First degree holder ☐

Masters degree ☐

4. Employer: State owned bank ☐ Private bank ☐

5. Monthly in come (in Eth. Birr): 800-1400 ☐ 1401-2000 ☐

2001- 3000 ☐ 3001-4000 ☐ above 4000 ☐

Section II: Questionnaires related with barriers and drivers of adopting Electronic banking system.

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" .Each choice were identified by numbers ranged from 1 to 5.

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

Part one: Questionnaires related with barriers of adopting E-banking system

The following are some barriers the company faces, when adopting E-banking system, please indicate level of your choice.		SA 1	A 2	N 3	D 4	SD 5
	I. Technological factors(Perceived risk)					
1	Customers of our bank fear risk to use automated teller machine(ATM)	( )	( )	( )	( )	( )
2	Lack of confidence with the security aspects considered as barrier for the adoption of E- banking system	( )	( )	( )	( )	( )
3	In the case of using mobile banking, ATM and others, security risk affect users decision to use the system	( )	( )	( )	( )	( )
4	Customers do not trust the technology provided by the banks	( )	( )	( )	( )	( )
5	Lack of trust is considered as barriers for the adoption of E-banking system in Ethiopia.	( )	( )	( )	( )	( )
	II. Organizational factors					
6	Using internet banking increases cost to do banking task	( )	( )	( )	( )	( )
7	Relatively using of Mobile to get banking service is expensive for customers	( )	( )	( )	( )	( )
8	Lack of sufficient government support will affect customers willingness to use technological innovation	( )	( )	( )	( )	( )
9	Customers of our bank were not familiar with service provided though ATM, Internet banking, telephone and mobile phone	( )	( )	( )	( )	( )
10	Lack of technical and managerial skills on the use technological innovation.	( )	( )	( )	( )	( )
11	Lack of skills to implement E-banking system	( )	( )	( )	( )	( )

	III. Environmental factors					
12	Using internet banking is difficult due to low internet access in the Ethiopia	( )	( )	( )	( )	( )
13	Internet connection was not good enough to perform online transactions in Ethiopia	( )	( )	( )	( )	( )
14	Lack of available ICT infrastructure	( )	( )	( )	( )	( )
15	Mobile banking services may not perform well because of network problems	( )	( )	( )	( )	( )
16	Lack of legal frame works that enforce banking industries to adopt technological innovation	( )	( )	( )	( )	( )
17	Cross-country legal and regulatory differences will have impact on the adoption of new technological innovation in the banking sector like, ATM, internet banking, mobile banking and Point of sale terminals (POS).	( )	( )	( )	( )	( )
18	Lack of competition among local bank and foreign banks	( )	( )	( )	( )	( )
19	Customers may not willing to accept E-banking service	( )	( )	( )	( )	( )

Any other barriers? Please specify below.

_____

_____

_____

Part two: Questionnaires related with the drivers of adopting E-banking system in Ethiopia.

The following are some of the perceived benefits the company derived from the adoption of E-banking system, please indicate your choice.		**SA**	**A**	**N**	**D**	**SD**
		1	2	3	4	5
	IV. Perceived Ease of Use					
20	E- banking makes it easier for me to do banking activities	( )	( )	( )	( )	( )
21	In the case of mobile banking, our customers can simply use banking service by using their cell phone	( )	( )	( )	( )	( )
22	From the bank perspective it is easy to use mobile banking to accomplish banking tasks.	( )	( )	( )	( )	( )
23	Using E-payment system (like debit card, salary card, ATM or visa card) simplify the activity of workers to deliver	( )	( )	( )	( )	( )
24	Our bank provide guidelines on the use of electronic banking facility	( )	( )	( )	( )	( )
25	The management of the bank provide training courses for its staff when introducing new services.	( )	( )	( )	( )	( )
26	E-banking system helps to perform banking task in a simple way	( )	( )	( )	( )	( )
	V. Perceived Usefulness					
27	E-banking such as, Internet banking ,Mobile banking, ATM and POS services are enables users to complete banking activities more quickly and easily	( )	( )	( )	( )	( )
28	E-banking such as, Internet banking ,Mobile banking, ATM and POS are convenient, in terms of time saving	( )	( )	( )	( )	( )
29	E-banking such as, Internet banking ,Mobile banking, ATM and POS are convenient, in terms of 7 days and 24 hours	( )	( )	( )	( )	( )

30	E-banking is more accessible to users than visiting a bank	( )	( )	( )	( )	( )
31	The transactions in Internet banking are at a lower price, or at no cost	( )	( )	( )	( )	( )
32	Using technological tools like ATM helps to perform transaction at lower cost.	( )	( )	( )	( )	( )
33	Improve customer service	( )	( )	( )	( )	( )
34	Speed and efficiency	( )	( )	( )	( )	( )
35	Reduce number of customers come to the banking hall	( )	( )	( )	( )	( )
36	Increased the productivity of bank	( )	( )	( )	( )	( )
37	Increase reliability and accessibility	( )	( )	( )	( )	( )
38	Create better relationship among banks and clients	( )	( )	( )	( )	( )
39	Used as better information control tools	( )	( )	( )	( )	( )
40	No time limit to access bank account and information	( )	( )	( )	( )	( )

Any other benefits? Please specify

_____

_____

_____

II. Interview

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

A. Type of your organization: State owned bank ☐ private bank ☐

B. position, please Specify_____

Section one: Interview questionnaires designed for the managers of the four selected banks.

I. Barriers of adopting E-banking system.

1. What type of Electronic banking service do you provide? ATM, Internet banking, mobile banking or others? Please specify

2. What are the basic barriers of adopting new technological innovations like ATM, internet banking and mobile banking?

3. Is the following factors considered in your institution as barriers for the adoption of technological innovation?

a. Security risk

b. Customers reluctance

C. lack of social awareness

d. cost incurred in the purchase of technological instruments

e. lack of competition

f. inadequate ICT infrastructure

4. In your opinion what are the key factors that hinder your institution to adopt automated teller machine (ATM)

5. Do you see any social, Economic and legal barriers to the adoption of ATM, internet banking and mobile banking in your institution?

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

7. What sort of support would you expect from the government in relation to the E-banking improvement in Ethiopia?

II. Drivers of adopting E-banking system.

8. What are the benefits your institution gained from the adoption of ATM, internet banking and mobile banking system in the delivery of service to customers?

9. Concerning the drivers I want to talk about. One of these is the perceived advantages, so what are the advantages derived from the usage of technological tools like ATM, internet and mobile to deliver service to customers instead of using the traditional tools.

10. In your opinion what are the key factors that push your institution to adopt ATM, internet banking and mobile banking system?

11. As Your opinion, what are the advantages / reasons that you consider of implementing E-Banking system?

Interview questionnaires designed for the NBE

1. As your opinion what are the barriers and drivers of adopting new technological innovation?

2. Is there any legal frameworks at central bank to enforce banking industries to use E-banking system, such as ATM/debit card, telephone/mobile banking/internet banking?

3. Is there any special rule that guide banking industries in implementation of E- banking system?

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

APPENDIX: B

Descriptive statistics Result

1.Customers of our bank fear risk to use automated teller machine(ATM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	19	15.1	15.1	15.1
	Agree	51	40.5	40.5	55.6
	Neutral	22	17.5	17.5	73.0
	Disagree	19	15.1	15.1	88.1
	Strongly disagree	15	11.9	11.9	100.0
	Total	126	100.0	100.0	

2.Lack of confidence with the security aspects considered as barrier for the adoption of E- banking system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	33	26.2	26.2	26.2
	Agree	43	34.1	34.1	60.3
	Neutral	13	10.3	10.3	70.6
	Disagree	26	20.6	20.6	91.3
	Strongly disagree	11	8.7	8.7	100.0
	Total	126	100.0	100.0	

3. In the case of using mobile banking, ATM and others, security risk affect users decision to use the system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	18	14.3	14.3	14.3
	Agree	56	44.4	44.4	58.7
	Neutral	20	15.9	15.9	74.6
	Disagree	32	25.4	25.4	100.0
	Total	126	100.0	100.0	

4. Customers do not trust the technology provided by the banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	4	3.2	3.2	3.2
	Agree	36	28.6	28.6	31.7
	Neutral	36	28.6	28.6	60.3
	Disagree	27	21.4	21.4	81.7
	Strongly disagree	23	18.3	18.3	100.0
	Total	126	100.0	100.0	

5. Lack of trust is considered as barrier for the adoption of E-banking system in Ethiopia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	4	3.2	3.2	3.2
	Agree	38	30.2	30.2	33.3
	Neutral	34	27.0	27.0	60.3
	Disagree	27	21.4	21.4	81.7
	Strongly disagree	23	18.3	18.3	100.0
	Total	126	100.0	100.0	

6. Using internet banking increases cost to do banking task

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	3	2.4	2.4	2.4
	Agree	15	11.9	11.9	14.3
	Neutral	15	11.9	11.9	26.2
	Disagree	51	40.5	40.5	66.7
	Strongly disagree	42	33.3	33.3	100.0
	Total	126	100.0	100.0	

7. Relatively using of Mobile to get banking service is expensive for customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	6	4.8	4.8	4.8
	Agree	19	15.1	15.1	19.8
	Neutral	14	11.1	11.1	31.0
	Disagree	51	40.5	40.5	71.4
	Strongly disagree	36	28.6	28.6	100.0
	Total	126	100.0	100.0	

8. Customers of our bank were not familiar with service provided though ATM, Internet banking, telephone and mobile phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	16	12.7	12.7	12.7
	Agree	46	36.5	36.5	49.2
	Neutral	27	21.4	21.4	70.6
	Disagree	25	19.8	19.8	90.5
	Strongly disagree	12	9.5	9.5	100.0
	Total	126	100.0	100.0	

9. Lack of technical and managerial skills on the use technological innovation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	18	14.3	14.3	14.3
	Agree	47	37.3	37.3	51.6
	Neutral	17	13.5	13.5	65.1
	Disagree	29	23.0	23.0	88.1
	Strongly disagree	15	11.9	11.9	100.0
	Total	126	100.0	100.0	

10. Using internet banking is difficult due to low internet access in the Ethiopia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	33	26.2	26.2	26.2
	Agree	62	49.2	49.2	75.4
	Neutral	11	8.7	8.7	84.1
	Disagree	8	6.3	6.3	90.5
	Strongly disagree	12	9.5	9.5	100.0
	Total	126	100.0	100.0	

11. Internet connection was not good enough to perform online transactions in Ethiopia

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	38	30.2	30.2	30.2
	Agree	48	38.1	38.1	68.3
	Neutral	17	13.5	13.5	81.7
	Disagree	16	12.7	12.7	94.4
	Strongly disagree	7	5.6	5.6	100.0
	Total	126	100.0	100.0	

12.Lack of available ICT infrastructure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	40	31.7	31.7	31.7
	Agree	59	46.8	46.8	78.6
	Neutral	4	3.2	3.2	81.7
	Disagree	19	15.1	15.1	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

13. Mobile banking services may not perform well because of network problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	45	35.7	35.7	35.7
	Agree	64	50.8	50.8	86.5
	Neutral	7	5.6	5.6	92.1
	Disagree	7	5.6	5.6	97.6
	Strongly disagree	3	2.4	2.4	100.0
	Total	126	100.0	100.0	

14. Lack of legal frame works that enforce banking industries to adopt technological innovation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	29	23.0	23.0	23.0
	Agree	42	33.3	33.3	56.3
	Neutral	29	23.0	23.0	79.4
	Disagree	23	18.3	18.3	97.6
	Strongly disagree	3	2.4	2.4	100.0
	Total	126	100.0	100.0	

15. Cross-country legal and regulatory differences will have impact on the adoption of new technological innovation in the banking sector like, ATM, internet banking, mobile banking and Point of sale terminals (POS).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	18	14.3	14.3	14.3
	Agree	67	53.2	53.2	67.5
	Neutral	20	15.9	15.9	83.3
	Disagree	19	15.1	15.1	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

16. Lack of competition among local bank and foreign banks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	20	15.9	15.9	15.9
	Agree	59	46.8	46.8	62.7
	Neutral	13	10.3	10.3	73.0
	Disagree	29	23.0	23.0	96.0
	Strongly disagree	5	4.0	4.0	100.0
	Total	126	100.0	100.0	

17. Lack of sufficient government support will affect customers willingness to use technological innovation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	30	23.8	23.8	23.8
	Agree	26	20.6	20.6	44.4
	Neutral	29	23.0	23.0	67.5
	Disagree	32	25.4	25.4	92.9
	Strongly disagree	9	7.1	7.1	100.0
	Total	126	100.0	100.0	

18. Customers may not willing to accept E-banking service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	4	3.2	3.2	3.2
	Agree	26	20.6	20.6	23.8
	Neutral	16	12.7	12.7	36.5
	Disagree	61	48.4	48.4	84.9
	Strongly disagree	19	15.1	15.1	100.0
	Total	126	100.0	100.0	

19. E- banking makes it easier for me to do banking activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	56	44.4	44.4	44.4
	Agree	60	47.6	47.6	92.1
	Neutral	4	3.2	3.2	95.2
	Disagree	2	1.6	1.6	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

20. In the case of mobile banking, our customers can simply use banking service by using their cell phone

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	27	21.4	21.4	21.4
	Agree	75	59.5	59.5	81.0
	Neutral	12	9.5	9.5	90.5
	Disagree	8	6.3	6.3	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

21. From the bank perspective it is easy to use mobile banking to accomplish banking tasks

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	22	17.5	17.5	17.5
	Agree	62	49.2	49.2	66.7
	Neutral	23	18.3	18.3	84.9
	Disagree	15	11.9	11.9	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

22. Using E-payment system (like debit card, salary card, ATM or visa card) simplify the activity of workers to deliver service to customers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	61	48.4	48.4	48.4
	Agree	52	41.3	41.3	89.7
	Neutral	2	1.6	1.6	91.3
	Disagree	5	4.0	4.0	95.2
	Strongly disagree	6	4.8	4.8	100.0
	Total	126	100.0	100.0	

23. Our bank provide guidelines on the use of electronic banking facility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	27	21.4	21.4	21.4
	Agree	70	55.6	55.6	77.0
	Neutral	14	11.1	11.1	88.1
	Disagree	10	7.9	7.9	96.0
	Strongly disagree	5	4.0	4.0	100.0
	Total	126	100.0	100.0	

24. The management of the bank provide training courses for its staff when introducing new services.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	17	13.5	13.5	13.5
	Agree	57	45.2	45.2	58.7
	Neutral	33	26.2	26.2	84.9
	Disagree	13	10.3	10.3	95.2
	Strongly disagree	6	4.8	4.8	100.0
	Total	126	100.0	100.0	

25. E-banking system helps to perform banking task in a simple way

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	56	44.4	44.4	44.4
	Agree	61	48.4	48.4	92.9
	Neutral	7	5.6	5.6	98.4
	Disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

26. E-banking such as, Internet banking ,Mobile banking, ATM and POS **services enables users to complete banking activities more quickly and easily**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	60	47.6	47.6	47.6
	Agree	52	41.3	41.3	88.9
	Neutral	9	7.1	7.1	96.0
	Disagree	3	2.4	2.4	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

27. E-banking such as, Internet banking ,Mobile banking, ATM and POS **are convenient, in terms of time saving**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	80	63.5	63.5	63.5
	Agree	37	29.4	29.4	92.9
	Neutral	3	2.4	2.4	95.2
	Strongly disagree	6	4.8	4.8	100.0
	Total	126	100.0	100.0	

28. E-banking such as, Internet banking ,Mobile banking, ATM and POS are convenient, in terms of 7 days and 24 hours services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	77	61.1	61.1	61.1
	Agree	38	30.2	30.2	91.3
	Disagree	5	4.0	4.0	95.2
	Strongly disagree	6	4.8	4.8	100.0
	Total	126	100.0	100.0	

9. Using E-banking is more accessible to users than visiting a bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	54	42.9	42.9	42.9
	Agree	48	38.1	38.1	81.0
	Neutral	12	9.5	9.5	90.5
	Disagree	12	9.5	9.5	100.0
	Total	126	100.0	100.0	

30. The transactions in Internet banking are at a lower price, or at no cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	24	19.0	19.0	19.0
	Agree	65	51.6	51.6	70.6
	Neutral	22	17.5	17.5	88.1
	Disagree	15	11.9	11.9	100.0
	Total	126	100.0	100.0	

31. Using technological tools like ATM helps to perform transaction at lower cost.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	38	30.2	30.2	30.2
	Agree	73	57.9	57.9	88.1
	Neutral	13	10.3	10.3	98.4
	Disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

32. Improve customer service

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	52	41.3	41.3	41.3
	Agree	68	54.0	54.0	95.2
	Disagree	4	3.2	3.2	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

33. Speed and efficiency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	59	46.8	46.8	46.8
	Agree	59	46.8	46.8	93.7
	Neutral	2	1.6	1.6	95.2
	Disagree	4	3.2	3.2	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

34. Reduce number of customers come to the banking hall

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	74	58.7	58.7	58.7
	Agree	42	33.3	33.3	92.1
	Neutral	4	3.2	3.2	95.2
	Disagree	4	3.2	3.2	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	

35.Increased the productivity of bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	62	49.2	49.2	49.2
	Agree	52	41.3	41.3	90.5
	Neutral	6	4.8	4.8	95.2
	Strongly disagree	6	4.8	4.8	100.0
	Total	126	100.0	100.0	

36.Increase reliability and accessibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	55	43.7	43.7	43.7
	Agree	51	40.5	40.5	84.1
	Neutral	14	11.1	11.1	95.2
	Disagree	2	1.6	1.6	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

37. Increase reliability and accessibility

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	55	43.7	43.7	43.7
	Agree	51	40.5	40.5	84.1
	Neutral	14	11.1	11.1	95.2
	Disagree	2	1.6	1.6	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

38. Create better relationship among banks and clients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	45	35.7	35.7	35.7
	Agree	55	43.7	43.7	79.4
	Neutral	18	14.3	14.3	93.7
	Disagree	4	3.2	3.2	96.8
	Strongly disagree	4	3.2	3.2	100.0
	Total	126	100.0	100.0	

39. Used as better information control tools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	35	27.8	27.8	27.8
	Agree	61	48.4	48.4	76.2
	Neutral	20	15.9	15.9	92.1
	Disagree	10	7.9	7.9	100.0
	Total	126	100.0	100.0	

40.No time limit to access bank account and information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	67	53.2	53.2	53.2
	Agree	52	41.3	41.3	94.4
	Neutral	5	4.0	4.0	98.4
	Strongly disagree	2	1.6	1.6	100.0
	Total	126	100.0	100.0	