ST MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

EFFECT OF E BANKING ON PROFITABILITY OF COMMERCIAL BANK OF ETHIOPIA: THE CASE OF ADDIS ABABA BRANCHES

A THESIS SUBMITTED TO ST MARY'S UNIVESITY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION

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JANUARY , 2017
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APPROVED BY BOARD OF EXAMINERS

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Abebe Yitayew (PHD). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part of in full to any other higher learning institution for the purpose of earning any degree.

_____   _____

Name   Signature

St. Mary's University, Addis Ababa   **January, 2017**

ENDORSEMENT

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

_____   _____

Advisor   Signature

St. Mary's University, Addis Ababa   **January, 2017**

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LIST OF ACRONYMS AND ABBREVATIONS

ANNOVA	Analysis of Variance
ATM	Automated Telling Machine
CBE	Commercial Bank of Ethiopia
E-banking	Electronic banking
E-commerce	Electronic commerce
EFT	Electronic Fund Transfer
E-payment	Electronic payment
IB	Internet Banking
ICT	Information and Communication Technology
IT	Information technology
IVR	Interactive Voice Response
NBE	National bank of Ethiopia
OLS	Ordinary Least Square
PC	Personal computer
PIN	Personal identification number
POS	Point of sale
ROA	Return on Assets
ROE	Return on Equity
SD	Standard Deviation
SMS	Short message service
SPSS	Statistical Package for Social Science

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ABSTRACT

Electronic banking refers to the provision of retail and small value banking products and services through electronic channels. The rapidly growing information and communication technology is knocking the front-door of every organization in the world, where Ethiopian banks would never be exceptional. The appearance of electronic 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. Through reducing bank costs, electronic banking can increase bank incomes. In this research the effect of electronic banking (i.e. automated teller machines, bank card, internet bank, telephone bank, point of sale, etc) in increasing profitability of Commercial Bank of Ethiopia is studied. The statistical society of this research is the CBE's Addis Ababa Branches staffs. The research sample size was estimated 110. The research data was gathered through financial statements, data sheets, and questionnaire contains. The gathered data was analyzed through descriptive statistics (i.e. diagrams and frequency distribution tables) and inferential statistics (i.e. ANOVA test, T test, multiple regressions). According to the findings of the study; E banking services of CBE has positive impact on reducing transaction processing errors, saving time, reducing risk of caring cashes, and improving operational reliability of the bank. While the study reveals that there is relatively lower importance to attraction of new customers to the bank, reduction of human resource requirements of the bank, improvement of customers' loyalty to the bank. The empirical analysis shows there is a positive relationship between electronic banking and its five components (i.e. automated teller machines, bank card, internet bank, telephone bank, point of sale) with bank profitability.

CHAPTER ONE

INTRODUCTION

1.1.   Background of the study

The increasing and widespread development of information technology and the expansion of the scope of its application to the money markets and banking, be-sides the facilitation of the customers' affairs, have changed the current banking methods. In recent years, utilizing the Information and Communication Technology (ICT) has had a significant increase in service industries especially in banking industry in which by the application of Information Technology, Internet banking, electronic payment, security investments and ex-change of information have been provided. By the use of information and communication technologies, financial organizations provide their customers with higher quality services with less effort and trouble (Narjes & Mohammad, 2015).

The present century has been called the Age of Communication for the organizations and service institutions to do their best to realize a greater access to their services in the most remote parts of the world. Banking, as a profitable industry, has not been an exception and competition to attract customers and gain their consent has forced the competitors to work more on their service systems. So the banks are investing more on providing on the customers with the new technologies through e banking, PC banking, mobile banking, ATM, electronic funds transfer, account to account transfer, paying bills online, online statements, credit cards and etc. Electronic commerce can be seen as a consequence of such competition (Asgharian, 2009). With the growth of ecommerce transactions in the world and the business needs of the bank to transfer funds, e-banking is an integral part of e-commerce and has a crucial role in its implementation (Zoghi, 2013). Technology, especially information and communication technology, has had a profound impact on all aspects of human life and in particular, it has revolutionized the banking

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business field (Elsan & Alidadi, 2009). Now in most developed countries, banks have provided online banking services to their customers via the Internet and the customers, without the need to be present at the bank, do most of their bank affairs by entering the bank website using their special password.

The rapidly growing information and communication technology is knocking the front-door of every organization in the world, where Ethiopian banks would never be exceptional. In Ethiopia, however, cash is still the most dominant medium of exchange, and electronic payment systems are at an embryonic stage Gardachew, 2009). The appearance of electronic 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. Electronic banking facilities provided by most Ethiopian Banks are very basic. However e-banking facilities provided are at par with those in the region. As suggested by Classens, Glaessner, & Klingebiet (2002), developing countries in general have an advantage as they can learn from the experience of advanced economies.

Commercial Bank of Ethiopia (CBE), being the pioneer in introducing ATM based payment system; it currently is implementing various e banking services to improve its operational efficiency and profitability. The bank has more than 1065 ATM machines spread throughout the country and more than 1 million customers who use debit cards actively and the number of Mobile and Internet Banking users also reached more than 1,400,000.00 as of September 30, 2016. Moreover, more than Birr 12 billion was transacted using the various E banking channels during the first quarter of the fiscal year i.e. July 01, 2016 to September 30, 2016 (CBE report, 2016).

However, the bank is facing many challenges in implementing these services such as poorly developed telecommunication infrastructure, lack of suitable e-commerce legal framework, high rates of illiteracy, high investments, and others.

Therefore, it is important to study effectiveness of investing on e-banking products on the ultimate goal of minimizing costs, increasing customer satisfaction, enhancing service to constituents, and improving the operational efficiency which would affect the profitability of the bank.

1.2.   Statement of the Problem

Banking institutions have been subjected to too much criticism for not providing their customers with innovative and convenient banking services, with the results that some customers especially businesswomen, find it more convenient keeping their savings at homes than in the banks. Information Communication Technology (ICT) plays an important role in the development of banking industry (Amoako, 2012).

According to Kaleem & Ahmad (2008), increasing competition among banks and from non-bank financial institutions also raises concerns as to why some people adopt one distributional channel and others do not, and that identifying the factors that may influence this decision is vital for service providers. Literature also supports that the level of user's acceptance of electronic banking is to a large extend determined by their perceptions of its effectiveness in terms of costs and benefits (Gefen&Straud, 2004; Abu-Musa 2005; 2009; Olatokun&Igbinedion 2009).

The relevant literature on this topic may be divided into two groups: on one hand some authors focus on e-banking as an innovative delivery channel representing new challenges to the financial sector. These studies relate the adoption of e-banking on profitability CBE. The second group of studies states that there is no relationship between the existence of e-banking and profitability. Pure e-banking, the development of internet websites as a delivery channel, or traditional banking do not have the same implications.

Referring to the first group, Birch and Young (1997) argue that the e-banking may be exploited as a new delivery channel by the financial services industry to completely reorganize the structure of banks. The use of electronic channels (without physical channels) threatens traditional retail banks as pure e-banking can compete with lower overheads. Jayawardhena and Foley (2000) explore the internet as a new delivery channel arguing that e-banking help to overcome the inherent disadvantages of a traditional branch. The provision and the implementation of e-banking has been slow, probably due to the limited range of services offered at that time. However, the authors point out that the e-banking may act as a facilitator in payment systems as it provides a broader range of services at all times, and thus assists the growth and profits of bank.

On the other hand, few studies attempt to assess the performance of internet banks. Nearly all studies refer to the US banking system. Sullivan (2000) argues that traditional banks are not affected by the adoption of the internet as a distribution channel. In a comprehensive study, first *et al.* (2002) develop a statistical model to explain why banks choose to adopt e-banking and why they differentiate their supply of online products. The authors also investigate the effects of e-banking on profitability. The first to adopt the new system were large, profitable banks, located in urban areas and forming part of a holding company. These banks adopt e-banking services as an aggressive business strategy to gain market share rather than for making profits. Their study shows no relationship between the existence of e-banking and profitability but this could be due to the disproportion of customer use of internet banking in their sample.

E-banking in Ethiopia has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost by replacing paper based and labor intensive methods with automated processes thus leading to higher productivity and profitability. (Ayana, 2012). While to date researchers have produced little evidence regarding these potential changes.

The fact that e-banking is fast gaining acceptance in Ethiopia banking sector does not assuredly signify improved bank performance nor would conspicuous use of internet as a delivery channel make it economically viable, productive or profitable.

Undeniably the largest state-owned bank CBE is the pioneer in introducing e-banking service in Ethiopia during 2001. Moreover, CBE has had Visa membership since November 14, 2005. While due to lack of appropriate infrastructure, it failed to reap the fruit of its membership in early periods (Gardachew, 2009). The bank has borne considerable costs for implementing e-banking infrastructure, for the training of its employees and creating the environment which would increase the service quality, image, brand value and goodwill expecting to cover these implementation costs in short run and even to achieve profits. Hence it becomes important to investigate the effectiveness of these investments on achieving the desired goal of profit maximization.

1.3. Basic Research Questions

The study was tailored to answer the following research questions formulated on the problems.

- To what extent does adopting electronic banking affect profitability of Commercial Bank of Ethiopia?
- What is the effect of these services on service quality of the bank?
- How much e-banking system implementation has affected business efficiency of the bank?
- Does e-banking have significant effect on customer change after the implementations?

1.4. Objectives of the study

1.4.1. General objective

The general objective of the study is to examine the effect of e banking on profitability of commercial bank of Ethiopia.

1.4.2. Specific objectives

The specific objectives are;

- to examine the effect of e banking on service quality of CBE
- to investigate the effect of implementing e banking on business efficiency of the bank
- to explore whether implementation of e banking by CBE has significant effect on attracting customers to the bank

1.5. Hypothesis of the study

1) *H0:* The implementation of e-banking by CBE affects its profitability positively.
   H1: The implementation of e-banking by CBE affects its profitability negatively.
2) *H0:* E banking will affect commercial bank of Ethiopia to achieve better service quality.
   H1: E banking will not affect commercial bank of Ethiopia to achieve better service quality.
3) *H0:* CBE achieved boosts in its income and minimized its costs due to implementation of E banking services
   H1: CBE has not achieved boosts in its income and minimized its costs due to implementation of E banking services
4) *H0:* Implementation of E banking services by CBE has helped the bank to attract more customers
   H1: Implementation of E banking services by CBE has not helped the bank to attract more customers

1.6. Significance of the study

Commercial Bank of Ethiopia plays a catalytic role in the economic progress and development of the country. The study aimed at examining the impact of electronic banking on the profit of the bank. It is significant due to the proliferation of the bank and to investigate the effectiveness of investments on technologies on the bank on its profitability and in making future decision to adopt more advance and up-date technologies. The finding of the study will be of great importance to managements of CBE to investigate impact of implementation of e banking services on early planned objectives.

It will enlighten other private and government owned banks and financial institutions in adopting technologies in the financial industry in particular and in the service sector in general. The study will also be important for policy makers and regulatory bodies in assessing the legal frameworks affect implementation and objectives of the services.

In addition, the study will have a great significance in providing information for external stakeholders such as foreign banks who are expected to join the industry in the near future by transferring their state of the art technologies to the Ethiopian banking industry. National Bank of Ethiopia which regulates the sector will be highly beneficial from the findings of study which will provide important information whether the implementation of the service achieves its objectives of improving the performance of the bank and quality service delivery to the public. In addition, the study will believed to have an immense contribution by laying the ground for future researches to be conducted on these recent phenomena.

1.7. Delimitation/Scope of the study

The primary aim of this study is to examine how implementation of Electronic banking services affects profitability of commercial bank of Ethiopia. The study is limited to only one bank which is CBE's selected branches in Addis Ababa area and the questioners only developed for

employees and managers of the institution while external stake holders doesn't include such as customer feedback for e-banking.

Most of the studies on bank profitability have categorized the determinants of Profitability into internal and external factors (Rasiah, 2010b; Naceur&Omran, 2011; and Khrawish, 2011). While, under these investigations the study considered only the internal factor to measure profitability of bank.

Therefore, the study measured the effectiveness of e-banking without inclusions of macroeconomic determinants. Due to short recentness of e banking application in commercial banks of the country in general and CBE in particular, the secondary data was collected for the time periods covering only the periods from 2005 to 2008 E.C, which were the times when most of banking services became applicable in the country. Moreover, various studies and reports were not available concerning e banking and its impact on profitability during the same reason. As with any other study, this study has also faced time and financial constraints to collect data.

1.8. Organization of the Research Report

The study is organized in the following form: The first chapter is introductory which consists of general background, statement of the research problem, basic research questions, objectives of the study, hypothesis of the study, definition of terms, significance of the study, and delimitation/scope of the study, The second chapter provided summary of related literature review of theoretical and empirical studies in the study of e banking and its effect in profitability. Chapter three is the Methodology part; which contained design of the report, subjects/participants of the study, sources of data collection, and methods of data analysis. Chapter four is devoted to Results and Discussion; which summarize the results/findings of the study and/or discuss the findings. Finally, chapter four has summarized the findings from the results discussed under chapter four; conclude the study and forward relevant recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical Review
2.1.1. What is Electronic Banking?

Electronic banking refers to the provision of retail and small value banking products and services through electronic channels. Electronic banking (E-banking) is the provision of financial services and markets using electronic communication and computation. Today banks are switching to multi-channel distribution of financial services in hybrid platforms, where the traditional services of banks are provided through "bricks and mortar" branches. Such may include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money (Basel Committee Report on Banking Supervision, 2003).Some authors use the following terms interchangeable when referring to electronic banking, PC banking, internet banking, cell phone banking, online banking and virtual banking.

2.1.2. Forms of Electronic Banking

Most banks offer to their customers the following E-Banking products and services:

- **Automated Teller Machines:** An automated teller machine or automatic teller machine (ATM) is an electronic computerized telecommunications device that allows a financial institution's customers to directly use a secure method of communication to access their bank accounts, order or make cash withdrawals (or cash advances using a credit card) and check their account balances without the need for a human bank teller.
- **Telephone Banking:** is a service provided by a bank of other financial institution, that enable customers to perform a range of financial transactions over the telephone call, without the need to visit a bank branch or automated teller machine. Most financial

institutions have restrictions on which accounts may be accessed through telephone banking, as well as a limit on the amount that can be transacted.

- **Smart Cards:** A smart card usually contains an embedded 8-bit microprocessor (a kind of computer chip). The microprocessor is under a contact pad on one side of the card. Think of the microprocessor as replacing the usual magnetic stripe present on a credit card or debit card.

- **Electronic Funds Transfer (EFT) System:** is a system of transferring money from one bank account directly to another without any paper money changing hands.

- **SMS Banking:** SMS banking uses short text messages sent through the client's mobile phone. SMS text messages can be used for both passive and active operations similarly as with classic telephone banking.

- **Internet Banking:** Internet banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations (Dube et al 2009)

- **Tele banking:** By dialing the given Telebanking number through a landline or a mobile from anywhere, the customer can access his account and by following the user-friendly menu, entire banking can be done through Interactive Voice Response (IVR) system.

2.1.3. Importance of E-Banking in Business

Businesses rely on efficient and rapid access to banking information for cash flow reviews, auditing and daily financial transaction processing. E-banking offers ease of access, secure transactions and 24-hour banking options. From small start-up companies to more established entities, small businesses rely on e-banking to eliminate runs to the bank and to make financial decisions with updated information. The importance of E-Banking are as follows:

Activity Review Business owners, accounting staff and other approved employees can access routine banking activity such as deposits, cleared checks and wired funds quickly through an

online banking interface. This ease of review helps ensure the smooth processing of all banking transactions on a daily basis, rather than waiting for monthly statements. Errors or delays can be noted and resolved quicker, potentially before any business impact is felt.

Productivity E-banking leads to productivity gains. Automating routine bill payments, minimizing the need to physically visit the bank and the ability to work as needed rather than on banking hours may decrease the time involved in performing routine banking activities.

Lower Banking Costs Banking relationships and costs are often based on resource requirements. Businesses that place more demands on banking employees and need more physical assistance with wire transfers, deposits, research requests and other banking activities often incur higher banking fees. Opting for e-banking minimizes business overhead and banking expenses.

Reduced Errors Utilizing e-banking reduces banking errors. Automation of payments, wires or other consistent financial activities ensures payments are made on time and may prevent errors caused by keyboard slips or user error. Additionally, opting for electronic banking eliminates errors due to poor handwriting or mistaken information.

Reduced Fraud Increased scrutiny of corporate finances through audits and anti-fraud measures requires a high level of visibility for all financial transactions. Relying on e-banking provides an electronic footprint for all accounting personnel, managers and business owners who modify banking activities. E-banking offers visibility into banking activities, which makes it harder for under-the-table or fraudulent activities to occur.

2.1.4. Determinants of Banks profitability

The determinants of commercial banks profitability can be divided into two main categories namely the internal determinants which are management controllable and the external determinants which are beyond the control of management. According to (Chan, 2008) the

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internal determinants of commercial banks profitability are those management controllable factors which account for the inter-firm differences in profitably, given the external environment.

Rasiah (2010) stats that internal determinants themselves can be broadly classified into two sub-categories namely financial statement variables and non-financial statement variables. The financial statement (the balance sheet account which includes asset, liabilities, and equity balances and it indicates the financial position of the firms) variables are determining factors which are directly driven from items in a balance sheet and profit and loss accounts of the bank. On the other hand, the nonfinancial statement (variables seen in this category include management quality, efficiency and productivity, age of the bank, number of branches and technology) variables are those factors which do not directly displayed on the financial statement accounts.

2.2. Empirical Review

Numerous studies have been conducted on banks implementation of E banking services and its effects on the performance of banks in general and on the their profitability in particular. The empirical experience emerging from country experiences with e banking services and banks performance are mixed. Several empirical studies document a positive and statistically significant impact of banks e banking services and their profitability(Sana, 2011).

Bahram et al (2013) have conducted a study on The Effect of Using Electronic Banking on Profitability of Bank private banks staff of Kurdistan province to find the role of electronic banking (i.e. automated teller machines, bank card, internet bank, telephone bank, point of sale) in increasing bank incomes. Based on Cochran formula, the research sample size was estimated 147. The research data was gathered through financial statements, a questionnaire contains 42 questions, and interview. The gathered data was analyzed through descriptive statistics (i.e. diagrams and frequency distribution tables) and inferential statistics (i.e. ANOVA test, T test, multiple regressions, Scheffe's

test, T Thutong). The research findings shows there is a positive and strong relationship between electronic banking and its five components (i.e. automated teller machines, bank card, internet bank, telephone bank, point of sale) with bank incomes. According to the research findings, the correlation between independent variables (five components of electronic banking) and dependent variable (bank charges) is 0/817 and 0/63 of the dependent variable changes are explained by independent variables. Finally, the research findings shows automated teller machine (ATM) has the maximum influence on bank incomes (Beta=0.407) and telephone.

Claessens et al (2001) presented the openings e-finance furnishes to the developing world. "E-finance can allow countries to establish a financial system without first building a fully functioning financial infrastructure. Because e-finance is much cheaper, since it lowers processing costs for providers and search and switching costs for consumers, providers can market financial services involving smaller transactions to lower-income borrowers, even in remote areas. To further this, government's main role will be to enhance the enabling environment."

The most significant policy issue is regarding providing an environment facilitating e-finance, providing regulatory and other reformatory frameworks for enforcing contracts, privacy, information communication, security, telecommunications and infrastructure for e-transactions.

E-finance can benefit financial sector development of emerging countries by lowering costs, increasing the breadth and quality and widening access to financial services.

Seyed (2013) on studying the effect of E-Banking on Bank Profitability; Case Study Selected Asian Countries stated E-Banking as one of the gifts to human beings by computer technology. The study covers four banks that have adopted online banking in Asian selected countries between 1990 and 2010 with support of a short-run co-integration relationship after allowing for the heterogeneous country effect. The long-run relationship is estimated using a full-modified OLS. By using bank specific and macroeconomic control variables, the researcher investigate the

impact of internet banking on the return on assets (ROA) and equity (ROE). Accordingly, the results show that internet banking variable has had a positive effect on the performance of the banking system.

Abaenewe et al 2013 investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system using judgmental sampling method was adopted by utilizing data collected from four Nigerian banks. The profitability performance of these banks was measured in terms of returns on equity (ROE) and returns on assets (ROA). With the data collected, we tested the pre- and post-adoption of ebanking performance difference between means using a standard statistical technique for independent sample at 5 percent level of significance for performance factors such as ROE and ROA. The study revealed that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks. On the other hand and on the contrary, it also revealed that e-banking has not significantly improved the returns on assets (ROA) of Nigerian banks. The findings of this study have motivated new recommendations for bank customers, bank management and shareholders with regard to electronic banking adoption for banking operations.

Onay et al (2008) in their research on Turkish banks concluded that e-banking has a positive impact on the profits of banks. According to their study, "Internet has changed the dimensions of competition in the retail banking sector. It has also provided opportunities for emergingcountries to build up their financial intermediation infrastructure. Investment in e-banking isa gradual process. The internet banking variable has had a positive effect on the performance of the banking system in Turkey." Also, Siam (2006) examined the impact of e-banking on Jordanian banks and concluded that majority of the banks are providing services on internet through their websites and his findings show that the attention is more to achieving e-banking as satisfying and fulfilling customers' needs. He also concluded that there should be a well-articulated strategy to achieve success and profits in the long run.

In their research, De Young et al (2007) analyzed the effect of e-banking on the performance of banks by studying US community banks markets and compared the performance of virtual click and mortar banks with brick and mortar banks. Their findings concluded that e-banking improved the profitability of banks hence increasing their revenues. Also, E-banking is largely driven by the factors of minimizing the operating costs and maximizing operating profit, suggests Simpson (2002). According to Centeno (2004), the e-banking adoption factors are divided into two categories: 1). Factors relating to the infrastructure and accessing technology, 2). Factors that are related to retail banking factors. The prior factors include skills on the part of consumers in using internet and other related technologies, attitudes towards technologies, internet penetration rate, privacy and security concerns. Later involves factors like banking culture, e-banking culture, trust in banking institutions and internetbanking push. However, lack of PC and internet penetrations serves as barriers for development of e-banking. Also, in their study conducted in Turkish retail banking sector Polatoglu and ekin (2001) concluded that e-banking decreases operational costs and it amplifies customers' satisfaction and retention.

The usage of e-banking induces many risk factors to firms' overall risk profile. The Basel committee has issued Risk Management Principles for Electronic Banking in July 2003, it has recognized the related risk factors and its purpose is to enhance and promote safety of services offered by e-banking while maintaining flexibility keeping in regard the changing technologies due to dynamic environment.

According to Ayana(2014) ,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.

Garedachew (2009) studied the Practices, Opportunities and Challenges Electronic -Banking in Ethiopia and stated and concluded that the major opportunities for E banking development in Ethiopia are Opportunities offered by ICT through e-learning programs, late adopter opportunities, UNECA, World Bank and UNCTAD are helping developing countries to design

national estrategies, including e-commerce, via National Information and Communication Infrastructure plans (UNCTAD, 2004), and **C**ommitment of the governments. While they stated the major challenges as low level of internet penetration and poorly developed telecommunication infrastructure, lack of suitable legal and regulatory framework for e-commerce and e-payment, political instabilities in neighboring countries: Political and economic instabilities in Somalia, Southern Sudan, and Eritrea are threatening traits that do not provide a very conducive environment for e-banking in Ethiopia. Political instabilities inevitably disturb smooth operations of business and free flow of goods and services, high rates of illiteracy, high cost of Internet, frequent power interruption, cyber security issues.

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 affect adoption of E-banking in the country regarding the technological factor, organizational factor and Environmental factor.

Though problems aplenty a study conducted by Wondwossen and Tsegai (2005) revealed that an adequate legal structure and security framework could encourage the use of E-payments in Ethiopia. Therefore, a study of banker's perception of electronic banking becomes more relevant.

According to Nathan (1999), electronic banking services have provided numerous benefits for both banks and customers. The first benefit for the banks offering electronic banking service is better branding and better response to the market. Those banks that would offer such service would be perceived as leaders in technology implementation. As a result, they would enjoy a better brand image. The other benefits are possible to measure in monetary terms. The main goal of every company is to maximize profits for its owner and other stakeholders.

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Electronic banking (E-banking) enables customers to do their banking 24 hours a day, 7 days a week. E-banking customers are able to check their account balances, pay bills, apply for a loan, trade securities, and conduct other financial transactions. E-banking can be divided into five major categories: (1) Internet banking, (2) Telephone banking, (3) TV-based banking, (4) Mobile phone banking, and (5) PC were banking. Technological innovations in recent decades have made the move towards E-banking possible. The increasing competition forcustomers in banking and need to decrease cost of providing banking services has led banks to integrate these changes.

2.3. Conceptual Framework

2.3.1. E banking vs. profitability and business efficiency

According to Nathan (1999), electronic banking services have provided numerous benefits for both banks and customers. The first benefit for the banks offering electronic banking service is better branding and better response to the market. Those banks that would offer such service would be perceived as leaders in technology implementation. As a result, they would enjoy a better brand image. The other benefits are possible to measure in monetary terms. The main goal of every company is to maximise profits for its owner and other stakeholders. According to Allen and Hamilton (2002), an estimated cost of providing the routine business of a full service branch in USA is $1.07 per transaction, as compared to 54 cents for telephone banking, 27 cents for ATM banking and 1.5 cent for internet banking. On the other hand, the advantages for the customers are significant time saving and reduced costs in accessing and using the various banking products and service, increased comfort and convenience (Pyun, Scruggs and Nam, 2002). Internet Banking provides clear advantages to both the financial institutions and the customers. From the banks' perspective, Internet Banking has very low cost transactions, compared to human teller banking.

According to The Fourth International Conference on Electronic Business (ICEB2004) / Beijing, e-banking reduces the following expenses (Wright & Ralson, 2002):

(1) Banks can reduce customer service staff as customers use more self-service functions;

(2) There is less cheque processing costs due to an increase in electronic payments.;

(3) Costs of paper and mail distribution are reduced as bank statements and disclosures are presented online;

(4) There is less data entry as applications are completed and processed online by customers.

On the other hand, according to KPMG (1998), bank's revenue increases from Internet Banking due to:

(1) Increased account sales;

(2) Wider market reach;

(3) New fee-based income;

(4) New market opportunities;

(5) Improved customer satisfaction.

For consumers, Internet banking provides convenience, lower service charges, more accessible information about bank accounts, and an attractive option for busy people since it saves time to go to the bank branches and gives 24 hours access (Lee & Lee, 2000). All the benefits of B2C e-commerce such as 24*7 bank service, convenience, access from anywhere, one stop shop and easy access to information also apply to internet banking Singh (2004). The benefits of E-banking are manifold and are to be seen from the point of view of the banks themselves, customers and even the regulators Sergeant (2000). Sergeant is of the view that for banks, E-banking brings different and arguably lower barriers to entry; opportunities for significant cost reduction; the capacity to rapidly reengineer business processes; and greater opportunities to sell cross border. For customers, the potential benefits are: more choice; greater competition and better value for money; more information; better tools to manage and compare information and faster service.

Electronic banking (E-banking) enables customers to do their banking 24 hours a day, 7 days a week. E-banking customers are able to check their account balances, pay bills, apply for a loan, trade securities, and conduct other financial transactions. E-banking can be divided into five major categories: (1) Internet banking, (2) Telephone banking, (3) TV-based banking, (4) Mobile phone banking, and (5) PC were banking. Technological innovations in recent decades

have made the move towards E-banking possible. The increasing competition for customers in banking and need to decrease cost of providing banking services has led banks to integrate these changes.

2.3.2. E banking vs. service quality

Quality is a concept which requires a concern both in products as well as in services. Various experts have defined it as "fitness for use", "conformance to requirements", "freedom from variation" etc. To market a product, quality plays a pivotal role to sell a product. In fact, quality is considered as most important factor that influence on the buying behavior of the customer. Now the question arises to measure quality of service or a product. In tangible goods like products, quality can be measured by its durability and number of defects, usage of product, packaging, handling etc. However measuring the quality in intangible is a different one. As services are intangible so they are very difficult to measure. Services have a lot of intangible dimensions like communication, credibility, security, competence, reliability, responsiveness which are qualitative by nature and their value is subjective.

As customers become more sophisticated, therefore, it becomes essential to consider the use of technology to respond to their continuously change. Banking is an industry highly which is highly involved with the customers. Customers in developing economies seems to keep the "technological factors" of services as the yardstick In differentiating good & bad services and the human factor – the employees seem to play a lesser role in discriminating the quality of service for banks. The variation in services offered by the banks develops the excellence for service quality. Banking is no longer regarded as a business dealing with money transaction alone, but it also seem as a business related to information on financial transaction (Padwal 1995). Customers whether at the corporate level or at retail level have always been important for the banks.

As electronic banking is becoming more prevalent, so level of customer satisfaction is also changing the scenario of technological environment. Informational technology in form of e-

banking plays a significant role in providing better services at lower cost. Several innovative IT based service such as Automated Teller Machine (ATM), Internet banking, Smart cards, Credit Cards, Mobile banking,

Phone banking, Anywhere-Anytime banking have provided number of convenient services to the customer So as the service quality improves, the probability of customer satisfaction increases. Increase satisfaction in turn increase the mutual understanding, customer retention and a bond of trust between customer and bank. The banks which are providing these services at large extent to customers are more reputed in the eyes of customers. But at the same time technology based product is different in public and private sector banks. Bank automation and electronic banking is fast in private sector comparative to public sector.

E-banking is an improvement over traditional banking system because it has reduced the cost of transaction processing, improve the payment efficiency, financial services and improve the banker-customer relationship. The relationship between ebanking and service quality can be studied with the level of satisfaction. As the customer satisfaction is the function of customer expectation level and service quality level provided by the organization. E-banking plays a pivotal role in giving satisfaction to the customers because e-banking fills the gap between the expected and perceived service quality. So in order to fill this gap, banks should find ways of making electronic services more accessible and by allowing the customer to verify the accuracy of the e-banking transactions.

There are number of reasons due to which customer satisfaction due to e-banking has improved.

1. Customer can withdraw funds, transfer funds anytime, anywhere they want.

2. Accessibility has been extended through technological development as it allows customers to do business from their home and office.

3. It makes the banking activities and transaction very simplier to understand

4. There is no requirement of direct control with bank, as services can be operated wherever customer wants.

5. It has reduced the waiting time of the customer; no long queue standing is required.

6. Availability of employees at all times is not required as these services are provided

24 hours a day, seven days a week.

7. Internet based services has enabled the corporate and retail customers to transact from home, office and traveling.

8. Online fund transfer enabled the customer to transfer funds from one bank to another or within the same bank at same time.

9. Communication, interaction between the bank and customer has been improved due to e-banking.

On the whole we can say that e-banking has become pre-imminent method of carrying the banking transaction and to increase the customer satisfaction. With the present chapter an effort has been made to analyze the impact of e-banking on customer satisfaction with servqual dimension.

2.3.3. E banking and customer attraction

Banks have good reasons to believe E banking positively affects customer attractions which increases the size of the bank hence its profitability positively. Increasing bank size can increase bank profitability by allowing banks to realize economies of scale. For example, increasing size allows banks to spread fixed costs over a greater asset base, thereby reducing their average costs. Increasing banks' asset size can also reduce risk by diversifying perations across product lines, sectors, and regions (Mester 2010). Lower risk can promote profitability directly by reducing losses or indirectly by making liability holders willing to accept lower returns, thereby reducing banks' funding costs. Furthermore, as the scale of operations increases, banks may be able to better use specialized inputs such as loan officers with expertise in commercial and industrial business lines, resulting in greater efficiency. Realizing economies of scale may lead to a healthier banking system by eliminating inefficiencies and reducing risks.

However, scale economies are not the only way size can affect profitability. Small banks may be able to form stronger relationships with local businesses and customers than large banks, allowing them access to proprietary information useful in setting contract terms and making

better credit underwriting decisions (Berger and others). Indeed, these informational and pricing advantages may fully offset any loss of scale economies. To determine how size affects bank performance, then, it is important to use a measure such as profitability that summarizes the various costs and benefits of size. A simple comparison across the various size groups in USA in 2014 suggests that, on average, larger banks have higher returns (Kristen and Radjeep, 2015)

CHAPTER THREE

RESEARCH DESIGN & METHODOLOGY

3.1.   Research Design

The primary aim of this study is to examine the effect of e banking on profitability of CBE. To achieve this objective both explanatory and descriptive type of research has been employed. Explanatory research with a mixed approach, more of qualitative was used to examine the effect of e banking on the profitability of CBE and descriptive research was be used to compare the business efficiency, income generation, and customer change pre and post implementation of the products and services.

The main reason of selecting explanatory research design is that it is relevant not only to show how one variable affects, or is "responsible for," changes in another variable but also to understand, explain, predict, and control relationships between variables (Cooper and Emory, 2006). Therefore, explanatory research design has been important to examine the relationship between e banking services implementation and profitability of the bank. Whereas, descriptive research design is found to be relevant to show the trends in performance of the bank in relation to profitability due implementation of the services. Descriptive study involves range of survey which describes the status quo; the correlation study which investigates the relationship between variables, to developmental studies which to determine changes over time (Key, 1997).

3.2.   Population and Sampling Techniques

As per the report of Commercial bank of Ethiopia (2016) the number of branches operating in Addis Ababa during the fiscal year as of June 30, 2016 reached 215 divided in to four districs mainly, North, West, East, and South districts. The bank provides e banking services through all its branches spread in Addis Ababa. Therefore, all two hundred fifteen CBE branches situated in Addis Ababa city administration are the population of the study.

From the above two hundred fifteen stratified sampling methods has been used to select branches from each district. In Stratified Sampling the researcher divides, the population into separate groups, called strata. Then, a probability sample (often a simple random sample) is drawn from each group. Stratified sampling improves representativeness of the sample by reducing sampling error and having fair distribution on the population (Mokhlis, 2009). Due to time and data limitations 25 branches and two department sections were selected from each district in order to collect the necessary data regarding e banking services and its effect on profitability of their branch.

The purposive or judgmental samplings involves selecting cases when the researchers prior knowledge and judgement suggests will best serve the purposes of the study and provide the best information (T. Sulvan, 2001). Purposive sampling technique has been employed to select respondent from each of these branches. In order to get accurate information with regard to e banking services delivery, business efficiency, income generation, and profitability Customer Service Managers or E banking officers of these banks who has exposure in this regard were selected to respond the structured questioner.

3.3. Types of Data and Instruments of Data Collection

In this study both primary and secondary data were gathered for analytical purpose. A formal survey has been conducted to collect primary data while secondary data were gathered from published and unpublished documents of CBE.

During the case study, structured questionnaire was used as a primary source for data collection in order to investigate e-banking usage and its role for profitability of CBE. Open end question was also presented to the e banking departments and branches e banking officers and managers as they have great exposure in the area of concern.

In addition, secondary data from quarterly, semiannual, and annual reports and financial statements of commercial bank of Ethiopia was collected using data collection forms. This secondary data for was collected for the 4 years from 2011 to 2016 on the bank profitability after implementing periods of most of electronic banking services.

3.4.   Procedures of data Collection

In order to carry out the study, the researcher employed questionnaire as research instrument to collect primary data from officials of the bank who has exposure to the subject matter. Structured questionnaire which contained different parts and types of questions was used. The first section intends to obtain general information, the second part intends to obtain specific information and the last part of the questionnaire intends to obtain additional information regarding e banking services and their impact on profitability of the bank.

The secondary data was collected from quarterly, annually, and semiannual reports of the commercial bank of Ethiopia was used covering time span of four starting from 2011 to 2016 since launching of the major e banking services services up to date.

3.5.   Methods of Data Analysis

Descriptive analysis was used to analyze effectiveness of e-banking on profitability by using qualitatively and quantitatively (descriptive statistics). Qualitative analysis is multi-method in focus, involving an interpretive, naturalistic approach to its subject matter. The qualitative approach enables respondents to be intensively engaged in responding to the questions geared towards the objectives of the study (Kumar, 2005). This design is suitable to find out the prevalence of the situation or the phenomena as it stands at the time of the study. The secondary data has been analysed using econometrics model to identify the relationship between e banking services and profitability of CBE.

Furthermore, it describes patterns and general trends in a data set. By applying descriptive statistics, one can compare and contrast different categories of the sample units with respect to the desired characteristics. The descriptive statistics has been used in this study include tabular analysis, mean, standard deviation, percentages and frequency of occurrence.

3.5.1. Definitions of Variables

Most of the studies on bank profitability have categorized the determinants of Profitability into internal and external factors (Rasiah, 2010b; Naceur&Omran, 2011; and Khrawish, 2011). Furthermore, Sastrossuwito and Suzuki (2012) refer to the internal factors as the bank specific determinants of profitability, while the external factors refer to the macroeconomic determinants of profitability.

As a result, the researcher employed different measures of profitability to determine the factors affecting banks' performance. For instance, the measures of profitability employed (and the authors) include: return on assets (Flamini et al., 2009;Sco* & Arias, 2011; Oladele et al, 2012; Babalola, 2012); return on equity (Saona, 2011); return on assets and return on equity (Athanasoglou et al., 2005; Dietrich &Wanzenrid, 2009; Rasiah, 2010b; Khrawish, 2011; Ali, Akhtar& Ahmed, 2011; Macit, 2012; Sharma &Gounder, 2012; Riaz, 2013); return on assets, return on equity and return on deposits (Jahan, 2012); return on assets and net interest margins (Demirgüç-Kunt& Huizinga, 1999; Naceur&Goaied, 2008); return on assets, return on equity and net interest margins (Su"an&Habibullah, 2009; Naceur&Omran, 2011; Qin &Pastory, 2012); return on assets, return on equity, profit margin (BTP/TA) and net interest margins (Hassan & Bashir, 2005). In this study Return on Asset of CBE was used as a measure of profitability due to unavailability of data of other measurements and irrelevant with the subject matter.

As (Anbar, 2011) pointed out, ROA has emerged as key ratio for the evaluation of bank profitability and has become the most common measure of bank profitability. Return on Asset is a basic measure of bank profitability that corrects for the size of the bank, which divides the net

income of the bank by the amount of its assets. ROA is a useful measure of how well a bank is doing on the job because it indicates how well a banks assets are being used to generate profits (Ricard , 2012).

The dependent variable of the study is profitability of Commercial Bank of Ethiopia which is measured by Return on Asset (ROA). This dependent variable is believed to be affected by the internet banking which was measured by the ratio of revenue generated from internet banking over total non-funded revenue for the bank, the point of sale which was measured by the ratio of revenue generated from point of sale over total non-funded revenue for the bank., the Automatic Teller Machine which was measured by the ratio of revenue generated from ATM over total non-funded revenue for the bank, the mobile banking which was measured by the ratio of revenue generated from mobile banking over total non-funded revenue for the bank, and the bank size which was measured using the natural log of total deposits for CBE in year t.

3.5.2. The Model

Data analysis was done using SPSS Version 20 whereby multiple regression models was employed. To test the effects of electronic banking on profitability of CBE, a logit regression model was used:

$$Y_{jt} = C + \alpha X_{jt} + \beta Z_t + \varepsilon_{jt} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 1$$

j refers to CBE; t refers to year; Y_{jt} is the dependent variable and refers to the Return on Asset (ROA) of bank j (CBE) in a particular year t; C is the intercept; X represent the independence variable which is e-banking, whereas Z represents the other determinants of CBE profitability; α and β are co-efficient and X_{jt} represent the error term. The significance of the regression model will be determined at 95% confidence interval and 5% level of significance

The empirical model to be used in the study to test the effect of electronic banking on profitability of CBE is presented as follows:

$$ROA_{jt} = C + \beta_1 IB_{jt} + \beta_2 POS_{jt} + \beta_3 ATM_{jt} + \beta_4 MB_{jt} + \beta_5 LOGA_t + \varepsilon_{jt} \ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where;

ROA_{jt} ; is return on assets for bank j (CBE) in year t

IB_{jt} ; is the internet banking which was measured by the ratio of revenue generated from internet banking over total non-funded revenue for the bank.

POS_{jt} ; is the point of sale which was measured by the ratio of revenue generated from point of sale over total non-funded revenue for the bank.

ATM_{jt} ; is the Automatic Teller Machine which was measured by the ratio of revenue generated from ATM over total non-funded revenue for the bank.

MB_{jt} ; is the mobile banking which was measured by the ratio of revenue generated from mobile banking over total non-funded revenue for the bank.

$LOGA_t$; is the bank size which was measured using the natural log of total deposits for bank j in year t.

Therefore, based on the above model estimations, the long run causality among the study variables has been examined empirically.

3.5.3. Test of Significant

In order to test the model significance, the study used ANOVA to test the model level of significance at 95% confidence level and 5% level of significance.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1. Introduction

Presentations and discussions of the findings derived from the analysis of data are elucidated after a detailed literature review. Furthermore, it also deals with the effects of E-banking on profitability of commercial bank of Ethiopia.

Preliminary analyses were conducted to indicate if there were any violations of the assumptions of normality, and reliability test was conducted. The total number of complete feedback received was 108 sample populations. In order to confirm the reliability of the data, Cronbach's Alpha was calculated for each variable. As below table indicate, all variables Cronbach's alpha test result shows to be larger than 0.7 which is known to be satisfactory.
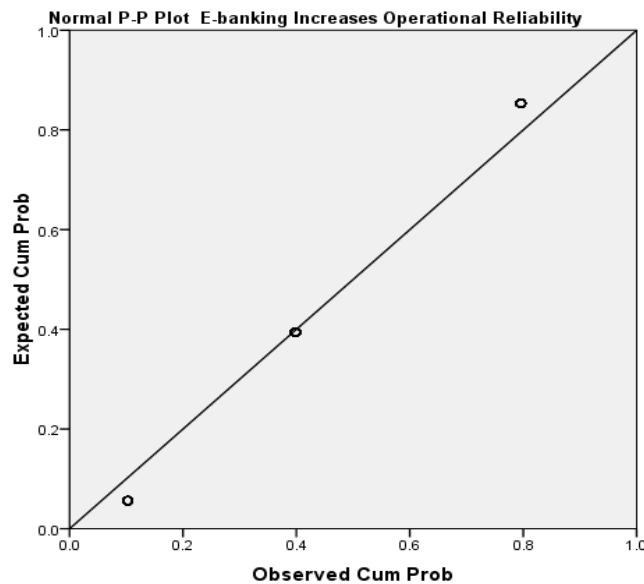
Fig 4.1. Normal p- plot of the regression standardized residuals

To test the assumption of normality, a Normal P-Plot of Regression Standardized Residuals was conducted for some key variables. The remaining Normal P-Plots of Regression Standardized Residuals were examined (see Appendix A). The points lied in reasonably straight lines, therefore, the assumption of normality was found tenable.

4.2. Background of the Respondents

A total of 108 questionnaires were completed and used in data analysis representing 100 percent of response rate. In order to generally describe the characteristics of the respondent; gender, educational back ground (qualification), age, job experience and position were part of demographic questions.

The result of table 4.1 bellow provides data on demographic characteristics of the respondents. It includes variables like sex, age, educational status, and occupational position. As can be seen in table 4.1, 77.8 percent of respondents are male and the remaining 22.2 percent are females. Hence, the involvement of female's employee in CBE almost insignificant when compared with male participation.

Table 4.1. Respondent's Sex Category

		Frequency	Percent	Valid Percent	Cumulative Percent
TValid	Male	84	77.8	77.8	77.8
	Female	24	22.2	22.2	100.0
	Total	108	100.0	100.0	

Source: Survey results, 2016

Table 4.2 shows the age group, educational qualification, position, and work experience of the respondents. In the case of classification of respondents by age the highest percentage of participants are young (26-35 years old) which form 57.4% of total respondents. Regarding the educational level of the study participants, the highest percentage of them has bachelor degree

30

that form 72.2% of total participants. On the other hand, the highest percentage of participants i.e. 48.1% are officers, followed by Managers (44.4%), and Clerks (3.7%) which shows that majority of the respondents have exposures at the bank. Considering work experience of the respondents most of them (50%) have 2-5 years of experience, while the remaining 27.8% and 1.9% of the respondents have worked for 6-10, and above 10 years respectively.

Table 4.2 Respondent's Profile

		N = 108	100 %
Age Group	18-25	40	37.0
	26-35	62	57.4
	36-45	6	5.6
	Total	108	
Qualification	Diploma	6	5.6
	Degree	78	72.2
	Masters or above	24	22.2
	Total	108	
Position	Clark	4	3.7
	Officers	52	48.1
	Managers	48	44.4
	Directors	4	3.7
	Total	108	
Working Experience	Less than 2 year	22	20.4
	2-5 year	54	50.0
	5-10 year	30	27.8
	Above 10 year	2	1.9
	Total	108	

Source: Survey results, 2016

4.3. Effecct of E-banking on service Quality, Business Efficiency and Customer Change of CBE

The perceived benefits associated with e-banking have been extensively documented in several studies. As per Thornton and White (2001) several electronic distribution channels are available for banks in United States, further they concluded that customer orientations towards convenience, service, technology, change, knowledge about computing and the Internet affected the usage of different channels.

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. Electronic banking facilities provided by most Ethiopian Banks are very basic. Commercial Bank of Ethiopia as such provide all the banking services including ATM facility, Internet Banking, Telephone Banking, SMS banking and Mobile Banking beside the traditional banking activities.

As a result, respondents that were interviewed concurred that CBE's launching of e-banking services have extended its distribution channels, service quality, profitability, efficiency and improved coverage to customers been evaluated in terms of the traditional banking system. Survey results show that CBE currently is able to offer services such as balance enquiries through SMS, POS and ATM banking, statement requests and even money transfers. Respondents were asked about the reliability, loyalty, and minimization of transaction cost in terms of money and time and other critical variables to evaluate the impact of e-banking systems on profitability of CBE.

Initially respondents were asked about reliability of the bank's core banking system. Accordingly, most of the respondents or above 90% revealed that their systems were always operational and accessible on a weekly basis, while less of 10 percent of them agreed moderately their systems were satisfactory regarding to accessibility of network a week. As a result,

frequency of system failures for the CBE weren't occuring on a daily basis. Thus CBE can provide customers convenient, inexpensive access to the bank 24 hours a day and seven days a week. Consistent online banking extends the relationship with the customers through providing financial services right into the home or office of customers and reduce the transaction cost simultaneously increase an efficiency of the organization (Robinson, 2000). Al-Sukkar and Hassan (2005) support the view that technology can improve service quality for banks and enhance customer satisfaction and reliability. The figure demonstrate the frequency of system failures for the CBE which was not happening all the time.
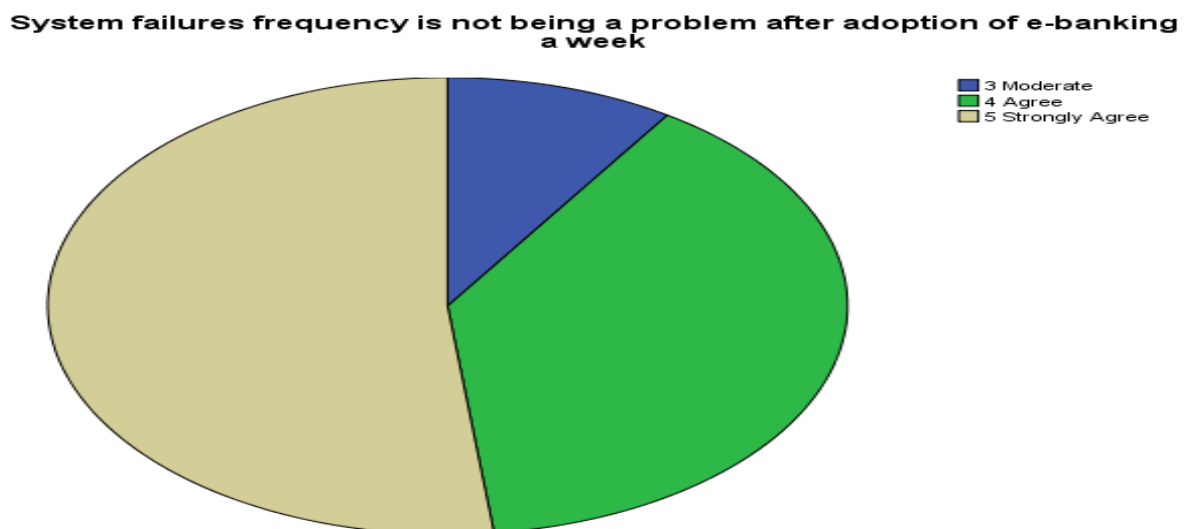
Fig.4. 2 Frequency of System failure in a week

Howcroft *et al.,* (2002) found that the most important factors encouraging consumers to use online banking are lower fees followed by reducing paper work and human error, which subsequently minimize disputes (Kiang *et al.*, 2000). The results obtained in table 4.3 below also revealed that 90.7 percent of the respondents moderately and above did state that electronic banking does not lead to high transaction processing errors while only 9.3 percent of the respondents were of the opposite view when compare and contrast the traditional banking system of CBE.

According to Berry (1984), maintenance of high level of employee satisfaction and retention is essential if customer satisfaction has to be achieved and employees must be essentially viewed as internal customers by the management. According to the servey seventy-nine percent of the respondents were of the view that e-banking offers more convenience to customers. Only 1.9 percent of the respondent viewed e-banking as a cost cutting measure. As after implementations of e-banking within CBE customer service improves through e-banking. In addition, 75.9 percent of the respondents strongly believed that customer loyalty is enhanced by adoption of e-banking technology.

Table 4. 3 Employees Responses

E-banking		N = 108	100 %
Minimize risk of carrying cashes	Strongly disagree	0	0.00
	Disagree	2	1.9
	Moderate	12	11.1
	Agree	30	27.8
	Strongly agree	64	59.3
Convenient to customers	Strongly disagree	2	1.9
	Disagree	2	1.9
	Moderate	18	16.7
	Agree	46	42.6
	Strongly agree	40	37.0
Increases operational reliability	Strongly disagree	0	0.00
	Disagree	0	0.00
	Moderate	10	9.3
	Agree	42	38.9
	Strongly agree	56	51.9
	Strongly disagree	0	0.00
	Disagree	8	7.4

Minimize the transaction error	Moderate	12	11.1
	Agree	56	51.9
	Strongly agree	32	29.6
Increase loyalty to customers	Strongly disagree	0	0.00
	Disagree	4	3.7
	Moderate	22	20.4
	Agree	52	48.1
	Strongly agree	30	27.8

Source; Survey Results, 2016

Convenience of conducting banking outside the branch official opening hours has been found significant in cases of adoption. Banks provide customers convenient, inexpensive access to the bank 24 hours a day and seven days a week. Moutinho *et al.*, (1997) pointed out that each ATM could carry out the same, essentially routine, transactions as do human tellers in branch offices, but at half the cost and with a four-to-one advantage in productivity. Figure 4.2 shows the benefits of e-banking in terms of time saving.
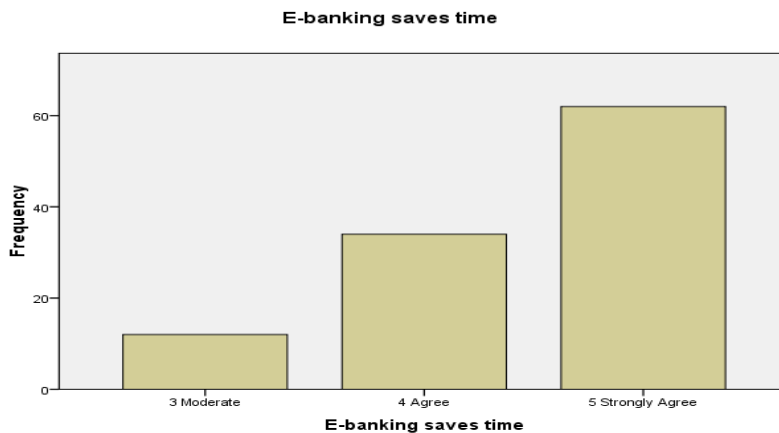

Fig 4.3: E banking and its impact on time savings

Table. 4.4 Employees responds of benefits e-banking rather traditional banking system

Statement	Mean	Rank
1. E-banking saves time	4.46	1
2. E-banking minimizes inconveniences	4.19	5
3. E-banking increases operational reliability	4.43	3
4. E-banking improves service quality	4.35	4
5. E-banking minimizes the risk of carrying cash	4.44	2
6. E-banking g reduces HR requirements	3.61	10
7. E-banking minimizes the cost of transaction	4.04	6
8. Adoption of E-banking services increase loyalty of customers	4.00	8
9. E-banking has positively affected the bank's deposit mobilization	3.44	11
10. Service charges collected from use of e-banking services has increased the income source of the bank	3.91	9
11. Introduction of e-banking services such as internet banking has helped to attract new customers who live outside of the country	4.02	7
12. E-banking products and services such as ATM & POS have created important source of foreign exchange generation to the bank	3.15	12

Source: Survey results, 2016

The above table 4.4 shows the mean scores of CBE employees perceptions of the benefits of electronic banking. It is observed that the statements, "Electronic banking saves time", "Electronic banking minimizes the risk of carrying cash", and "Electronic banking increases operational reliability" have the highest mean scores of 4.46 and 4.44 and 4.43.

The outcomes are not in line with those of earlier studies made by Moutinho et al., (1997), Thornton and White (2001), Howcroft et al., (2002) and Gerrard and Chang (2003). In these studies, mean scores were highest for statements "Electronic banking minimizes the risk of carrying cash", and "Electronic banking increases operational reliability" and "Electronic banking saves time".

The bankers give average importance to the statements, "Electronic banking improves service quality" (4.35), "Electronic banking minimizes inconvenience" (4.19), "Electronic banking increases operational reliability" (4.43). These outcomes are contrary to the findings of Moutinho and Phillips (2002) in case of UK and Aladwani (2001) in case of Kuwait, where the managers gave the highest priority to faster, easier and reliable IT services for customers.

The statements "Electronic banking reduces HR requirements" (3.61) had the lowest mean scores. These findings are the opposite of those found by Birch and Young (1997) who found reductions in branches and associated staff with the introduction of internet banking. The low mean score for a reduction in HR requirements was associated with the low level and recent penetration of electronic banking in the country, Boon and Ming (2003) suggested in case of Malaysia that the top management of the banks should enhance their operations through a mixture of branch banking and e-channels like ATMs, phone banking and PC banking.

4.4.   Employee's responds of Risks Associated with E-banking

Open ended request illustrates and presents the bankers perceptions of the risks associated with electronic banking. The results show some very interesting facts. All categories of CBE employees considered that Electronic banking needs expertise and training, has many legal and security issues and has the **c**hance of fraud as very serious concerns. Where as e-banking has the **c**hance of data loss and **c**hance of government access are given just about average importance. In addition, e-banking has inadequate information on the website, e-banking lacks information security, has less operational reliability and it charge a high cost for services are considered least important.

4.5. Correlation Analysis

The correlation between dependent and independent variables along with the causal effect was analyzed using Statistical Package for Social Science (SPSS). The below correlation matrix shows correlation between variables in the questionnaire with a Pearson Correlation coefficient to show the strength of relationship among the variables considered in the questionnaire.

Table 4.5: Correlation between e-banking service variables

		Service quality	Saves time	More customers	Deposit/Asset	Transaction cost minimize
Service quality	Pearson Correlation	1	.469**	.242**	.313**	.205**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	108	108	108	108	108
Saves time	Pearson Correlation	.469**	1	.248**	.395**	.396**
	Sig. (2-tailed)	.000		.000	.000	.000
		108	108	108	108	108
More customers	Pearson Correlation	.242**	.248**	1	.323**	.275**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	108	108	108	108	108
Deposit/Asset	Pearson Correlation	.313**	.395**	.323**	1	.333**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	108	108	108	108	108
Transaction cost minimize	Pearson Correlation	.205**	.396**	.275**	.333**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	108	108	108	108	108
** Correlation is significant at the 0.01 level (2- tailed).						

The above the correlation matrix indicates that e-banking practices in CBE were positively and moderately correlated with service quality, saves time, attract new customers, boots its income (deposit increment) and minimize transaction cost. The highest coefficient of correlation in this research lye between service quality and saves time is 0.469. There is a significant positive relationship between service quality and time saves (r = 0.469, n = 108, p ≤ 0.01).

The second highest coefficient of correlation is between time saves and transaction cost minimize. Hence, there is a significant positive relationship between time saves and transaction cost minimize (r = 0. 395, n = 108, p ≤ 0.01). There is a weak positive correlation between service quality and transaction cost minimize (r = 0.205, n = 108, p ≤ 0.01). On the other hand, income increment (deposit/asset) and transaction cost minimize are positivity and moderately correlated (r = 0. 333, n = 108, p ≤ 0.01). all the above correlation matrix showed that all variables are positively and significantly correlate with the dependent variable of e-banking profitability measures as ROA which implies that the increase of the independent variables will also enhance profit of CBE.

4.6.   Econometric Analysis

This chapter presents the data findings to determine the effects of e-banking on profitability of CBE. These data were obtained from head office of CBE. Regression analysis was done for the periods to determine the effects of e-banking on profitability of CBE. The study covered a period of 4 years 2011 to 2016.

4.6.1.   Regression Analysis

Taking Return on Asset (ROA) as a dependent variable has high correlation with other independent variables. For instance, according to Chandon, (2003) for a high degree of correlation, which leads to better estimate and prediction, the coefficient of estimation R^2, must have a high value. In this case, as mentioned in below table headed by model summary, provides

the correlation coefficient, which indicates the strength of the relationship between the combination of the independent variables in the model and the dependent variables.

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914[a]	.835	.819	.17823

Source; Research Findings

Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable, from the findings in the above table the value of adjusted R squared was 0.819 an indication that there was variation of 81.9% on performance of Commercial Bank of Ethiopia's profitability due to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank at 95% confidence interval. This shows that 81.9 % changes in financial performance of commercial bank could be accounted to changes in internet banking, point of sales, automatic teller machine, mobile banking and size of the bank. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.835.

Table 4. 7. ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	24.515	5	4.903	10.288	.000[b]
Residual	17.649	91	0.477		
Total	42.164	96			

Source; Research Finding

40

From the ANOVA statics in table 4.6 above, the processed data which is the population parameters, had a significance level of 0% which shows that the data is ideal for making a conclusion on the population's parameter as the value of significance (p-value) is less than 5%. The calculated value was greater than the critical value (10.288 > 1.984) which indicates the variation is explained by the model is not due to chance. Therefore, an indication that internet banking, point of sales, automatic teller machine, mobile banking and size of the bank significantly influence financial performance of commercial bank of Ethiopia.

Table 4.8: Summary of Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.232	.567		2.231	.000
	Internet banking	.118	.077	.164	1.519	.003
	Point of sale	.198	.099	.237	2.011	.048
	Automatic teller machine	.271	.130	.278	2.083	.040
	Mobile banking	.035	.124	.036	.285	.006
	Size of the bank	.208	.093	.268	2.231	.028

The established regression equation is

$$Y = 1.232 + 0.118 X1 + 0.198X2 + 0.271 X1 + 0.035X2 + 0.208X2 \ldots \ldots \ldots 3$$

From the equation 3 regression model, holding internet banking, point of sales, automatic teller machine, mobile banking and size of the bank to a constant zero, financial performance of CBE would be 1.232, its established that a unit increase in internet baking would cause an increase in financial performance of CBE by a factor of 0.118, a unit increase in point of sale would cause an increase financial performance of the bank by a factor of 0.198, a unit increase in automatic

teller machine would lead to an increase financial performance of the bank by a factor of 0.271, a unit increase in mobile banking would lead to an increase financial performance of the bank by a factor of 0.035 and further unit increase in size of the banks would lead to an increase financial performance of the bank by a factor of 0.208. This clearly shows that there is a positive relationship between financial performance of CBE and internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank. The study further revealed that the P-value were less than 0.05 in all the variables, which shows that all the independent variable was statistically significant and thus in position to make conclusion for the study.

4.7.   Interpretation of the Findings

From the findings on the coefficient of determination, the study found that there would be great variation in the financial performance of Commercial Bank of Ethiopia which could be accounted to changes in internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank at 95% confidence interval. From the findings on the R correlation the study found that there was a strong relationship between financial performance of CBE and internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank. From the coefficient result the study revealed that there is a positive relationship between financial performance of commercial bank of Ethiopia and mobile phone banking and size of the bank. The study further revealed that that there was a statically significant relationship between financial performance of commercial bank and size of the banks and mobile phone banking.

The introduction of electronic banking has revolutionized and redefined the ways banks were operating. As technology is now considered as the main contribution for the organizations' success and as their core competencies. So the banks, be it domestic or foreign are investing more on providing customers with the new technologies through mobile banking.

The findings of the study concur with the funding of Laukkanen & Pasanen, (2007), who found that technology created greater opportunities to service providers to offer great flexibility to the

customers. To this end banks are fast developing branchless banking such as ATM, internet and mobile banking among others. The finding further concurs with the findings of Suoranta and Mattila (2004), who found that that mobile banking is among the most recent financial channels today. Riquelme et al, (2010) agree that the mobile phone banking service provides convenience and promptness to customers along with cost savings, banks are also interested in expanding their market through mobile services. Kleijnen et al., (2004) found that the advancement of mobile technologies has provided an opportunity for financial providers in introducing new financial innovations. One of the emerging financial innovations introduced by financial providers is mobile phone banking.

4.8. Testing Study of Hypotheses

In this section we were tested the effect of e-banking on profitability evidence from CBE. For the purpose of this studied four hypotheses were developed, brief discussion on each hypothesis is given below.

1) H_0. There is a positive relationship between e-banking and profit

Profitability measures are Return on Assets (ROA).

Independent variables are:

- ✓ Internet Banking (IB); measured by revenue generated from internet banking over total non-funded revenue for the bank.
- ✓ Point of Sale (POS); which was measured by the ratio of revenue generated from point of sale over total non-funded revenue for the bank.
- ✓ Automatic Teller Machine (ATM); which was measured by the ratio of revenue generated from ATM over total non-funded revenue for the bank.
- ✓ Mobile Banking (MB); was measured by the ratio of revenue generated from mobile banking over total non-funded revenue for the bank.
- ✓ LOGA or bank size; bank size which was measured using the natural log of total deposits for each of CBE branch bank j in year t.

Table 7 (summary of coefficient) supported the hypothesis which states, there is a positively significant relationship between e-banking and profitability. From the findings on the R correlation the study found that there was a strong relationship between financial performance of CBE and internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank. From the coefficient result the study revealed that there is a positive relationship between financial performance of commercial bank of Ethiopia and mobile phone banking and size of the bank. The study further revealed that that there was a statically significant relationship between financial performance of commercial bank and size of the banks and mobile phone banking.

2) H_0. <u>E-banking service ensured and achieved its service quality in CBE</u>

Descriptive analysis result of table 4 has proven that "Electronic banking improves service quality by mean value of 4.35". Banks just like other businesses are tuning to information technology to improve business efficiency, service quality and attract new customers (Nath et al, 2001).

In addition, correlation table of e-banking service variable revealed that e-banking practices in CBE is correlated positively with service quality. Kiang et al (2000) is of the view that disputes can be minimized between the employees as there is a clear flow of processes. Conducting business outside the normal branch working hours has also been a factor that has been considered convenient for bankers.

3) H_0: <u>CBE boosts its income and minimized its costs due to implementation of e-banking services</u>

According to Jayawardhena and Foley (2000) each ATM has the capacity to carry out the same, essentially routine, transactions as do human tellers in branch offices but at half the cost and with a four to one advantage in productivity. Thus banks can provide customers convenient, inexpensive access to the bank 24 hours a day and seven days a week. The research finding in

correlation analysis table showed that there is strong positive relation e-banking with income increment and cost decrement.

Descriptive result of table four have same result with correlation analysis by increasing of CBE income source and minimizes of transaction cost. Al-Sukkar and Hasan (2005) aver that the most important factors encouraging consumers to use online banking are lower fees followed by reducing paper work and human error. Subsequently electronic channels can lead to lower transaction costs which are very competitive (Claessens and Kliengbiel, 2000).

4) H_0: <u>The implementation of e-banking services by CBE has helped the bank to attract more customers</u>

Reduction in the percentage of customers visiting the banks with an increase in alternative channels of distribution will also minimize the queues in branches (Thornton and White, 2001). According to Thornton and White (2001) this ultimately leads to improved customer satisfaction. Introduction of e-banking services in CBE such as internet banking has helped to attract new customers especially a customer who live outside of the country by increasing channel of e-banking service as marketing strategy.

Simultaneously, CBE being competitive in the financial market (shows table 4 and table) correlation matrix revealed that e- banking variable have positively and significantly correlate with the independent variables of new customer's attraction. Jayawardhena and Foley (2000) observe that electronic banking increases competition within the banking system and also from non-bank financial institutions. Electronic banking also increases the power of the customer to make price comparisons across suppliers quickly and easily and as a consequence this pushes prices and margins downward (Devlin, 1995).

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATION

5.1. Conclusions

This study aims at investigating the effect of e banking on profitability of Commercial Bank of Ethiopia. Both quantitative as well as qualitative (mixed) research approach was employed in the study. Qualitative research approach was used to investigate the effect of adoption of E banking services by CBE on its profitability in general and on service quality, business efficiency, and customer attractions in particular. Moreover quantitative research was used to investigate the correlation between Return on Asset (ROA) as a dependent variable with independent variables; internet banking, point of sales, automatic teller machine, mobile banking and size of the bank.

Commercial Bank of Ethiopia's core banking and e banking systems were operational and accessible on a weekly basis; i.e. customers are not being affected due to system failures to access e banking services.

According to the findings of the study; E banking services of CBE has positive impact on reducing transaction processing errors, saving time, reducing risk of caring cashes, and improving operational reliability of the bank. Hence adoption of the services has improved the bank's service quality and it customers' satisfaction.

The finding of the study reveals that adoption of E banking services by CBE has relatively lower importance to attraction of new customers to the bank, reduction of human resource requirements of the bank, improvement of customers' loyalty to the bank.

All categories of CBE employees considered that Electronic banking needs expertise and training, has many legal and security issues and has the chance of fraud as very serious concerns

whereas e-banking has the chance of data loss and chance of government access are given just about average importance.

The empirical analysis of the study indicates that internet banking, point of sales, automatic teller machine, mobile banking and size of the bank significantly influence financial performance (profitability) of commercial bank of Ethiopia. The study reveals that there was great correlation between profitability of CBE and changes in internet banking, automatic teller machine, point of sale, mobile phone banking and size of the bank at higher level of confidence interval.

5.2. Recommendations

E-banking system is a new financial evolution in Ethiopia in general and to CBE in particular. Commercial Bank of Ethiopia plays a catalytic role in the economic progress and development of the country. E banking is an important issue because it has a great impact on the whole system and performance of the bank. Based on the above conclusion, the researcher recommends the following points:

➤ In order to attain the fruit of its investment, Commercial Bank of Ethiopia 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, the bank needs to familiarize its customers with the processes and benefits of the system.

➤ The bank should pay special attention to deliver service to customers by using user's friend ly E- banking system, which can easily be accessible.

➤ The adoption of e-banking requires the incorporation of sound risk management principles for it to be effective.

➤ CBE needs to adopt extensive training packages to its employees in effective utilization of the services and promoting the services to their customers.

- The bank should have organized e banking departments and professionals in order to ensure proper running of e banking services and machines
- The bank should invest more on new e banking services and introduce to its customers to be fruitful from being first
- In order to successfully facilitate E-banking adoption in Ethiopia, the regulatory bank National Nank 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.

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Questionnaire to be filled by Commercial Bank of Ethiopia's Employees

Research Topic: Effect Of E Banking on Profitability of Commercial Bank of Ethiopia: The Case of Addis Ababa Branches

Dear Respondents, I would like to express my sincere appreciation for your time, honest and prompt responses.

Objective

This questionnaire is designed specifically to carry out a research on the impacts of E-Banking on profitability of CBE, Addis Ababa branches mainly to assess the impact of adopting E banking services in delivering quality services, enhancing efficiency, and attracting more customers to Commercial Bank of Ethiopia. The information that you offer in this questionnaire will be used as a primary data for a thesis that I am conducting for partial fulfillment of the requirement of Masters of Business Administration. Hence, the study is believed to investigate the effectiveness of investments on technologies by the bank on its profitability and in making future decision to adopt more advance and up-date technologies. Hence, your involvement is regarded as a great input to the quality of the research results. Therefore, I kindly request you to attempt all the questions in the questionnaire. Your honest and thoughtful response is invaluable.

Confidentiality

Please be assured that this questionnaire is only for academic study purpose. Whatever information is provided will be treated with utmost confidentiality and strictly will be used for the same purpose only.

Thanking you in advance for your kind cooperation, I remain.
Yosef Kasse
Email: yosefkasse@gmail.com
Mobile: +251911674525

General insturcions

- ✓ There is no need of writing your name on the questionnaire
- ✓ In all cases, where answers to options are available, please tick (√) in the appropriate box

Background Information

1. Sex: Male [   ]   Female [   ]

2. Age

   18-25 [   ]   26-35 [   ]   36-45 [   ]   46-55 [   ]   56-65 [   ]   66 or above [   ]

3. Educational qualification:

   12 Complete [   ] Diploma [   ]   Degree [   ]   Masters and above [   ]

4. Current professional position?

   Clerk [   ]   Officers [   ]   Managers [   ]   Director [   ]   Executives [   ]

5. Working experience at CBE?

   A. Less than 2 years

   B. 2 to 5 years

   C. 6 to 10 years

   D. More than 10 years

6. Which type of E banking products/service are provided by your branch *(It is possible to tick more than once)*

Internet Banking [   ]   Debit Card [   ]

POS Banking [   ]   Credit Card [   ]

Mobile Banking [   ]   Electronic Fund Transfer [   ]

SMS Banking [   ]   Others: _____

ATM Banking [   ]

7. CBE' e banking services are operational throughout the time and don't get interrupted due to system failures most of the time.

   A. Strongly Disagree [   ]

   B. Disagree [   ]

   C. Moderate [   ]

   D. Agree [   ]

   E. Strongly Agree [   ]

		STRONGLY DISAGREE	DISAGREE	MODERATE /NEUTRAL/	AGREE	STRONGLY AGREE
1.	E-BANKING & SERVICE QUALITY					
1.1.	Adoption of E banking services by CBE improves its operational Reliability.	[ ]	[ ]	[ ]	[ ]	[ ]
1.2.	Adoption of E banking has a positive impact on Error Reduction	[ ]	[ ]	[ ]	[ ]	[ ]
1.3.	E banking has helped to reduce inconveniences of delivering banking services to customers	[ ]	[ ]	[ ]	[ ]	[ ]
1.4.	Introduction of E banking services by CBE has helped the bank to save time which have been spent if the services were given by the bank staffs	[ ]	[ ]	[ ]	[ ]	[ ]
1.5.	Introduction of E banking services by the bank has increased its customers' satisfaction on the banking services	[ ]	[ ]	[ ]	[ ]	[ ]
1.6.	Changing from the traditional banking services to Electronic banking services has helped the bank minimize the risk of carrying cashes	[ ]	[ ]	[ ]	[ ]	[ ]
1.7.	Adoption of technological banking services will increase loyalty of customers to the bank.	[ ]	[ ]	[ ]	[ ]	[ ]
2.	E BANKING & BUSINESS EFFICEINCY					
2.1.	Adoption of Electronic Banking services helps the bank to reduce Employees recruiting trend and substitute with technological services such as ATMs, POS machines, and Internet & SMS banking services	[ ]	[ ]	[ ]	[ ]	[ ]
2.2.	Introduction of E banking services such as ATM & POS has reduced the need to open branches everywhere	[ ]	[ ]	[ ]	[ ]	[ ]

		[ ]	[ ]	[ ]	[ ]	[ ]
2.3.	E banking products and services such as ATM & POS have created important source of foreign exchange generation to the bank	[ ]	[ ]	[ ]	[ ]	[ ]
2.4.	E banking has positively affected the bank's deposit mobilization	[ ]	[ ]	[ ]	[ ]	[ ]
2.5.	Service charges collected from use of E banking services has increased the income source of the bank	[ ]	[ ]	[ ]	[ ]	[ ]
2.6.	Electronic banking services has helped the bank to reduce the risk of being frauds which have been done by some customers and staffs of the bank	[ ]	[ ]	[ ]	[ ]	[ ]
2.7.	Adoption of E banking services has helped the bank to reduce stationary costs by making transactions paperless	[ ]	[ ]	[ ]	[ ]	[ ]
2.8.	Adoption of E banking services has reduced storage costs of the bank by making transactions paperless	[ ]	[ ]	[ ]	[ ]	[ ]
3.	E BANKING & CUTOMER CHANGE					
3.1.	Provision of Electronic banking helps CBE to be the preferred bank among customers	[ ]	[ ]	[ ]	[ ]	[ ]
3.2.	Introduction of Electronic Banking services such as Internet banking has helped the bank to attract customers who live outside of the country	[ ]	[ ]	[ ]	[ ]	[ ]
3.3.	Introduction of Electronic Banking services has helped the bank to provide banking services for customer who live in rural part of the country	[ ]	[ ]	[ ]	[ ]	[ ]

3.4.	E banking products such as POS machines has helped the bank to attract new merchant customers by mutually benefiting from payment facilitation	[ ]	[ ]	[ ]	[ ]	[ ]
3.5.	E banking products such as online salary transfers has helped the bank to attract corporate customers	[ ]	[ ]	[ ]	[ ]	[ ]

8. Please state your general comments and/or suggestions on the adoption of E banking services and enhancing their effects on profitability of CBE

_____

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_____

_____

_____.