



**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**THE EFFECT OF CORE BANKING SYSTEMS ON NON
FINANCIAL PERFORMANCE OF COMMERCIAL BANK OF
ETHIOPIA**

**BY
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**A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL
OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF
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**ST.MARY’S UNIVERSITY SCHOOL OF GRADUATE STUDIES
FACULTY OF BUSINESS**

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Master of Business Administration in Accounting and Finance.

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 or in full to any other higher learning institution for the purpose of earning any degree.

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June, 2016

ENDORSEMENT

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

ASMAMAW GETE (ASS. PROF)

Advisor

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June 2016

DEDICATION

This thesis is dedicated to my late beloved mother ATSEDE DEMOZE who had never failed to bring me up to this level of manhood from I born without the help of my father

.

Hope your soul is in heaven, but I owe you forever...

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ACRONYMS AND ABBREVIATIONS

ATM	Automated Teller Machines
CBS	Core banking system
CBSO	Core Banking Solution
CDM	Cheque Deposit Machines
ICT	Information communication technology
IT	Information technology
PIN	Personal identification number
POS	Point-of-Sale Transfer Terminals
SMS	Short text message
SOA	Service-oriented-architecture
SPSS	Statistical Package for Social Sciences

Abstract

This research aimed at finding out the effect of core banking Information technology system on performance of commercial bank of Ethiopia as a case study. It used customers' satisfaction and employees' performance/efficiency as independent variables to measure performance of the bank and to conduct the study convenient sampling technique was used in the selection of each respondent from the commercial bank of Ethiopia. Thus a total of 182 respondents participated from customers and 125 respondents participated from employees and structured questionnaire was used to collect relevant data for the research. The data gathered through the questionnaire was analyzed by Statistical Package for Social Science (SPSS). T-statistic test was carried out to determine the significance of the independent variables on dependent variable. Simple linear regression analysis was also carried out to determine the effect of the independent variables on dependent variable. It was found from the research that core banking Information Technology system indeed has a positive significance impact on non-financial performance of commercial bank of Ethiopia in respect with satisfying their customer and improve their employees' performance. The simple linear regression analysis also showed a positive coefficient of 0.623 and 0.970 for customer satisfaction and employees performance respectively, which simply mean that there is strong positive relationship between core banking Information Technology system and customers' satisfaction and employees' performance of the banks. In general, core banking Information Technology system has positively impacted on non-financial performance of commercial bank of Ethiopia. Finally, recommendations were forwarded based on the major findings so as improve system the bank to continue explore and implement sustainable business linkages and collaborations with core banking system.

Key Words: core banking Information Technology system, Customer satisfaction, Employee performance, Non-Financial Bank Performance.

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CHAPTER ONE

INTRODUCTION

1.1. Background of Study

Technology has come into common use in the banking sector and has played an important role. Financial institution special banks now day can no longer remain idle on legacy applications. Growth, and perhaps even survival, depends upon an agile, cost effective core banking solution that delivers a differentiated service experience and the use of manual banking system made it uneasy to serve customers in a more diverse ways as urgent demand for information coupled with reconciliation of financial statements of the various institutional customers were very hard to come by. But with the introduction of core banking information technology (IT) System, the more tedious banking functions through the use of manual banking system has considerably been softened (Bernard,2013).

Core banking system (CBS) has been effective in bringing about a radical change in the field of banking. CBS simplify their banking operations by allowing them to conduct common frequently used banking transactions without visiting bank's branches, saving a lot of time. CBS provides for online banking, Mobile banking and ATM services on 24/7 basis to customers so that a customer need not visit a bank for his banking needs (Dandapani, 2008).

Fueled by an evolving business landscape and fierce competition, most financial institutions adopt core banking technology that will enable strategic transformation without disrupting current operations.

In Ethiopia, the use of core banking IT System in the various banks is drastically changing the way banking activities are being organized. Almost all banks in Ethiopia are in the process of transforming their legacy banking systems to modern banking systems in which they can offer efficient and globally competent services to their customers and get customers satisfaction in return. Moreover, the National bank of Ethiopia has required all banks to implement core banking solutions to facilitate the National payment system

in which payments and settlements between two financial institutions will be effective (EATS User Guide,2011).

The general belief in the business organizations is that investment on Information Technology will add value to the firm (Adewoye,2007). But every business decision has to be made by considering its impact on the goal of the firm in this regard the investment on information technology has to be seen in terms of its likely contribution to the goal of the firm. (Jensen 2001). A company may pursue different goal, but for a business whose main objective is generating profit from its operations maximizing the value of the firm is by far an appropriate goal to pursue and several studies have suggested that IT investments carry significant long term business implications and non-financial measures clear advantages over measurement system linking long term performance but financial evaluation systems generally focus on annual or short term performance against accounting yardsticks.

In this regard it is imperative to evaluate what significant effect core banking system has on non-financial performance of commercial bank of Ethiopian: customer satisfaction, employee's performance?

1.2. Statement of the Problem

The financial service industry is undergoing significant transformations. Mergers, consolidation, expansion, shifting customer preferences, emerging nontraditional competition and a continuously evolving complex regulatory environment are just some of the issues on the minds of bankers worldwide. With change coming this rapidly, banks must quickly embrace the new world order and accelerate growth to stay a step ahead of the competition. This requires shedding away the complexity which has grown significantly across business functions and operations (Rhoades,1998)

The increasing customer expectations pressure to control cost of business operation need to exercise sound practices are some control on business and regulatory practice are some of the main challenging being face by bank industry today and are spending huge sums of local currency and foreign currency in acquiring core banking applications, hardware's

and soft skills. Also they invest money to train bank staff and maintain and retain the group of knowledge workers.

The results of studies done in this area have found considerably different outcomes in this regard (Ombati 2010, Rono 2012 ; Yalew , 2015; Milion, 2013) studies shows that Information technology systems have a positive impact on performance, but other scholars (Siam, 2006; Salman&Kashif,2010; Eyob,2010; Leyouager,2015) argues that there is no discernible relationship between Information technology systems and any measure of firm performance.

In Ethiopian case, Commercial Bank of Ethiopia has implemented applied core banking information technology and core banking implementation project is highly expensive and requires higher dedication for the accomplishment of the related objectives. However for the case of Ethiopian in spite of banks trying to enforce the core banking services and still faced with some challenges which need to be addressed in order to promote effective and efficient banking performance and these are: The development of an efficient monetary transfer system in Ethiopian has been hampered by so many factors. Ethiopian is faced with infrastructural deficiency such as erratic power supply and communication link in some areas, inadequate skilled managers and requisite tools on end users and client systems, high charge or cost for the e-payment terminals (ATMs) (Ayana,2012). Hence these factors are believed to hamper core banking services performance in the country affecting banks performance and reason behind the investment made by Commercial Bank of Ethiopia on core banking information technology system was to bring operational effectiveness and efficiency. This in turn has an effect on customer satisfaction and employee's performance. From this research mainly focus on the impact that the core banking brings for the effect on employee performance and customer satisfaction after implementation that has to be measured to get to good track. Even though many studies have been conducted on effect of ICT on banking performance but limited studies are available in Ethiopia that investigate the effect of core banking information technology system on performance of commercial banks in Ethiopian. Hence, more studies are still required to understand the relevance of core banking systems in Ethiopian Banks and to give a better insight for decision makers of the industry.

In this regard it is imperative to evaluate what significant benefit core banking system has conferred to the bank and leaving the question what significant correlation is there between investment in core banking information technology system on employees performance and customer satisfaction? Therefore the researcher investigates the effect of core banking system on Commercial Bank of Ethiopia performance.

1.3. Objective of the Study

1.3.1. General Objective

The general objective of the study is to examine the effect of core banking system implementation on non-financial performance of commercial bank of Ethiopian.

1.3.2. Specific Objective

1. To examine the effect of core banking information technology system on customers satisfaction in Commercial Bank of Ethiopian.
2. To examine the effect of core banking information technology system on employees performance in Commercial Bank of Ethiopian.

1.4. Research Question

Based on the statement of the problem and review of related literature, this study seeks answers for the following questions:

1. Does core banking information technology system have any effect on customers' satisfaction in commercial bank Ethiopia?
2. Does core banking information technology system affected employee performance/productivity in discharging their duties and responsibilities?

1.5. Research Hypothesis

The study proposes the following hypotheses for empirical testing.

Hypothesis 1:

The adaptation of core banking information technology system has a positive effect on customers' satisfaction in Commercial Bank Ethiopia.

Hypothesis 2:

Application of core banking information technology system has positive affected employees' performance in Commercial Bank Ethiopia

1.6. Significance of the Study

The study findings can help banks in evaluating the role of core banking system on the performance for Commercial Bank of Ethiopia. Banks, especially commercial ones, are swiftly becoming more aware of the importance of core banking in this era and this study adds impetus to knowledge on the link between core banking system and performance. This study's findings will prove to be important to Commercial Bank of Ethiopia managements, other organizations in the country and even policy makers in area of ICT.

The study will also add more knowledge on core banking systems thus making it of value to scholars, students and researchers. Core banking systems are known to be the backbone of any bank for the reason that this research is important for future researchers as a reference material to develop a literature framework.

1.7. Scope/Delimitation Study

This study is confined only to know the effect of core banking information technology system on customer's satisfaction and employee's performance/productivity of Commercial Bank of Ethiopia. The participants of the study were also selected from Addis Ababa branch.

1.8. Limitation of the Study

The researcher has encountered time constraints to carry out the research because the regular office work required extra time after working hours and also in some instances weekdays. On the other hand the respondent's weren't responding within expected time

for the researcher to perform the sorting, coding, testing and analyzing processes and the other limitation, the study failed to measure the financial impact of adoption and use of the core banking information technology system in commercial bank of Ethiopia. Future research is, therefore, recommended to address the above stated limitations.

1.9. Organization of the Paper

The study consists of five chapters. Chapter one is the introduction chapter which presents background of the study, statement of the problem, objective of the study, research hypothesis, significance of the study and Scope/Delimitation and limitation of the study. The second chapter deals with review of related literatures regarding the topic of the study. The third chapter discusses the research methodology and methods used by the current study. Chapter four presents the data analysis results and their interpretation. Finally, based on the analysis and interpretation of the findings, chapter five presents the summary, conclusion and recommendation.

CHAPTER TWO

LITERATURE REVIEW

2.1. Overview

Like any business, banks often find it hard to keep up with change. First, they need the ability to spot it. This means tracking countless variables. Then, they need to take the right action. This can be especially tough in today's banking world. Change is coming at banks from many directions (IBM, 2012). And each change can trigger many more. Delayed or inadequate responses often make it even harder to overcome threats and capture opportunity. However, banks that reach this stage of core system transformation can start to dynamically respond to change. They can also sharpen those responses, reducing labor and capital costs while improving results.

2.2. Theoretical Review

2.2.1. IT in Banks

To-day, we cannot think about the success of a banking system without information and communication technology. It has enlarged the role of banking sector in the economy.

The financial transactions and payment can now be processed quickly and easily. The banks with the latest technology and techniques are more successful in the competitive financial market. They have been able to generate more and more business resulting in their greater profitability (Kaur 2012). Information Technology has marked a turning point in the history of global banking and services with ever increasing availability of international bandwidth and powerful workflow management.

It is now possible to disaggregate any banking process, execute the sub-processes in multiple locations around the world, and reassemble it, at another location. Technology has opened up new markets, new products, new services and efficient delivery channels for the banking industry. Online banking, electronics banking, mobile banking and internet banking are just a few examples. Technological innovation not only enables a

broader reach for consumer banking and financial services, but also enhances its capacity for continued and inclusive growth (Seranmadevi&Saravananaraj 2012).

It is evident that in improving customer services, management information system and ensuring high productivity, technology orientation has become inevitable. In creating a viable and efficient banking system, which can respond adequately to the needs of growing economy and tastes of customers, technology has a key role to play (Kaur,2012). Kauralso stated that technological challenge is to identify suitable areas of automation, selecting appropriate software and priorities the implementation on suitable and cost effective hardware so that in ultimate analysis, gains outweigh the cost.

2.2.2. Meaning of core banking

Core means Basic hence the basic services provided by the inter-networked branches of bank is called Core Banking'. Core Banking is normally defined as the business conducted by a banking institution with its retail and small business customers. Many banks treat the retail customers as their core banking customers, and have a separate line of business to manage small businesses. Larger businesses are managed via the Corporate Banking division of the institution. Core banking basically is depositing and lending of money. Nowadays, most banks use core banking applications to support their operations where CORE stands for Centralized Online Real-time Exchange (Israa, Sarah &Tebian, 2013).

This basically means that all the bank's branches are throughout the world. These applications now also have the capability to address the needs of corporate customers, providing a comprehensive banking solution. A few decades ago it used to take at least a day for a transaction to reflect in the account because each branch had their local servers, and the data from the server in each branch was sent in a batch to the servers in the data center only at the end of the day. Normal core banking functions will include deposit accounts, loans, mortgages and payments. Banks make these services available across multiple channels like ATMs, Internet Banking, and branches.

2.2.3. Core banking solution

Core Banking Solution (CBS) is networking of branches, which enables Customers to operate their accounts, and avail banking services from any branch of the Bank on CBS network, regardless of where he maintains his account. The customer is no more the customer of a Branch. He becomes the Bank's Customer. Thus CBS is a step towards enhancing customer convenience through anywhere and anytime banking. Core Banking System or Core Banking Solution is a term that we hear very often these days .For IT and Banking folks, this doesn't need any explanation but for those who want to know a bit, here's a brief overview of what it means. Previously a bank's core operations such as keeping a ledger of various transactions, maintaining customer information, interest calculation of loans and deposits, adjustments to accounts on withdrawal and deposits of funds etc. were done manually. With the advent of ICT (Information Communication Technology), efforts were done to automate various banking processes using software applications so as to make them simple, efficient, effortless and cost effective (Geetha&Ramanarayanan, 2015). Thus, the platform where ICT is used to perform the core operations of a bank, like those mentioned above, is known as Core Banking System. Thus, Core Banking System has radically changed the way in which banks function. The greatest advantage of having a Core Banking System is that new features and functionalities can be easily added to the system that customers will have a whole lot of services that they can use. Electronic funds transfer between banks, online trading in the stock markets etc. are examples of this, which were unheard of in banks pre Core Banking System era.

Core Banking and Run the Bank are synonymous for most part. Core Banking is the meeting point of the largest banking services augment namely Retail and Commercial Banking, cutting edge Information Technology and the advancing Communication Technology. It is the heart of a modern financial service organization and is all about providing the banking customers with the right products at the right time through the right channels 24 hours a day 7 days a week through a multi-location, multi branch network. Core Banking Solution are banking applications on a platform enabling a phased, strategic approach the lets people improve operations, reduce costs, and prepare

for growth. Implementing a modular, component-based enterprise solution ensures strong integration with your existing technologies (Chairlone and Ghosh, 2009). An overall service-oriented-architecture (SOA) helps banks reduce the risk that can result from multiple data entries and out-of-date information, increase management approval, and avoid the potential disruption to business caused by replacing entire systems. Core Banking Solutions is new jargon frequently used in banking circles. The advancement in technology, especially internet and information technology has led to new ways of doing business in banking. These technologies have cut down time, working simultaneously on different issues and increasing efficiency.

The platform where communication technology and information technology are merged to suit core needs of banking is known as Core Banking Solutions. Here, computer software is developed to perform core operations of banking like recording of transactions, passbook maintenance, to interest calculations on loans and deposits, customer records, balance of payments and withdrawal. This software is installed at different branches of bank and then interconnected by means of communication lines like telephones, satellite, internet etc. It allows the user (customers) to operate account from any branch if it has installed core banking solutions. This new platform has changed the way banks are working. Normal core banking functions will include deposit accounts, loans, mortgages and payments.

Banks make these services available across multiple channels like ATMs, Internet banking, and branches. Previously a bank's core operations such as keeping a ledger of various transactions, maintaining customer information, interest calculation of loans and deposits, adjustments to accounts on withdrawal and deposits of funds etc. were done to automate various banking processes using software applications so as to make them simple, efficient, effortless and cost effective. Thus, the platform where ICT is used to perform the core operations of a bank, like those mentioned above, is known as Core Banking System (Israa, Sarah & Tebian, 2013). In Core Banking System, software applications record transactions, maintain customer information, calculate interest on loans and deposits etc. The data, instead of huge ledgers, are stored in backend databases in digital form. Now, the same software can be installed in various branches of a bank

and can interconnect through the internet or telephone lines to form a core banking network of the bank. The advantage, a customer can operate on his account from any branch of the bank and if the bank owns Internet Banking or ATM facilities, then the customer can operate on his account from virtually anywhere (Rojo ,2012).

2.2.4. History of core banking system in the world

The first core banking solutions appeared in the 1970s in the United States. Most of them ran on mainframe computers and were designed by the banks themselves or by third parties in conjunction with the large US banks. Limitations to exporting these systems outside the US were customized by top tier banks, but these efforts consistently failed. In the 1980s, we saw package solutions coming from other parts of the world, primarily Europe, Asia and Australia. Vendors with a different but comparable background also entered the arena, for example the private banking solutions developed in countries such as Switzerland and Luxembourg. Because -due to the nature of their business - these were more customer focused than the transaction- oriented, transaction-crunching engines available before, they had natural fit with the customer centricity that was coming increasingly into focus. Limitations of these systems mainly had to do with the ability to handle large volumes. The 1990s saw new players emerging in India, benefiting from the opening up of the Indian economy, the availability of English language skills, and the huge pool of highly skilled engineers. i-flex solutions (and its legal predecessor CITIL) can be considered as the first successful software product company from India that managed to sell outside the Indian subcontinent few years later by Oracle(through the acquisition of i-flex solutions and Siebel and aligning these to their technology and application strategies(Israa, Sarah&Tebian,2013).

2.2.5. Benefits of Core Banking

1. Centralized Accounting

All the transactions of the bank directly impact the General Ledger and Profit and Loss Account. This provides a real time total picture about the financial position and situation

of the bank. This helps for timely effective decision making for financial management; a very critical and dynamic function in today's banking (kulkarni, 2012).

2. Centralized Product Control & Monitoring

Centralization helps in better product analysis, monitoring and rollout. Aspects like interest rate modifications, product modification and interest application can be done centrally from one place for all the branches. Bank can quickly respond to market scenario and customer needs. This gives competitive edge to the bank (Israa.et.al 2013).

3. Introduction of Technology Based Services

Service channels such as ATM, either on-site or off- site, can be started. Cheque Deposit Machines (CDM) can be installed. Such machine in WAN connectivity can allow any customer to deposit the cheque for collection at any branch (Rojo ,2012).

4. Centralized Customer Account Management

Any customer becomes the customer of the bank rather than of a branch. With unique ID / Account Number the accounts of the customers can be viewed centrally by the bank. As such, customer profile, details of the services availed by him and customer behavior about business of the bank can be well understood. Such customer view gives the bank opportunity to decide directions for business development and marketing strategies (kulkarni, 2012).

5. Centralized Reporting

Presence of centralized data constantly live up-dated at any time ensures comprehensive report / statement generation. This tremendously helps in decision making as well as submission to various authorities. Operational efficiency of the bank gets increased due to quick report generation for bank as a whole (kulkarni, 2012).

6. Centralized System Administration

Centralized system / I. T. administration enhances system security and user management. There is reduction in man-power need and cost. Due to single point resource available IT manpower is utilized properly (kulkarni, 2012).

7. Core banking for the Improvement of Clearing House Functions

Banker`s Clearing House is a place where interbank claims arising on account of cheques received for collection by each bank drawn against other banks are settled. Every day, each bank receives hundreds of cheques drawn on different banks. It would be a difficult process to present all these cheques for payment over the counters of each bank. Today, only a very limited numbers of cheques issued are presented for payment to the banks to obtain cash or notes in exchange. A great majority of cheques are paid though the medium of clearing houses (Gomez, 2008).So, core banking supports this facility as all branches directly connected to the clearing house.

2.2.6. Various core Banking Services

1. Electronic money

Electronic money involves the use of internet or other networks to store or transmit money. This type of money can be stored on smart cards or computer`s hardware. Electronic money falls into different types as follows: electronic card, electronic wallet, electronic check, digital money, and virtual card (Maleki&Akbari, 2010).

2. Automated Teller Machines (ATMs)

It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. An ATM combines a computer terminal, record keeping system, and cash vault in one unit, permitting customers to enter a financial firm`s bookkeeping system with either a plastic card containing a personal identification number (PIN) or by punching a special code number into a computer terminal linked to the financial firm`s computerized records 24 hours a day. Once access is gained into the system, cash

withdrawals may be made up to pre specified limits, and deposits, balance enquiries, and bill paying may take place. (Alagheband, 2006)

3. Point-of-Sale Transfer Terminals (POS)

Computer facilities in stores that permit a customer to instantly pay for goods and services electronically by deducting the cost of each purchase directly from his or her account are known as Point-of-Sale (POS) Terminals. The customer presents an encoded debit card to the store clerk who inserts it into a computer terminal connected to the financial firm's computer system. The customer's account is charged for the purchase and funds are automatically transferred to the store's deposit account. (Alagheband, 2006)

4. Internet Banking

It is an electronic home banking system using web technology in which Bank customers are able to conduct their business transactions with the bank through personal computers. Use of internet to carryout financial transactions is certainly one of the most promising avenues today for linking customers with financial service providers.

5. Automated Limited – service facilities

Even though full service branches still represent a very important channel through which financial firms communicate with their customers, electronic facilities and systems represent the most rapidly growing firm-customer link today. In truth, the most effective service delivery systems in use today appear to be multichannel-combining full service branches and electronic, limited service facilities within the same financial firm (Alagheband, 2006).

6. Mobile Banking and call centers

Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS). As more cell phones appear and are linked technologically with the internet and with credit

and debit card accounts, the cell phone literally becomes a “Portable Bank” (Alagheband, 2006).

Furthermore, by combining cell networks with the power of the internet to convey vast amounts of information at high speed, the cell phone and text messaging technology seem to offer the potential to promote worldwide use of debit and credit card accounts and make purchases and payments from anywhere on the globe (Alagheband, 2006).

Call centers focus is to assist their customers in obtaining account information and carrying out transactions, avoiding walking or driving to a branch office or ATM. Increasingly, call centers are being used not only to answer customer`s questions, but also to cross sell services and build customer relationships (Alagheband, 2006).

2.2.7. Firm Performance

Firm performance is a multidimensional construct that consists of four elements (Alam, Raza& Akram,2011): (i) customer-focused performance, including customer satisfaction, and product or service performance; (ii) financial and market performance, including revenue, profits, market position, cash-to-cash cycle time, and earnings per share; (iii) human resource performance, including employee satisfaction; and (iv) organizational effectiveness, including time to market, level of innovation, and production and supply chain flexibility.

Traditionally, firms have used accounting measures such as earnings, return on assets or return on investment to reward managers. Recent evidence indicates that firms are increasingly using non-financial performance measures such as customer satisfaction and product quality in the contracting process within firms (Nagar and Rajan, 2001). The reason for the use of non-financial measures in compensation contracts is that they provide information incremental to accounting measures in rewarding and motivating managers. Accounting performance measures do not capture all the dimensions, therefore non-financial performance measures may provide incremental information beyond accounting measures (Banker and Datar, 1989).

Christina G. Chi, Dogan Gursoy (2009) in his research —Employee productivity, customer satisfaction, and financial performance: An empirical examination he examined the relationship between employee productivity and customer satisfaction. They also showed the impact of both company financial growths using service profit chain framework as the assumption. Basically, this research explores the following important relationships: (1) the customer satisfaction and financial performance has direct relationship. (2) There is a direct relationship between employee satisfaction and financial performance. studies have suggested that technological IT investments carry significant long term business implications and non-financial measures offer for clear advantages over measurement system linking long term performance but financial evaluation systems generally focus on annual or short term performance against accounting yardsticks because of the this the research focus on non-financial performance effect and selected from non-financial performance measurement tools on customer satisfaction and employee's Productivity for the reason that of satisfaction of customer has become most important factor for firms to financial success and many firms are using different measures in developing monitoring and evaluating product and services as well as the motivate and compensate their employee's because of there is strong relationship between profitability and market share.

2.2.7.1. Measuring Customer Satisfaction

Customer satisfaction can be defined as the company's ability to fulfill business, emotional, and psychological needs of its customers. In other word it is a summary of psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feeling about the consumption experience (Chavan and Ahmad, 2013). However Kumbhar (2011) argued that a customer satisfaction is an ambiguous and abstract concept. He continued that, actual manifestation of the state of satisfaction will vary from person to person, product to product and service to service.

It is well-researched fact that there is a strong linkage between customer satisfaction and operational performance. According to (Qureshi, Adeel, Sehrish, Omar and Zaman, 2013) customer satisfaction has strong influence on the efficiency and financial

performance of banks. It has great influence upon performance and profitability of the banks. He also claimed that satisfied customers share their experiences with other people and occupy unambiguous word of mouth (grapevine) advertisement and publication of the banks. This positive word of mouth publication is very helpful in increasing banks relationship and interaction with the whole community. Many literatures found that there is strong relationship between customer satisfaction and organizations efficiencies, operational and financial. The state of satisfaction depends on a number of factors which consolidate as psychological, economic and physical factors. The quality of service is one of the major determinants of the customer satisfaction (Kumbhar, 2011).

Service quality can be defined as the difference between customer expectations for services performance prior to service encounter and their perception of the service received (Wandaogou and Jalulah, 2011). Many past studies develop different dimension and aspects to measure service quality. According to (Wandaogou and Jalulah,2011),(Parasuraman and his colleagues 1985 & 1988) have developed the dimensions of service quality in their GAP and Extended GAP analysis and based on which they developed that popular SERVQUAL model.

The widely used SERVQUAL model consisted of five dimensions that were measured using a 22-item SERVQUAL scale. The five SERVQUAL dimensions are: Tangibles, Empathy, Assurance, Reliable, and Responsiveness: Tangibles are the physical facilities, equipment, and appearance of personnel. Empathy refers to the caring, individualized attention the firm provides its customers. Assurance means knowledge and courtesy of employees and their ability to inspire trust and confidence. Reliability is the ability to perform the promised service dependably and accurately, and Responsiveness refers to willingness to help customers and provide prompt service. However, due to the differences between traditional service and electronic service, obviously SERVQUAL scale is not suitable for measuring service quality in electronic or internet environment due to the absence of staff, absence of traditional tangible elements, and self-service of customers (Wandaogou and Jalulah, 2011).

Parasuraman, Zeithaml&Malhotra (2005) incorporated e-services and conceptualized and constructed a multiple-item scale (E-S-QUAL and E-RecS-QUAL models) to assess electronic service quality. The final E-S-QUAL Scale, consisting of 22 items on four dimensions, which they labeled and defined as follows:

1. Efficiency: The ease and speed of accessing and using the site.
2. Fulfillment: The extent to which the sites promises about order delivery and item availability are fulfilled.
3. System availability: The correct technical functioning of the site.
4. Privacy: The degree to which the site is safe and protects customer information.

The e-recovery service quality scale (E-RecS-QUAL) consisting of 11 items on three dimensions:

1. Responsiveness: Effective handling of problems and returns through the site.
2. Compensation: The degree to which the site compensates customers for problems.
3. Contact: The availability of assistance through telephone or online representative.

Available literature shows that, the customer satisfaction is measured via service quality and service quality measured by various measurement tools and instruments developed by various researchers and marketing consultancy organizations (Kumbhar, 2011). Based on (Kumbhar, 2011) models and using principal component analysis he identified the following factors that affecting customer's satisfaction in banking.

Table 1: Factors Affecting Customer Satisfaction

S.No.	Construct/Factors	Description
1	System Availability	Up-to-date equipment and physical facilities- Full Branch computerization, ATM, POS, internet banking, mobile banking, SMS alerts, credit card, EFT, ECS, E-bill pay
2	E-Fulfillment	Scope of services offered, availability of global network, digitalization of business information, Variety of services
3	Accuracy	Error free e-services through e-banking channels
4	Efficiency	Speed of service (clearing, depositing, enquiry, getting information, money transfer, response etc.), immediate and quick transaction and check out with minimal time.
5	Security	Trust, privacy, believability, truthfulness, and security, building customer confidence. freedom from danger about money losses, fraud, PIN, password theft; hacking etc.
6	Responsiveness	Problem handling, recovery of the problem, prompt service, timeliness service, helping nature, employee curtsey , recovery of PIN, password and money losses
7	Easiness	Easy to use & functioning of ATM, Mobile banking, internet banking, credit card, debit card etc.

8	Convenience	Customized services, any ware and any time banking, appropriate language support, time saving
9	Cost Effectiveness	Price, fee, charges, - i.e. commission for fund transfer , interest rate, clearing charges, bill collection and payments', transaction charges, charges on Switching of ATM, processing fees etc. price, charges and commissions should be reduce and charges taken by Telecommunication Company, devise designer company, internet service providers
10	Problem Handling	It refers to problem solving process regarding computerized banking services
11	Compensation	It refers to recover the losses regarding to problems and inconvenience occurred in using e-banking channels.
12	Contact	Communication in bank and customer or customers to bank, Via e-mail, SMS, Phone, interactive website, postal
13	Brand Perception	Customers overall perception according to promises given by bank for banking services
14	Perceived Value	Consolidated perception from banking service in term of perceived quality and money expended for getting banking services.

Source :kumbhar (2011)

2.2.7.2. Measuring Staff Productivity

With the unpredictable business environment and intense business competition, the companies are required to reach certain standards by improving their performance to align with such great demands; otherwise, a lot of problems will surface, including running the risk to close down the business. This performance relates to the firm or individual level which sees the human resource becoming the most determining factor to achieve the organizations objectives (Muda, Rafiki and Harahap, 2014). The concept of performance is something that interests and concerns everybody, whether it is the performance of a car, or individuals and teams in organizations. An employee who performs well is seen as one who achieves good results according to some pre-determined goals (Ojokuku&Sajuyigbe, 2012). Similarly (Imran, Maqbool and Shafique, 2014) concurred that a firms resource are extremely important for the firms development, and that human capital is a key resource of a firm.

High employee productivity positively affects a company's operational performance. However, if employees are not given the proper resources to do their job easily and efficiently, their productivity will suffer. Innovation technology is one way that employer can boost productivity.

According to (Dauda&Akingbade 2011) technological innovation rests on the creative ability of human being. Man has the capacity to use his knowledge to create new machines process and method that could enhance or improve the quality of goods and services. Technological advancement is important factor for influencing the improvement of performance. Imran (2014) concluded in his study that, technological advancement has significant impact on employee performance it means that as technology tend to be advanced, performance of employee enhanced.

Technological innovation such as, the use of computer automation and electronic banking influence speed of bank service delivery, enhanced management decision making and saving time (Dauda and Akingbade, 2011). He continued, there is evidence that a

significant and positive relationship exist between technology innovation and banks employees' performance.

For instance, Electronic bank transfers have facilitated improved service delivery by employees, promotes customers retention and customers satisfaction. It is easier for employees to perform all these functions as a result of impact of technological innovation on them. (Ojokuku and Sajuyigbe, 2012), conclude that the introduction of electronic banking system in the banking sector has helped tremendously to improve the productivity of bank personnel, leading to efficiency and effectiveness in service delivery.

Many studies have identified varies variables or factors that affect employees performance in work place. (Saeed, Mussawar, Lodhi, Iqbal, Nayab and Yaseen, 2013) concluded that there are five factors which affect the performance of employees; managers attitude, organizational culture, personal problem, job content and financial rewards. Although, Muda, Rafiki and Rezeki (2014) found out job stress, motivation and communication as the three influencing factor of employee performance. He also noted that organizational performance can be evaluated by; quality, quantity, knowledge or creativity of individual and accomplished work in specific time.

Najeeb (2013) stated in his literature review that there are four different performance dimensions on which employee are measured named; quality, quantity, dependability and knowledge. According to (Mathis & Jackson 2009) Performance is associated with quantity of output, quality of output, timeliness of output, attendance on the job, efficiency of the work, and effectiveness of work completed. Similarly, Najeeb (2013) categorized the above factors in to three dimensions; quantity of work, quality of work and speed of work achievement.

For the purpose of this study, based on the above related literatures, the researcher adopted the following three factors to measure employee performance in banking sector

Table 2 : Measurements of worker performance

Employees Performance	Quality of work
	Quantity of Work
	Speed required accomplishing a specific task

Source: Najeeb (2013)

2.3. Empirical literature review

2.3.1. International experience

Conducted researches in foreign countries indicate that various indexes such as productivity, efficiency have been applied to evaluate the implementation of information technology systems special core banking IT services in the banks' economic performances. A sum of their findings can be explained in the following manner

Alipour (2009) studied "The effects of using automation systems on human resource productivity (Case study of Mazda Yadak Comapay)". The results suggested that there is a strong direct relationship between efficiency and effectiveness. Similarly, Taqi Zadeh (2006) examined the impact of information technology on organizational effectiveness in the Organization of Libraries, Museums, and Documents Center of Astan Quds Razavi. The results indicated that the employment of IT systems has increased the effectiveness of the organization.

Ombati, magutu & nyaoga (2010) concluded that direct relationship exist between technology and service quality in banking industry. If financial institutions use technology in their working it will result in better service quality as well as enhancing the productivity of employees.

Siam (2006) assessed the role of the electronic banking services on the profits of Jordanian banks, and concluded that electronic banking services negatively affect bank profitability in the short term, while they have a positive influence in the long term, since bank investments are all with regard to infrastructures and staff's training.

Geetha&Ramanarayanan (2013) study on the impact of Core Banking Services in SBM bank and clearly indicates that the customers were for the CBS because of its ease of operations, instantaneous, timely response and cost effectiveness. As CBS offers any time any where banking facility, customers are surely benefitted out of it and after the introduction of CBS the operational efficiency of banks has certainly improved.

Rono (2012) The purpose of his study was to: determine factors leading to replacement of core banking systems in commercial banks in Kenya; establish the challenges that commercial banks in Kenya encounter in the process of core banking systems replacement; and determine the effect of core banking systems replacement on bank performance and the Findings also indicated that replacing core systems has a significant positive effect on financial performance.

Hazra et.al.(2011) attempted to examine a contribution of various dimensions of service quality in customers' satisfaction. A result of the study indicates that, all 13 variables were found significant and were good predictors of overall satisfaction in e-banking. However, A result of principle component analysis indicates that, perceived value, brand perception, cost effectiveness, easy to use, convenience, problem handling, security/assurance and responsiveness are important factors in customers satisfaction in e-banking it explains 48.30 per cent of variance. Contact facilities, system availability, fulfillment, efficiency and compensation are comparatively less important because these dimensions explain 21.70 per cent of variance in customers' satisfaction. Responsiveness, easy to use, cost effectiveness and compensation are predictors of brand perception in e-banking and fulfillment, efficiency, security/assurance, responsiveness, convenience, cost effectiveness, problem handling and compensation are predictors of perceived value in e-banking. Therefore, banker and e-banking service designers should think over these dimensions and make possible changes in the e-banking services according to the

customers' expectations and need of the time. It will help to enhance service quality of e-banking and increase the level of customers' satisfaction in e-banking.

According to Shaukat and Zafarullah (2009) local banks in Pakistan are more committed to invest and use new technology than foreign banks. Their employees are able to produce more because new technology enables them to perform multi task. A user who is working on electronic fund transfer can simultaneously work on clearing or on account opening. User is not supposed to stop or close one transaction in order to complete the second one. Similarly, built-in security checks in system are the user to perform their functions without error.

Abdi et al. (2010) investigated the effect of new banking technologies on the organizations' agility. They did their research with the help of academics and banking experts. Findings of this study indicate that the staffs' knowledge and skills in the application of new banking technologies have the most correlation with seven dimensions of flexibility, accountability, speed, integration and low complexity, core competencies, high quality, product improvement, and culture of change. Furthermore, the staffs' knowledge and skills are significantly associated with electronic banking indexes, widespread networks of information exchange between customers and bank, and aforementioned dimensions.

Baradaran et al. (2009) assessed the effect of using bank cards among the customers of Bank Melli in East Azerbaijan, and found that this usage can increase the customers' satisfaction and feeling of security (Coppin et al.2003) did a research with regard to all banks in Barbados and found that ATMs were not profitable at first, since training personnel and customers how to use them was expensive. But when it was educated, efficiency increased from %3 to %17.

Salman and Kashif (2010) study of electronic banking in Pakistan revealed that reliability, learning and feedback are very important for the satisfaction of the customers. This study also revealed those customers are not satisfied by the downloading time of website banks in Pakistan. If clients are not happy with the banking products, prices or

services offered by a particular bank, they are able to change their banking partner much more easily than in the physical or real bank-client relationship.

2.3.2. Ethiopia's Experience

Conducted researches in Ethiopia indicate that various indexes such as productivity, efficiency have been applied to evaluate the implementation of information technology systems special core banking IT services in the banks' performances. A sum of their findings can be explained in the following manner.

Yalew, (2015) study the impact of information & communication technology on Ethiopian private banks' performance he concluded that adoption of information and Communication Technology has a significant impact on customers' satisfaction. Furthermore, it can be deduced from the linear regression model that there is a strong positive relationship between adoption of Information and Communication technology and customers satisfaction. it can also be concluded that the impact of Information and Communication Technology on accuracy, problem handling process and complains resolving process of the banks was the least three among the factors affecting customers satisfaction In general, from the hypothesis tested, it can be concluded that adoption of information and Communication Technology has a significant impact on employees' performance. Furthermore, it can be deduced from the linear regression that there was a strong relationship between adoption of Information and Communication.

Leyouager (2015) study the impact of e-banking in service quality and bank performance and the study conclude that ROE is not signified influence by electronic banking .

Eyob (2010) the study entitled "Capital Investment Decisions On IT And Its Impact On Corporate Value Maximization" has investigated the impact of IT on profitability and cost efficiency in six private commercial banks. He conclude that shown high IT capital did not result in a significantly better profit and cost performance compared to the relatively low IT capital banks.

Milion (2013) He study presents what impact electronic banking has on customer satisfaction and Based on the result of the study he concluded that e-banking has impact in improving customer satisfaction, impact in reducing waiting time for customers to get bank service and impact in improving customers to control their account movements.

2.4. Critical review and gap in the literature

Commercial banks assaulted by the pressure of globalization and competition from non-banking new ways to add value to the services. The question of what drives performance is at the top in understanding superior performance and hence striving for it. Substantial research efforts have gone into addressing this question, starting from the strategic level and going down too operational details. A key study bench marking the strategies of leading retail banks was carried out by the bank strategies of leading retail banks (Vander Velde 1992). This study is based on the opinions of heads of retail banks at commercial bank of Ethiopia established the linkage between marketing, operations, organizing excellence. This finding led to the formulation of the service management strategy encapsulated in the trail operational capabilities service quality performance (Foth and Jackson 1995). The capabilities service quality-performance trail is, in turn, a focused view of the service profit chain described by (Heskett et al, 1994) based on their analysis of successful service organizations.

However for the case of Ethiopian in spite of banks trying to enforce the core banking services and still faced with come challenges which need to be addressed in order to promote effective and efficient banking performance and these are: The development of an efficient monetary transfer system in Ethiopian has been hampered by so many factors. Ethiopian is faced with infrastructural deficiency such as erratic power supply and communication link in some areas, inadequate skilled managers and requisite tools on end users and client systems, high charge or cost for the e-payment terminals (ATMs) so the banking legislation should set out standard charges for core banking services. Hence these factors are believed to hampered core banking services performance in the country affecting banks performance and reason behind the investment made by commercial bank of Ethiopia on core banking information technology system was to bring operational effectiveness and efficiency. This intern on effect employee's

performance and customer satisfaction. From this research mainly focus on the impact that the core banking brings for the effect on employee performance and customer satisfaction after implementation that has to be measured to get to good track. Even though many studies have been conducted on effect of ICT on banking performance but limited studies are available in Ethiopia that investigate the effect of core banking information technology system on performance of commercial banks in Ethiopian and more studies are still required to understand the relevance of core banking systems in Ethiopian Banks and to give a better insight for decision makers of the industry.

2.5. Conceptual Framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Kombo and Tromp, 2009). Based on many related literature reviews, the conceptual framework of this study is rooted on the incorporation of core banking information technology facilitated products and services (technology-based services and products) into banking operation and how they impacted on non financial performance of in commercial bank of Ethiopia of customers' satisfaction, staff efficiency/employee performance. This conceptual relationship core banking information technology and banks' performance refers as a base for the research question, hypothesis and motivation of the study throughout the paper.

The study conceptual framework shows the relationship of core banking system on non financial performance of Commercial Bank of Ethiopia and has been depicted in Figure 1 below. Figure 1 conceptualizes that of core banking system effect on customer satisfaction and employees performance on commercial bank of Ethiopia.

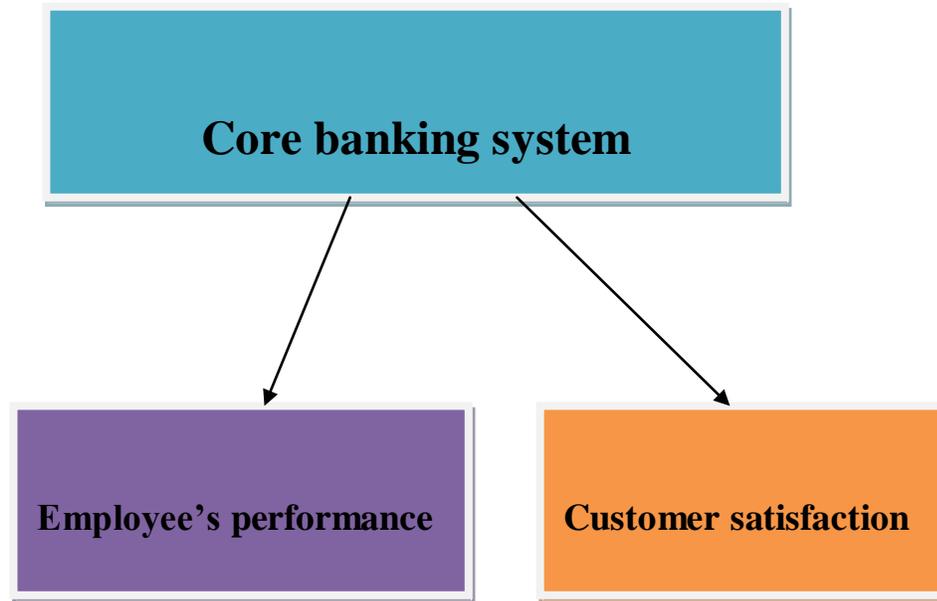


Figure 1 Conceptual Framework

2.6. Summary

Information technology generates fundamental changes in the nature and application of technology in business. Information Communication Technologies (CORE banking) can provide powerful strategic and tactical tools for organizations including banks, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness. The proliferation of the different e banking tools like Internet, is a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for businesses in general as well as for the banking industries in particular (Li-Hua and Khalil, 2006). Internet technology and web based commerce have dramatically transformed the banking in the decade (Werthner and Klein, 2005). Information and Communication Technologies (ICT) have always played a predominant role in the banking sector performance (Poon, 2003) but with the advent of the Internet and open source technology their impact is becoming increasingly more crucial and evident (Buhalis, 2004)

Chapter Three

Research Methodology

3.1. Introduction

Research method referred as the techniques and procedures used to obtain and analyze research data, including for example questionnaires, observation, interviews, and statistical and non-statistical techniques whereas research methodology is the theory of how research should be undertaken, including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method or methods adopted (Saunders et. al., 2009).

In order to attain the objective of the study and answer the research questions the study adopted a case study strategy. The case was conducted on commercial Bank of Ethiopia. Currently there are seventeen (17) commercial banks in Ethiopia. However, the researcher purposively selected the bank based on market share, number of branch, the pioneer in large no of networking branches (adopting core banking) which is the platform for most technological innovation in the industry.

3.2. Operationalization of the Research Topic

Operationalization of the research topic is to identify the variables involved in this research that is the dependent variables and the independent variables. Therefore the dependent variable, denoted by “Y”, has been identified in the study as the performance of commercial bank of Ethiopian which has been measured by customers’ satisfaction and employees’ performance. The independent variables, denoted by “X”, have been identified in the study as the effect of core banking IT system.

To examine the effect of core banking Information technology system on customer’s satisfaction, the study used 10 factors of customer satisfaction identified in chapter two, theoretical framework section. Similarly, to examine the effect of core banking Information and Technology system on employees’ performance the study used the three

employee performance measurement points identified in chapter two, theoretical framework section.

3.3. Research Design

There are three approaches to conduct any research: Qualitative, Quantitative and Mixed approaches. According to Saunders et. al. (2009) mixed method approach is the general term for when both qualitative and quantitative data collection techniques and analysis procedures are used in research design. In this study mixed-method approach was employed to ensure effectiveness of the research process as the findings of the qualitative data enhance the findings of quantitative one and the vice versa.

This study used a case study approach. According to (Yeboah, Djan and Kwarteng, 2013) a case study approach is particularly appropriate for individual researchers because it gives an opportunity for one aspect of a problem to be studied in some depth within a limited time scale.

Studies that establish causal relationships between variables may be termed explanatory research (Saunders, Lewis and Thornhill, 2009). This study tried to examine the relationship between adaptations Core Banking System in commercial bank of Ethiopia on customer's satisfaction, employee's performance.

3.4. Source of Data

There are two types of data which is usually used in researches, primary and secondary data. Primary data does not actually exist until and unless it is generated through the research process as part of the consultancy or dissertation or project. It will often be collected through techniques such as experimentation, interviewing, observation and surveys. On the other hand Secondary data is information which already exists in some form or other but which was not primarily collected, at least initially, for the purpose of the consultancy exercise at hand. In fact, secondary data is often the start point for data collection in as much as it is the first type of data to be collected (Lancaster, 2005).

This study used primary and secondary source of data. Regarding the primary data the researcher distributed structured questionnaires to relevant participants. The researcher collected secondary data from the National Bank of Ethiopia and annual reports and examined different articles, academic journals, useful academic books and banks reports in order to strength the result and findings of the study as secondary data.

3.5. Target population

Target populations of the study were customers and branch managements of the commercial bank of in Addis Ababa Ethiopia. The researcher purposely selected customers who have used at least one technology-based service/product of the banks and branch managers. These groups are targeted because the research believes that they are appropriate people to provide appropriate information and answer of the research questions.

3.6. Sampling Design

A total of 200 customers and 125 employees of commercial bank of Ethiopian were randomly selected to participate in the study. The participants were selected using convenient sampling technique.

Rather the logical relationship between your sample selection technique and the purpose and focus of your research is important; generalizations being made to theory rather than about a population.

Convenience sampling (or haphazard sampling) involves selecting haphazardly those cases that are easiest to obtain for your sample (Saunders et. al., 2009). It involves selecting participants from the part of the population which is close to hand. This strategy was chosen for this study because sampling participants using list of customers who have used at least one of the technology-based services/products and list of employees who have worked at customer service manager and branch manager.

3.7. Data Collection Instrument

The study used two types of structured close ended questionnaires, one for customers and other for employees. Questionnaire distributed for customers has two parts. The first part aimed at the collection of demographic information of the participants. The second part used five point Likert scales which measures the effect of core banking information system on customer's satisfaction. The customers are requested to express their level of agreement or disagreement with the statement. Questionnaire distributed for employees has only two parts. The first part aimed to collect demographic information of the participants. The second part used five point Likert scale to measure the effect of core banking information system on employees performance.

3.8. Reliability and Validity

In order to ensure validity and reliability, the questionnaire were carefully constructed avoiding ambiguity. The questionnaires of the study were reviewed and commented and discussion by two randomly selected bank managers, worked on core banking team members and suggestion of my thesis advisor too. In order to assess the reliability and consistency of the instrument the Cronbach's Alpha was used. A pilot test was conducted using some sort of the questionnaires during the development stage to ensure the internal consistency of the instrument.

3.8.1. Customer satisfaction reliability test

To measure the consistency of the Questionnaires in related with customer satisfaction, the reliability analysis was done using Cronbach's Alpha (α), the most common measure of scale reliability test. As indicated below in Table 8 below the value for Cronbach's Alpha (α) was 0.804 for all variables which exceed 0.70 the accepted value for Cronbach's Alpha (Field, 2009; Cohen and Sayag, 2010). In short nut, the responses generated for all of the variables used in this research was reliable enough for data analysis.

Table 3 : Reliability Statistics for customer satisfaction

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.804	0.838	13

Source: Questionnaires and SPSS Output (2016)

3.8.2. Employees performance reliability test

To measure the consistency of the Questionnaires in related with Employees performance, the reliability analysis was done using Cronbach's Alpha (α), the most common measure of scale reliability test. As indicated below in Table 9 below the value for Cronbach's Alpha (α) was 0.943 for all variables which exceed 0.70 the accepted value for Cronbach's Alpha (Field, 2009; Cohen and Sayag, 2010). In short nut, the responses generated for all of the variables used in this research was reliable enough for data analysis.

Table 4 : Reliability Statistics Employees performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.943	0.946	12

Source: Questionnaires and SPSS Output (2016)

3.9. Method of Data Analysis

In order to reach on meaningful facts and conclusions, the research provided explanation on effect of core banking information technology system on commercial bank of Ethiopian performance and answered the basic questions of the research. The data collected via the questionnaires was analyzed by Statistical Package for Social Sciences (SPSS). In generating the actual results, frequency tables were generated to determine the number of respondents who expressed their opinion on a particular item. Based on the frequency tables generated from SPSS, descriptive statistic was used to analyze and describe the findings. In order to further test the research hypothesis, the research used One sample test (T-statistic) and linear Regression model. The T-statistic test applied to examine the relationship between the studies' dependent and independent variable whereas linear regression model was applied to evaluate the level of significance of the independent variables on the dependent variable.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1. Introduction

As discussed in previous chapters this study attempted the effect of core banking information technology system on the performance of commercial bank of Ethiopia. Therefore, the findings of the study has been presented and analyzed in this chapter. The questionnaire were developed in five scales ranging from five to one; where 5 represents Strongly agree, 4 agree, 3 Neutral, 2 disagree, and 1 strongly disagrees. These five scales are treated as interval scale to conduct statistical analysis. Likert scale items are created by calculating a composite score (sum or mean) from four or more type Likert-type items; the composite score for Likert scales can be analyzed at the interval measurement scale. Descriptive statistics recommended for interval scale items include the mean for central tendency and standard deviations for variability. They stated that data analysis procedures used for interval scale items would include the Pearson and regression procedures. The questionnaire was developed as likert scale rather than likert type therefore likert items were calculated (sum or mean) for statistical analysis. Therefore the questionnaire developed for this study was likert scale in nature.

In order to assess the relationship between core banking information technology system and employees performance use regression analysis were conducted for scale typed questionnaire. A total of 125 questionnaires were distributed to employees and 109 (87.2%) questionnaire were obtained valid and used for analysis. To evaluate the relationship between core banking information technology system and customer satisfaction used regression analysis were conducted for scale typed questionnaires. A total of 200 questionnaires were distributed to customers of commercial bank of Ethiopia and 182(91%) questionnaire were obtained valid and used for analysis. The data collected are presented by frequency tables where ever necessary and to analyze the results Statistical Package for the Social Science (SPSS) is used. The hypothesis test was conducted using T-test and linear simple regression model, and appropriate interpretations were made thereon in accordance with the results of the testing.

Table 5 : Rate of Responses by Respondents

Questionnaires	Customers		Employees	
	Respondents	Valid Percentage	Respondents	Valid Percentage
Returned	182	91%	109	87.2%
Not Returned	18	9%	16	12.8%
Total	200	100%	125	100%

Source: Survey result, June 2016

4.2. Demographic Data Presentation

4.2.1. Employees Responses:

Employees participated in the survey questionnaires have different personal information

Table 6 : Presents the Demographic Data of Participant’s Employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Sex/Gender/					
Valid	Male	92	84.40	84.40	84.40
	Female	17	15.6	15.6	100.0
Age (in year)					
Valid	19 to 28 years	42	38.5	38.5	38.5
	29 to 38 years	53	48.6	48.6	87.2
	39 or above years	14	12.8	12.8	100.0

Education background:

Valid	Junior college diploma	4	3.7	3.7	3.7
	Undergraduate degree	62	56.9	56.9	60.6
	Graduate degree or above	43	39.4	39.4	100.0

Work Experience

Valid	Less than 3 year	34	31.2	31.2	31.2
	3-5 years	31	28.4	28.4	59.6
	5 years and above	44	40.4	40.4	100.0
	Total	109	100.0	100.0	

Source: Survey result, June 2016

As shown in the above table, 92 of the respondents were male which represents 84% of the total respondents, while 17 were females which are 16% of the total respondents. Considering the age groups of the respondents, the higher number of respondents was in the range of 29-38 years, which represent 48.6%, followed by age groups of 19-28 years and 38.5 or above years, which represent 12.8%. According to table 4, most of the respondents were showed that out of the total participants 62 and 43 of the respondents have bachelor Degree and Masters degree respectively, while employees who have college diploma were only 4. In terms of work position of the participant's branch managements. In addition, it can be deduced from the above table that only 34 of the respondents served their current bank for less than three years. Out of the respondents 31 employees representing 28.4 % served their current bank for three to five years while the remaining 44 employees which represent 40.4 %, served their current bank for more than five years. From the above table most of the respondents do have enough experience level which helps them to respond to the questions. Because of all in all, around 75% of respondents have worked for three years and above

4.2.2. Customers' Responses:

Customers participated in the survey questionnaires have different personal information.

Table 5 presents the demographic data of participants as follows

Table 7 : Presents the demographic data of participant's Customers

Sex/Gender/		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	106	58.2	58.2	58.2
	Female	76	41.8	41.8	100.0
Age (in year)					
Valid	25 to 30 years	127	69.8	69.8	69.8
	31 to 35 years	34	18.7	18.7	88.5
	36 to 40 years	18	9.9	9.9	98.4
	above 40 years	3	1.6	1.6	100.0
Education background:					
Valid	High school diploma or below	2	1.1	1.1	1.1
	Junior college diploma	84	46.2	46.2	47.3
	Undergraduate degree	84	46.2	46.2	93.5
	Graduate degree or above	12	6.6	6.6	100.0
Length of Technology-based services/products use					
Valid	Less than 1 year	14	7.7	7.7	7.7
	1-2 years	70	38.5	38.5	46.2
	2 years and above	98	53.8	53.8	100.0
	Total	182	100.0	100.0	

Source: Survey result, June 2016

As is shown in the above table, 182 of the respondents were male which represent 58.2% of the total respondents, while the 76 were females which are 41.8% of the total respondents. Considering the age groups of the respondents, the higher number of respondents was in the range of 19-30 years, which represent 69.8 %, followed by age groups of 31-35 years, 36-40 years and 41 or above years, which represent 18.7 %, 9.9% and 1.6% respectively. According to table 4.2.2 showed out of the total participants, 182 and 84 of the respondents have bachelor Degree and Diploma and lower than diploma were equal respectively 86, while customers who have Master degree or above is 12. In addition from the above, it can be deduced that 98 of the respondents, 53.8 % of the total, have been using technology-based services/products of the bank for more than two years whereas, 38.5 % and 7.7 % of the respondents have been using the services/products for 1-2 years and less than a year respectively.

4.3. Descriptive Analysis of Data Collected

4.3.1. Effect of core banking system on Employee Performance/Productivity

The study sought to establish the view of the respondents regarding the effect of core banking on employee performance of commercial bank of Ethiopia. The findings the study conducted on the level of core banking affecting Employees Performance that the mean score value for the category in average was 4.06 which falls on an agree degree of agreement. This implied that the overall average response for the core banking system affecting employee's performance was agreed by the respondents. All the questions under the category have got relatively high rate as explained by mean scores of each of 4.29, 4.03, 4.29, 3.90, 3.98, 4.06, 3.81, 3.97, 4.01 and 4.06 respectively. The summative score of questionnaires designed for the core banking system affecting employee's performance value category revealed core banking system affecting employee's performance in terms of helps employees to achieve a larger number of tasks, system helps to lesson workload of employees, system helps employees to deliver output timely, system helps employees to reduce errors, system helps employees to perform their work within the required specifications, system helps employees to improve work continuously, system helps employees to deliver consistent output even in high work pressure, system helps

employees to improve their effort to learn more and apply new knowledge and system helps to achieve greater flexibility in work.

The study conducted on the level of overall employees performance that the mean score value for the category in average was 4.17 which falls on an agree degree of agreement. This implied that the overall average response for the overall employee’s performance was agreed by the respondents. All the questions under the category have got relatively high rate as explained by mean scores of each of 4.15, 4.13 and 4.17 respectively. The summative score of questionnaires designed for the core overall employees performance Value category revealed overall employees performance in terms of Core banking information Technology system enhances performance of bank employees, Core banking information Technology system has made work easier and interesting and the technology improves effectiveness of communication flow (via internet or intranet) and decision making process.

From the table it can be interpreted that, based on the average mean score calculated from the employees’ responses on respective statements, the effect of core banking information technology system on handling of large amount of work is higher than its effect on improving quality of work and speed required to accomplish a specific task within specific time. In other word it can be interpreted that, based on average mean score calculated on employees responses, the effect of core banking information technology system on speed required to accomplish a specific task is less than average mean score of its effect on other dimension of employee performance measurements. The findings are presented in Table 6 as follows:-

Table 8 : Presents the Descriptive Statistics Data on Employee Performance

Descriptive Statistics

Attribute	N	Minimum	Maximum	Mean	Std. Deviation
Core banking information Technology system helps employees to achieve a larger number of tasks.	109	2	5	4.29	.885

Core banking information Technology system helps to lesson workload of employees.	109	1	5	4.03	1.126
Core banking information Technology system helps employees to deliver output timely.	108	2	5	4.29	.737
Core banking information Technology system helps employees to reduce errors.	109	2	5	3.90	.942
Core banking information Technology system helps employees to perform their work within the required specifications.	109	2	5	3.98	.923
Core banking information Technology system helps employees to improve work continuously.	109	2	5	4.06	.921
Core banking information Technology system helps employees to deliver consistent output even in high work pressure.	108	2	5	3.81	.968
Core banking information Technology system helps employees to improve their effort to learn more and apply new knowledge.	109	2	5	3.97	1.004
Core banking information Technology system helps to achieve greater flexibility in work.	109	2	5	4.01	.897
Factors Affecting Employees Performance	109	2	5	4.06	.761
Overall, Core banking information Technology system enhances performance of bank employees.	109	2	5	4.15	.815
Core banking information Technology system has made work easier and interesting.	109	1	5	4.13	.934
The Technology improves effectiveness of communication flow (via internet or intranet) and decision making process.	109	1	5	4.17	.958
Overall Employees Performance	109	1	5	4.19	.908

Source: Survey result, June 2016

4.3.2. Effect of core banking on Customers' Satisfaction

The study sought to establish the view of the respondents regarding the effect of core banking system on customer's satisfaction of commercial bank of Ethiopia. The findings of the study conducted on the level of core banking affecting customer satisfaction that the mean score value for the category in average was 4.06 which falls on an agree degree of agreement. This implied that the overall average response for the core banking system affecting customer satisfaction was agreed by the respondents. All the questions under the category have got relatively high rate as explained by mean scores of each of 3.73, 3.27, 3.96, 3.91, 3.98, 3.97, 4.12, 4.07, 4.08, 3.34 and 3.58 respectively. The summative score of questionnaires designed for the core banking system affecting customer satisfaction Value category revealed core banking system affecting customer satisfaction in terms of most of core banking Technology-based services/products and the services are almost always available, core banking information Technology based services/products provided by this bank work accurately and are error-free and reliable, core banking information Technology-based services/products allow me to complete transactions quickly and save me a lot of time, core banking information Technology-based services/products allow me to complete transactions quickly and save me a lot of time, core banking information technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry), core banking information Technology-based services/products provided by this bank are easy to use and user-friendly, core banking information Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7), charges associated with core banking Technology-based services/products are reasonably fair and minimize the transaction cost of banking, I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and the bank always answered promptly and bank resolves my complaints quickly and offers a fair compensation for its mistakes.

The study conducted on the level of overall customer satisfaction that the mean score value for the category in average was 4.203 which falls on an agree degree of agreement.

This implied that the overall average response for the overall customer satisfaction was agreed by the respondents.

All the questions under the category have got relatively high rate as explained by mean scores of each of 3.97, 4.14 and 4.32 respectively. The summative score of questionnaires designed for the core overall customer satisfaction value category revealed overall customer satisfaction in terms satisfied with the bank core banking Technology-based services, positive things about the bank to other people and I will encourage friends and relatives to use the service offered by the bank.

Based on the table it can be interpreted that, the mean score calculated from the customers responses on statements related with Efficiency, responsiveness and easiness of Technology-based services/products provided by the banks are higher than other mean scores of factors of customers' satisfaction. However according to mean scores calculated from the customers' responses on statements related with accuracy of core banking information technology system based services/products provided by the banks, problem handling process and complains resolving process of the banks are the least three of factors of customers' satisfactions. The findings are presented in Table 7 as follows:-

Table 9 : Presents the Descriptive Statistics Data on Customers Satisfactions

	N	Minimum	Maximum	Mean	Std. Deviation
This bank provides most of core banking Technology-based services/products and the services are almost always available	182	2	5	3.73	.929
The core banking information Technology based services/products provided by this bank work accurately and are error-free and reliable.	182	1	5	3.27	1.107
The core banking information Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed	182	1	5	3.96	.803

for time.

I feel the core banking information Technology-based services/products provided by this bank are safe and the risk associated with them is low.	182	2	22	3.91	1.542
The core banking information Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry).	182	2	5	3.97	.790
The core banking information Technology-based services/products provided by this bank are easy to use and user-friendly.	182	2	5	4.12	.679
The core banking information Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7).	182	2	5	4.07	.784
The charges associated with core banking Technology-based services/products are reasonably fair and minimize the transaction cost of banking.	182	1	5	4.08	.957
When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly.	182	1	5	3.34	.901
This bank resolves my complaints quickly and offers a fair compensation for its mistakes.	182	1	5	3.58	.887
Average adaptation of core banking factors Affecting Customer satisfaction	182	2	5	3.85	.599
Overall, I am satisfied with the bank core banking Technology-based services.	182	2	5	3.97	.790
I say positive things about the bank to other people.	182	1	5	4.14	.744
I will encourage friends and relatives to use the service offered by the bank.	182	1	5	4.32	.764
Average Overall Customer satisfaction	182	2.00	5.00	4.203	.64576

Source: Survey result, June 2016

4.4.Hypothesis Testing

4.4.1. Hypothesis One: Effect of Core Banking on Customer Satisfaction

Hypothesis: The implementation of core banking information technology system has a significant effect on customers' satisfaction in commercial bank of Ethiopia

- I. To test the first hypothesis of the study, effect of core banking information technology on customers' satisfaction, the One-Sample T test compares the mean score of a sample to a known value.

Table 10 : One Sample T-Statistics on Customer's Satisfaction

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Implementation of core banking system have significant effect on customers' satisfaction	182	3.85	.599	.044

Source: Survey result, June 2016

Table 11 : One Sample Test on Customer’s Satisfaction

	Test Value = 0					
	T	Df	Sig. (2- tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
adaptation of core banking factors Affecting Customer satisfaction	86.713	181	.000	3.852	3.76	3.94

Source: Survey result, June 2016

Interpretation

It can be deduced that, the calculated value (t-value) and the p-value for the above statement is 86.713 and .000 at 5% level of significance and 181 degree of freedom.

Decision (Rejection Rule: Reject Ho if the p-value ≤ α i.e. 0.05)

From the above table the p-value is .000 which is less than the tabulated value α (.05). Therefore the null hypothesis (Ho) should be rejected in favor of accepting alternative hypothesis (H1). Hence, we can conclude that the implementation of core banking information technology system has a significant effect on customers’ satisfaction in commercial bank of Ethiopia.

II. Simple Linear Regression Model

Using simple linear regression model we can explain the extent to which core banking information technology system significantly affect customers’ satisfaction in commercial bank of Ethiopia.

Table 12 : linear Regression Model Summary related to Customers Satisfaction

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.804	.255		7.061	.000
adaptation of core banking (factors affecting customer satisfaction)	.623	.066	.578	9.505	.000

a. Dependent Variable: Overall Customer satisfaction

Source: Survey result, June 2016

Interpretation

The above Coefficient table shows the simple linear regression model that expresses the relationship between implementation of core banking information technology system and Customers’ satisfaction. The model is shown mathematically as follows; $Y=a+bX$, where y is the overall satisfaction of customers, X is usage of Technology-based services/products, a is a constant factor and b is the value of coefficient. From the above table, the model can be read as $Y=1.804+0.603X$. This can be interpreted as; the share of using Technology-based services/products by the customer on his/her overall satisfaction is about 60.3 %. Based on this we can conclude that the effect of core banking information technology system on customers’ satisfaction is strongly relation.

4.4.2. Hypothesis Two: effect of ICT on Employees’ performance/productivity

Hypothesis: Application of core banking Information technology system has affected employees’ performance in commercial bank of Ethiopian.

I. One-Sample Test (T-Statistics)

To test the second hypothesis of the study, effect of core banking information technology system on employees' performance, the One-Sample T test compares the mean score of a sample to a known value

Table 13 : One-Sample Statistics on Employee's Performance

	N	Mean	Std. Deviation	Std. Error Mean
Core Banking IT system affecting employees performance	109	4.06	.761	.073

Source: Survey result, June 2016

Table 14 : One-Sample test on Employee's Performance

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Core Banking IT system affecting employees performance	55.755	108	.000	4.064	3.92	4.21

Source: Survey result, June 2016

Interpretation

It can be deduced that, the calculated value (t-value) and the p-value for the above statement is 55.755 and .000 at 5% level of significance and 108 degree of freedom respectively.

Decision (Rejection Rule: Reject Ho if the p-value $\leq \alpha$)

From the above table the p-value is .000 which is less than the tabulated value α (.05). Therefore the null hypothesis (Ho) should be rejected in favor of accepting the alternative hypothesis (H1). Hence, we can conclude that the implementation of core banking information technology system has positively affected employee's performance in commercial bank of Ethiopia.

II. Simple Linear Regression Model

Using simple linear regression model we can explain the extent to which core banking information technology has affected employees' performance in commercial bank of Ethiopia

Table 15 : Linear Regression Model Summary related to Employees Performance

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.252	.277		.908	.366
Application of core banking (Quality of Work, Quantity of work and speed required to accomplish a specific work)	.970	.067	.813	14.448	.000

a. Dependent Variable: Overall Employees Performance

Source: Survey result, 2016

Interpretation

The above Coefficient table shows the simple linear regression model that expresses the relationship between application of core banking information technology system and bank employees' performance. The model is shown mathematically as follows; $Y=a+bX$, where y is the employees' performance, X is application of core banking in day-to-day operation of the banks, a is a constant factor and b is the value of coefficient. From the above table, the model can be read as $Y=0.252+0.970X$. This can be interpreted as; the share of applying Information and Communication Technology in the banks' day-to-day operation on improvement of employees' performance is about 97 %. Based on this we can conclude that the effect of core banking information technology system on employees' performance in Ethiopian commercial bank of Ethiopia is very strong.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Today, the banking industry across the globe is embracing Information and Communication Technology as part of business strategy for enhancing its performance towards customer satisfaction, staff productivity, profitability and creating competitive advantage among banking institutions. Especially the role of Information and Communication Technology towards improving service quality which in turn satisfying customer need and expectation, and augmenting the performance of their employees is inevitable. The purpose of this study was to examine the effect of core banking information technology system on commercial bank of Ethiopia non-financial performance. The study particularly examined the effect of core banking information technology system on customers' satisfaction and employees' performance as measures of non-financial performance of the banks.

5.1. Summary of Findings

In line with the objective of this research to effect of core banking information system in non-financial performance of commercial bank of Ethiopia, the researcher has adopted questionnaires to gather firsthand information from the respondents with heterogeneous age bracket, level education, field of study, and service period. Then, reliability and validity test was conducted in order to check the inconsistency of the data. As the validity was enhanced through discussion of the questionnaire contents with two randomly selected bank managers, worked on core banking team members with the suggestion of my thesis advisor. The reliability was tested through statistical package for social sciences (SPSS) and Cronbach alpha correlation coefficient was used to satisfy the reliability tests. The study sample had 200 questionnaires distributed related to customer satisfaction and 125 questionnaires distributed to employee's productivity. From those questionnaires 182 and 109 were duly completed respectively and returned for analysis. This represented a response rate of 62% which according to Saundres, Lewis and Thornbill (2007) is good response rate.

5.2. Conclusion

5.2.1. Effect of core banking information technology system on Customers' Satisfaction

The results of the study were obtained through close ended questionnaires distributed to 200 customers of commercial bank of Ethiopia. The researcher tried to examine the level of the customer's satisfaction due to the effect of core banking information technology system. The following conclusions are drawn based on the findings of the study:

- In general, from the hypothesis tested, it can be concluded that adoption of core banking system has a significant effect on customer's satisfaction. Furthermore, it can be deduced from the linear regression model that there is a strong positive relationship between adoption of core banking system and customer's satisfaction.
- From the descriptive statistics (table 7), it can be concluded that customers agreed that the effect of core banking information technology system on Efficiency, responsiveness and easiness has been greater among the factors affecting customer's satisfaction.
- From the descriptive statistics (table 7), it can also be concluded that the effect of core banking Information technology system on accuracy, problem handling process and complains resolving process of the banks was the least three among the factors affecting customers satisfaction.

5.2.2. Effect of core banking information technology system on Employees performance/productivity

The results of the study were obtained through close ended questionnaires distributed for 109 employees of commercial bank of Ethiopia. The researcher tried to examine the effect of core banking information technology system on employee's performance measurement criteria; quantity of work, quality of work and speed to accomplish specific tasks. The following conclusions are drawn based on the findings of the study:

➤ In general, from the hypothesis tested, it can be concluded that adoption of core banking information technology system has a significant effect on employee's performance. Furthermore, it can be deduced from the linear regression that there was a strong relationship between adoption of core banking system and performance of Commercial Bank of Ethiopia employees.

➤ However, considering the bulky nature of the banks' transactions, the effect of core banking information technology system on handling of large amount of work was shown in the descriptive statistics (table 6) noticeably higher

5.3. Recommendation

Based on the findings and conclusions of the study, the researcher forwards the following recommendations to the management of the banks and suggestion for other researchers and this study raised a number of research questions and developed hypotheses related to the study variables. The purpose of the study was to examine the effect of core banking information technology system on bank's performance in terms of customer's satisfaction and employees' performance on commercial bank of Ethiopia through testing the hypotheses. Based on the conclusions drawn above the following recommendations are forwarded for the concerned bodies:

✓ Based on the findings of the study and above conclusions the effect of core banking information technology system on banks on the performance of commercial bank of Ethiopia in terms of customers' satisfaction and employees' performance is significant. Therefore, commercial bank of Ethiopia in particular should adequately grasp the role of core banking information technology system in their operational performance and keep synthesizing technological innovations in their strategies and day-to-day operation.

✓ The role of core banking information technology system on efficiency, responsiveness and easiness of the banks' services and products is satisfactory. However the accuracy of Technology-based services/products, problem handling process and compliant resolving process of the banks are not sufficient enough to satisfy their

customers which in turn would diminish their financial and non-financial performance. Therefore, senior managers of the banks should give a good deal of attention for these factors of customer satisfactions.

5.4. Suggestions for Further Research

This study did not measure the financial impact of adoption of core banking system in commercial bank of Ethiopia and for further study the researcher recommended to include by measuring the of core banking system implementation on influence on the financial performance of commercial bank of Ethiopian. A more detailed study can be conducted to establish whether the adoption of core banking system contributed to financial deepening in commercial bank of Ethiopia.

This study reveals that the effect of core banking system on non financial performance of commercial bank of Ethiopia this case study was done only on the commercial bank of Ethiopia. The same study can be done on other financial markets. This will help to understand the implication of core banking system on the overall financial institutions in Ethiopian

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APPENDIX

APPENDIX I: QUESTIONAIRESE

**Saint Mary's University
School of Graduate Studies
Department of Accounting and Finance (MBA)**

Dear respondent,

The objective of these Questionnaires is to gather first hand information that will help to assess the effect of core banking implementation in the performance of commercial bank of Ethiopia. This study is undertaken as a partial requirement for the completion of Masters of Business Administration in **Accounting and Finance**.

All data and information that will be gathered through these Questionnaires will be used for the sole purpose of the research and remains confidential. Therefore, you are kindly requested to respond to the questions with utmost good faith, freely and to the best of your knowledge. There is no need to write your name on the Questionnaires.

Thank you in advance for your time and kind cooperation.
Yonatan Zegeye Worede
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This questionnaire is a meant to collect data regarding the effect of core banking in performance of commercial bank of Ethiopia.

SECTION A: GENERAL INFORMATION

1: Respondent Particulars

Please indicate your choice by putting “√”mark in the bracket.

1. **Sex/Gender/:** Male Female

2. **Age (in year):** 25 to 30 31 to 35 , 36 to 40 , above 40 years ,

3. **Education background:**

 High school diploma or below Junior college diploma Undergraduate degree

(Bachelor’s degree) Graduate degree (Master’s degree) or above

4. Which of the Technology-based services/products of the bank do you use?

 ATM Mobile Banking Internet Banking SMS Alert

5. Length of Technology-based services/products use:

 Less than 1 year 1-2 years 2 years and above

II. This part of questionnaire covers about customer satisfaction in relation with core banking information Technology-based services/products provided by this bank.

Technology-based banking services/products include: ATM, POS, Mobile banking, Internet Banking, SMS banking. Please indicate how much you agree or disagree with each of the following statements by writing the number that best represents your opinion. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

S.No.	Research Question	SDA	D	N	A	SA
	A. Factors Affecting Customer satisfaction					
1	This bank provides most of core banking Technology-based services/products and the services are almost always available					
2	The core banking information Technology-based services/products provided by this bank work accurately and are error-free and reliable.					
3	The core banking information Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed for time.					
4	I feel the core banking information Technology-based services/products provided by this bank are safe and the risk associated with them is low.					
5	The core banking information Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry).					

6	The core banking information Technology-based services/products provided by this bank are easy to use and user-friendly.					
7	The core banking information Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7).					
8	The charges associated with core banking Technology-based services/products are reasonably fair and minimize the transaction cost of banking.					
9	When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly.					
10	This bank resolves my complaints quickly and offers a fair compensation for its mistakes.					
	B. Overall Customer satisfaction					
1	Overall, I am satisfied with the bank core banking Technology-based services.					
2	I say positive things about the bank to other people.					
3	I will encourage friends and relatives to use the service offered by the bank.					

**Saint Mary's University
School of Graduate Studies
Department of Accounting and Finance (MBA)**

Dear respondent,

The objective of these Questionnaires is to gather first hand information that will help to assess the effect of core banking implementation in the performance of commercial bank of Ethiopia. This study is undertaken as a partial requirement for the completion of Masters of Business Administration in **Accounting and Finance**.

All data and information that will be gathered through these Questionnaires will be used for the sole purpose of the research and remains confidential. Therefore, you are kindly requested to respond to the questions with utmost good faith, freely and to the best of your knowledge. There is no need to write your name on the Questionnaires.

Thank you in advance for your time and kind cooperation.

Yonatan Zegeye Worede

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Tel: +251 011 416 29 48

This questionnaire is a meant to collect data regarding the impact of core banking in performance of commercial banks in Ethiopia.

Please put a “√” mark to all your responses in the circle provided beside each statement.

I. Demographic information

1. Gender

Male Female

2. Age (years old)

18 or below 19~28 29~38 39 or above

3. Education background

High school diploma or below Junior college diploma

Undergraduate degree (Bachelor’s degree) Graduate degree (Master’s degree) or above

4. Work Experience

Less than 3 year 3-5 years 5 years and above

II. This part of questionnaire covers about employees' performance/staff productivity in relation to adoption of core banking Information Technology system in bank's day-to-day operation. Please indicate how much you agree or disagree with each of the following statements by writing the number that best represents your opinion. 1 indicates strongly disagree (SDA), 2 indicates disagree (DA), 3 indicates neutral (N), 4 indicates agree (A) and 5 indicates strongly agree (SA).

S.No.	Research Question	Strongly disagree	Disagree	Neither agree not disagreed	Agree	Strongly agree
1	Core banking information Technology system helps employees to achieve a larger number of tasks.					
2	Core banking information Technology system helps to lesson workload of employees.					
3	Core banking information Technology system helps employees to deliver output timely.					
4	Core banking information Technology system helps employees to reduce errors.					
5	Core banking information Technology system helps employees to perform their work within the required specifications.					
6	Core banking information Technology system helps employees to improve work continuously.					
7	Core banking information Technology system helps employees to deliver					

	consistent output even in high work pressure.					
8	Core banking information Technology system helps employees to improve their effort to learn more and apply new knowledge.					
9	Core banking information Technology system helps to achieve greater flexibility in work.					
	Overall Employees Performance					
1	Overall, Core banking information Technology system enhance performance of bank employees.					
2	Core banking information Technology system has made work easier and interesting.					
3	The Technology improves effectiveness of communication flow (via internet or intranet) and decision making process.					

APPENDIX II: FREQUENCY TABLES RELATED TO CUSTOMER SATISFACTION

This bank provides most of core banking Technology-based services/products and the services are almost always available

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	28	15.4	15.4	15.4
	Neutral (N)	26	14.3	14.3	29.7
	Agree (A)	96	52.7	52.7	82.4
	Strongly Agree (SA)	32	17.6	17.6	100.0
	Total	182	100.0	100.0	

The core banking information Technology-based services/products provided by this bank work accurately and are error-free and reliable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	6	3.3	3.3	3.3
	Disagree (DA)	48	26.4	26.4	29.7
	Neutral (N)	46	25.3	25.3	54.9
	Agree (A)	55	30.2	30.2	85.2
	Strongly Agree (SA)	27	14.8	14.8	100.0
	Total	182	100.0	100.0	

The core banking information Technology-based services/products allow me to complete transactions quickly and save me a lot of time, especially when I am pressed for time.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	2	1.1	1.1	1.1
	Disagree (DA)	9	4.9	4.9	6.0
	Neutral (N)	23	12.6	12.6	18.7
	Agree (A)	108	59.3	59.3	78.0
	Strongly Agree (SA)	40	22.0	22.0	100.0
	Total	182	100.0	100.0	

I feel the core banking information Technology-based services/products provided by this bank are safe and the risk associated with them is low.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	9	4.9	4.9	4.9
	Neutral (N)	44	24.2	24.2	29.1
	Agree (A)	100	54.9	54.9	84.1
	Strongly Agree (SA)	28	15.4	15.4	99.5
	22	1	.5	.5	100.0
	Total	182	100.0	100.0	

The core banking information Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	12	6.6	6.6	6.6
	Neutral (N)	23	12.6	12.6	19.2
	Agree (A)	105	57.7	57.7	76.9
	Strongly Agree (SA)	42	23.1	23.1	100.0
	Total	182	100.0	100.0	

The core banking information Technology-based services/products provide precise and sufficient information I need (account statement and balance enquiry).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	12	6.6	6.6	6.6
	Neutral (N)	23	12.6	12.6	19.2
	Agree (A)	105	57.7	57.7	76.9
	Strongly Agree (SA)	42	23.1	23.1	100.0
	Total	182	100.0	100.0	

The core banking information Technology-based services/products provided by this bank are easy to use and user-friendly.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	6	3.3	3.3	3.3
	Neutral (N)	14	7.7	7.7	11.0
	Agree (A)	114	62.6	62.6	73.6

Strongly Agree (SA)	48	26.4	26.4	100.0
Total	182	100.0	100.0	

The core banking information Technology-based services/products minimize inconvenience by providing anywhere and anytime banking (banking at home/office at 24/7).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	6	3.3	3.3	3.3
	Neutral (N)	32	17.6	17.6	20.9
	Agree (A)	88	48.4	48.4	69.2
	Strongly Agree (SA)	56	30.8	30.8	100.0
	Total	182	100.0	100.0	

The charges associated with core banking Technology-based services/products are reasonably fair and minimize the transaction cost of banking.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	5	2.7	2.7	2.7
	Disagree (DA)	8	4.4	4.4	7.1
	Neutral (N)	22	12.1	12.1	19.2
	Agree (A)	79	43.4	43.4	62.6
	Strongly Agree (SA)	68	37.4	37.4	100.0
	Total	182	100.0	100.0	

When I contact this bank's customer service via e-mail, phone, interactive website and fax, my requests are always anticipated properly and always answered promptly.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	3	1.6	1.6	1.6
	Disagree (DA)	26	14.3	14.3	15.9
	Neutral (N)	77	42.3	42.3	58.2
	Agree (A)	58	31.9	31.9	90.1
	Strongly Agree (SA)	18	9.9	9.9	100.0
	Total	182	100.0	100.0	

This bank resolves my complaints quickly and offers a fair compensation for its mistakes.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	3	1.6	1.6	1.6
	Disagree (DA)	21	11.5	11.5	13.2
	Neutral (N)	44	24.2	24.2	37.4
	Agree (A)	95	52.2	52.2	89.6
	Strongly Agree (SA)	19	10.4	10.4	100.0
	Total	182	100.0	100.0	

Factors Affecting Customer satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	3	1.6	1.6	1.6
	Neutral (N)	39	21.4	21.4	23.1
	Agree (A)	122	67.0	67.0	90.1
	Strongly Agree (SA)	18	9.9	9.9	100.0
	Total	182	100.0	100.0	

Overall, I am satisfied with the bank core banking Technology-based services.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	13	7.1	7.1	7.1
	Neutral (N)	20	11.0	11.0	18.1
	Agree (A)	108	59.3	59.3	77.5
	Strongly Agree (SA)	41	22.5	22.5	100.0
	Total	182	100.0	100.0	

I say positive things about the bank to other people.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	3	1.6	1.6	1.6
	Disagree (DA)	3	1.6	1.6	3.3
	Neutral (N)	12	6.6	6.6	9.9
	Agree (A)	111	61.0	61.0	70.9
	Strongly Agree (SA)	53	29.1	29.1	100.0

Total	182	100.0	100.0	
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I will encourage friends and relatives to use the service offered by the bank.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	3	1.6	1.6	1.6
	Disagree (DA)	3	1.6	1.6	3.3
	Neutral (N)	6	3.3	3.3	6.6
	Agree (A)	91	50.0	50.0	56.6
	Strongly Agree (SA)	79	43.4	43.4	100.0
	Total	182	100.0	100.0	

Overall Customer satisfaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	6	3.3	3.3	3.3
	Neutral (N)	5	2.7	2.7	6.0
	Agree (A)	117	64.3	64.3	70.3
	Strongly Agree (SA)	54	29.7	29.7	100.0
	Total	182	100.0	100.0	

APPENDIX II: FREQUENCY TABLES RELATED TO CUSTOMER SATISFACTION

Core banking information Technology system helps employees to achieve a larger number of tasks.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	9	8.3	8.3	8.3
	Neutral (N)	4	3.7	3.7	11.9
	Agree (A)	42	38.5	38.5	50.5
	Strongly Agree (SA)	54	49.5	49.5	100.0
	Total	109	100.0	100.0	

Core banking information Technology system helps to lesson workload of employees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	4	3.7	3.7	3.7
	Disagree (DA)	13	11.9	11.9	15.6
	Neutral (N)	4	3.7	3.7	19.3
	Agree (A)	43	39.4	39.4	58.7
	Strongly Agree (SA)	45	41.3	41.3	100.0
	Total	109	100.0	100.0	

Core banking information Technology system helps employees to perform their work within the required specifications.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	9	8.3	8.3	8.3
	Neutral (N)	20	18.3	18.3	26.6
	Agree (A)	44	40.4	40.4	67.0
	Strongly Agree (SA)	36	33.0	33.0	100.0
	Total	109	100.0	100.0	

Core banking information Technology system helps employees to improve work continuously.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	13	11.9	11.9	11.9
	Neutral (N)	4	3.7	3.7	15.6
	Agree (A)	56	51.4	51.4	67.0
	Strongly Agree (SA)	36	33.0	33.0	100.0
	Total	109	100.0	100.0	

Core banking information Technology system helps employees to deliver consistent output even in high work pressure.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	13	11.9	12.0	12.0
	Neutral (N)	23	21.1	21.3	33.3
	Agree (A)	43	39.4	39.8	73.1
	Strongly Agree (SA)	29	26.6	26.9	100.0
	Total	108	99.1	100.0	
Missing	System	1	.9		
Total		109	100.0		

Core banking information Technology system helps employees to improve their effort to learn more and apply new knowledge.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	17	15.6	15.6	15.6
	Neutral (N)	5	4.6	4.6	20.2
	Agree (A)	51	46.8	46.8	67.0
	Strongly Agree (SA)	36	33.0	33.0	100.0
	Total	109	100.0	100.0	

Core banking information Technology system helps to achieve greater flexibility in work.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	9	8.3	8.3	8.3
	Neutral (N)	16	14.7	14.7	22.9
	Agree (A)	49	45.0	45.0	67.9
	Strongly Agree (SA)	35	32.1	32.1	100.0
	Total	109	100.0	100.0	

Factors Affecting Employees Performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	5	4.6	4.6	4.6
	Neutral (N)	13	11.9	11.9	16.5
	Agree (A)	61	56.0	56.0	72.5
	Strongly Agree (SA)	30	27.5	27.5	100.0
	Total	109	100.0	100.0	

Overall, Core banking information Technology system enhance performance of bank employees.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree (DA)	9	8.3	8.3	8.3
	Neutral (N)	2	1.8	1.8	10.1
	Agree (A)	62	56.9	56.9	67.0
	Strongly Agree (SA)	36	33.0	33.0	100.0
	Total	109	100.0	100.0	

Core banking information Technology system has made work easier and interesting.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	5	4.6	4.6	4.6
	Disagree (DA)	1	.9	.9	5.5
	Neutral (N)	8	7.3	7.3	12.8
	Agree (A)	56	51.4	51.4	64.2
	Strongly Agree (SA)	39	35.8	35.8	100.0
	Total	109	100.0	100.0	

The Technology improve effectiveness of communication flow (via internet or intranet) and decision making process.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	5	4.6	4.6	4.6
	Neutral (N)	12	11.0	11.0	15.6
	Agree (A)	47	43.1	43.1	58.7
	Strongly Agree (SA)	45	41.3	41.3	100.0
	Total	109	100.0	100.0	

Overall Employees Performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree (SDA)	5	4.6	4.6	4.6
	Neutral (N)	6	5.5	5.5	10.1
	Agree (A)	56	51.4	51.4	61.5
	Strongly Agree (SA)	42	38.5	38.5	100.0
	Total	109	100.0	100.0	