

THE EFFECTS OF E-BANKING ON BANK PERFORMANCE: THE
CASE OF SOME SELECTED ETHIOPIAN COMMERCIAL BANKS



A THESIS SUBMITTED TO GRADUATE STUDIES, IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION.

BY

MIHRET DEJU

ADVISOR: ABEL DULLA (PH. D)

COLLAGE OF BUSINESS AND ECONOMICS SCHOOL OF
GRADUATE STUDIES OF WOLKITE UNIVERSITY


JUNE, 2024

WOLKITE, ETHIOPIA

WOLKITE UNIVERSITY
SCHOOL OF GRADUATE STUDIES

I hereby certify that I have read and evaluate this thesis titled “The Effects of E-Banking on Bank Performance: The Case of Some Selected Ethiopian Commercial Banks” prepared under my guidance by Mihret Deju. I recommend that the thesis shall be submitted as fulfilling the requirements for the Award of Master of Business Administration.

Dr. Abel DULA Wedajo



09/04/2024

Advisor

Signature

Date

SCHOOL OF GRADUATE STUDIES

WOLKITE UNIVERSITY

EXAMINERS' APPROVAL SHEET

We, the undersigned, members of the Board of Examiners of the final open defense by **Mihret Deju** have read and evaluated her thesis entitled “**The Effects of E-Banking on Bank Performance: The Case of Some Selected Ethiopian Commercial Banks**”, and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the degree of Master of studies with specialization in Business Administration.

Berihun Muche (Ph.D)



Name of External Examiner

Signature

Date

Tamiru Yihun (Ph.D)

Name of Internal Examiner

Signature

Date

Alemayehu Tekle (MBA)

Name of chairperson

Signature

Date

SGS Approval

Signature

Date

Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of Graduate Studies (SGS) through the Department/School Graduate Committee (DGC/SGC) of the candidate's department.

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DGC/ SGS Approval

Signature

Date

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Declared by

Name: Mihret Deju

Signature: _____

Date: _____

ACKNOWLEDGMENT

I am profoundly grateful to God for providing me with the strength, wisdom, and perseverance to undertake and complete this research endeavor. His divine guidance has been the cornerstone of my journey, and I am humbled by His grace.

I would like to express my sincere gratitude to Doctor Abel Dulla for his invaluable guidance and support throughout this research project.

I am truly grateful to my beloved sister, Bezawit Wolde, for her invaluable support throughout this journey. Her pure soul and unwavering support have been a blessing. I am also indebted to Misgana Mekonen for his assistance, without which this research would not have been possible.

Finally, I am deeply appreciative of my friends and families who generously shared their time and insights, contributing to the success of this study.

Mihret Deju

LIST OF ABBREVIATIONS AND ACRONYMS

ATM -Automatic Teller Machine

CBE- Commercial Bank of Ethiopia

CBK- Central Bank of Kenya

E-banking -Electronic banking

FEM-Fixed effect model

IT -Information Technology

ICT- Information and Communications technology

MBA -Masters of Business Administration

NBE -National Bank of Ethiopia

PIN-Personal Identification Number

POS- Point of Sale

REM-Random Effect Model

ROA-Return on Assets

ROE-Return on Equity

TP - Transaction point

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ABSTRACT

The main objective of this study is to examine the effect of e-banking on the performance of commercial banks in Ethiopia. The study adopted a quantitative research approach with an explanatory design. ROA was used to measure and explain the performance of selected commercial banks. The explanatory variables were TP, NDCU, and NMBU. Secondary data was collected in panel form for 15 purposively selected commercial banks from NBE and audited financial statements of commercial banks for 5 years (2017-2021). penal regression models were adopted to examine the relationship between the study variables. Data was analyzed using descriptive statistics using SPSS software. The finding of the study confirmed that from bank-specific variables value of TP had significant and positive effects on the financial performance of commercial banks in Ethiopia measured by return on asset. On the contrary NMB and NDC had a significant negative impact on financial performance measured by return on asset.

The finding generally concludes that the Number of TP was the main contributor of bank profitability in Ethiopia measured by ROA. The study recommends that Banks should invest more on new e-banking channel for automating their banking system and it is imperative to devise strategies that involve alliances and collaborations between commercial banks, since e-banking requires promising activity to increase the profitability of Ethiopian commercial Banks fascinatingly.

Keywords: Electronic Banking; Commercial banks; Financial performance, Profitability ROA.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Electronic banking refers to a modern banking system that automates the direct distribution of both new and traditional banking products and services to customers via electronic, interactive communication channels. It is a service that offers clients the chance to a public or private network, including the internet, to access their accounts, carry out transactions, and get information on financial products and services (Driga, and Isac, 2014).

The introduction of electronic commerce—the exchange of goods and services and payments over telecommunications systems via a public or private network, including the internet—was one of the significant technological advancements of the last decade of the 20th century (Kalakota & Whinston, 1997). Ovia (2001) argue that Electronic banking is a product of e-commerce in the field of banking and financial services. Banks are also offering payment services on behalf of their customers who shop in different e-shops. It is a general term for the method by which a customer can do financial transactions electronically without going to a physical location.

In today's very competitive banking sector, implementing e-banking can give banks a number of competitive benefits. Compared to branch or even phone transactions, e-banking transactions are substantially less expensive (Shah and Clarke 2009). E-banking has a number of advantages, including the ability to conduct business more cheaply and enriching relationships with customers by offering superior services, and innovative products, which may be customized to individual needs (Shah and Clarke, 2009). It also allows many payment alternatives, provides rapid notification of all transactions on users' accounts, makes paperwork and transaction tracking easier, and lowers the cost of producing, maintaining, and distributing banknotes.

On the other hand, there are difficulties with e-banking services that have significantly slowed its development. Security issues, a lack of suitable ICT infrastructure, power outages, the high cost of offering an e-banking facility, and consumers' lack of understanding are a few of the difficulties that prevent e-banking services from improving the performance of banks.

In order to prevent harms to the bank's performance, it is crucial that e-banking innovations are made after thorough examination of the risks and costs involved. On the one hand, the efficiency and efficacy of electronic banking directly affect bank performance, while on the other hand; strict controls and regulations are required to prevent losses associated with electronic banking. The banks have to balance these two options in order not to impair its overall prosperity. This is only achievable if the overall impacts of electronic banking on banks and their consumers are known (Aduda1 and Kingoo, 2012).

In Ethiopia, e-banking is in its earliest stage Even though the largest state-owned commercial bank in Ethiopia (CBE), which deployed ATMs to provide services to local users in late 2001, introduced the idea of e-banking in Ethiopia; it doesn't show that much improvement as its age. Nowadays most banks are adopting e-banking system, which include mobile banking, internet banking and agent banking. In addition, In order to maintain and enhance its infrastructure and offer new electronic information-based services, many banks are making what appear to be enormous investments in technology.

1.2. Statement of the Problem

Due to the rapid advancements in IT and the highly competitive banking markets, e-banking has started to be adopted very widely as a channel of distribution for financial services in recent years. The new technology system has also gained millions of dollars from financial organizations, who hope that it would increase overall profitability and market share. However, if the customers do not accept or completely utilize its capability, the return will be less or operating at a loss. In order to get returns on these investments, it is necessary to comprehend how consumers will utilize and accept new technologies as well as how that will affect performance (Kumegan,2004). An increasing concern is that e-banking is not producing the expected outcomes, leading to a discrepancy between the actual returns and the intended aims and resulting in the loss of a significant investment (Nyangena and Muturi, 2015).

Despite the significance of e-banking in explaining banking performance Arisa and Muturi (2015) claim that there is insufficient research on how e-banking affects banks' performance, making it difficult to identify the factors Bhattacharjee that drive innovation and how innovation

affects banks' performance. According to Arisa and Muturi, (2015), despite the importance of e-banking in explaining banking performance, the effect of e-banking on banks performance is inadequately researched to show the drivers of innovation and innovation's effects on bank's performance. As per the knowledge of the researcher only a very limited number of researches have been done on e- banking services in Ethiopia. The previous studies like that of Gardachew (2010), Ayana, (2014, and Berhanu, (2015) focused on adaption of e-banking services and, the study of (Girma, 2016) and (Dawit, 2017) studied the impact of IT investment on financial performance of commercial banks in Ethiopia. From the above discussions, it is evident that not much research has been focused on the impact of e-banking service on the performance of commercial banks in Ethiopia.

Previous studies in Ethiopian e-business focus on the assessment study and the correlation between e-banking and customer satisfaction (Assefa 2013). Likewise, Gemechu (2014); Gardachew (2010) evaluated the adoption of e-banking in the context of banks perception, in addition, one research found on the effect of e-banking on performance (Tilahun2015) focus only ATM,debt card and POS.

According to Adua and Kingoo (2012) there are a number of empirical studies concerning the effect of adoption of e- banking on the performance of banks, some scholars observed positive impact, some observed negative while other researchers have drawn mixed conclusions.

From the above paragraph clearly seen, there is mixed evidence about e-banking on banks' performance that it becomes imperative to carry out a study in Ethiopian context whether e banking has effect on financial performance of commercial banks. It is therefore, important for bankers, bank regulators, supervisors and researchers to understand e-banking effects the performance of banks. Hence, the researchers' main purpose is to fill this significant gap by providing systematic analysis of electronic banks on the performance of Ethiopian commercial banks. This study therefore aims to examine the impact of e-banking services on commercial banks in Ethiopia.

1.3. Research Questions

The study attempts to answer the following research questions: what is the impact of e-banking service on the performance of commercial banks in Ethiopia?

1.4. Research Objectives

1.4.1 General Objective

The main objective of the study is to examine the impact of e-banking services on the performance of commercial banks focusing on its contribution on return asset.

1.4.2 Specific Objectives

The study pursued the following specific objectives;

- To determine the impact that ATM and POS (Transaction point) has on the performance of some selected commercial banks in Ethiopia.
- To examine the impact that Mobile Banking has on the performance of some selected commercial banks in Ethiopia.
- To examine the impact of Number of Debit card has on the performance of some selected commercial banks in Ethiopia.

1.5. Research Hypothesis

Based on the research objectives stated above, the following research hypothesis are developed:

- H₀: Transaction point has no significant impact on the performance of commercial banks in Ethiopia.
- H₀: Mobile banking has no significant impact on the performance of top performer commercial banks in Ethiopia.
- H₀: Number of Debit card has no significant impact on the performance of top performer commercial banks in Ethiopia.

1.6. Scope (Delimitation) of the study

In order to make generalization from sample to population, and to increase number of observation

of the study, a combination of the maximum number sample of population (commercial bank) and frequency of observation (Year of operation) was taken into account. The researcher used 5 years' data by taking sample of fifteen (15) commercial banks. Including Abay Bank, Addis international Bank , Awash International Bank, Bank of Abyssinia, Berhan International Bank, Bunna international Bank, Commercial Bank of Ethiopia, Cooperative Bank of oromia, Dashen Bank, Dehub global Bank, Enat Bank, Nib International Bank, United Bank, Wegagen Bank and Zemen Bank are selected for this study. The explanatory variables used in the study are Transaction point (Automated teller machines & point of sale terminals) mobile banking, and Number of Debit Card. The financial performance measure used for this study is return on asset. The data covered the period 2017 to 2021 was collected. The scope of the study will extend up to examining the effects of E-banking on Bank performance.

1.7. Limitation of the Study

The primary challenge encountered during the study revolves around gathering data from the selected banks. Securing comprehensive data proved to be difficult due to reluctance from the involved parties within these banks, as they are concerned about the potential disruption to their employees' work.

1.8. Significance of Study

The study's findings hold significant importance for executives within the commercial banking sector in Ethiopia. By comprehending the impact of electronic banking on profitability, they can make informed decisions regarding the adoption of electronic banking services. This insight will help them anticipate the potential outcomes of such adoption on their banks' profitability.

Furthermore, the study's results will serve to enlighten policy makers in the banking industry. Understanding the projected effects of electronic banking on banks' profitability will enable them to craft suitable policies for its adoption by commercial banks in Ethiopia.

Additionally, the study will prove invaluable to future scholars and academicians. It will serve as a foundational piece for subsequent research endeavors and will enrich the literature available for future studies on electronic banking.

1.9. Organization of the Study

The research paper was organized into five chapters. Chapter one present the introduction part, which contains, background of the study, statement of the problem, objectives of the study, research question, research hypothesis, significant of the study, scope & limitations of the study, and organization of the study. Chapter two presents the literature review. Chapter three presents research methodology, which contains research design, sample and population, sampling techniques, data collection, data analysis technique and analytical model. Analysis and finding/results was presented in chapter four. The final part chapter five includes conclusions, some recommendations and Further Research.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Review

2.1.1 Definition of E-banking

E-banking is a term that refers to a new age banking system that involves the automated distribution of new and traditional banking products and services to customers via electronic, interactive communication channels. It is a service that allows consumers to access their accounts, make transactions, and acquire information about financial products and services via a public or private network, such as the Internet (Driga and Isac, 2014).

Electronic banking refers to the delivery of financial services and goods to customers via electronic and communication networks. Vilattes (1997) describes e-banking as a form of distance banking that manages the exchange of information between customers' "living spaces" (such as homes, offices, etc.) and the bank's physical facilities as well as solicitation, sales, distribution, and service access without requiring that the customer and a financial institution representative be present in the same physical location at the same time. Additionally, according to Mols (1998), electronic banking is the automated provision of both innovative and conventional banking goods and services to clients directly over electronic channels. Customers can access their accounts through this system, conduct transactions, ask questions, and receive fast responses from banks.

According to Daniel, (1999), e-banking is the provision of information about a bank and its services via a home page on the World Wide Web (WWW). More sophisticated e-banking services provide customer access to accounts, the ability to move their money between different accounts, and making payments or applying for loans via e-Channels.

Understanding e-banking is important for several stakeholders, not least of which is management of banking related organizations, since it helps them to derive benefits from it. The Internet as a channel for services delivery is fundamentally different from other channels such as branch networks, telephone banking or Automated Teller Machines (ATMs). Therefore, it brings up unique types of challenges and requires innovative solutions. (Shah & Clarke 2009).

As we advance to higher levels of electronic banking, there will be fewer manual tasks, more computerized processes, more networks available, fewer time constraints, and ultimately a more secure banking system. A well-known internet network for security provides services. E-banking, on the other hand, uses communication to exchange money within a financial system (Godarzi & Zobaidi, 1999). In another definition, electronic channels are used to produce low-cost services through e-banking. These products and services include things like account bills, loans, deposit management, electronic payments, and electronic money. E-banking utilizes publicly accessible intranets and/or the internet. The clients are given a list with a time sequence for accounting, trading, getting bills, and paying bills. E-banking offers many advantages, including an increase in customers and a reduction in bank expenses. Additionally, employing E-Banking makes it simple for banks to perform their tasks more quickly and securely. Additionally, they can grow their stakeholder base.

“E-finance can allow countries to establish a financial system without first building a fully functioning financial infrastructure. Because e-finance is much cheaper, since it lowers processing costs for providers and search and switching costs for consumers, providers can market financial services involving smaller transactions to lower-income borrowers, even in remote areas. To further this, government’s main role will be to enhance the enabling environment.”

The most pressing policy concerns, according to the analysis, will be the creation of an enabling environment for e-finance, as well as the establishment of regulatory and other frameworks for contract enforcement, information and privacy, and telecommunications, security, and public infrastructure for electronic transactions. By suggesting that e-finance can aid in the development of emerging nations' financial sectors by reducing costs, boosting the breadth and quality, and extending access to financial services, Claessens et al. (2002) further contribute to the emerging markets' ability to advance ahead of developed markets.

2.2. The Concept of E-Banking

It's crucial to recognize from the outset that modern-day money is essentially represented as information, capable of being electronically transmitted to facilitate economic transactions. In the contemporary context, an individual's purchasing power is predominantly recorded within

the accounting records of their bank. It is this new definition of money, which has resulted in the electronic revolution of financial institution (Balachandher, 2001).

According to Marsh (2005) e-banking is having 24 hour access to banking operations such as through an Automated Teller Machine (ATM) with Personal Identification Number (PIN) or making a direct deposit into checking or saving accounts. Additionally, Insely& Fleming (2000) argue that —e-banking is a general term for a process by which a customer may conveniently perform banking transactions electronically without visiting a brick and mortar institutionl.

Bhattacharjee (2001) expands this definition by stating that e-banking is as an integrated system that can provide customers flexible, convenient and inexpensive platform with integrated services of online personal banking products including online checking and saving accounts, money market accounts, certificate of deposit, credit cards, home equity loan, home mortgage, insurance, investment services, portfolio management and other related financial services. Thus the electronic platform eliminates the traditional way of banking whereby customers had no option than to walk to a bank to perform transactions. It means that with e-banking the customer can conduct his/her transactions anytime, anywhere without having to walk to a bank.

2.2.1. Theories of Information Technology

2.2.1.1 Innovation Diffusion Theory

The diffusion of innovations is a key theory in understanding the adoption of technology, which in turn can help understand user needs and inform the design of user-friendly systems. The diffusion of innovations theory is actually a group of models and ideas that together provide a comprehensive framework for comprehending the various elements that make up the process of adopting an innovation. This model defines diffusion as "the process by which an innovation is conveyed through specific channels through time, among members of a social system, among individuals" The invention, communication channels, time, and social system components of this paradigm each have a set of associated concepts, methods, and models that help to characterize and explain the central component(Mille, 2015).

The innovation-decision process, according to Rogers (1983), is the progression that an individual (or other decision-making units) makes from first learning about an innovation to

developing an attitude toward the innovation, deciding to adopt or reject the innovation, putting the new idea into practice, and to receiving confirmation of this decision. In his conceptualization of the process, Rogers identified five key steps: knowledge, persuasion, choice, implementation, and confirmation. Knowledge is gained when an individual (or other decision-making unit) is made aware of the existence of the innovation and develops some comprehension of how it works. When an individual (or other decision-making unit) forms a favorable or unfavorable attitude toward the innovation, this is referred to as persuasion. When an individual (or other decision-making unit) engages in behaviors that lead to a choice to adopt or reject the innovation, a decision is made

The cost-benefit analysis is used to make the innovation-decision, with uncertainty being the primary obstacle. People will adopt an innovation if they believe it will improve their utility in the long run. As a result, they must trust that the innovation will provide some relative benefit over the idea it replaces. The newness and unfamiliarity of an innovation introduce significant uncertainty into the cost-benefit analysis. People are risk-averse on average; therefore uncertainty often results in a choice being postponed until more evidence can be acquired. The crucial point is not the case for everyone. Personal characteristics heavily influence each individual's innovation decision (Greg, 2003).

According to the diffusion of innovation theory, the key to mobile and internet banking acceptance is that the various adopter categories regard these services as novel or inventive. Furthermore, the Transaction point model is relevant because it puts internet and mobile banking information Transaction point into context, revealing that perceived ease of use, perceived usefulness, perceived self-efficacy, and perceived credibility significantly influenced customers' attitudes toward m-banking and e-banking usage (Wanja, 2012).

2.2.1.2 Task Technology Fit (TTF) Theory

This theory claims that if the capabilities of Information Communication and Technology (ICT) fit the tasks that the user must complete, it is more likely to have a positive impact on individual performance and be used (Goodhue and Thompson, 1995). According to Goodhue and Thompson (1995), task-technology fit is measured by variables such as quality, locatability, authorization, and compatibility, ease of use/training, production timeliness, system reliability,

and user relationship. The model can be integrated with or utilized as an extension of other models connected to information system outcomes in the analysis of many contexts of a varied range of information systems, including electronic commerce systems Ngumi (2013).

Two substantially separate TTF ideas have arisen. The first, started by Goodhue and Thompson (1995), established TTF as a key concept in evaluating and understanding IS effectiveness. The second, launched by Zigurs and Buckland (1998), created a systematic profile for group task-technology combinations and group support systems (GSS). While Goodhue and Thompson (1995) concentrated on individual IS usage and proposed a generally positivistic research strategy applicable to IS in general, Zigurs and Buckland (1998) focused on group IS use and developed a fit profile specific to GSS.

The task-technology fit has a significant impact on individual roles and performance while using information systems. To have a positive impact on performance, an information system must be both used and matched to the task at hand (Irick, 2008). Goodhue and Thompson (1995) discovered that the TTF metric, when combined with usage, was a significant predictor of user reports of better job performance and effectiveness due to their use of the system under consideration.

2.2.1.3 Technology Acceptance Model (TAM)

TAM is a conceptual model proposed by Davis, Bagozzi, and Warshaw (1989) to explain users' intention or acceptance degree towards an information system or new technology. TAM is based on perceived usefulness and perceived simplicity of use. Perceived usefulness relates to an individual's perception in the ability to increase job performance by utilizing specific new technologies and information systems. The perceived ease of use measures how easily a person learns to operate or use new technology or an information system (Davis et al., 1989; Gefen et al., 2003). The approach lays a greater emphasis on how perceived ease of use affects perceived utility. Exogenous elements such as the surroundings can also influence perceived utility and perceived ease of usage. TAM is thus dependent on significant perceptual characteristics such as perceived usefulness and perceived simplicity of use. TAM is commonly used in information technology research. Based on TAM theory, Liu and Arnett (2000) investigated the significant criteria for developing a successful website. Gefen et al. (2003) proposed an integrated model

for explaining online consumer behavior by combining TAT and rust. Pavlou (2003) provides a model of online customer approval of e-commerce by isolating and applying experiment designs and surveys.

2.2.2. Roles of E-banking Service

In today's highly competitive banking sector, implementing e-banking can give banks a number of competitive benefits. More affordable than a branch or even phone transactions are e-banking transactions. A large branch network, which was formerly a competitive advantage, May now be seen as a comparative disadvantage, allowing online banks to undercut traditional banks.

2.2.2.1. Cost reduction

A major economic argument for e-banking has been to reduce the overhead of other channels, such as branches, which require expensive buildings and staff presence. Also, once a critical mass of customers is reached, the cost per transaction of e-banking often appears to decline faster than that of traditional banks (Shah and Clark, 2009).

2.2.2.2. Load reduction on other channels

Most normal activities, like checking an account or paying bills, can be done utilizing e-channels because they are generally automatic. The pressure on other distribution channels, such branches or call centers, is typically reduced as a result. As more complex services like asset finance and mortgages are made available through e-Banking channels, this trend is expected to persist. Routine branch operations, such those linked to cash/cheque deposits, are also being automated in some countries, which further reduces the strain of branch workers and frees up time to focus on delivering higher-quality customer services (Shah and Clarke, 2009).

2.2.2.3. Customers' choices and convenience

This is the main advantage of electronic banking that outweighs all others. No one would want to give up the ability to conduct transactions and payments at the touch of a button from the convenience of their home or place of business without ever leaving. When compared to visiting the bank, keeping track of accounts online is significantly quicker and more practical. Even non-transactional services, such as obtaining checkbooks online, updating accounts, finding out

the interest rates of different financial products, etc., are made much easier by the internet (Johnson, 1905).

2.2.2.4. Improving image

According to Kassahun (2016), offering Internet connection makes a bank appear more cutting-edge to a consumer. Even if someone doesn't choose to use Internet banking, the service's availability makes them feel as though their bank is on the cutting edge.

2.2.2.5. Customer Service and Satisfaction

Customers who conduct their banking online have access to a comprehensive range of services as well as others that are not available at any of the locations. One does not need to visit a branch where that service may or may not be provided. Instead of standing in line and asking a teller, a person can quickly search for information on the Internet, print information, forms, and applications, and conduct efficient information searches. A bank will undoubtedly be able to encourage improved customer connections and satisfaction with superior and faster possibilities.

2.2.2.6. Easier expansion

In the past, a bank had to open new branches in order to expand geographically, which came at a hefty start-up and maintenance cost. In many cases, e-channels like the Internet have rendered this redundant. Now that most financial transactions do not require a physical presence close to a customer's place of residence or employment, banks with a traditional customer base in one region of the nation or the world can draw customers from other regions (Shah and Clarke, 2009).

2.2.3 Types of E-banking service

2.2.3.1. Automated Teller Machines (ATM)

Automated teller machines (ATMs) are devices that provide a variety of services to users authenticated by a PIN code. Users can make payments, withdraw money, and view account information from ATMs (Myllynen, 2009).

When compared to almost all branches, ATMs have almost one-fourth of transaction expenses. Cash withdrawals, cash deposits, and service requests, including the request for a new checkbook, are all supported by ATMs. The installation of ATMs in malls and other busy commercial areas has been made possible by new technology, which has also helped banks cut operating and transaction expenses (Sambamuthy et al., 2010).

ATMs were one of the first ICT technologies used by banks and are still one of the most successful today. ATMs are computerized communication devices that provide bank customers with self-service access to their financial accounts. A prototype was first developed in 1939, the latest ATM was patented in 1966, his ATM was installed at Barclays Bank in London in 1967, and the United States began production of his ATM (Bellis, 2010).

According to Koltveit (2000), alternative delivery channels such as ATMs, telephone interactive voice response systems, and online banking are mature channels, but advances in ICT are opening up opportunities for improvement even in these established technologies. . Alternative delivery channel technologies that are popular today include services such as short messaging (SMS), SMS banking, text notifications, bill payments, automated clearinghouses, electronic payments, mobile banking, email alerts and notifications, and online banking. It is included. All of these technologies are relatively new ICT-enabled strategies to improve performance.

As Morsi (1996) points out, banks are adding ATM features such as online loan applications, statement distribution, foreign currency issuance, traveler's check purchases, and check cashing to attract customers.

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

According to Malak (2007) cited in Ayana (2014), POS systems allow consumers to pay for retail purchases with check cards (the new name for debit cards). This card is similar to a credit card, with one big difference. Purchases are instantly transferred from the debit cardholder's account to the store's account.

2.2.3.4. Debit Card

Debit cards are also called check cards. A debit card looks like a credit card or ATM card, but works like cash or a check. A debit card is different from a credit card. A credit card is a "pay later" method, while a debit card is a "pay now" method. When a customer uses a debit card, money is immediately deducted from their checking or savings account. Debit cards can be used in many places, including grocery stores, retail stores, gas stations, and restaurants (Nora et al., 2009).

2.2.3.5. Internet Banking

Internet banking includes banking transactions such as: Paying for goods and services on the Internet (World Wide Web) by wire transfer using a computer or other electronic device without going to a cash register. E-commerce is greatly facilitated by Internet banking and is primarily used for payment processing. Internet banking also uses electronic card infrastructure to carry out payment instructions and final settlement of goods and services over the Internet between merchants and customers. The most common Internet payment today is a consumer bill and airline ticket purchase via his website at a merchant (Kleiner, 2006).

2.2.3.6. Mobile Banking

Mobile banking refers to the process of settling financial transactions using a mobile phone. It allows for person-to-person transfers with the beneficiary receiving their monies right away. Mobile payments make use of the card infrastructure to transport payment instructions and secure SMS messaging to provide the beneficiary a receipt confirmation. Mobile banking is designed for quick, low-value transactions where completion time is crucial. Account inquiry, money transfers, phone recharges, password changes, and bill payment are among the services covered by this product and are provided by a select few institutions (Sathye, 1999).

2.2.3.7. Agent Banking

A bank agent is a retailer or postal carrier hired by a financial institution or mobile network operator to process customer transactions. A retail store owner or employee, rather than a branch teller, completes transactions allowing customers to deposit, withdraw, transfer money, pay

bills, check account balances, or receive government benefits or direct deposit from employer. Bank agents are pharmacies, supermarkets, convenience stores, lottery offices, post offices, etc.

According to NBE Directive, agent banking is the use of various service channels to conduct banking operations on behalf of financial institutions through agents. Mobile banking is the conduct of banking transactions, which primarily consists of opening and maintaining mobile/regular accounts and accepting deposits. It also includes the use of mobile devices to transfer funds and deposit and withdraw services (Solomon, 2016).

2.2.4. Measures of Bank Performance

There are many different types of bank performance indicators. To understand them, it is recommended to classify them in terms of internal and external factors. Internal factors described as bank efficiency, productivity and profitability in relation to sizing optimization and capital structure. External factors consist of the degree of bank liberalization and the country's GDP (Athanasoglu, 2008).

A commonly used measure of bank performance is the level of bank profits. Profit is the ultimate goal of commercial banks. All strategies designed and activities carried out are aimed at realizing this ambitious goal (Okoth and Gemechu, 2013). A bank's profitability can be measured by Return on Assets (ROA) and Return on Equity (ROE) (Knifer, 2010). These are the best-known measures of bank performance.

2.2.4.1 Return on Equity (ROE)

ROE is a financial measure related to how much profit a company has made compared to the total amount of shares invested or reported on its balance sheet. ROE is what shareholders expect from an investment. Companies with high return on equity are more likely to have the ability to generate money internally. Therefore, the higher the ROE, the better a company is at generating profits. Khrawish (2011) further explains that ROE is the ratio of net profit after tax divided by total capital. It represents the rate of return obtained in funds invested in the bank by shareholders. ROE reflects how effectively bank management is using shareholders' funds. From the above, it can be inferred that the higher the ROE, the more effectively the shareholders' equity is used in management.

2.2.4.2 Return on Asset (ROA)

ROA is another important indicator of bank profitability. This is the ratio of income to total wealth (Khrawish, 2011). It measures a banker's ability to generate revenue using corporate assets at his disposal. In other words, it shows how efficiently the company's resources are being used to generate revenue. It also shows the efficiency of corporate he governance to generate net profit from all the resources of the institution (Khrawish, 2011). Wen (2010) found that a higher ROA indicates that a company is using its resources more efficiently.

2.2.5. Challenges of banks while using E banking

There are a wide range of components that contribute to the creation of an effective financial transfer system. These issues are insufficient infrastructure, such as unpredictable power supplies and communication links, particularly in developing nations. Government or other organizations must in this instance provide a reliable and effective power supply and telecommunications system (Oleka, 2009). Another issue is the significant buildup of cash in the economy; in this case, the government should demand legislation that would charge the dominance of cash usage to electronic payments. Inadequate experienced managers and necessary tools on end users and client systems should be addressed here. The banking regulation should establish standard fees for e-payment services because there are also large costs associated with e-payment terminals (ATMs) (Littler, 2006). Failing to provide adequate security to prevent fraud, banks install standby cameras at each ATM to verify the identity of operators' accounts and employ smart computer assistants to dictating and prevent fraud by computer hackers. Lack of government support for improving e-banking requires central banks to engage in public awareness campaigns and escalate infrastructure challenges to relevant government agencies.

Other challenges include:

a. Power Failure and Communication Link

Constant electrical outages produce infrastructure problems in ATMs, computers, and other devices, which slow down the speed of electronic transactions. They also cause failure linkages

from Nitel lines, which are frequently caused by spikes and surges brought on by a consistent electronic power supply (Akinuli, 1999).

b. Lack of adequate investment capital

Funds available to acquire new information technology and modernize existing systems are generally scarce. While many modern banking applications are in use, there are also integrated banking systems that continue to innovate, especially in terms of product development, greatly improving the speed of domestic and international fund transfers (James, 2009).

c. Low public acceptance

Customers and the public do not trust machines in the sense that fraudsters use the system to carry out fraudulent activities. Even today, banks still use machines to plunder customer funds from their accounts. Some customers have complained that in the process of approving this issue, the machine sometimes confiscates the card if they withdraw from her ATM while it is debiting their own account. Customers can be frustrated because it takes a long time or ends up unresolved (James, 2009).

d. Insecurities in banks

Most electronic devices today are unsecured, making it easier for unauthorized personnel to carry out fraudulent activities without getting caught. Banks cannot prevent, stop, or order fraudulent activity due to uncertainty. Computer hackers also use this system to crack codes and steal data and information (Hodagho, 1996).

e. Encourages excessive withdrawal

On non-business days like Saturdays when banks are not open, customers use ATM cards to withdraw, and customers with little or no money rush to a nearby ATM to withdraw money for excessive spending. In interviews with banks, customers complained about this (James, 2009).

2.3. Benefits of Electronic Banking

Banks just like other businesses are tuning to information technology to improve business efficiency, service quality and attract new customers (Nath et al, 2001). Al-Sukkar and Hasan

(2005) aver that the most important factors encouraging consumers to use online banking are lower fees followed by reducing paper work and human error. Subsequently electronic channels can lead to lower transaction costs which are very competitive (Claessens and Kliengbiel, 2000). Kiang et al (2000) is of the view that disputes can be minimized between the employees as there is a clear flow of processes. Conducting business outside the normal branch working hours has also been a factor that has been considered convenient for bankers. According to Jayawardhena and Foley (2000) each ATM has the capacity to carry out the same, essentially routine, transactions as do human tellers in branch offices but at half the cost and with a four to one advantage in productivity. Thus banks can provide customers convenient, inexpensive access to the bank 24 hours a day and seven days a week.

Increased availability and accessibility of more self-service distribution channels help bank administration in reducing the expensive branch network and associated staff overheads (Birch and Young, 1997). A reduction in the percentage of customers visiting the banks with an increase in alternative channels of distribution will also minimize the queues in branches (Thornton and White, 2001). According to Thornton and White (2001) this ultimately leads to improved customer satisfaction. Jayawardhena and Foley (2000) observe that electronic banking increases competition within the banking system and also from non-bank financial institutions. Electronic banking also increases the power of the customer to make price comparisons across suppliers quickly and easily and as a consequence this pushes prices and margins downward (Devlin, 1995).

Kerem (2003) observes that banks are responding to electronic banking differently and that those which see electronic banking as a complement and substitute to the traditional channels achieved better communication and interactivity with the customers. Online banking extends the relationship with the customers through providing financial services right into the home or office of customers (Robinson, 2000). Al-Sukkar and Hassan (2005) support the view that technology can improve service quality for banks and enhance customer satisfaction and loyalty.

According to Nath et al (2001) provision of high quality services may also lead to high profit consumers for the bank. Polatoglu and Ekin (2001) argue that early adopters and heavy uses of

internet banking services are more satisfied with the services compared to the other customer groups. According to Joseph and Stone (2003) the ability to deliver services via technology is positively correlated with satisfaction. Smith (2006) emphasizes the importance of human and technology based delivery channels in improving the level of bank customer satisfaction, retention, and switching. E-banking customers do not face problems of handling a lot of money, submission of utility bills and waiting in a long queue for services. In Bangladesh, there is huge demand for e-banking from the business community as well as the urban retail customers.

Rahman (2009) observes that 99 percent of the branches of private commercial banks (PCBs) in Bangladesh were computerized by December 2006. The average for all bank branches was 37 percent since only 4 percent and 16 percent of specialized banks (SBs) and state-owned commercial banks (SCBs) respectively were computerized. One of the most important developments in Zimbabwe's banking sector has been the steady but sometimes disturbed development of electronic banking (Dube et al, 2009). The adoption of electronic banking in Zimbabwe has been underpinned by the growth of internet connectivity in the country. Internet has changed the dimensions of competition in the retail banking sector. In Zimbabwe the adoption of electronic banking services was first visible in the early 1990s where Standard Chartered Bank and CABS set up the first ATMs. Over the past years other electronic banking products have come into sight such as the Electronic Funds Payment systems, telephone-banking, PC banking and even internet banking (Njanike, 2010). It has been observed that growth in internet connectivity Zimbabwe has greatly improved financial inclusion of previously marginalized and excluded communities in the Zimbabwean economy. Technological innovations and competition in the banking sector have improved accessibility to a wide range of services to retail and wholesale customers.

Electronic banking has been viewed a valuable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness (Kamel, 2005 and Nath et al, 2001). The evolution of banking technology has been evidenced by transitions from ATMs, phone banking, PC banking to internet banking (Chang, 2003). Other studies show that electronic banking has been adopted by banks to achieve a competitive advantage, reduce costs and maintain a strategic position (Bradley and Stewart, 2003). Zimbabwe also has been part of

the worldwide trend into the use of advanced technology, and this has been recognized through growth in the usage of electronic delivery channels such as ATMs and the internet.

Other benefits that have accrued because of the adoption of electronic banking in developed countries include the ability to attract new customers and widening the customer database, improving bank marketing and communication, and having the ability to retain high profit customers (Al-Sukkar and Hasan, 2005). Lack of user-friendly technology, customer demand, high initial set-up costs, redundancy of existing high-cost legacy systems, economic instability, regulatory controls and lack of suitable skills have been highlighted as some of the most important issues delaying the adoption or diffusion of electronic banking (Bradley and Stewart, 2003, Kerem, 2003 and Chang, 2003). In Zimbabwe the adverse sector specific factors hampering the adoption or diffusion of electronic banking were exacerbated by the economic downturn which started in 1997 and culminated in the economic meltdown of 2008 (Njanike, 2008, Kairiza, 2009).

2.4. E-Banking System in Ethiopian Banking Sector

The appearance of E-banking in Ethiopia goes back to the late 2001, when the largest state owned, commercial bank of Ethiopia (CBE) introduced ATM to deliver service to the local users. In addition to eight ATM Located in Addis Ababa, CBE has had Visa membership since November 14, 2005. But, due to lack of appropriate infrastructure it failed to reap the fruit of its membership. Despite being, the pioneer in introducing ATM based payment system and acquired visa membership, CBE Lagged behind Dashen bank, which worked aggressively to maintain its lead in E-payment system. (Gardachew, 2010)

According to Wondwossen and Tsegai, (2005), in 2005 commercial bank of Ethiopia (CBE) offer ATM service with eight ATMs in Addis Ababa. These ATMs enable customers to withdraw limited amount of money from their account at any time. The ATMs also enable customers to check their account balance. However, depositing money through ATM is not currently possible. In order to get ATM services, customers need ATM cards and secrete PIN codes. The ATM card is a smart card used for security purpose only. The ATM card coupled

with a PIN code provides state-of-the-art authentication scheme called two-factor authentication.

Harnessing its leadership with advanced banking technology, Dashen bank started to use ATM machine to deliver service to its customers in 2006, and the bank adopts mobile banking (Modbirr) in the year 2009.(Ayana, 2012). Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce in April 21, 2009. According to the agreement, iVery Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank. Dashen's Modbirr users can transfer 500 birr to other Modbirr users in 24 hours a day. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions. (Alemayehu and Jacqueline, 2011)

Although Dashen Bank is pioneer in harnessing new technology, the younger United Bank was the first to introduce telephone and Internet banking systems - including text messages (SMS) - by the end of 2008.(Esayas, 2016). United bank received the approval to go on delivering agent banking on March 31, 2015. In its Agent Banking Services, United will provide branchless services banking especially for the unbanked society. Following the permission of mobile and agent banking, United bank established a team responsible for the implementation of the service in line with the Bank's strategic focus on technology led banking which synchronize with its new motto "Beyond Core Banking to Technology Led Excellence". (Solomon, 2016),

Wegagen Bank has signed an agreement with Technology Associates (TA), a Kenyan based information technology (IT) firm, for the development of the solutions for the payment system and installation of a network of ATMs on December 30, 2008. In the other hand in February 2009 three private commercial banks - Awash International Bank S.C., Nib International Bank S.C. and United Bank S.C signed to launch ATM and POS terminal network. (Ayana, 2014)

Zemen Bank launched multi-channel banking (MCB) services in Ethiopia, which includes ATMs, Internet Banking, Banking through Call Centre and SMS banking. These services introduced October 22, 2009, makes Zemen Bank the first in Ethiopia to introduce fully IT

supported and 24/7 customer's services to local bank customers. (Matiwos, 2016). The new and never-been-tried service proposed by the bank is to include free account money transfer, corporate payroll uploading system where employers could upload payroll to the system and make payments to individual worker's accounts online and online utility bill settlement system, when utility companies are ready (Asrat, 2010).

The Multi-Channel Banking services were designed for bank customers that require easy access to the bank's facilities while they are On-The-Go. Zemen Bank designed and equipped each of the new services with a user friendly Amharic and English language support. Zemen Bank customers can access their account from their PC/Laptop, Mobile Phone, ATM, and through a direct phone call to the dedicated and customer friendly Zemen Bank Call Centre. The Multi-Channel Banking Services are free of charge to all Zemen Bank customers. ATM cards are also issued immediately and free of charge to all customers who open an account with Zemen Bank. (Beza, 2010)

The long awaited national switch system, ET switch S.C, has gone operational on April 20, 2016. According to AddisBiz report, now depositors in Ethiopia can cash their account from any ATM even if it is not operated by the bank where they have deposited their savings. ET switch was established in 2011 by 16 banks, with 80.5 million Br registered capital. This event has great advantage to the development of e banking service in Ethiopia by increasing the accessibility of ATM machine for bank customers all over Ethiopia.

There are close to 9000 ATMs operating across the country, but mainly in the capital, Addis Abeba. Clients are now also buy and be refunded through point of sale (POS) machines.

2.5. Empirical Studies

According to previous empirical studies, banks' assessments of profitability will ultimately determine whether the e-banking system works as intended and whether they are able to benefit from this new technology in banking. Investment in such technology-based banking services will benefit if banks discover that by using e-banking systems, their financial performance improves. Numerous empirical researches have been done on the effects of e-banking adoption

on performance. While some researchers found a favorable impact, some found a negative one, while other researchers came to mixed conclusions.

Malhotra and Singh (2009) discovered that, on average, Internet banks are more profitable than their non-Internet competitors and are running more cost-effectively. According to their research, Internet banks in India are able to produce more deposits or client accounts than traditional banks. Internet banking may help banks increase revenue while also lowering operating costs, particularly by allowing them to spend less on maintaining physical branches.

According to a study of Malhotra and Singh (2009), the profiles of banks that offer Internet banking and banks that do not differ significantly in a number of important ways. Internet banks are, generally speaking, bigger, more successful, and more operationally efficient than traditional banks. With better asset management and fewer facility and equipment costs, online banks have improved asset quality. Internet banks in India heavily rely on deposits, the conventional source of funding, in contrast to developed nations. However, their research also found that the adoption of the internet had a negative impact on the profitability of smaller and newer banks because these banks operated in the new private sector with higher operating costs, including fixed costs and labor costs, which had a negative impact on these banks' profitability.

Arisa and Muturi (2015) studied effects of electronic banking on financial performance of commercial banks in Kenya they discovered that electronic banking does affect Kenyan banks' financial performance. According to the study, mobile banking's use as a tool for electronic banking has had a significant impact on Kenya's commercial banks' return on assets (ROA). The impact of mobile banking on financial performance is more noticeable. The study's respondents believed that mobile banking introduced new financial innovations, was addictive, allowed users to check their balances and pay credit card payments, provided the most recent account status information, and was most crucially widely known and used locally. The collaboration of banks and mobile phone providers has advanced mobile banking technologies. One can directly pay invoices, move funds across accounts, and deposit money into any account.

According to a study of Munyok (2015) in his study, on effect of mobile banking on the financial performance of banking institutions in Kenya, commercial banks' profitability has significantly

grown as a result of mobile banking. Results showed that M-banking goods provided by banks, such as Fund Transfer between Accounts/E-funds transfer, Bill Payment, and ordering of checkbooks and bank statements, have significantly enhanced the banks' revenue in the last five years. Accordingly, the study draws the conclusion that banks that offer M-banking services have significantly expanded their customer base and consequently enhanced their financial performance.

In the other hand, according to Mutual's (2010) analysis, there is a weak positive insignificant correlation between mobile banking and financial performance of commercial banks in Kenya. This was mostly due to the fact that numerous other factors that were not considered in this study affect how well commercial banks operate financially. Commercial banks that implement the most recent information technologies are likely to outperform, notwithstanding the rising levels of information technology use.

Ayana, (2014 investigated in his study how the Ethiopian banking sector did not take to E-banking systems like ATMs, mobile banking, internet banking, and others. This is because there is inadequate ICT infrastructure and no legal framework at NBE that would allow the banking industry to start using the system. The study's findings also indicate that security risk and a lack of trust in the use of technology are other significant obstacles to the system's adoption in Ethiopia, in addition to the two main factors mentioned above. Different banks have different issues due to the level of security risk connected with E-banking products and service such ATM, internet banking, mobile banking, and others. Improvements are required to ensure client confidence. Another challenge to the development of E-banking in the nation is the absence of competition among domestic and international banks. There are very little technical and management capabilities available in Ethiopian banks to support the introduction of E-banking.

2.6. Conceptual Framework

A conceptual framework is a research technique used to help a researcher articulate and gain understanding of the situation being studied. The employment of a conceptual framework as a tool to help a researcher interpret later findings has potential value. It is a component of the agenda for negotiation that will be examined, put to the test, reviewed, and changed as a

consequence of research, and it describes potential relationships between the variables (Smyth, 2004).

A conceptual framework for the present study shows the relationship of e-banking services on financial performance of Commercial Banks in Ethiopia.

After electronic payment methods were introduced into the financial industry, banks' performance improved. (Mustefa, 2018). Electronic Banking System like ATM, Pay direct, mobile phone banking, debit/visa card payment and E electronic check payment has a great impact on bank performance because they increase profitability, increases bank assets, enhances the quality of bank management, and encourages bank development (Ngango , Mbabazize and Shukla, 2015).

According to Besufkad(2017) E-banking influence financial performance of commercial banks in Ethiopia positively. The adoption of E-banking by commercial banks has a high potential of improving financial performance and hence better returns to the shareholders.

Automatic Teller Machines: ATM systems are believed to have improved the operational efficiency of banks and customer service in the banking sector (Banker and Kauffman, 1988; Glaser, 1988; Laderman, 1990). The market has been driven by the incredible expansion and development of technical advancement recently. The banking industry has undergone a change since ATM facilities were introduced. The development of automated teller machines has made bank management and investors more aware of some of the strategies their international competitors employ to gain a competitive edge as the banking industry has been able to expand. (Jegade C.A, 2014).

POS: The point of sale (POS) has an increased effect on the performance of banks on the exchange. The visibility and reach of banks expand as POS machine usage rises. Point-of-sale channels would bring about an enhancement of the business opportunities and ensure convenient payments which directly raise the output of goods and services in the economy thus leading to economic growth. It was discovered that increased POS usage results in significant income generation for banks (Mustapha, 2018).

Mobile banking: according to Mustapha (2018) advent of mobile banking has brought positive effects on bank performance. The implication is that consumers' financial transactions have increased as a result of mobile banking, which has also enhanced bank profitability and stock market performance. Mobile banking has a positive and significant effect on the financial performance of commercial banks. Mobile banking is anticipated to keep expanding as more people utilize all types of mobile services. Mobile banking provides greater convenience for customers as it allows them to accomplish tasks “on the go” (Hani, 2019).

Debit Card: Debit cards emerged in the late 20th century as a convenient alternative to cash and checks. Initially, they were primarily used for ATM withdrawals. However, advancements in technology and banking infrastructure have transformed debit cards into versatile payment instruments accepted worldwide. Debit cards play a crucial role in promoting financial inclusion by providing access to banking services for underserved populations. Debit cards can be used in many places, including grocery stores, retail stores, gas stations, and restaurants (Nora et al., 2009).

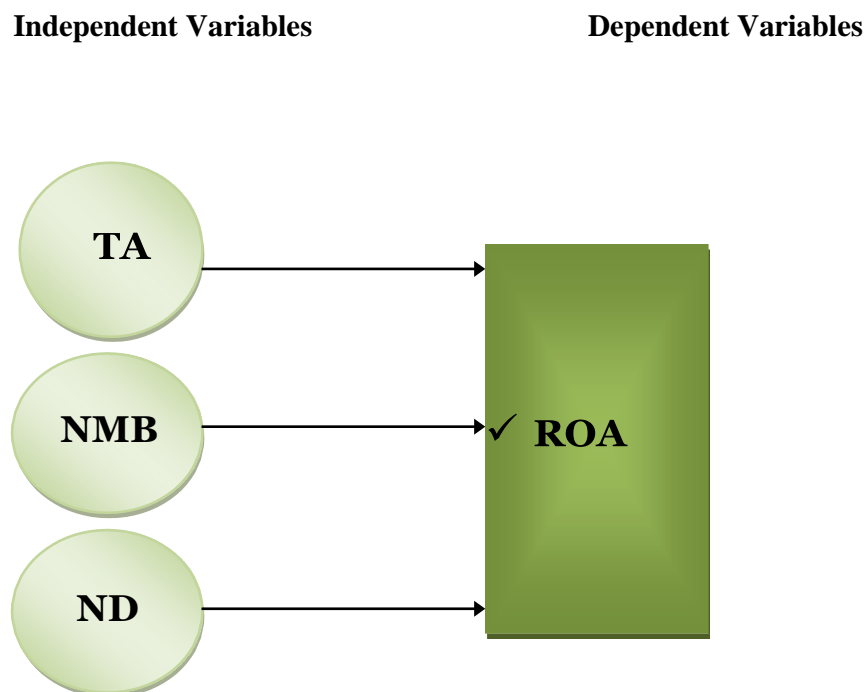


Figure 1. Conceptual Framework

Source: Developed for the research

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the rationale of research approach and methodology used in this study. It includes research approach, research design, data type, research method, sampling design, unit of analysis, variables of the study, data analysis and research.

3.2. Research Approach

Programs for quantitative and qualitative research make different philosophical claims and, as a result, operate under different presumptions. Positive thinking is associated with quantitative research and was previously presented by Borg, and Gall (1996), is the belief “that what is observed is not a reflection of what is physically or socially real”. Quantitative researchers are concerned with an objective reality that is “out there to be discovered” (Krathwohl, 1998), and researchers are independent of that which is being researched (Creswell, 1994). Concerning quantitative approaches, Schulman (1986) speaks of the positivist or ethic perspective of the researcher as "an outside observer who seeks to discover the laws of relations between observable features."

According to Creswell (2009), quantitative research is a means of testing objective theories by examining relationships between variables. These variables can then be measured, usually by instruments, so that statistical methods can be used to analyze the numbered data. Design of Experiments is a research approach for obtaining information about causality and also allows studies to assess correlations between variables (Kothari 2004).

Furthermore, according to Creswell (2003), he has three types of research designs. These are the quantitative, qualitative, and mixed-method audiences researchers write about.

Considering the research problem and objective along with the philosophy of the different research approaches, the quantitative nature of the data was collected, quantitative research approach is found to be appropriate for this study.

3.3. Research Method

This research used quantitative panel data. According to Stephanie (2008) in experimental design, researchers plan to measure the response variable depending on the explanatory variable. The response variable is an outcome measure for predicting or forecasting purposes of a study. It is also called dependent variable or predicted variable. Any variable that explains the response variable is called explanatory variable. It is also called independent variable or predictor variable. The most important factor in the experimental design is randomization. (John, A. Hafiz, T.A. Khan, R. and Raeside, D. (2007) “experimental (quantitative) designs are said to be the approach for obtaining information about causal relationships, allowing researchers to assess the correlation (relationship) between one variable and another” A principal factor of such designs is that one element is manipulated by the researcher to see whether it has any impact upon another (Robson 1993).

The purpose of this secondary data and document survey study is to test the Economic Rationale of E-Banking, task technology fit and innovation diffusion theory with respect to the independent variables (i.e. ATM, POS and Debit card) to dependent variables such as; ROA on financial performance of commercial banks. The subsequent discussions in this section describe the method used in investigating the effect of e-banking commercial banks performance.

3.4. Research design

Research design is a comprehensive plan for data collection in an empirical research project. It is a “blueprint” for empirical research aimed at answering specific research questions or testing specific hypotheses. (Bhattacharjee, 2012).

The main objective of this study is to examine the impact of e-banking services on performance of some selected commercial banks in Ethiopia. To achieve this objective explanatory type of research design with a quantitative approach is used. According to Saunders et al (2009), Studies that establish causal relationships between variables termed explanatory research.

3.5 Sample & Population

There are thirty two banks in Ethiopia, out of which, thirty one are commercial banks and the other is Development bank. Among the total thirty two, two of them are owned by the government and the remaining thirty are privately owned. Hence, the main objective of the

study is to examine the effects of E-banking services on commercial Banks performance in Ethiopia, the thirty two commercial banks can be treated as population of the study. In line with balanced panel data approach, to meet the desired objective of this study and to make generalization from sample to population, thus, out of thirty-two commercial banks that are registered and operated in Ethiopia, seventeen are selected. Sampled commercial Banks bank Abay bank, Addis international bank , Awash International Bank, Bank of Abyssinia, Berhan International Bank, Bunna international bank, Commercial Bank of Ethiopia, Cooperative bank of oromia, Dashen Bank, Debub global bank, Enat bank, Lion International Bank, Nib International Bank, Oromia International Bank, United Bank, Wegagen Bank and Zemen Bank. From the selected sample banks the researcher was unable to get full data required to the research, therefore two banks (Lion international Bank and Oromia Bank) were eliminated from the sample.

Therefore, the researcher believed that the sample size is sufficient to make sound conclusion about the population. The banks are selected based on the purposive sampling methodology taking banks with accessibility of information on full yearly annual statement.

These Commercial Banks are selected purposively, because the use of purposive sampling can enable the researcher to generate meaningful insights that help to gain a deeper understanding of the research phenomena by selecting the most informative participants that is satisfactory to its specific needs.

3.6 Data Type and Source

The sources of data for this research was secondary sources. In order to carry out any research activity information should be gathered from proper sources. Bank specific data was collected from financial statements (i.e. Balance Sheet and Profit & Loss Statement) of each selected commercial banks included in the sample and NBE. The data was collected from 2017 to 2021 on annual base. Consistent and reliable research indicates that research conducted by using appropriate data collection instruments increase the credibility and value of research findings (Koul, L 2006).

3.7 Method of Data Analysis

To achieve the objectives, the study, five years (2017 to 2021) panel data of fifteen commercial banks is used. The collected panel data are analyzed using descriptive statistics and penal regressions. First, data collected was cleaned, sorted and collated. Then the collected panel data which comprising time series elements was entered into the computer, after which analysis was done. Descriptive statistics (Mean, maximum and minimum, standard deviations, Kurtosis and Skewness) was used to analyze the general trends of the data from 2017 to 2021. The study used SPSS software.

3.8 Analytical Model

For this study, return on asset was used as a dependent variable which is determined by many factors. And those factors have chosen by taking in to account the availability of data and its influence on bank performance.

The analytical model was as follows

$$ROA = \alpha_0 + \beta_1 TA + \beta_2 NMBU + \beta_3 NDC + \varepsilon$$

Where:

ROA is the dependent variable (Performance i.e. Return on Asset) α_0 is the regression constant

β_1 , β_2 , and β_3 are the coefficients of independent variables;

TP is Number of ATM terminals and the number of POS terminals

NMBU is Number of Mobile banking users

NDC is Number of debit cards

ε is the Error Term.

3.9. Variable Measurement

The variables were measured based on the following;

Table 1 Variable Measurement

Variable	Measurement
Dependent Variable	
Performance	Return on Asset
Independent Variable	
TP	Transaction point (Number of ATM and POS terminals deployed by the Bank)
Mobile Banking	Number of Mobile Banking Users in the Banks
Debit Card	Number of debit card issued by the Banks

The penal regression analysis was used to find the value of α_0 (constant term) and β_i (independent variables). The beta will explain whether the relationship between the dependent and the independent variable is high or low, positive or negative; this will be revealed by the value of the beta coefficient. Adjusted R² was used to measure the proportion of variance in the dependent variable that was explained by the independent variables to a maximum of one. The significance of the variables in the regression model was measured or determined by the p value. Whereby, if the p value of the variable is 0.05 (5%) and below, then the variable will be deemed significant while where the p value co-efficient of the variable is above 0.05, then the relationship of the variables will be deemed insignificant.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Introduction

This chapter presents the data findings to determine the effect of electronic banking on performance of commercial banks in Ethiopia. To find the major outputs of the study and to give important recommendations, the collected data should be analyzed and discussed, accordingly the analysis and important findings from the collected data are discussed below.

The data was collected from secondary sources which were the financial statements and published and unpublished annual reports for the five years 2017 to 2021. The data was analyzed using SPSS software.

4.2. Variables

Dependent Variable

The dependent variable is performance of some selected commercial banks in Ethiopia represented by profitability (Return on Asset).

Independent and control Variables

The independent variables of this study were measured by the Transaction point (number of ATM and POS) terminals installed by the banks, number of mobile banking users and debit card issued in the banks.

4.3. Descriptive Statistics

Descriptive statistics is the term given to the analysis of data that helps describe, show or summarize data in a meaningful way. Descriptive statistics are very important because if we simply presented the data it would be hard to visualize what the data was showing, especially if there was a lot of it. Descriptive statistics therefore enables us to present the data in a more meaningful way, which allows simpler interpretation of the data.

The research statistics of each variables of the study have been discussed here under. The variables included the dependent and independent variables. The dependent variable used in this study in order to measure the sample commercial banks performance is ROA whereas the explanatory variables are number of Transaction point, Number of Debit cards and Number of Mobile Banking

users. Accordingly, the summary statistics for all variables are presented below in table 4.1. The descriptive table included mean, maximum, minimum, standard deviation and observations of both of dependent and independent variables of the study. Basically, a small standard deviation means that the values in a statistical data set are close to the mean of the data set, on average, and a large standard deviation means that the values in the data set are farther away from the mean, on average. The standard deviation measures how concentrated the data are around the mean; the more concentrated, the smaller the standard deviation. The general rule stated that the higher value of standard deviation implies greater spread of data, smaller the standard deviation shows the data is concentrated around the mean.

Table 2 Summary Statistics– **Dependent and Independent Variable**

	Descriptive Statistics									
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Transaction point	75	.00	7441.00	764.2667	1577.8715	2489678.68	3.173	.277	9.379	.548
NDC	75	.00	15004688.00	766162.2267	2286211.189	5226761604090.476	4.944	.277	25.843	.548
NMBU	75	.00	7000000.00	708239.6400	1638294.719	2684009588757.692	3.000	.277	8.155	.548
ROA	75	.003	.042	.02346	.007822	.000	.027	.277	-.072	.548
Valid N (listwise)	75									

Source: Own computation Using SPSS

Note: Return on asset (ROA), Transaction point (TP), Number of Mobile banking user (NMBU), and Number of Debit card (NDC).

As depicted on the above table 4.1, the mean, maximum, minimum and standard deviation values of variables, a dataset of 75 observations provides the basis for descriptive analysis. This study has used four variables for the analysis and interpretation, including one dependent variable, ROA. During 2017 to 2021 the average profit level; ROA of Ethiopian top performer commercial banks are 2.3 %. It can be noticed that the bank ROA growth fluctuates between 0.3 and 4.2 percent. The standard deviation among banks in terms of bank profit growth is 0.7 percent; this confirms that there

were lower variations of performance growth among top performer commercial banks during the study period.

Skewness of independent variables are positive, indicating that the distributions are skewed to the right and Skewness of independent variables are positive, indicating that the distributions are skewed to the left. Since the Kurtosis of ROA negative, indicating the more data values are located near the mean and less data values are located on the tails. The Kurtosis for TP, NMBU and NDC is greater ($>$) than 3, it indicates that the distribution is fat and short tailed.

Regarding one of the independent variable, Transaction point the mean, maximum and minimum observations were 764.2, 7441 and 0 respectively. Commercial bank of Ethiopia own the largest number of ATM and POS during the period which indicated by the Maximum number in TP (7441). in additions the standard deviation was 1577.8 shows large standard deviation means that the values in the data set are farther away from the mean, on average, means the effort of some banks on distribution of Transaction point was high.

About, number of mobile banking user the mean, maximum and minimum observations were 708,239.6, 7,000,000 and 0 respectively. In additions that the values in the data set are farther away from the mean called standard deviation were 1,638,294.719. Like that of the Transaction point Commercial bank of Ethiopia owns the maximum number of mobile banking users during the period (7,000,000). Addis international, Buna, Cooperative bank of oromia, Enat and Nib Bank at least at the binging of the period have no mobile banking user while Debub global bank have no mobile banking user during the whole period this research cover and this leads to the minimum value zero.

Concerning, number of debit card issued by Banks the mean, maximum and minimum observations we 762,051, 15,004,688 and 0 respectively. In additions that the values in the data set are farther awayfrom the mean called standard deviation were 2,286,211.189.like that of the other independent variables Commercial bank of Ethiopia holds the maximum number of issuing debit card while Addis international, Buna, Cooperative bank of oromia, Enat, Debub global and Nib Bank hold the minimum.

4.4.Multicollinearity Test

Multicollinearity is a phenomenon where the two or more of the explanatory variables used in a regression model are highly related to one another. Testing for multicollinearity simply involves

looking at the matrix of correlations between the individual variables. (Brooks, 2014). The correlation matrix gives a first insight in the direction and the strength of the relationships between the variables. When the correlation between two or more independent variables is (too) high, the problem of multicollinearity occurs (Wooldridge, 2000). The problem of multicollinearity may lead to less accurate results in the analyses; the coefficients may have very high standard errors and perhaps even incorrect signs or implausibly large magnitudes. Multicollinearity can be detected by calculating the variance inflation factors (VIF) for each independent variable. Multicollinearity is present when VIF values are larger than 10. Furthermore, the critical value can be calculated by $1/VIF$. If this value is below 0.1, this would mean that more than 90% of the variation in the variable is explained by the other variables. The variable(s) with VIF values larger than 10 or $1/VIF$ values below 0.1 should be excluded from the analyses Brooks (2008).

Table 3: Correlation Matrix of Independent Variables

Model		Coefficients ^a				Sig.	Collinearity Statistics	
		Unstandardized Coefficients		Standardized Coefficients	t		Tolerance	VIF
		B	Std. Error	Beta				
1	(Constant)	.023	.001		18.168	.000		
	Transaction point	-2.243E-6	.000	-.140	-.435	.665	.156	6.392
	NDC	8.186E-9	.000	.373	.997	.323	.116	8.606
	NMBU	-3.237E-9	.000	-.259	-1.182	.242	.337	2.965

a. Dependent Variable: ROA

Source: Own computation Using SPSS

The results in the above correlation matrix table shows the VIF value for each independent variable less than 10; this indicates that the predictor variable is not correlated with any other predictor variable in the model.

4.5. Normality Test

Normality test is used to determine whether the error term is normally distributed. According to Brooks, (2014), if the residuals are normally distributed, the histogram should be bell-shaped and the Bera–Jarque statistic would not be significant. This means that the p-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level. Theoretically, if the test is not significant, then the data are normal, so any value above 0.05 indicates normality. On the other hand, if the test is less than 0.05 which proves significance, then the data are non-normal.

As shown in the histogram below in the figure 4.1 the distribution of the panel observation is symmetric about its mean. The Jarque-Bera statistic has a P-value of 2.9 implies that the p-value for the Jarque-Bera test is greater than 0.05 which indicates that there was no evidence for the presence of abnormality in the data and it can be concluded that the data is normally distributed.

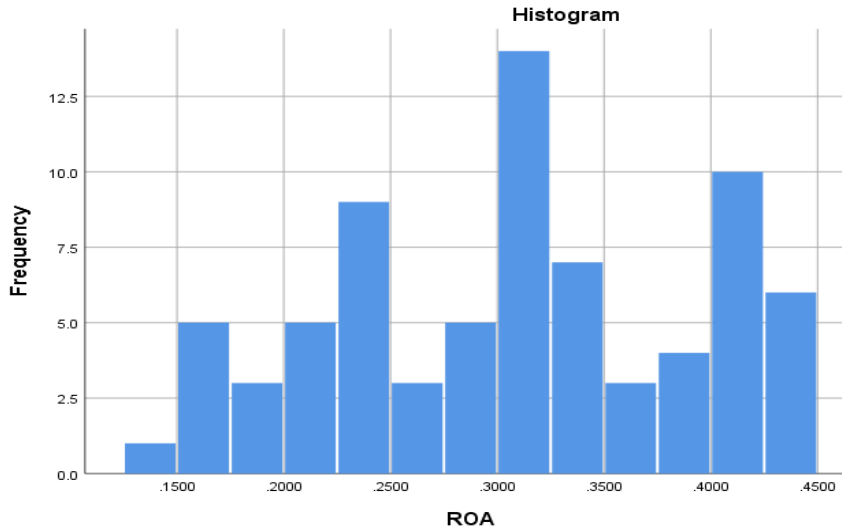


Figure 2: Normality Test

Source: Own computation Using SPSS

Table 4: Normality te

Descriptives			Statistic	Std. Error
ROA	Mean		.02346	.000903
	95% Confidence Interval for Mean	Lower Bound	.02166	
		Upper Bound	.02526	
	5% Trimmed Mean		.02346	
	Median		.02290	
	Variance		.000	
	Std. Deviation		.007822	
	Minimum		.003	
	Maximum		.042	
	Range		.039	
	Interquartile Range		.011	
	Skewness		.027	.277
	Kurtosis		-.072	.548

Source: Own computation Using SPSS

4.6.Fixed Effect versus Random Effect Model

Panel data may have unobserved group effects, time effects or both included in the error term. These effects are either fixed effects, random effects or both. These effects may lead to heterogeneity or even endogeneity and the OLS estimators will be biased and inconsistent .It is often said that the random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a fixed effect model is more plausible when the entities in the sample effectively constitute the entire population. According to Brooks, (2014), a random effects approach can be used when any unobserved omitted variables (that were allowed for by having different intercepts for each entity) are uncorrelated with the included explanatory variables; otherwise the fixed effects model is preferable.

Statistically, fixed effects are always a reasonable thing to do with panel data (they always give consistent results) but they may not be the most efficient model to run. Random effects will give you better P-values as they are a more efficient estimator, so you should run random effects if it is statistically justifiable to do so.

The random effects model is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population while the fixed effect model is more appropriate when the entities in the sample effectively constitute the entire population (Brooks, 2008).

Accordingly in this study, the number of cross-section units is fifteen and the number of time series data were five, as the sample of commercial banks were not selected randomly, the fixed effect model is more appropriate than the random effect model and then the fixed effect model is used in this study.

4.7.Regression Analysis

Regression analysis is a technique used in statistics for investigating and modeling the relationship between variables (Douglas Montgomery, Peck, &Vinning, 2012).Regression analysis is the statistical technique that identifies the relationship between two or more quantitative variables: a dependent variable, whose value is to be predicted, and an independent or explanatory variable (or variables), about which knowledge is available. The technique is used to find the equation that represents the relationship between the variables.

The fixed effect penal regression(using least squares Dummy variable) model used to find the significant factors of performance of top performer commercial banks in Ethiopia measured by Return on Asset (ROA) was:

$$ROA = \alpha_0 + \beta_1 TP + \beta_2 NMBU + \beta_3 NDC + \varepsilon$$

Where: ROA is the dependent variable (Performance i.e. Return on Asset) α_0 is the regression constant

β_1 , β_2 , and β_3 are the coefficients of independent variables,

TP is Transaction point

NMBU is Number of Mobile banking users

NDC is number of debit card

ε is the Error Term.

Dependent Variable: **ROA**

Method: **fixed effect penal regression (using least squares Dummy variable)**

Fixed Effects Model Regression Results

Table 5: Fixed Effects Model Regression Results

Tests of Between-Subjects Effects

Dependent Variable: ROA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.002 ^a	17	.000	3.891	.000	.537
Intercept	.001	1	.001	40.384	.000	.415
Transaction point	6.360E-5	1	6.360E-5	1.730	.0122	.029
NDC	5.315E-6	1	5.315E-6	.145	.0125	.003
NMBU	4.624E-5	1	4.624E-5	1.258	.0109	.022
ID	.002	14	.000	3.616	.000	.470
Error	.002	57	3.677E-5			
Total	.046	75				
Corrected Total	.005	74				

a. R Squared = .537 (Adjusted R Squared = .399)

Table 6: Fixed Effects Model Regression Results

Parameter Estimates

Dependent Variable: ROA

Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		Partial Eta Squared
					Lower Bound	Upper Bound	
Intercept	.012	.007	1.740	.087	-.002	.027	.050
Transaction point	7.632E-6	5.803E-6	1.315	.0122	-3.988E-6	1.925E-5	.029
NDC	-3.221E-10	8.472E-10	-.380	.0125	-2.019E-9	1.374E-9	.003
NMBU	-2.597E-9	2.316E-9	-1.121	.0109	-7.235E-9	2.040E-9	.022
[ID=1]	.014	.007	1.932	.0005	-.001	.028	.061
[ID=10]	.014	.008	1.863	.0046	-.001	.029	.057
[ID=11]	.005	.008	.711	.480	-.010	.021	.009
[ID=12]	.011	.006	1.855	.069	-.001	.023	.057
[ID=13]	.006	.006	1.028	.308	-.006	.019	.018
[ID=14]	.002	.006	.384	.702	-.009	.014	.003
[ID=15]	.021	.007	3.063	.003	.007	.035	.141
[ID=2]	.016	.008	2.175	.034	.001	.032	.077
[ID=3]	.012	.005	2.491	.016	.002	.021	.098
[ID=4]	.008	.006	1.480	.144	-.003	.020	.037
[ID=5]	.006	.007	.820	.416	-.008	.020	.012
[ID=6]	.015	.007	2.025	.048	.000	.030	.067
[ID=7]	-.028	.018	-1.589	.118	-.064	.007	.042
[ID=8]	.006	.008	.802	.426	-.010	.022	.011
[ID=9]	0 ^a

a. This parameter is set to zero because it is redundant.

Source: SPSS output

Note: Return on asset (ROA), Transaction point (TP), Number of debit card (NDC) and Number of Mobile banking user (NMBU).

From table 4.5, the regression model therefore becomes:

$$ROA = 0.12 + 7.632E-6 (TP) + -3.221E-10 (NDC) + -2.597E-9 (NMBU)$$

Results on Table 4.5 showed that number of TP, number of Debit card issued and number of mobile banking users 53.7% variations of ROA of commercial banks in Ethiopia as represented by the R2. While the rest 46.3% variations of ROA is explained by other factors that are not included in

the model. Thus it can be concluded that, all the independent variables used in this study collectively, were good explanatory variables of commercial banks performance.

4.8. Discussions and Findings

The general objective of the study was to examine the impact of e-banking services on performance of some selected commercial banks in Ethiopia. Regression result in the above table 4.5 shows that, coefficient intercept (α) is 0.12. This means, when all explanatory variables took a value of zero, the average value ROA would be take 0.12 unit and statistically significant at 5% level of significance.

4.8.1. Transaction point

The result in Table 4.5 show that other explanatory variables remain constant Transaction point has a significant positive impact on the ROA of commercial banks in Ethiopia and implies that a unit increase in the number of ATMs leads to an increase in ROA by a factor of 7.06.

The findings of the study agree with the funding of Hernando and Nieto (2007), and Onay et al. (2008) who conducted studies on Spain and Turkey respectively, and the results showed that ATM And POS have a positively Effect on bank performance measured by ROA. These studies show that electronic banking applications specifically, ATM and POS diminish operational costs and increasing profitability performance of banks. However, customer portfolio must be expanded in order to increase the bank performance (Sumra et al., 2011). this also supported Ethiopia commercial banks highly focus on attracting new customer and retaining the existing customer especially in recent time. Furthermore, According to Jayawardhena and Foley (2000) each ATM has the capacity to carry out the same, essentially routine, transactions as do human tellers in branch offices but at half the cost and with a four to one advantage in productivity. Thus banks can provide customers convenient, inexpensive access to the bank 24 hours a day and seven days a week.

According to Gakure and Ngumi (2013) found that Transaction point (Number of ATMs and Number of POS) contributed positively to the profits of commercial banks in Kenya. In Kenya ATMs are capable of generating some income for commercial banks due to the convenience they offer to bank customers. Banks in Kenya have been marketing themselves by show casing their

ATM network across the country with an objective to attract more customers and eventually contribute to bank profits also funding of Abaenew et al. (2013), Hassan et al. (2013), Oyewole et al. (2013) made studies on Kenya and the result showed that POS has positively Effect on bank performance measured by ROE.

4.8.2. Number of Mobile Banking Users and Return on Assets

The result presented on table 4.5 indicate that when other explanatory variables remains constant number of mobile banking users has a negative and significant impact on ROA of top performer commercial banks in Ethiopia. Therefore a unit increase of the number of MBU would lead to a decrease in ROA by a factor of 2.59. The findings is concur with those of another study conducted by Girma, (2016) which stated that MBU have negative insignificant effect on return on asset on commercial banks in Ethiopia.

4.8.3. Number of Debit card issued and Return on Assets

The result presented on table 4.5 indicate that when other explanatory variables remains constant number of debit card issued has a Negative and significant impact on ROA of commercial banks in Ethiopia. This implies that a unit increase in the number of debit card user would lead to an decrease in ROA by a factor of 3.2.

4.9. Hypothesis testing using p-values

H0: ATM and POS have no significant impact on the performance of commercial banks in Ethiopia.

ATM and POS (TP) has a positive relationship with return on Asset of commercial banks in Ethiopia As can be observed from table above TP (Transaction point) and ROA (return on assets) have a positive $\beta=7.632E-6$, t-value 1.315 and P value of 0.0109 therefore the null hypothesis is rejected.

Itah and Emmanuel (2014), Cook, Seiford and Zhu (2004). Supported that value of ATM had a positive and significant role on return on Asset. The possible reason for the significant positive relationship could be that, the more transactions executed by ATM, the more commission would be generated by commercial banks. Moreover, as more transactions were processed by ATM, banks would benefit from transaction related costs.

This implies that adaption of ATM has enable to generate income for banks. This reveals that banks get more return in the form of charge fee and other benefits related to deposit by customers. since, the bank customers can easily access their account at any time irrespective of banking hours for withdraw or transfer of money.

Joseph (2017) studied the Impact of Electronic Banking on the Profitability of Commercial Banks in Kenya. The study concluded that POS transactions had positive and significant effect on bank profitability. The possible reasons are increase in amount of POS transaction will increase banks depositors (i.e. merchants like Hotels and marketing centers).

This result informs that bank customers can easily access their account to transfer money from cardholder to the merchant's bank account at market centers, hotels and restaurants.

H0: Mobile banking has no significant impact on the performance of commercial banks in Ethiopia.

For mobile banking the P value is 0.01. At 5% level of significance we reject the null hypothesis and conclude that mobile banking has significant impact on performance of top performer commercial banks.

This result is consistent to the finding of (Muta, 2010) which stated that there is a weak negative effect of mobile banking on the financial performance of commercial banks which is measured by ROA, in the study conducted at commercial banks of Kenya. However, this result is inconsistent with the finding of (Teka Mekuanent, 2019) mobile banking and financial performance of commercial banks as measured by ROA was strongly and positively related.

H0: Number of debit card issued has no impact on performance of top performer commercial banks in Ethiopia.

As can be observed from table above P value is 0.012. At 5% level of significance we reject the null hypothesis and conclude that Number of debit card issued has significant impact on performance of top performer commercial banks.

The results of this study agree with the result of Solomon worku (2016) and contradict with those of Akhisar et al (2015) conducted in developing and developed countries where the study concluded that cards (debit and credit) and ATM improved profitability of a bank which is measured by both return on assets (ROA).

The possible reasons for the negative relationship between Debit card and financial performance of commercial banks in Ethiopia are inactive cards hold by customers due to Lack of awareness, cost of producing card.

Table 7: Summary Hypothesis Testing

Independent variable	Sig	Observation	Actual result Statistical Significance test	Decision
TP	.0122	Sig <0.05	Significant.	Reject null
NDC	.0125	Sig <0.05	Significant.	Reject null
NMBU	.0109	Sig <0.05	Significant.	Reject null

Source: Author's Computation

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. Summary of Findings

The main objective of this study is to examine the impact of e-banking service on the performance of some selected commercial banks in Ethiopia. The study use panel data from fifteen commercial banks for five years period covering from 2017 to 2021 fiscal year. The study empirically analyzed the effect of E-Banking in commercial banks performance in Ethiopia by constructing an econometric model to study the effect of various factors such as debit cards, automated teller machine and point of sale and mobile banking user.

Accordingly, the effects of E-Banking on return on asset and return on equity in commercial banks in Ethiopia were carefully analyzed. The findings indicate that almost all the banking services under consideration affect the profitability.

The regression result showed Transaction point (number of ATM and number of POS), number of mobile banking users and Number of debit card issued explain 53.7 % variations of ROA of top performer commercial banks in Ethiopia. While the rest 46.3% variations of ROA is explained by other factors that are not included in the model.

The significant test showed that impact of e-banking services on bank ROA was statistically significant. This means that the combined effect of e-banking services in this study is statistically significant in explaining ROA of some selected commercial banks in Ethiopia.

The regression result showed that there is a negative association between the financial performance of some selected commercial banks and the Variables-Number of debit card and number of mobile banking. In the other hand, the result shows positive association between Transaction point and financial performance of commercial banks.

The study further established that there is a significant relationship between financial performance of commercial banks and the predictors- Transaction point, Debit card and mobile banking.

5.2. Conclusion

The study empirically analyzed the effect of E-Banking in commercial banks performance in Ethiopia by constructing an econometric model to study the effect of various factors such as debit cards, automated teller machine and point of sale and mobile banking usage.

Accordingly, the effects of E-Banking on return on asset and return on equity in commercial banks in Ethiopia were carefully analyzed using the fixed effect model. The findings indicate that almost all the banking services under consideration affect the profitability.

Based on the findings of the study, it can be concluded that E-banking influence financial performance of commercial banks in Ethiopia positively. The adoption of E-banking by commercial banks has a high potential of improving financial performance and hence better returns to the shareholders. The versatility of E-banking has made their adoption rate to be high among both the banks and their customers. It could have been challenging if the adoption was only with either the banks or the customers. Banks in Ethiopia have continued to perform well even when other sectors of the economy show lagged performance.

5.3. Recommendations

The study recommends to the management of banks which are slow in innovation adoption, to move in and adopt various innovations in their operations in order to shore up their profitability. This recommendation is well supported by the fact that in Ethiopia, the leading banks in terms of profitability are mostly the fast movers in adoption of new technologies.

The study also recommends to the management of banks, can save on money by not paying for tellers or for managing branches. Plus, it's cheaper to make transactions over e banking and improve financial performance. Profitability is crucial to shareholders and the market is also keen on the profitability of organizations. Any ethical and responsible attempts to improve profitability of a company will be appreciated by the shareholders. Commercial banks should therefore continue to adopt new technologies which will improve their margins and hence their profitability in order to maximize shareholder wealth.

Since the findings of this research concluded that e-banking affect bank performance positively, The National Bank of Ethiopia should prepare various capacity building activities for banks

regarding e-banking operation and provide incentives for banks to invest rigorously on ICT and use of e-banking by banks and customers.

Government policy makers should also review policies related to promotion of innovation adoption and transfer of technology. Government should encourage adoption of innovations that will improve profitability of organizations because it will convert to better tax revenues for the government.

5.4. Further Research

This research makes a significant contribution to the literature by providing findings that can assist policymakers in formulating policies. The study investigates the impact of e-banking services, including Debit cards, ATMs, POS, and mobile banking, on the performance of commercial banks in Ethiopia.

However, there are additional variables related to e-banking services and control variables that were not considered in this study. Therefore, future researchers may be interested in validating the consistency of these results and providing supplementary findings by including other macroeconomic variables, such as GDP and inflation.

Furthermore, there is a growing sentiment that banks should fulfill their social responsibility by employing human tellers instead of relying solely on automated teller machines and other e-banking services that reduce the number of employees and the tax revenue for governments. Due to this consideration, it is important to study the profitability of banks in relation to their social responsibility in order to find an optimal solution that benefits both banks and society as a whole.

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APPENDIX

APPENDIX I

S.NO	Bank	Transaction Point(ATM & POS)				
		2017	2018	2019	2020	2021
1	Abay	91	131	141	145	161
2	Addis I. Bank	15	15	30	45	45
3	Awash	644	751	889	1,049	1,971
4	Berihan	314	396	536	514	1,273
5	Bank of Abyssinia	8	48	114	215	283
6	Bunna	66	66	83	88	96
7	Commercial Bank of Ethiopia	5,665	6,099	5,904	6,653	7,441
8	Cooperative bank of oromia	-	38	84	109	186
9	Dashen	1,042	1,215	1,752	1,672	1,752
10	Debub G.Bank	10	10	10	25	25
11	Ennat	-	10	10	25	25
12	Hibret	281	292	362	442	493
13	Nlb	150	326	485	555	564
14	Wegagen	481	493	532	570	569
15	Zemen	58	98	108	176	265
Total		8,825	9,988	11,040	12,283	15,149

APPENDIX II

S.NO	Bank	Number of Debit of Card				
		2017	2018	2019	2020	2021
1	Abay	-	-	100,133	167,674	273,569
2	Addis I. Bank	-	12,354	28,076	34,563	49,575
3	Awash	300,000	421,375	648,270	934,633	1,390,523
4	Berihan	8,960	14,436	36,560	142,673	177,074
5	Bank of Abyssinia	132,103	243,215	365,390	910,567	1,354,485
6	Bunna	7,236	14,879	37,665	70,219	123,847
7	Commercial Bank of Ethiopia	1,852,257	3,766,483	7,396,289	10,977,521	15,004,688
8	Cooperative bank of oromia	74,826	79,119	210,359	381,424	279,193
9	Dashen	557,000	711,000	872,297	1,094,000	1,308,043
10	Debub G.Bank	-	-	8,900	14,000	23,076
11	Ennat	-	-	9,756	13,654	20,000
12	Hibret	152,787	194,039	211,207	293,856	381,961
13	Nlb	115,889	170,802	312,988	320,983	505,000
14	Wegagen	155,410	225,426	281,121	324,562	528,010
15	Zemen	8,652	23,541	50,166	62,109	73,746

APPENDIX III

S.NO	Bank	Number of Mobile Banking User				
		2017	2018	2019	2020	2021
1	Abay	11,564	54,326	94,595	164,177	304,167
2	Addis I. Bank	-	-	22,124	29,586	39,312
3	Awash	79,856	241,456	378,392	1,925,265	3,185,041
4	Berihan	23,658	72,354	108,680	176,235	250,150
5	Bank of Abyssinia	107,711	213,973	336,659	708,945	977,286
6	Bunna	-	-	2,640	50,187	216,105
7	Commercial Bank of Ethiopia	6,000,000	6,000,000	6,000,000	7,000,000	7,000,000
8	Cooperative bank of oromia	-	-	-	987,236	1,739,661
9	Dashen	23,152	456,325	915,807	1,365,246	2,346,750
10	Debub G.Bank	-	-	-	-	-
11	Ennat	-	-	-	9,875	10,800
12	Hibret	98,234	144,154	179,072	272,265	427,330
13	Nib	-	10,396	44,040	98,652	166,413
14	Wegagen	11,860	96,087	267,993	574,463	1,031,346
15	Zemen	7,981	8,880	9,362	10,559	29,590

APPENDIX IV

Bank	Net Profit				
	2017	2018	2019	2020	2021
Abay bank	189,723,000	317,231,000	501,221,000	501,203,000	847,149,000
Addis international bank	95,583,000	112,905,000	159,260,000	213,116,000	217,238,000
Awash International Bank	951,586,000	1,492,426,000	2,432,829,000	2,591,155,000	3,395,749,000
Bank of Abyssinia	510,778,000	562,800,000	853,644,000	777,014,000	3,235,824,000
Berhan International Bank	317,192,000	327,846,000	457,926,000	553,192,000	194,908,000
Bunna international bank	201,231,000	331,231,000	461,365,000	440,230,000	1,192,300,000
Commercial Bank of Ethiopia	9,564,787,257	5,302,662,451	11,487,044,611	9,533,678,838	13,287,405,339
Cooperative bank of oromia	338,186,000	523,416,000	657,762,000	1,182,619,000	1,327,180,000
Dashen Bank	814,816,000	928,954,000	1,016,773,000	1,536,933,000	1,726,247,000
Debub global bank	30,173,000	106,634,000	210,715,000	199,054,000	194,910,000
Enat bank	112,203,000	158,875,000	201,619,000	208,569,000	229,701,000
Nib International Bank,	514,850,000	928,213,000	720,712,000	1,325,632,000	1,216,609,000
United Bank	385,705,000	570,594,000	752,352,000	893,523,000	1,442,530,000
Wegagen Bank	518,787,000	793,555,000	620,963,000	831,916,000	126,722,000
Zemen Bank.	264,575,000	271,021,000	483,770,000	739,124,000	952,681,000

APPENDIX V

Bank	ROA				
	2017	2018	2019	2020	2021
Abay bank	0.0258	0.0331	0.0248	0.0282	0.0229
Addis international bank	0.0268	0.0289	0.0328	0.0245	0.032
Awash International Bank	0.027	0.0326	0.029	0.0264	0.0291
Bank of Abyssinia	0.0176	0.0217	0.0137	0.0311	0.0357
Berhan International Bank	0.0233	0.0239	0.0259	0.0072	0.0145
Bunna international bank	0.0315	0.0318	0.0233	0.0262	0.0258
Commercial Bank of Ethiopia	0.0092	0.0161	0.0116	0.0134	0.0167
Cooperative bank of oromia	0.0175	0.0157	0.0225	0.0163	0.0178
Dashen Bank	0.0205	0.0181	0.0225	0.0182	0.0248
Debub global bank	0.0327	0.0384	0.0255	0.0168	0.0197
Enat bank	0.0244	0.0219	0.0169	0.0157	0.0106
Nib International Bank,	0.0348	0.0214	0.0312	0.0225	0.0218
United Bank	0.0204	0.0211	0.0207	0.0267	0.0162
Wegagen Bank	0.029	0.0209	0.0218	0.0032	0.0128
Zemen Bank.	0.0217	0.0329	0.04	0.0379	0.0419