FACTORS AFFECTING THE ADOPTION OF E- BANKING SERVICES IN COMMERCIAL BANK OF ETHIOPIA

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A THESIS SUBMITTED TO ST.MARY UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF ACCOUNTING AND FINANCE

JUNE, 2024

ADDIS ABABA, ETHIOPIA

DECLARATION

I hereby declare that this thesis, titled [Factors Affecting the Adoption of E-Banking Services in Commercial Bank of Ethiopia: A Case Study of West Addis District], is my original work, developed under the guidance and suggestions of my research advisor. I acknowledge that all materials used for this study have been appropriately cited and acknowledged. This thesis is submitted in partial fulfillment of the requirements for the degree of MBA in Accounting and Finance. I affirm that this study has not been previously submitted for any degree at this university or any other institution.

Declared by

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Date_____

STATEMENT OF CERTIFICATE

I, hereby confirm that the thesis prepared by Addisalem Sisay entitled "Factors Affecting the adoption of Electronic Banking service in Commercial Bank of Ethiopia in case of West Addis District" was submitted in partial fulfillment of the requirements for the award of the Master of Accounting and Finance degree in the year and meets the accepted standards with regard to originality and quality.

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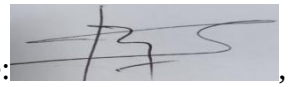
External Examiner: Mekonnen Mengistie (PhD), Signature:  , Date: 12/8/24

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Abbreviation and Acronym

ANOVA - Analysis of Variance

ATM - Automated Teller Machine

AVR - Automated Voice Response

CBE - Commercial Bank of Ethiopia

E-BANKING - Electronic Banking

E-PAYMENT - Electronic Payment

ICT - Information Communication Technology

IT - Information Technology

IB - Internet Banking

MB - Mobile Banking

NBE - National Bank of Ethiopia

POS - Point of Sale

PR - Perceived Risk

SMS - Short Message Service

SPSS - Statistical Package for Social Science

TAM - Technology Acceptance Model

TPB - Theory of Planned Behavior

VIF - Variance Inflation Factor

Acknowledgment

I extend my sincere gratitude to Mohammed Seid, my thesis advisor, for his invaluable academic guidance and constructive feedback throughout every stage of this study. I am deeply appreciative of the unwavering support and encouragement from my colleagues, friends, and family, whose presence has been indispensable on this journey.

I would also like to express my heartfelt thanks to the customers and staff of the Commercial Bank of Ethiopia for their willingness to provide the necessary data. Their cooperation has been instrumental in the successful completion of this research. Lastly, I am grateful to all those who offered both direct and indirect support, contributing to the fulfillment of my research endeavors.

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Abstract

The reason for conducting this survey was to find out the factors influencing the adoption of electronic banking among Ethiopian commercial bank customers. Data were collected through questionnaires distributed to a target group of 400 customers of selected branches, with a response rate of 95.4%. A quantitative research approach was used to answer the research questions. The collected data were analyzed using SPSS version 26 for descriptive and inferential analysis. The relationship and influence of factors were analyzed using Pearson correlation and multiple regression analysis. The research results showed that the explanatory variables e-banking service awareness, e-banking device disruption, trust and demographic factors were identified as significant influences on e-banking adoption. Approaches to enrich e-banking services are also suggested, including creating more user-friendly websites, reducing users' risk concerns, and the role of government in improving ICT infrastructure. Finally, in order to achieve a sustainable adaptation of e-banking services by financial institutions that best meet customer needs, more research work is suggested to further analyze the participation of e-banking services in larger economic transactions. The findings suggest that enhancing users-friendly interfaces, addressing security concerns, and improving ICT infrastructure could boost e-banking adoption. The thesis concludes with recommendations for further research to support sustainable e-banking services tailored to customer needs.

Keywords: E- banking, adoption, Commercial Bank of Ethiopia

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

The Application of e-banking has significantly increased over recent years due to rapid technological advancements and the proliferation of digital devices. According to a report by the International Monetary Fund (2023), the global increase in smartphone usage and internet penetration has paved the way for a more widespread Application of e-banking services. Technological advancements have enabled banks to offer more user-friendly and secure e-banking platforms, enhancing customer satisfaction and trust. This shift towards digital banking is driven by the demand for convenient, 24/7 access to banking services without the need to visit physical branches (IMF, 2023).

Despite the benefits, security concerns remain a significant factor affecting the Application of e-banking. Cybersecurity threats, including phishing, malware attacks, and data breaches, pose substantial risks to both banks and customers. As noted by Kumar and Gupta (2022), the increasing sophistication of cyber-attacks has necessitated the implementation of robust security measures by financial institutions. Effective cybersecurity protocols, such as multi-factor authentication and encryption, are crucial in mitigating these risks and ensuring the safety of online transactions (Kumar & Gupta, 2022)

The Application of e-banking services in Ethiopia has been gradually increasing, particularly within the Commercial Bank of Ethiopia (CBE). This growth is driven by the country's efforts to modernize its financial sector and the increasing availability of digital infrastructure. According to a report by the National Bank of Ethiopia (2023), there has been a substantial investment in upgrading technological infrastructure, which has facilitated the expansion of e-banking services. The government's push for a digital economy has further encouraged banks to adopt advanced

technologies, improving the accessibility and efficiency of banking services (National Bank of Ethiopia, 2023).

Despite the advancements, security concerns remain a critical issue for the Application of e-banking in Ethiopia. Cybersecurity threats such as hacking, phishing, and other forms of cybercrime pose significant risks to e-banking services. The Commercial Bank of Ethiopia has been actively working to enhance its cybersecurity measures to protect customer data and transactions. According to Mesfin and Worku (2022), the bank has implemented multi-layered security protocols, including encryption and multi-factor authentication, to safeguard against cyber threats. However, the increasing sophistication of cyber-attacks necessitates continuous investment in cybersecurity infrastructure (Mesfin & Worku, 2022).

Regulatory frameworks and compliance requirements significantly influence the Application and implementation of e-banking services at the Commercial Bank of Ethiopia. The regulatory environment in Ethiopia is evolving to keep pace with the rapid changes in the digital banking sector. As noted by Teferi and Bekele (2023), the Ethiopian government has introduced several regulations aimed at enhancing the security and reliability of e-banking services. These regulations include mandatory data protection measures and compliance with international standards to ensure the safety and security of online transactions (Teferi & Bekele, 2023).

Consumer trust is a vital factor affecting the Application of e-banking services at the Commercial Bank of Ethiopia. Trust in digital banking services is influenced by the perceived security, reliability, and customer service quality provided by the bank. A study by Tadesse and Abebe (2022) found that customers who perceive e-banking services as secure and reliable are more likely to adopt and use these services. The Commercial Bank of Ethiopia has been focusing on improving customer service and transparency to build and maintain trust among its customers, which is essential for the widespread Application of e-banking services (Tadesse & Abebe, 2022).

Socio-economic and demographic factors also play a significant role in the Application of e-banking services at the Commercial Bank of Ethiopia. Factors such as age, income, education level, and digital literacy impact the likelihood of customers using e-banking services. According to a study by Gebre and Fekadu (2023), younger individuals and those with higher education levels are more likely to adopt e-banking services compared to older and less educated individuals. Additionally, income levels influence the ability to access digital devices and the internet, which are essential for using e-banking services (Gebre & Fekadu, 2023).

The quality of technological infrastructure and internet penetration in Ethiopia significantly affects the application of e-banking services at the Commercial Bank of Ethiopia. A report by the World Bank (2023) highlights that although there have been improvements in internet connectivity, challenges remain, particularly in rural areas. The bank has been investing in enhancing its technological infrastructure to ensure that its e-banking services are accessible to a broader population. However, continued efforts are needed to improve internet penetration and digital literacy across the country (World Bank, 2023).

Economic conditions and political stability also play a crucial role in the Application and effectiveness of e-banking services at the Commercial Bank of Ethiopia. The macroeconomic environment, including factors such as inflation, foreign exchange rates, and economic growth, influences the banking sector's performance. According to a report by the International Monetary Fund (2023), Ethiopia's economic policies and political stability are essential for the sustained growth of e-banking services. Stable economic conditions encourage investment in digital infrastructure and enhance consumer confidence in using e-banking services (IMF, 2023).

1.2 Statement of the Problem

Empirical studies have consistently highlighted security concerns as a major problem affecting the Application of e-banking services. Cyber threats such as phishing, malware, and identity theft pose significant risks to both banks and customers. According to a study by Kumar and Gupta (2022), many users are reluctant to adopt e-banking services due to fears of cyber-attacks and data breaches. These concerns are exacerbated by high-profile incidents of hacking and fraud, which undermine consumer confidence in digital banking platforms. The study recommends that banks invest in advanced cybersecurity measures and educate customers on safe online practices to mitigate these threats (Kumar & Gupta, 2022).

The quality of technological infrastructure and the level of internet penetration are critical factors influencing the application of e-banking. In regions with poor internet connectivity and inadequate technological infrastructure, the Application of e-banking services is significantly hampered. According to Gebre and Fekadu (2023), many rural areas in Ethiopia face challenges related to unreliable internet services, which restricts the accessibility and usability of e-banking platforms. The study emphasizes the need for substantial investments in digital infrastructure to bridge the connectivity gap and support the expansion of e-banking services (Gebre & Fekadu, 2023).

The user experience (UX) and interface design of e-banking platforms are pivotal in determining their Application. Studies have shown that poorly designed interfaces and complicated

navigation processes deter users from utilizing e-banking services. Dagne and Alemu (2023) found that a significant number of customers abandon e-banking transactions due to frustrating user experiences, including slow loading times and unclear instructions. The research suggests that banks should prioritize user-centric design principles and regularly update their platforms based on user feedback to enhance the overall experience (Dagne & Alemu, 2023).

Regulatory and compliance issues also pose substantial challenges to the application of e-banking services. The constantly evolving regulatory landscape requires banks to continuously update their practices to remain compliant with new regulations. Teferi and Bekele (2023) identified that regulatory compliance can be burdensome, particularly for smaller banks with limited resources. The study highlights the need for clear and consistent regulatory guidelines that balance consumer protection with operational flexibility for banks. Ensuring compliance while fostering innovation is crucial for the sustainable growth of e-banking services (Teferi & Bekele, 2023).

Socio-economic and demographic factors significantly impact the Application of e-banking services. Variables such as age, income, education level, and digital literacy influence individuals' likelihood of using digital banking platforms. A study by Singh and Singh (2023) found that older adults and individuals with lower levels of education are less likely to adopt e-banking services due to unfamiliarity with digital technologies. The research suggests targeted educational programs and user-friendly designs to make e-banking more accessible to diverse demographic groups. Addressing these socio-economic barriers is essential for broader Application (Singh & Singh, 2023).

The quality of technological infrastructure and internet penetration in Ethiopia, particularly in rural areas, presents challenges for the Commercial Bank of Ethiopia's e-banking initiatives. Limited access to reliable internet services and outdated technological infrastructure hinder the accessibility and usability of e-banking platforms. Gebre and Fekadu (2023) found that many customers, especially those in remote areas, face difficulties in accessing e-banking services due to poor internet connectivity. The study underscores the need for substantial investments in digital infrastructure to improve internet penetration and support the widespread Application of e-banking services (Gebre & Fekadu, 2023).

Despite the existing literature on factors influencing the Application of e-banking services, there remains a notable research gap in the specific context of the Commercial Bank of Ethiopia (CBE). While studies have explored factors such as security concerns, technological infrastructure, regulatory challenges, consumer trust, and socio-economic demographics, there is

limited research specifically examining how these factors intersect and impact e-banking Application within the CBE.

Previous studies have primarily focused on general trends and challenges in the Ethiopian banking sector or have examined e-banking Application in broader contexts. However, a deeper understanding of the unique challenges and opportunities faced by the Commercial Bank of Ethiopia in implementing e-banking services is necessary for informing targeted strategies and interventions to enhance Application rates.

Additionally, existing literature often lacks comprehensive empirical data from customers and stakeholders within the Commercial Bank of Ethiopia. While some studies have conducted surveys or interviews to gather insights, there is a need for more extensive and systematic research that incorporates diverse perspectives from both customers and bank representatives.

Furthermore, most existing studies have primarily focused on identifying barriers to e-banking Application, with limited emphasis on potential solutions or strategies for overcoming these challenges. There is a research gap in exploring actionable recommendations and best practices that can be implemented by the Commercial Bank of Ethiopia to address the identified barriers and promote the widespread Application of e-banking services.

Moreover, the rapidly evolving nature of technology and banking practices necessitates ongoing research to stay abreast of emerging trends and developments in the e-banking landscape. Studies conducted within the timeframe of 2022-2024 can provide more current insights into the factors affecting e-banking applications at the Commercial Bank of Ethiopia and help identify new research directions to fill existing gaps in knowledge.

The study aims to investigate the identified problems affecting the applications of e-banking within the Commercial Bank of Ethiopia (CBE) for several compelling reasons:

By focusing on the unique context of the CBE, the study aims to address specific challenges and barriers that may hinder the Application of e-banking services within the bank. Understanding these challenges is crucial for developing targeted strategies and interventions to overcome them effectively.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective is to investigate the factors affecting the adoption of e-banking service in the CBE.

1.3.2 Specific Objectives

The specific intentions of this examination are:

- To investigate lacks of awareness affect Application of e-banking service among commercial banks customer in Addis Ababa.
- To investigate influence of frequent ATM break down on the accord of e-banking service among commercial banks customer in Addis Ababa.
- To investigate the relationship of trust with acceptance on e-banking service among commercial banks customer in Addis Ababa.
- To investigate the influence of demographic factors on the taking on of e-banking service among commercial banks customer in Addis Ababa. .
- To investigate the influence of administrative reasons on the receiving of e-banking service among commercial banks customer in Addis Ababa. .

1.4 Research Hypothesis

Based on the research objective stated above, the following research hypotheses are developed:

H1: There is a relationship between Lack of awareness about E-banking and the adoption of E-banking services.

H2: There is a relationship between Interruption of E-banking equipment's and the adoption of E-banking services.

H3: There is a relationship between Lack of Trust on the system and the adoption of E-banking services.

H4: There is a relationship between Demographic factors and the adoption of E-banking services.

H5: There is a relationship between Organizational factors and the adoption of E-banking services.

1.5 Significance of the Study

The result of this investigation will add value to CBE; the major contribution of this study is to detect the elements that shake acceptance of electronic banking facility in CBE. Knowing these factors will help banks rethink and formulate new and better strategies to encourage customers to adopt and continue to use electronic banking services. Banks are working to understand the features that are hurting the prospects of electronic banking and to improve the quality of their services. This will also have a positive impact on the relationship between the bank and its customers, encouraging them to provide better services and contribute to future developments. Additionally, this study will help determine the level of customer awareness and adoption of e-banking not only at CBE but also at other similar banks.

1.6 Scope of the Study

1.6.1 Time Scope

The study was conducted in the year 2024. The data on the number of e-banking users and transactions was collected as of May 2024.

1.6.2 Conceptual Scope

The study will focus on investigating the major factors affecting the Application of electronic banking services at the Commercial Bank of Ethiopia (CBE). The factors to be examined will include frequent breakdown of ATMs, lack of trust in the system, and absence of awareness about e-banking among customers. The study will consider mobile banking, internet banking, ATM, and POS as the electronic banking services under investigation. However, the CBE Birr service was excluded from the study as it is a relatively new offering and difficult to evaluate.

1.6.3 Geographical Scope

The study was conducted in the Northern District of Addis Ababa, Ethiopia. Seven branches of CBE located in this district was selected for the research based on their wide-ranging practice of e-banking facilities and products, as well as their proximity and easy access to the researcher.

1.6.4 Methodological Scope

The study will employ a quantitative research approach to achieve the research objectives. Primary data was collected through a structured questionnaire from customers of the selected CBE branches. Descriptive and inferential statistical analyses, including multiple regression analysis, will used to analyze the collected data.

1.7 Limitation of the Study

The study will have the following limitations: The sample for the study was drawn only from the Commercial Bank of Ethiopia (CBE) branches located in the North Addis Ababa district. The study will not include the remaining districts or private banks operating in the country. As a result, the findings and generalizations from the study may not be applicable to the entire banking sector in Ethiopia. The researcher anticipates that some respondents may not properly respond to the entire questionnaire due to misunderstandings, lack of knowledge, or commitment. This could potentially affect the reliability and validity of the data collected. The study was limited to investigating the factors of frequent ATM breakdowns, lack of trust in the system, and absence of awareness about e-banking among customers. Other potential factors influencing the Application of e-banking services may not be explored. The study will exclude the recently introduced CBE Birr service, as it is a new offering and may be difficult to evaluate within the scope of this research. The study was constrained by the available resources, including time and financial resources, which may limit the scope and depth of the investigation. Despite these limitations, the researcher will strive to ensure the reliability and validity of the study's findings by employing appropriate research methodologies and data analysis techniques.

1.8 Organization of the Study

The present study is structured into five distinct chapters, each addressing specific aspects of the research. The first chapter serves as an introduction, providing the background of the research, the statement of the problem, the research questions, the objectives, the significance, the scope, and the limitations of the study. The second chapter delves into the theoretical and empirical literature relevant to the research topic. It presents a comprehensive review of the theoretical perspectives, followed by an examination of the empirical literature. Additionally, the conceptual framework underlying the study is outlined in this chapter. The third chapter focuses on the research design and methodology employed in the study. It outlines the research approach, the data collection methods, the sampling techniques, and the data analysis procedures utilized. The fourth chapter is dedicated to the presentation, analysis, and discussion of the data collected during the research process. This chapter presents the findings and interprets the results in the context of the research objectives and the existing literature. The final chapter, the fifth chapter, summarizes the key findings of the study, draws conclusions based on the analysis, and offers

recommendations for future research and practical applications. This chapter also identifies potential areas for further inquiry, providing a roadmap for future investigations in the field.By structuring the study in this manner, the researcher aims to provide a clear and coherent flow of information, guiding the reader through the various stages of the research and facilitating a comprehensive understanding of the study's objectives, methodology, and findings.

CHAPTER TWO

2. RELATED LITERATUER REVIEW

2.1 Theoretical Literature Review

Definition and Concept of E-banking

E-banking, also known as electronic banking or online banking, refers to the provision of banking services and transactions conducted electronically over the internet or other electronic channels (Li & Zhang, 2022). It encompasses a wide range of financial activities that can be performed remotely without the need for physical bank branches, including account management, funds transfer, bill payments, loan applications, and investment management (Kumar & Gupta, 2022). E-banking allows customers to access and manage their financial accounts anytime, anywhere, using digital devices such as computers, smartphones, or tablets.

The concept of e-banking revolves around leveraging digital technologies to streamline banking processes, enhance convenience, and improve customer experience (Singh & Singh, 2023). By digitizing traditional banking services and leveraging electronic channels, banks can offer their customers greater flexibility, accessibility, and efficiency in managing their financial affairs. E-banking eliminates the need for customers to visit physical bank branches, saving time and reducing transaction costs for both banks and customers (Deloitte, 2022). Moreover, e-banking provides customers with real-time access to their account information and enables them to perform transactions securely and conveniently from the comfort of their homes or offices.

E-banking encompasses various electronic channels and delivery modes through which banking services are provided to customers (Addis & Kebede, 2022). These channels include internet banking, mobile banking, telephone banking, and ATM (Automated Teller Machine) banking. Internet banking allows customers to access banking services through a secure website or mobile application, while mobile banking enables similar services to be accessed via smartphones or other mobile devices (Teferi & Bekele, 2023). Telephone banking involves using a telephone or interactive voice response (IVR) system to perform banking transactions, while ATM banking allows customers to carry out basic transactions such as cash withdrawals and balance inquiries using automated machines (International Monetary Fund, 2023).

E-banking has become an integral part of modern banking operations, offering numerous benefits for both banks and customers. For banks, e-banking presents opportunities to reduce operational costs, expand market reach, and improve customer satisfaction (Gebre & Fekadu, 2023). By automating routine transactions and processes, banks can achieve greater efficiency and productivity while focusing on delivering value-added services to their customers. For customers, e-banking offers convenience, flexibility, and accessibility, allowing them to manage their finances more effectively and efficiently (World Bank, 2023). As digital technologies continue to advance and evolve, the concept of e-banking will continue to shape the future of banking, driving innovation and transforming the way financial services are delivered and consumed.

E-banking has reshaped the landscape of banking services by offering unprecedented convenience and accessibility to customers (Tadesse & Abebe, 2022). It has transformed traditional banking practices into digital processes, allowing customers to conduct various transactions efficiently and securely. Moreover, the concept of e-banking extends beyond basic transactions to include advanced financial services such as online investment management, loan applications, and electronic bill payments (Mesfin & Worku, 2022). This comprehensive suite of services caters to the diverse needs of customers, empowering them to manage their finances effectively in today's digital age.

One of the key features of e-banking is its emphasis on security and privacy (Kumar & Gupta, 2022). Banks invest heavily in implementing robust security measures to protect customer data and transactions from cyber threats such as hacking, phishing, and identity theft. Advanced encryption techniques, multi-factor authentication, and real-time fraud detection systems are some of the security measures employed by banks to safeguard customer information (Deloitte, 2022). By prioritizing security and privacy, e-banking instills trust and confidence among customers, encouraging greater Application and usage of digital banking services.

Another defining aspect of e-banking is its role in promoting financial inclusion (Gebre & Fekadu, 2023). E-banking has the potential to reach underserved and unbanked populations, particularly in remote and rural areas where physical bank branches are scarce. Through mobile banking and other electronic channels, banks can extend their services to previously inaccessible regions, allowing individuals to participate in the formal financial system (African Development

Bank, 2023). By bridging the gap between the banked and unbanked populations, e-banking contributes to economic empowerment and poverty alleviation efforts.

In summary, the concept of e-banking encompasses a wide range of electronic banking services and channels that leverage digital technologies to provide customers with convenient, secure, and inclusive banking experiences (Singh & Singh, 2023). It represents a paradigm shift in the way banking services are delivered and consumed, offering numerous benefits for both banks and customers. As technology continues to evolve and consumer preferences evolve, e-banking will remain a cornerstone of the modern banking industry, driving innovation and shaping the future of financial services worldwide.

2.2 Operational Definitions of Terms

E-banking, also known as online banking, is a digital service that enables customers to access their bank accounts and perform various financial transactions through the internet (Alalwan et al., 2016). It provides a secure, convenient, and efficient way for customers to manage their finances, including checking account balances, transferring funds, and making payments, all from the comfort of their own devices (Shaikh & Karjaluoto, 2015).

Automated Teller Machines (ATMs) are self-service terminals that allow bank customers to perform various banking activities, such as withdrawing cash, checking account balances, and transferring funds, without the need for direct interaction with a bank teller (Bapat, 2017). These machines are equipped with electronic capabilities, accept personal identification numbers (PINs), and provide a range of services to customers 24/7 (Bapat, 2017).

Mobile banking (MB) refers to the use of a mobile device, such as a smartphone or tablet, to access and manage banking services (Alalwan et al., 2016). This includes both transactional and non-transactional features, such as checking account balances, transferring funds, changing PINs, and receiving bank-related information (Shaikh & Karjaluoto, 2015).

Internet banking (IB), also known as online banking, is a digital financial service that allows customers to perform various banking transactions on a secure website operated by a financial service provider, such as a commercial bank (Alalwan et al., 2016). This includes activities like checking account balances, making payments, and transferring funds (Shaikh & Karjaluoto, 2015).

A Point of Sale (POS) Terminal is an electronic device used to authorize and process bank card transactions at the point of sale, such as in retail stores or restaurants (Bapat, 2017). These terminals facilitate secure and efficient payment processing for both customers and merchants (Bapat, 2017).

A customer, in the context of banking, refers to a legal person or natural person who has an agreement with a bank to conduct business (Gautam et al., 2014). This includes individuals, businesses, and other entities that utilize the bank's services and products.

2.4 The E-payment Industry in Ethiopia

The Application of electronic banking in Ethiopia has been relatively slow compared to other countries. This can be attributed to the underdeveloped nature of the banking industry in the country. The history of e-banking in Ethiopia can be traced back to the introduction of Automated Teller Machines (ATMs) by the Commercial Bank of Ethiopia (CBE) in 2001, followed by Dashen Bank (Arega, 2021).

The key stakeholders in the electronic payment industry in Ethiopia include the National Bank of Ethiopia (NBE), which is the regulatory and supervisory body responsible for overseeing the electronic payment service providers in the country, including the retail electronic fee structure (Arega, 2021). Ethio-Telecom, as the sole provider of telecommunication infrastructure and facilities in Ethiopia, plays a crucial role in the effective and efficient operation of the electronic payment system, as the reliability and dependability of its services are essential (Arega, 2021). The Ethiopian Electric Power Corporation (EEPCo) also plays a vital role, as the availability and reliability of power supply are essential for the functioning of the electronic payment infrastructure. The country's ongoing efforts to expand power generation and distribution have facilitated the accessibility of financial services, including electronic payment services (Arega, 2021).

The Information Network Security Agency (INSA) plays a crucial role in the payment industry by developing and enforcing national policies, laws, standards, and strategies to ensure the security and safety of information and computer-based critical infrastructures (INSA, 2014).

Financial institutions, including banks, microfinance institutions, and insurance companies, are the primary drivers of electronic payment services in Ethiopia. Until recently, most banks have focused on traditional branch-based banking (INSA, 2014).

The development of the electronic payment industry in Ethiopia is closely linked to the progress in the country's telecommunication, power, and information security infrastructure. Addressing the challenges in these areas was crucial for the successful Application and expansion of e-payment services in the country (Gardachew, 2010).

2.5 Electronic Banking Services Delivered in CBE

The Commercial Bank of Ethiopia (CBE) offers various electronic banking services to its customers, including Automated Teller Machines (ATMs), Internet Banking, Mobile Banking, and Point-of-Sale (POS) Transfer Terminals.

Automated Teller Machines (ATMs): ATMs are electronic devices that allow customers to perform financial transactions without the need for a human teller or bank cashier. The benefits of ATMs include relieving cashiers of simpler transactions, reducing the cost of cash dispensing, and providing 24-hour availability and potentially faster service for customers (Arega, 2021).

Internet Banking: Internet banking enables customers to manage their accounts and conduct banking transactions through the internet, whether at home, in the office, or any other convenient location. This service allows customers to directly connect to the bank and perform various transactions without physically visiting the bank (Arega, 2021).

Mobile Banking: Mobile banking is the latest electronic banking service offered by CBE. This service allows customers to access their accounts and perform banking activities through their mobile phones, even while traveling abroad. Mobile banking provides a convenient alternative to traditional electronic banking and internet banking services (Arega, 2021).

Point-of-Sale (POS) Transfer Terminals: POS transfer terminals are advanced electronic cash transfer systems that enable customers to pay for their purchases using their debit or credit cards at various retail outlets, such as stores, restaurants, hotels, and other commercial establishments.

The funds are immediately transferred from the customer's account to the merchant's account (Arega, 2021).

These electronic banking services offered by CBE aim to provide customers with greater convenience, faster transactions, and reduced reliance on physical branch visits. However, the Application and effective utilization of these services may be influenced by various factors, such as infrastructure development, customer awareness, and security concerns, which need to be addressed for the successful implementation of e-banking in Ethiopia.

2.7 Challenges of Adopting E-banking in Ethiopia

The Application of e-banking in Ethiopia faces several challenges, as highlighted by various studies (Gardachew, 2010; Worku, 2010; Martina, 2005).

One of the primary challenges is the low level of internet distribution and inadequately developed telecommunication infrastructure in the country. Many regions, especially the rural areas where small and medium-sized businesses are concentrated, lack access to the internet, hindering their ability to engage in e-commerce activities (Gardachew, 2010).

Another significant challenge is the lack of a proper legal and regulatory framework for e-commerce and e-payment in Ethiopia. The current laws do not provide adequate provisions for electronic contracts, digital signatures, and intellectual property rights, which limits the utilization of encryption technologies and the overall development of e-commerce (Gardachew, 2010).

Political instabilities in neighboring countries, such as Somalia, South Sudan, and Eritrea, also create an unfavorable environment for the smooth operation of e-banking in Ethiopia. These political and economic uncertainties can disrupt business activities and the free flow of goods and services (Gardachew, 2010).

The high proportion of illiteracy in the country is another barrier to the Application of e-banking. For people to fully benefit from e-banking services, they need to have not only basic literacy skills but also a certain level of ICT literacy, which is often lacking (Gardachew, 2010).

The high cost of internet access relative to the per capita income in Ethiopia is also a critical factor that hinders the entry into the e-commerce market. The initial investment costs, the high costs of computers and telecommunications, and the regulatory requirements create significant barriers for businesses and individuals (Gardachew, 2010).

Additionally, the absence of financial institutions' systems that link multiple institutions is a challenge. Most banking transactions currently rely on Visa and MasterCard, and the lack of dedicated systems for e-banking operations is a hindrance (Gardachew, 2010).

Frequent power interruptions in the country also pose a significant challenge for the smooth operation of e-banking services (Gardachew, 2010).

Finally, security concerns are a major challenge for the Application of e-banking in Ethiopia. Ensuring the security of customer data, preventing data breaches, and building trust among users are crucial for the successful implementation of e-banking services (Worku, 2010; Martina, 2005).

To address these challenges, a comprehensive approach involving infrastructure development, legal and regulatory reforms, capacity building, and security measures is necessary to facilitate the widespread Application of e-banking in Ethiopia.

2.8 Application of E-banking

Application is the approval and persistent use of a product, service or idea, clients go through a procedure of facts, point of view, decision, operation and confirmation in advance they are ready to accept a product or facility. A potential adopter passes through convinced stages before decision is made on whether to adopt or refuse an innovation. Rogers has been one of the number of researchers who has focused upon the Application process, which he defines as the method decided in separate or additional decision-maker unit permits from first information of an invention, to forming an approach toward the innovation to a decision or refusal to application of the innovative idea, and to validation of this decision (Rogers and Shoemaker, 1971).

The innovation Application process defined by Rogers is the procedure decided in separate or extra decision formation unit permits from understanding of an invention, to forming thoughts concerning the invention. There are five phases in invention decision process.

Knowledge: Socio-economic features, Individuality variables and communiqué behavior all recite to innovativeness. Innovativeness is the level to which a particular or other acceptance unit is quite untimely in accepting novel ideas contrast to new participants of a scheme (Rogers,

1995). According to Rogers primary adopters have extra proper education than forthcoming adopters and are more to be expected to keep going (socio-economic characteristics).

Persuasion: The possible adopter‟s mind-set in the way of the invention is formed in this phase. By anticipate and predicting future use pleasure and threat of Application, the potential adopter builds up positive or negative feelings to the innovation, which take part in significant role of adjusting the last decision. Perceived attitudes of an innovation as its relative benefit, compatibility and complication are particularly important here (Rogers, 1995).

Decision: The decision stage occurs when an individual connect in activities that guide to acceptance or dismissal of the innovation. In this stage the adopter begin to vigorously look for out information about the innovation that assists the decision creation.

Implementation stage: In this stage, mind information dispensation and decision making come to an end, but the behavioral change commence.

Confirmation stage: After the Application of innovations, the adopter keeps assessing the results of his / her decision. If the intensity of satisfaction is essential enough, the use of innovation will persist; however, it is also promising that the refusal happen after Application. In the latter case, the

Overturn of previous decision is called "discontinuance". The time frames for adopting an innovation can be condensed or fairly lengthy. For example, responsiveness of an invention may precede the decision to accept by months or years. So we can briefly define Application: Application is the acceptance and continued use of a product, service or idea. According to Rogers and Shoemaker (1971), customers drive through a procedure of knowledge, influence; verdict and verification before they are situate to take on a product or facility.

2.9 Empirical Review of the Study

Empirical research conducted on a global scale has identified several key factors that influence the applications of e-banking across different regions and markets. Security concerns emerge as a primary determinant of e-banking Application, with studies consistently highlighting the importance of perceived security and privacy in shaping customer behavior (Kumar & Gupta, 2022). Security threats such as data breaches, identity theft, and phishing attacks pose significant risks to e-banking users, undermining trust and confidence in digital banking platforms. Research by Li and Zhang (2022) underscores the critical role of robust security measures and transparent

communication strategies in mitigating security apprehensions and fostering trust among e-banking users worldwide.

Technological infrastructure and internet penetration levels are fundamental factors that influence the applications of e-banking on a global scale. Countries with advanced digital infrastructure and widespread internet access tend to have higher levels of e-banking Application compared to those with limited technological capabilities (World Bank, 2023). Research has shown that reliable internet connectivity, mobile penetration, and digital literacy are essential prerequisites for fostering e-banking usage, enabling individuals to access and utilize digital banking services effectively (Deloitte, 2022). Addressing infrastructure gaps and promoting digital inclusion are critical steps for facilitating the widespread Application of e-banking services across diverse global markets.

Regulatory and compliance frameworks play a pivotal role in shaping the applications of e-banking in different countries and regions. Research has highlighted the significance of regulatory clarity, consistency, and adaptability in fostering innovation and investment in digital banking infrastructure (Teferi & Bekele, 2023). Clear and well-defined regulatory guidelines provide banks with the necessary guidance and confidence to develop and deploy e-banking solutions, while also ensuring consumer protection and data privacy. However, regulatory fragmentation, uncertainty, and compliance burdens can impede the development and expansion of e-banking services, particularly in cross-border contexts (Addis & Kebede, 2022).

Consumer trust and perception emerge as critical determinants of e-banking applications on a global scale, influencing Application rates and usage behavior across diverse demographic groups. Studies have shown that consumers who perceive e-banking services as secure, reliable, and user-friendly are more likely to adopt and actively use digital banking platforms (Tadesse & Abebe, 2022). Building and maintaining consumer trust requires banks to prioritize security, transparency, and customer service excellence, thereby reassuring customers and mitigating concerns about the safety and privacy of their financial information (Singh & Singh, 2023). Effective communication strategies and proactive engagement with customers are essential for cultivating trust and

Accordingly, are view dedicated by Annin *et al.* (2013), in Ghana to assess the usage practice of e-banking between bank customers‟ point out that ATM is the most governing e-banking service followed by mobile banking while internet banking verified the final support by bank customers.

A study accompanied by Auta (2010), in Nigeria to be familiar with issues upsetting e-banking acceptance among bank customers found that the concern of safety, accessibility problem, lack of enough knowledge about the service and lack of infrastructures such as power and telecommunication amenities are amongst the major factors that affect consumers Application of e-banking. Similarly, Anwana (2010), on his study also recognized that the major inhibiting factors of e-banking Application are inadequate security, lack of knowledge of use of the technology, inadequate and declining telecommunication facilities and infrastructure, inadequate public power supply, lack of trust, poor economic condition of the people, and lack of confidence on the technology by the people. With esteem to safety and understanding of the technology, this study infers that e-banking services and products are not trustworthy and secured, and so, is not trusted. Consumers‟ do not know how to use some of the e-banking products/services, their banks do not offer training or education on its practice and so, they choose face-to-face banking to e-banking, because, they think it is difficult.

Alhinai*et al.* (2013) develops a research model which integrates two types of factor which are linked to the individual characteristics of the clients (customer-related factors) and those that relate to customers‟ insights of various features of the e-banking systems (system related factors). Based on this finding system-related set of factors (Perceived benefit, ease of use, perceived risk and internal capability or confidentiality) are the most determinant factors for e-banking Application.

Paul (2013), examination displays that the young age group is more prone with computer and internet banking. So they are more attracted in using the e-banking system predominantly in ATM & online transaction rather than old & traditional banking. Once more find that an excessive number of clients especially the old generation having no computer knowledge are until now desire the traditional banking but along with some moderate changes and quick service delivery.

Kartini and Rina (2016) in the opening of technology launch external factors dominate the acceptance of technology together with IT infrastructure, perceived profit and risk and mass media advertising but at later stage interpersonal pressure and aggressive banks awareness creation and personal recommendation influences the Application speed.

Ayana (2012) discovered in his study on Acceptance of Electronic banking scheme in Ethiopian Banking business: Barriers and Drivers that E-banking system, like ATM, mobile banking, e-banking and others remained not fine accepted by Ethiopian banking business. This is because of inadequate ICT arrangement and absence of lawful outline at NBE, which can inspire banking manufacturing to realize the system. In addition to the overhead two basic factors touching receiving of E banking in Ethiopia, result of the study also displays that security threat and lack of trust on the usage of technological Application are other major barrier for the system. The level of security risk linked with E-banking product or service, like ATM, internet banking, mobile banking and others, pose different face up to different banks. Improvements are necessary to make certain for consumer confidence. Lack of rivalry among indigenous and foreign banks is also extra challenge for the receiving of E-banking in the country. Technical and managerial services obtainable in Ethiopian banks for the receiving of E-banking are also restricted.

Bultum (2014), also quotes on the influences upsetting e-banking acceptance in Ethiopia are perceived advantage and threat, legal and regulatory frameworks, government support, IT infrastructure and technical and managerial skills of the bank. The result obtained from the study states that lack of such authorized framework may thus block the introduction of cost effective modern electronic payment instrument such as ATMs, credit and debit cards, mobile/telephone/internet banking.

Laekemariam (2015), studied the features disturbing the receiving of mobile banking in CBE. The common aim of the examination is to identify factors that persuade the acceptance and practice of mobile banking. The finding of this examination exposed that performance expectation, perceived risk, perceived cost, effort expectancy and trust, were the factors affecting users having intention to adopt mobile banking. Age and occupation is important factor for reception of mobile banking but educational criterion was not a major factor for receiving of mobile banking in Ethiopian mobile banking user context.

Yitabarek and Zeleke (2013) conducted research to analyze factors that influence clients „intent to accept e-banking facility networks in Bahir-Dar city. The study used variables from Theory of Criticized Behavior and Technology Approval Model. The results exposed that attitude; subjective standard, perceived behavioral control, observed realism and perceived simplicity of custom and perceived risk were major in affecting consumers aim to use e-banking service channels.

A study conducted by Abenet (2010), concerning the determinants of e-banking Application in Ethiopia revealed that the young age group is more computer literate and finds it easy to accept and use new technologies.

Takele Y. and Sira Z. (2013),had analyzed factors that influence customer‟s intent to the receiving of E-banking facility canals in Bahirdar City by integrating TAM, TPB and PR. The authors finding shows that the seven factors included in the models (attitude, subjective norm, perceived behavioral control, seeming helpfulness, seeming simplicity of custom and perceived risk were significant in affecting users intention of use e-payment.

Empirical research conducted on a global scale has identified several key factors that influence the applications of e-banking across different regions and markets. Security concerns emerge as a primary determinant of e-banking Application, with studies consistently highlighting the importance of perceived security and privacy in shaping customer behavior (Kumar & Gupta, 2022). Security threats such as data breaches, identity theft, and phishing attacks pose significant risks to e-banking users, undermining trust and confidence in digital banking platforms. Research by Li and Zhang (2022) underscores the critical role of robust security measures and transparent communication strategies in mitigating security apprehensions and fostering trust among e-banking users worldwide.

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Regulatory and compliance frameworks play a pivotal role in shaping the applications of e-banking in different countries and regions. Research has highlighted the significance of regulatory clarity, consistency, and adaptability in fostering innovation and investment in digital banking infrastructure (Teferi & Bekele, 2023). Clear and well-defined regulatory guidelines provide banks with the necessary guidance and confidence to develop and deploy e-banking solutions, while also ensuring consumer protection and data privacy. However, regulatory fragmentation, uncertainty, and compliance burdens can impede the development and expansion of e-banking services, particularly in cross-border contexts (Addis & Kebede, 2022).

Consumer trust and perception emerge as critical determinants of e-banking applications on a global scale, influencing Application rates and usage behavior across diverse demographic groups. Studies have shown that consumers who perceive e-banking services as secure, reliable, and user-friendly are more likely to adopt and actively use digital banking platforms (Tadesse & Abebe, 2022).Building and maintaining consumer trust requires banks to prioritize security, transparency, and customer service excellence, thereby reassuring customers and mitigating concerns about the safety and privacy of their financial information (Singh & Singh, 2023). Effective communication strategies and proactive engagement with customers are essential for cultivating trust and

Security concerns have emerged as a significant determinant of e-banking applications, with studies highlighting the impact of perceived security risks on customer behavior (Alalwan et al., 2017). Threats such as data breaches, identity theft, and phishing attacks can erode consumer trust and confidence in digital banking platforms, highlighting the importance of robust security measures and transparent communication strategies in addressing security apprehensions (Li & Zhang, 2022).

Technological infrastructure and internet penetration levels continue to play a pivotal role in shaping e-banking applications worldwide. Countries with advanced digital infrastructure and widespread internet access tend to have higher levels of e-banking Application compared to those with limited technological capabilities (World Bank, 2019). Reliable internet connectivity,

mobile penetration, and digital literacy are essential enablers of e-banking usage, facilitating access to digital banking services for individuals across diverse socio-economic backgrounds (Deloitte, 2018).

Regulatory and compliance frameworks also significantly influence e-banking applications, impacting both banks' operational practices and customer behavior. Clear and well-defined regulatory guidelines provide banks with the necessary guidance and confidence to develop and deploy e-banking solutions while ensuring consumer protection and data privacy (Teferi & Bekele, 2023). However, regulatory fragmentation and compliance burdens can impede innovation and investment in digital banking infrastructure, hindering the development and expansion of e-banking services in some regions (Addis & Kebede, 2022).

Consumer trust and perception remain critical determinants of e-banking applications, influencing Application rates and usage behavior globally. Research has shown that consumers who perceive e-banking services as secure, reliable, and user-friendly are more likely to adopt and actively use digital banking platforms (Tadesse & Abebe, 2022). Building and maintaining consumer trust require banks to prioritize security, transparency, and customer service excellence, thereby reassuring customers and mitigating concerns about the safety and privacy of their financial information (Singh & Singh, 2023).

Socio-economic and demographic factors also play a significant role in shaping e-banking applications on a global scale. Income levels, education levels, digital literacy, and cultural preferences influence individuals' access to and usage of digital banking platforms (Singh & Singh, 2023). Addressing socio-economic disparities and fostering digital skills development are critical steps for promoting broader e-banking Application and financial inclusion worldwide (Dagne & Alemu, 2023).

2.10 Research Gap

The study aims to bridge a significant research gap within the specific context of the Commercial Bank of Ethiopia (CBE) regarding the Application of e-banking services. While existing literature extensively discusses various factors influencing e-banking Application globally and within broader national contexts, there is a dearth of research focusing specifically on the unique challenges and opportunities faced by the CBE in implementing e-banking initiatives. This gap

underscores the necessity of conducting targeted research to comprehensively understand the factors shaping e-banking Application within the CBE's operational landscape.

Moreover, previous studies have primarily focused on identifying barriers to e-banking Application without placing adequate emphasis on potential solutions or strategies for overcoming these challenges. The absence of actionable recommendations tailored to the CBE's context highlights a critical gap in the existing literature. Therefore, the proposed study seeks to not only identify the factors hindering e-banking Application at the CBE but also provide practical recommendations and best practices for addressing these barriers effectively. This approach is essential for informing evidence-based decision-making and facilitating the successful implementation of e-banking services within the bank.

Furthermore, while some studies have explored socio-economic and demographic factors influencing e-banking Application, there is limited empirical research specifically examining the impact of these factors within the CBE's customer base. Understanding how demographic variables such as age, income, education level, and digital literacy intersect with e-banking Application at the CBE is crucial for developing targeted interventions to promote broader Application among diverse customer segments. Therefore, the proposed study aims to fill this research gap by conducting comprehensive empirical investigations into the socio-economic and demographic factors influencing e-banking Application within the CBE's customer base.

Additionally, the existing literature lacks comprehensive empirical data from customers and stakeholders within the CBE, with many studies relying on generalized findings or extrapolations from broader national or regional contexts. This limitation underscores the need for more extensive and systematic research that incorporates diverse perspectives from both customers and bank representatives within the CBE's operational environment. By collecting robust empirical data from various stakeholders, including customers, bank executives, and employees, the proposed study aims to provide a more nuanced understanding of the challenges and opportunities associated with e-banking Application at the CBE.

Moreover, while existing literature discusses the impact of regulatory and compliance issues on e-banking Application, there is limited research specifically examining how these factors manifest within the regulatory framework of Ethiopia and their implications for the CBE's e-banking initiatives. Understanding the unique regulatory landscape in which the CBE operates

and its implications for e-banking Application is crucial for developing compliance strategies and navigating regulatory challenges effectively. Therefore, the proposed study seeks to address this research gap by exploring the regulatory and compliance issues specific to the CBE's e-banking operations and identifying strategies for ensuring regulatory compliance while fostering innovation and growth.

In summary, the proposed study aims to address several critical research gaps within the context of the Commercial Bank of Ethiopia's e-banking initiatives. By conducting empirical investigations and providing actionable recommendations tailored to the CBE's operational landscape, the study seeks to contribute valuable insights to the existing body of knowledge on e-banking Application and facilitate the successful implementation of e-banking services within the bank.

2.11 Conceptual framework

The conceptual framework of the study delineates the factors influencing the acceptance of electronic banking.

Interruption of electronic banking facilities encompasses issues like machine malfunctions, card blockages, and network disruptions, hindering customer satisfaction and adoption of e-banking services.

Lack of trust in the system is pivotal in the adoption of internet banking, influenced by factors such as perceived security and reliability of vendors. Mistrust and inherent risks in online transactions pose challenges to customer acceptance.

Insufficient awareness of electronic banking significantly impacts customer attitude towards adoption. Lack of information about benefits and risks associated with electronic banking leads to resistance.

Demographic factors, including education level, gender, age, and socio-economic status, influence e-banking acceptance. Higher education levels and socioeconomic status correlate with increased adoption, while factors like gender and age may affect usage.

Organizational factors, such as financial and human resources, influence the adoption of technological innovations like e-banking. Adequate resources enable banks to invest in infrastructure and human capital, facilitating the provision of e-banking services.

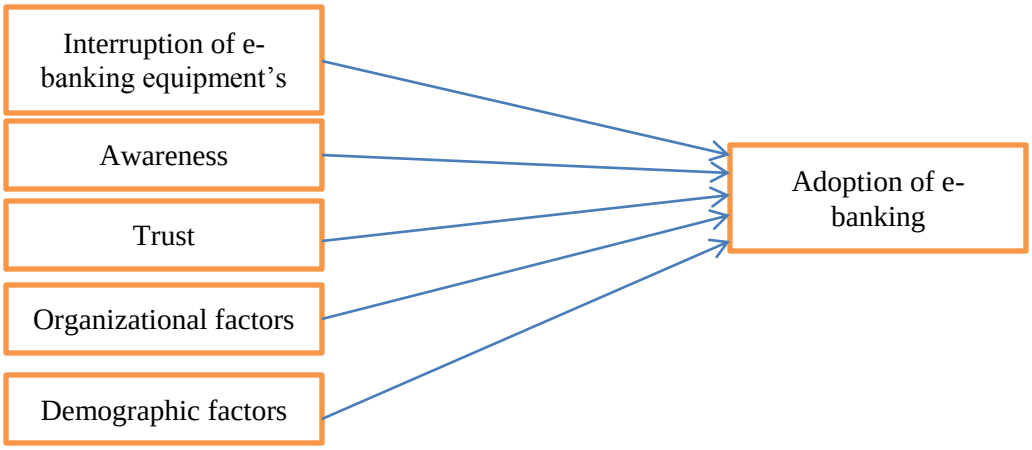

Figure 1 conceptual frame work

Source : Yousafzai,pallister and foxall(2009)

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Description of the Study Area

In Ethiopia, the banking sector is regulated by the National Bank of Ethiopia (NBE), serving as the central bank of the country. As of 2024, there are 18 commercial banks registered under the NBE, consisting of 2 state-owned banks and 16 private commercial banks (source: [NBE Official Website](https://nbebank.com)). For this study, the researcher selected the Commercial Bank of Ethiopia (CBE). This choice was made due to its extensive customer base and its status as a private bank, which was expected to offer a wide range of electronic banking services. Geographically, CBE is divided into four districts in Addis Ababa: North, South, West, and East. The researcher focused on the northern district for this study.

3.2 Research Design

The research design encompasses details about the type of data, data collection method, data source, and sampling strategy (Saunders, Lewis, & Thornhill, 2012). This study utilizes both descriptive and explanatory designs. The descriptive design is employed to elucidate the income-generating components of electronic banking at CBE. On the other hand, an explanatory design is employed to delineate the relationship between study variables. The researcher aims to explicate the relationship between independent and dependent variables through multiple regression analysis.

3.3 Research Approach

For this research, a quantitative approach is adopted to address the research questions by gathering quantitative data from users of electronic banking services. The choice of a quantitative approach is justified by the need to quantitatively measure associations between dependent and independent variables. This approach enables the researcher to statistically analyze and interpret the relationships between various factors influencing the adoption of electronic banking services.

3.4 Sampling Technique and Procedure

3.4.1 Target Population

According to Hair et al. (2010), the target population was defined as a specific group of people or objects from which data and information could be obtained through questioning or observation. Mugenda (2008) describes partial clients as the total customers identified by the researcher in their investigation.

For this research, seven branches of the Commercial Bank of Ethiopia (CBE) in the Northern District were selected by the researcher. The selection criteria primarily focused on the e-banking performance of these branches as of April 2024. Therefore, customers who utilized e-banking services at these branches were considered the target population of the study. As of April 2024, the total number of e-banking users across these seven branches was reported to be 215,101, according to the North District E-Payment Report.

3.4.2 Sampling Technique

Sampling involved selecting a subset, or sample, from a larger population to make observations and statistical inferences about that population (Bhattacherjee, 2012).

In this study, non-probability sampling was utilized due to the unavailability and difficulty in reaching all sampling units in person. Non-probability sampling was suitable when it was impractical to randomly select samples from a population, as it helped reduce costs, time, and handling efforts (Saunders, Lewis & Thornhill, 2009).

Commercial Bank of Ethiopia (CBE) was divided into four districts in Addis Ababa: North, South, West, and East. The researcher then randomly selected the northern district. Subsequently, seven branches were purposefully selected from the North District based on criteria such as the number of ATM installations and the performance of electronic banking services. The evaluation of e-banking performance considered factors such as the number of e-banking users, transactions, and transaction volumes as of April 2024.

Convenience sampling was employed to select respondents from the chosen branches. This method allowed for the selection of individuals who were readily available and accessible, making it suitable for the practical considerations and objectives of this study.

3.4.3 Sample size

The sample size will actually be the whole number of units to be selected for analysis in a research study and the representation for the study calculated according to the formula proposed by Yaman (1967) with 95% confidence and 5% acceptable sampling error. Among the 215,101 populations, the sample range was calculated using the following formula.

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

Where: n= sample size

N = number of inhabitants

e = error tolerance

1.8 Sample Size and Data Collection

Applying the formula, the sample size was calculated as:

n = 215,101 / (1 + 215,101(0.05^2))

n = 399.26

Based on the calculated sample size, data collection involved approximately 400 respondents through a structured questionnaire. The questionnaire was specifically designed to gather primary data from customers of Commercial Bank of Ethiopia (CBE) branches in the North Addis Ababa district. Its purpose was to explore the significant factors influencing the adoption of electronic banking services at CBE.

To ensure the reliability and validity of the responses, the data collection process was conducted systematically. Clear instructions were provided to respondents, and efforts were made to ensure their comprehension of the questionnaire. Any misunderstandings or lack of knowledge among respondents were addressed promptly to enhance the quality of the collected data.

To improve sample representation, a deliberate effort was made to select nearly equal numbers of respondents from all seven CBE branches. This approach aimed to prevent biased results and ensure comprehensive coverage of perspectives. To maintain consistency and accuracy, data collection was personally overseen by the researcher, with interviewers trained accordingly.

Furthermore, data collection occurred at different times to enhance sample representativeness. This methodological approach facilitated the acquisition of highly representative information in an efficient and expert manner, thereby strengthening the validity and robustness of the study findings.

Table 3.1: Population and Sample size

No	Name of the Branches	No of e-banking users	Sample size
1	AddisuGebeya	18,130	57
2	AradaGhiorgis	35,407	57
3	Arat Kilo	47,249	58
4	Gullele	25,770	57
5	Kidiste Mariam	22,794	57
6	Selassie	36,323	57
7	SidistKillo Campus	29,428	57
	Total	215,101	400

Source: Banks reports as of April,2024

3.5 Data Types and Data Collection Technique

3.5.1 Data Sources and Data Type

A quantitative approach was employed to fulfill the research objective. The decision to opt for quantitative research was driven by the need to achieve precision and objectivity in data analysis. Regarding data sources, both primary and secondary databases were utilized in the study. Questionnaires were the primary source of data collection, allowing for direct insight from respondents. Additionally, secondary sources such as books, documents, research articles, journals, publications, the Commercial Bank of Ethiopia (CBE) website, CBE annual reports, and other relevant literature were consulted. The choice of data sources was guided by the nature, scope, objectives, and availability of time and resources for the study.

3.5.2 Data Collection Technique

To properly achieve the objectives of the study, a questionnaire was selected as the primary data collection method among various options. Respondents, who were users of electronic banking at selected branches from the northern district of Addis Ababa, were approached for their cooperation. A structured questionnaire containing closed-ended questions was designed to ensure respondents could easily understand and answer it. Variables were measured using a Likert scale with five response categories. The Likert scale method was preferred to make the questions engaging for respondents and thereby improve their cooperation (Scott and Gerald, 2010).

3.6 Data Analysis Method

Data collected from respondents during the questionnaire was analyzed using descriptive and inferential statistics. Descriptive statistical analysis will describe the background of the respondent as well as the factors that influence the Application of electronic banking by customers. Regression and correlation tests was used for statistical analysis of the relationship between factors referred to as autonomous and dependent variables. The researcher will use a software called Statistical Package for Social Science (SPSS) version 26 to perform such kinds of analysis.

3.7 Validity and Consistency

Reasonableness decides whether the measuring instrument actually measures what it is expected to quantify or how fair the research results are. To ensure validity, questionnaires was designed based on questionnaires from previous studies and a review of related literature.

Reliability is a measure of internal consistency that refers to item responses consistent across constructs and indicates that scores are stable over time when the instrument is administered (Creswell, 2009). On the way to measure the reliability of the instrument, the researcher used Cronbach's alpha coefficient of 0.70 to measure the consistency of the instrument. And the closer Cronbach's alpha is to 1.0, the greater the internal reliability of the items in the measure.

Table 3.2: Reliability Statistics

	Branchs	Cronbach's Alpha
1	AddisuGebeya	.714
2	AradaGhiorgis	.714
3	Arat Kilo	.868
4	Gullele	.714
5	Kidiste Mariam	.714
6	Selassie	.714
7	SidistKillo Campus	.714
	Average	**.736**

(Source:-Own survey result, 2024)

In order to test the internal reliability of the variables in this research instrument, Cronbach's coefficient alpha was determined. The variables constructed for this study were tested using Cronbach's alpha coefficient and SPSS V.26 was found to be 0.736. This indicates the acceptability of the data for further analysis.

CHAPTER FOUR

4. PRESENTATION OF DATA, ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This chapter presents the analysis and interpretation of the research study aimed at elucidating the collected data. The researcher targeted seven purposively selected branches of the Commercial Bank of Ethiopia within the West District, distributing 400 questionnaires to respondents. A remarkable response rate of 94.5% was achieved, with 378 questionnaires duly filled in and returned.

The chapter commences with a detailed description of the demographic and general characteristics of the participating respondents. This provides insights into the profile of the sample population and sets the context for further analysis.

Descriptive statistics are employed to analyze Likert scale items and decision variables pertaining to the adoption of electronic banking. This allows for a comprehensive examination of the responses provided by the participants, offering a snapshot of their perceptions and attitudes towards e-banking adoption.

Both expressive and inferential data exploration techniques are utilized to delve deeper into the dataset. Various inferential statistics are applied to test hypotheses and achieve the objectives of the study.

The chapter employs multiple regression analysis to test hypotheses and achieve the research objectives. By examining the relationships between different variables, the study aims to identify the most significant factors influencing the adoption of e-banking among customers.

The analysis yields key findings that shed light on the factors driving or impeding the adoption of e-banking services. These findings are interpreted in the context of existing literature and theoretical frameworks, providing valuable insights for practitioners and policymakers in the banking sector.

The chapter concludes by summarizing the main findings of the data analysis and highlighting their implications for theory, practice, and future research. Recommendations may also be provided based on the study's findings to guide stakeholders in promoting the adoption of e-banking services effectively.

4.1.1 Demographic profile of Respondents

The cohorts for this study have different private information; moreover, these differences report different responses in relation to the use of e-banking and the causes that influence the adoption of e-banking. The following discussion confirms these differences. The demographic profile of the respondents involved in this study was shown in Table 4.1 as follows

Table 4.1: Respondents demographic profile

	Variables	Arrangement of variables	frequency	Percentage(%)
1	Gendet	Male	273	72.2
		Female	105	27.8
2	Age	20-30 years	138	36.5
		31-40 years	118	31.2
		41-50 years	63	16.7
		51-60 years	38	10.1
		Above 60 years	21	5.6
3	Educational Level	Primary School	64	16.9
		Secondary School	50	13.2
		Diploma Holder	99	26.2
		First Degree Holder	149	39.4
		MA Degree	12	3.2
		PhD or Above	4	1.1
4	Main Occupation	Government Employee	148	39.2
		Private Employee	77	20.4
		Private Business	76	20.1
		Student	48	12.7
		Other	29	7.7
5	Monthly Income	Less than birr 2000	69	18.3
		Birr 2001-3000	33	8.7
		Birr 3000-4000	38	10.1
		Birr 4000-5000	94	24.9
		Above birr 5000	144	38.1

(Source: survey result, 2024)

The data suggests that the sample population is relatively well-educated and has a higher-than-average income compared to the general population. This may indicate that the bank's current customer base is skewed towards the more affluent and educated segments of the population.

To better serve the broader community, the bank may need to explore ways to reach and cater to a more diverse range of customers, including those with lower incomes and educational levels. This could involve developing more accessible and inclusive banking services, as well as targeted outreach and financial literacy programs.
Additionally, the gender imbalance in the sample population suggests that the bank may need to address any potential barriers or biases that are limiting the participation of female customers. Addressing this issue could help the bank better serve the entire community and promote greater financial inclusion.

The data provides an overview of the demographics and characteristics of the sample population. The majority of the respondents are male (72.2%), with the largest age group being 20-30 years old (36.5%). The educational level of the sample is relatively high, with the largest group being first-degree holders (39.4%). In terms of occupation, the largest group is government employees (39.2%), and the monthly income distribution shows that the majority of respondents (38.1%) earn more than 5,000 birr per month.

Based on the gender distribution, the bank should consider implementing initiatives to encourage and support the participation of female customers to improve gender diversity and ensure equal access to banking services. The bank may want to explore ways to cater to the needs of the younger age demographic (20-30 years) through tailored products, services, and digital offerings that align with their preferences and financial behaviors. The bank could consider developing specialized programs or products to serve the needs of the higher-educated and higher-income segments of the population, while also ensuring that its services remain accessible and inclusive for all income levels. The bank may benefit from conducting further research to understand the specific needs and preferences of the different occupational groups, such as government employees, private employees, and business owners, to develop targeted strategies and offerings.

4.2. Descriptive Analysis

4.2.1. Descriptive Analysis of Customer Acceptance Level on E-banking

Table 4.2.1: Descriptive Statistical Analyses for Awareness

	Awareness	N	Mean	St.dev
	The bank advertises and teaches the clients to custom e-banking through mass media	378	3.63	1.107
	I got informed about the service of e-banking outside the bank	378	3.64	1.252
	I have informed about the allowed transaction limit using e-banking channels	378	3.4	1.202
	I have informed about the risks may face when using e-banking service	378	3.93	1.029
	I have informed about the service fees and charges when using e-banking service	378	3.63	1.107
	Overall Average of Awareness	378	3.65	1.139

The overall moderate to high level of customer awareness suggests that the bank's efforts to educate and inform its customers about e-banking services have been reasonably successful. However, the variation in awareness levels across different aspects indicates that the bank may need to tailor its communication and education strategies to address specific areas of concern or confusion.

By improving customer awareness, particularly in areas with lower scores, the bank can empower its customers to make informed decisions, increase the adoption and usage of e-banking services, and ultimately enhance the customer experience and satisfaction. This, in turn, can lead to greater customer loyalty, increased efficiency, and reduced operational costs for the bank.

The data provided shows the level of awareness among the bank's customers regarding various aspects of e-banking services. The overall average awareness score is 3.65 out of 5, indicating that the customers have a moderately high level of awareness. The highest awareness is regarding the risks associated with using e-banking services (mean = 3.93), while the lowest awareness is about the allowed transaction limits using e-banking channels (mean = 3.4).

The bank should focus on improving customer awareness about the allowed transaction limits using e-banking channels, as this appears to be the area with the lowest awareness. This information should be clearly communicated and easily accessible to customers. The bank should regularly assess and monitor customer awareness levels, particularly for new or updated e-banking services, to ensure that customers are well-informed and can make informed decisions about their usage. The bank could consider implementing interactive tutorials or demo sessions to help customers better

understand the e-banking features and functionalities, which may increase their confidence and willingness to adopt these services.

Table 4.2.2 Descriptive Statistical Analyses for Interruption

	Interruption	N	Mean	St.dev
	Absence of sufficient technicians in all banks who solve breakdown of ATM machine	378	3.38	1.153
	My bank has acceptable ICT infrastructure to conduct e-banking	378	3.40	1.202
	When about an ATM breakdown my bank handles the problem faster.	378	3.92	1.032
	ATM usage in my bank branch has led to timely and effective withdrawal of cash	378	3.38	1.153
	Slow internet connection reduces the acceptance rate of E-banking services.	378	4.34	0.789
	Because of connection problem sometimes there is a difficulty to confirm transaction takes place or not.	378	2.05	1.069
	Overall Average of Interruption	378	3.47	1.071

The data suggests that while the bank has made progress in providing e-banking services, there are still some persistent issues that can hinder the customer experience and adoption of these services. The primary concern appears to be the reliability and speed of the internet connection, which is a critical factor in the acceptance and usage of e-banking.

Addressing these interruptions and improving the overall e-banking service quality can lead to increased customer satisfaction, trust, and loyalty, ultimately contributing to the bank's competitiveness and growth in the digital banking landscape.

The data provided presents the customers' perceptions regarding the interruptions or issues they face when using e-banking services, particularly related to ATM usage and internet connectivity. The overall average interruption score is 3.47 out of 5, indicating a moderate level of interruptions experienced by the customers.

The key findings are:

Customers perceive that slow internet connection is the most significant issue, with a high mean score of 4.34, indicating a significant impact on the acceptance and usage of e-banking services. Customers generally believe that their bank handles ATM breakdowns faster, with a mean score of 3.92. Customers are moderately satisfied with the availability of technicians to solve ATM breakdowns (mean = 3.38) and the ATM usage leading to timely and effective cash withdrawal (mean = 3.38).Customers are most concerned about the difficulty in confirming whether a

transaction has been completed successfully due to connection problems, with a mean score of 2.05, indicating a significant issue.

The bank should prioritize improving its internet infrastructure and connectivity to ensure a reliable and high-speed internet connection for seamless e-banking services. The bank should continue its efforts to maintain and promptly address ATM breakdowns, as this is an essential service for customers. The bank should explore ways to enhance the customer experience during ATM usage, such as improving the availability of technicians and ensuring timely cash withdrawal. The bank should implement robust transaction confirmation mechanisms, such as real-time notifications and transaction history tracking, to address the issue of uncertainty regarding the completion of transactions. The bank should regularly monitor and address customer feedback and complaints to identify and resolve any recurring interruptions or issues.

Table 4.2.3 Descriptive Statistical Analyses for Trust

	Trust	N	Mean	St.dev
	Customers have great degree of belief on the bank and are satisfied with safety of electronic banking facility delivered by the Bank.	378	3.76	1.252
	I trust in the safety of online money transfer.	378	3.92	1.032
	I am bothered to custom Electronic banking facility because other people might be capable to access my account	378	4.34	0.789
	I am not believed that trustworthy information is transported securely from banks to clients	378	1.89	0.922
	Overall Average of Trust	378	3.48	0.999

The data suggests that while customers generally trust the bank's electronic banking offerings, there are some specific areas of concern that need to be addressed. The high level of worry about account access by others indicates that customers place a high value on the security and privacy of their financial information. The low score on the belief that information is transported securely points to a need for the bank to better communicate its data protection practices.

Overall, the bank has an opportunity to build upon its existing strengths in electronic banking trust, while also proactively addressing the areas that are causing the most customer unease. By taking a comprehensive approach to enhancing security, transparency, and customer education, the bank can work to increase overall trust in its electronic banking services.

The data suggests that overall, customers have a moderate degree of trust in the bank's electronic banking services (mean trust score of 3.48 out of 5). Customers seem to trust the safety of online money transfers (mean of 3.92) and believe the bank delivers a satisfactory level of electronic banking security (mean of 3.76). However, there is also a notable level of concern about the potential for others to access their account (mean of 4.34), and a lack of belief that information is transported securely between the bank and customers (mean of 1.89).

To improve customer trust, the bank should focus on addressing the key areas of concern. This could involve:-

Enhancing security measures and controls to prevent unauthorized account access, while also clearly communicating these safeguards to customers. Improving transparency around data protection and encryption practices to reassure customers that information is being transmitted securely. Conducting customer education and awareness campaigns to help customers better understand the security features in place and feel more confident in the safety of the bank's electronic banking services.

Table 4.2.4 Descriptive Statistical Analyses for Demographic Factors

	Demographic Factors	N	Mean	St.dev
	Male clients of the bank more exercise the E- banking services than female customers.	378	2.40	1.134
	A high amounts of illiteracy upset the informal practice of E-banking.	378	2.23	1.241
	Young clients of the bank consume e- banking facilities than old clients.	378	2.03	1.061
	Clients level of literacy weight the taking on e- banking	378	4.26	0.851
	Customers those have more income use e-banking service than customers who have low income	378	2.01	1.049
	Overall Average of Demographic Factors	378	2.59	1.067

The data highlights the importance of considering demographic factors when designing and promoting electronic banking services. It suggests that the bank should take a more targeted and inclusive approach to ensure that all customer segments have equal access and opportunities to benefit from the bank's e-banking offerings. By addressing the specific needs and barriers faced by different demographic groups, the bank can potentially increase overall e-banking adoption and usage.

The data suggests that demographic factors play a significant role in the adoption and use of electronic banking services by the bank's customers. The overall average score of 2.59 out of 5 indicates that demographic factors have a moderate impact on e-banking usage.

The key findings are:

Customers' level of literacy has the strongest influence, with a high mean score of 4.26, indicating that higher levels of literacy are associated with greater use of e-banking.Young customers tend to use e-banking services more than older customers (mean of 2.03).Customers with higher incomes are more likely to use e-banking than those with lower incomes (mean of 2.01).Male customers report using e-banking services more than female customers (mean of 2.40).Higher levels of illiteracy appear to negatively impact the use of e-banking (mean of 2.23).

To address the impact of demographic factors on e-banking usage, the bank should consider the following recommendations:-

Implement targeted educational and awareness campaigns to improve financial and digital literacy, especially among older and lower-income customers. Develop user-friendly e-banking interfaces and services that are accessible and intuitive for customers with varying levels of literacy and technical skills. Offer incentives and promotions to encourage the adoption of e-banking services among traditionally underserved groups, such as female customers. Collaborate with community organizations and local authorities to reach out to customers in areas with higher rates of illiteracy and lower incomes.

Table 4.2.5 Descriptive Statistical Analyses for Organizational Factors

	Organizational Factors	N	Mean	St.dev
	Applying technological innovation needs large investment budget.	378	1.99	0.898
	Banks need experienced human resource in order to appliance e- banking.	378	4.21	0.894
	Banks need experienced IT staffs‟ in performing technological innovation.	378	1.89	0.774
	Technical and managerial abilities of personnel on using technological innovation have effect on adoption e-banking	378	2.24	1.252
	Inaccessibility of experienced and capable employee in related with e-banking is the trial for banks to exercise e-banking	378	1.93	0.894
	Overall Average of Organizational Factors	378	2.45	0.942

The data suggests that the bank's primary organizational challenge in implementing e-banking services is the availability and quality of human resources, particularly experienced personnel. The bank appears to be less concerned about the financial and technological aspects of e-banking implementation, but recognizes the importance of having the right skills and competencies within the organization to drive successful adoption and use of these services. By addressing the human resource-related factors, the bank can better position itself to overcome organizational barriers and enhance its e-banking capabilities.

The data suggests that organizational factors have a moderate impact on the bank's ability to implement and adopt electronic banking services, with an overall average score of 2.45 out of 5.

The bank's need for experienced human resources in order to apply e-banking has the highest influence, with a mean score of 4.21. This indicates that the availability of skilled and experienced personnel is a critical factor for the bank. The technical and managerial abilities of personnel using technological innovation also have a notable impact on e-banking adoption, with a mean score of 2.24.However, the data suggests that the bank does not perceive large investment budgets (mean of 1.99) or the inaccessibility of experienced and capable employees (mean of 1.93) as significant barriers to implementing e-banking. The bank also does not seem to view the need for experienced IT staff in performing technological innovation as a major obstacle (mean of 1.89).

Based on the findings, the bank should consider

Invest in the recruitment, training, and retention of highly skilled and experienced personnel, particularly in the areas of e-banking implementation and operations.Provide comprehensive training and development programs to enhance the technical and managerial capabilities of existing staff involved in e-banking services. Ensure that the bank's IT infrastructure and support systems are adequate to support the deployment and maintenance of e-banking technologies. Explore opportunities for strategic partnerships or outsourcing to access specialized e-banking expertise, if necessary, to supplement the bank's internal capabilities.Continuously assess the bank's organizational readiness and adaptability to technological innovations in the financial sector.

Table 4.2.6 Descriptive Statistical Analyses for Adoption

	Adoption	N	Mean	St.dev
	There is a great possibility of using e-banking in my near future.	378	1.95	0.933
	Consuming the electronic banking scheme enables me to accomplish banking activities more quickly.	378	2.01	0.832
	I will strongly recommend others to use the electronic banking	378	1.94	0.791

	scheme			
	Overall Average of Adoption	378	1.97	0.852
	Grand Average	378	3.02	1.027

(Source: Own survey result, 2024)

= Scale: < 1.80 strongly disagree, between 1.81 and 2.60 do not agree, between 2.61 and 3.40 neutral, between 3.41 and 4.20 agree and > 4.21 strongly agree

The data suggests that the bank's efforts to promote and implement electronic banking services have not yet resulted in high levels of customer adoption and usage. The low scores on the adoption-related factors indicate that customers do not perceive significant benefits or a strong likelihood of using the e-banking services in the near future. To drive greater adoption, the bank needs to focus on enhancing the customer experience, demonstrating the tangible advantages of e-banking, and addressing any barriers or concerns that are preventing customers from fully embracing these services.

The data suggests that customer adoption of the bank's electronic banking services is relatively low, with an overall average score of 1.97 out of 5. This indicates that customers have a relatively low intention to use, recommend, or perceive benefits from the bank's e-banking offerings.

The key findings

Customers do not perceive a great possibility of using e-banking in the near future (mean of 1.95).Customers do not strongly believe that using e-banking enables them to accomplish banking activities more quickly (mean of 2.01). Customers are not highly likely to recommend others to use the electronic banking scheme (mean of 1.94).

The grand average score of 3.02 across all the factors (demographic, organizational, and adoption) suggests that the overall adoption and implementation of e-banking services by the bank is moderately successful.

To improve customer adoption of the bank's electronic banking services, the bank should consider:

Conduct comprehensive user research to better understand the barriers, needs, and preferences of customers regarding e-banking services.Enhance the user experience and functionality of the e-banking platform to ensure it is intuitive, efficient, and provides clear benefits to customers. Implement targeted marketing and educational campaigns to raise awareness and demonstrate the advantages of using e-banking services. Offer incentives and rewards to encourage customers to try and continue using the e-banking services. Provide effective onboarding and ongoing support to help customers become comfortable and confident in using the e-banking platform. Continuously monitor and gather feedback from customers to identify areas for improvement and maintain a customer-centric approach to e-banking development.

4.3. Inferential statistics /Analysis/ customer acceptance level on E-banking

Before applying the regression analysis, some tests were performed to ensure the suitability of the data for the regression analysis of the assumptions as follows:

4.3.1. Multicollinearity Test

Later, the regularity of the statistics in the regression pattern is established, the subsequent step of defining whether there is an association between the independent variables in the pattern is necessary for the multicollinearity test. The relationships between the independent variables drive the consequences in a very solid correlation. In addition, an examination of multicollinearity was performed to avoid practices in the decision-making process regarding the fractional effect of the independent variables on the dependent variable. A correct regression model must not allow association regarding the independent variables or multicollinearity to occur.

Investigating multicollinearity as the basis of the VIF value of multicollinearity control results:

1.If the VIF values are 1-10, then there is no multicollinearity.

2.If the VIF is < 1 or >10, then multicollinearity exists.

As we can see in Table 4.6 below, the VIF results between 1.479 to 4.667 on both the upper and lower bounds, the model meets the rule or there is no multicollinearity problem.

Table 4.3: Adoption Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.886	.464		-4.061	.000		
	Awareness	.867	.074	.867	11.789	.000	.214	4.667
	Interruption	-.458	.102	-.281	-4.493	.000	.297	3.369
	Trust	.401	.091	.293	4.406	.000	.262	3.810
	Demographic	.397	.124	.187	3.203	.001	.340	2.940
	Organization	-.057	.091	-.026	-.633	.527	.676	1.479

a. Dependent Variable: Adoption

(Source: Own survey result, 2024)

4.3.2. Correlation Analysis

Correlation is a measure of how strongly two variables are related. Correlation coefficients are often used to describe data because they are relatively easy to use and provide a large amount of information in a single value (Mooi&Sarstedt, 2011).

Calculated significance fields of correlation numbers from -1 to 1, where -1 indicates a perfect negative relationship, the relationship is perfectly linear) and 1 indicates a perfectly positive relationship. A correlation value of 0 indicates no association (Mooi&Sarstedt, 2011).

Table 4.4: Pearson Correlation

		Awareness‟					
Awareness‟	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	378					
Interruption	Pearson Correlation	.789	1				
	Sig. (2-tailed)	.000					
	N	378	378				
Trust	Pearson Correlation	.755	.734	1			
	Sig. (2-tailed)	.000	.000				
	N	378	378	378			
Demographic	Pearson Correlation	-.735	-.503	-.629	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	378	378	378	378		
Organization	Pearson Correlation	.044	.075	.297	.162	1	
	Sig. (2-tailed)	.399	.144	.000	.002		
	N	378	378	378	378	378	
Adoption	Pearson Correlation	.728	.522	.616	-.497	.108	
	Sig. (2-tailed)	.000	.000	.000	.000	.036	
	N	378	378	378	378	378	378

. The correlation is significant at the 0.01 level (2-tailed).

. The correlation is significant at the 0.05 level (2-tailed).

(Source: Result of our own survey, 2024)

4.3.2.1 Awareness and acceptance of Electronic Banking

The association between these two variables has a moderate relationship at r=0.728. The above Pearson correlation shows that awareness has a significant effect on e-banking adoption. This means that ease of use has a positive correlation with e-banking adoption.

4.3.2.2 Interruption and Reception of E-banking

As shown in Table 4.4, there is a significant relationship between disruption and acceptance of e-banking. The result of r=0.522 shows that the two variables were positively correlated.

4.3.2.3 Trust and Acceptance of Electronic Banking

According to Table 4.4, the result of the correlation of the independent and dependent variable is r=.616 which means that there is a moderate relationship between trust and adoption of e-banking.

4.3.2.4 Demographic Factor and Introduction of Electronic Banking

As shown in Table 4.4, there is a significant relationship between demographics and acceptance of e-banking. Furthermore, since r=-.497 they are negatively correlated. This means that the dual variables negatively affect each other.

4.3.2.5 Organizational Factor and Income of E-banking

The correlation result for the organizational factor as the independent variable and e-banking adoption as the dependent variable is r=0.108, which means that the two variables are also positively correlated. Furthermore, there is a significant relationship between organizational factor and acceptance of e-banking.

4.3.3 Regression analysis

A regression test is a scientific measure of the normal association between two or more variables in relationships of unique units of data. Regression obviously indicates a cause and effect association between variables. In regression, the variable corresponding to the cause is taken as the independent variable and the variable corresponding to the effect is taken as the dependent variable.

1. Linearity check

The regression pattern can be formulated linearly. Testing for linearity across the y and x variables can be completed by plotting the independent variable against the dependent variable (Mooi & Sarstedt, 2011). As Figure 4.1 below shows the relationship

independent variables with dependent variables are linear. The purpose of the normality test is whether the regression model of the underlying factors of e-banking adoption is normally distributed or the multicollinearity assumption intact for conducting multiple linear regression analysis.

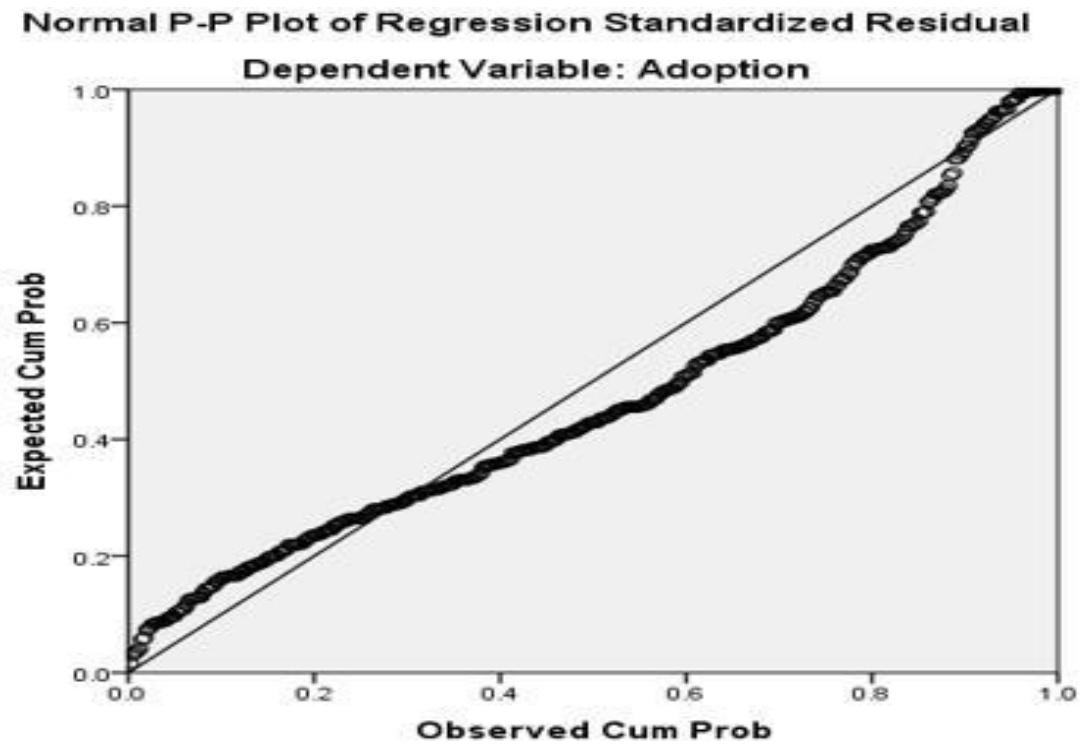

Figure 4.1 normality test results

independent variables with dependent variables are linear. The purpose of the normality test is whether the regression model of the underlying factors of e-banking adoption is normally distributed or the multicollinearity assumption intact for conducting multiple linear regression analysis.

Table 4.5 normality and variability test

	N	Minimum	Maximum	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Awareness	378	1	5	-.671	.125	.139	.250
Interruption	378	2	4	-.257	.125	-.376	.250
Trust	378	2	5	-.584	.125	-.224	.250
Demographic	378	1	4	.919	.125	.811	.250
Organization	378	1	4	-.130	.125	.330	.250
Adoption	378	1	5	.970	.125	.890	.250

(Source: - Own survey result, 2024)

Conclusions:

Normality: The data exhibits some deviations from normality, as indicated by the skewness and kurtosis values. "Awareness," "Trust," and "Organization" have negative skewness, with values of -0.671, -0.584, and -0.130, respectively. This suggests a concentration of values towards the higher end of the scale."Demographic" and "Adoption" have positive skewness, with values of 0.919 and 0.970, respectively. This indicates a concentration of values towards the lower end of the scale.The kurtosis values range from -0.376 for "Interruption" to 0.890 for

"Adoption," suggesting that the distributions are generally flatter or slightly peaked compared to a normal distribution.

Variability: The data shows varying degrees of variability across the variables."Awareness" has the widest range, with values ranging from 1 to 5, indicating a good spread of responses."Interruption" and "Trust" have a more limited range, with values ranging from 2 to 4 and 2 to 5, respectively."Demographic," "Organization," and "Adoption" also have a wider range, with values from 1 to 4 or 5.

Skewness and Kurtosis: The skewness and kurtosis values provide insights into the distribution of the variables. The negative skewness for "Awareness," "Trust," and "Organization" suggests that the majority of the responses lean towards the higher end of the scale, indicating a relatively high level of awareness, trust, and organizational factors among the respondents. The positive skewness for "Demographic" and "Adoption" suggests that the majority of the responses lean towards the lower end of the scale, indicating a relatively lower demographic diversity and adoption levels.The kurtosis values indicate that the distributions are generally flatter or more peaked compared to a normal distribution, which may have implications for the statistical analyses and interpretations.

Variability: The range of the variables provides insights into the spread and diversity of the responses.The wider range for "Awareness," "Demographic," "Organization," and "Adoption" suggests that there is a good representation of responses across the different levels of these variables.The more limited range for "Interruption" and "Trust" indicates that the responses are more concentrated within a narrower range of the scale, which may have implications for the analysis and interpretation of these variables.

2. Summary of linear regression result

Table 4.6: Summary of linear regression result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df_1	df_2	Sig. F Change	
1	.754[a]	.569	.563	.546	.569	98.245	5	372	.000	2.101

A. Predictors: (Constant), Organization, Awareness, Demographics, Interruption, Trust

b. Dependent variable: Adoption

(Source: Result of our own survey, 2024)

The regression model appears to be a good fit for the data, with a relatively high R-squared value, a statistically significant F-statistic, and no issues with autocorrelation. This suggests that the independent variables in the model are collectively effective in predicting the dependent variable.

The regression model summary provided shows that the model has an R-squared value of 0.569, indicating that the independent variables in the model explain approximately 56.9% of the variance in the dependent variable. The adjusted R-squared value of 0.563 suggests that the model fits the data well and is unlikely to be overfit. The standard error of the estimate is 0.546, indicating a relatively small amount of unexplained variance in the dependent variable.

The F-statistic of 98.245 with a p-value less than 0.001 suggests that the overall regression model is statistically significant, meaning the independent variables collectively have a significant effect on the dependent variable.

The Durbin-Watson statistic of 2.101 indicates that there is no significant autocorrelation in the residuals, and the independence assumption of the linear regression model is met. This is a desirable outcome and suggests that the model is properly specified and the parameter estimates are reliable.

Based on the provided statistics, the following recommendations can be made:

Further investigate the independent variables in the model to understand their individual contributions and statistical significance. This can help identify the most important predictors of the dependent variable.

Explore potential interactions between the independent variables, as these may enhance the explanatory power of the model.

Consider adding additional relevant independent variables to the model, as there is still a substantial amount of unexplained variance in the dependent variable (approximately 43.1%).

Validate the model's performance on a new, independent dataset to ensure the findings can be generalized beyond the current sample.

3. F-test for E-banking Adoption

The ANOVA table shows this level of significance; all the predictor variables are related to the underlying factors of e-banking adoption and the relationship between them is compared with an alpha value of 0.05. (Table 4.7) shows that the degree of importance is acceptable or unacceptable. However, the results in the table showed that the level of significance is 0.000, which is below 0.05 and acceptable and shows a strong effect of the independent variable on e-banking adoption. This table assumed an F value equal to 98.245. Count significant 0.000s. Since sig < 0.05 means the confidence of this prediction is greater than 95% and the probability of this prediction error is below 0.05, which is 0.000. Therefore, the model was significant with a linear relationship in multiple regressions, indicating that the variation explained by the model was not due to chance.

Table 4.7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.398	5	29.280	98.245	.000
	Residual	110.866	372	.298		
	Total	257.264	377			

A. Dependent Variable: Adoption

b. Predictors: (Constant), Organization, Awareness, Demographics, Interruption, Trust

(Source: Result of our own survey, 2024)

4. Regression Analysis for adoption of Electronic Banking

We can observe that the magnitude with which each independent variable affects the dependent variable awareness, disruption, trust and demographic factors were found to be influential factors for e-banking adoption, in their unstandardized beta coefficient values referring to awareness, disruption, trust and demographic factors. factors related to electronic banking as the most important determinants of electronic banking adoption. In addition, this F-test table showed that the existence of a linear relationship in the regression equation model. In other words, four explanatory variables have a significant effect on e-banking adoption. According to (Table 4.6)

regression analysis of unstandardized coefficients of Beta and Sig values for four independent variables revealed that awareness, interruption, trust and demographic factors; (0.867), (-0.458), (0.401) and (0.397). Their significance levels are 0.000, 0.000, 0.000 and 0.001, with one item above the 0.05 significance level, but the other four have a significant effect on the dependent variable (E-Banking Adoption).

Express the dependent variable (E-banking adoption) and the independent variable (awareness, disruption, trust and demographic factors in a mathematical equation).

Let:
Y = adoption of electronic banking,
X1= awareness,
X2= interrupt,
X3= confidence
X4= demographic factor
Therefore, the general relation is written mathematically as follows:
Yi= 0.867 X1i + -0.458 X2i + 0.401 X3i +0.397 X4

5. Discussion of Regression Results

The primary aim of this research is to delve into the impact of various factors on the adoption of electronic banking (e-banking) services and to gain a comprehensive understanding of the determinants influencing its acceptance. Through regression analysis, the study identifies awareness, discontinuation of e-banking facilities, trust, and demographic factors as crucial elements shaping the adoption landscape of e-banking.

1. Customer Awareness and Acceptance of E-banking Service:

The regression analysis reveals a significant positive relationship between customer awareness and the adoption of e-banking services ($p < 0.001$). This finding suggests that as awareness levels increase, there is a corresponding rise in the acceptance of e-banking among customers.

Specifically, for every unit increase in awareness, there is a 0.867 increase in e-banking acceptance. This indicates a strong positive effect of awareness on the propensity of customers to adopt e-banking services.

2. Discontinuation and Acceptance of Electronic Banking Service by Customers:

The analysis also highlights the substantial impact of discontinuation of e-banking facilities on its adoption ($p < 0.001$). When there are disruptions in e-banking services, manifested by device discontinuation, there is a significant negative effect on the adoption of e-banking. Specifically, a one-unit increase in e-banking device disruption leads to a decrease of 0.458 in e-banking acceptance. This underscores the adverse consequences of interruptions in e-banking services on customer adoption behavior.

3. Trust and Acceptance of Electronic Banking Services by Customers:

Trust emerges as a critical factor positively influencing e-banking adoption ($p < 0.001$). The regression analysis indicates that higher levels of trust in e-banking services lead to increased adoption rates among customers. For every unit increase in trust, there is a 0.401 increase in e-banking acceptance. This signifies that establishing and maintaining trust in e-banking systems is instrumental in fostering customer adoption and utilization of these services.

4. Demographic data and acceptance of electronic banking services by customers

The regression results for the demographic variables in the adoption of electronic banking indicate that these factors have a significant impact on the acceptance of e-banking. The unstandardized beta coefficient values for the demographic factors are as follows: awareness (0.867), interruption (-0.458), trust (0.401), and demographic factors (0.397).

Awareness: The demographic factor of awareness, represented by an unstandardized beta coefficient of 0.867, has a positive effect on the adoption of e-banking. This means that as awareness of e-banking services increases among customers, their likelihood of adopting e-banking also increases. The significant significance level of 0.000 indicates that this relationship is not due to chance.

Interruption: The demographic factor of interruption, represented by an unstandardized beta coefficient of -0.458, has a negative effect on the adoption of e-banking. This means that as interruptions in e-banking services increase, customers are less likely to adopt e-banking. The significant significance level of 0.000 indicates that this relationship is not due to chance.

Trust: The demographic factor of trust, represented by an unstandardized beta coefficient of 0.401, has a positive effect on the adoption of e-banking. This means that as trust in e-banking services increases among customers, their likelihood of adopting e-banking also increases. The significant significance level of 0.000 indicates that this relationship is not due to chance.

Demographic Factors: The overall demographic factors, represented by an unstandardized beta coefficient of 0.397, have a positive effect on the adoption of e-banking. This means that demographic factors such as age, income, and education level influence the adoption of e-banking. The significant significance level of 0.001 indicates that this relationship is not due to chance.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The primary goal of this research is to identify factors that hinder the adoption of e-banking services at the Commercial Bank of Ethiopia. To examine the issues affecting e-banking acceptance, the researcher distributed a questionnaire to respondents and discussed the summarized results in the fourth chapter. Building on the discussion in chapter four, this chapter presents a summary of the findings, conclusions, and recommendations of the study.

5.2 Summary of Findings

A significant barrier to e-banking adoption is the lack of awareness about these services. Customers often lack sufficient information about e-banking, and the bank's website does not provide adequate assistance, which impacts the uptake of these services. Additionally, demographic factors such as gender, age, and education level influence the adoption of e-banking at the Commercial Bank of Ethiopia. Another critical factor is the lack of trust in the system.

Many of the barriers identified in this study are related to the external environment, including inadequate ICT infrastructure and poor network and internet connectivity, which sometimes make it difficult to confirm whether transactions have been completed.

Respondents indicated that implementing technological innovations requires substantial investment. Banks need qualified IT professionals to deploy e-banking systems, and the lack of technical and managerial skills is a significant barrier to the recognition of e-banking at the Commercial Bank of Ethiopia.

Regression analysis of the demographic variables shows that awareness, interruptions, trust, and overall demographic factors significantly impact the adoption of e-banking. This information can

help banks and policymakers better understand the factors influencing customer acceptance of e-banking and develop strategies to encourage its adoption.

5.3 Conclusion

The research results showed that the banking division in Commercial Bank of Ethiopia is enthusiastic about adopting e-banking service as an optional service delivery channel by identifying its main barriers and drivers. The e-banking service represents an opportunity for rapid growth at lower costs by leveraging the constant investment of marketing agents through ICT implementation.

E-banking is not well accepted by Commercial Bank of Ethiopia clients due to low level of client awareness, low level of ICT structure, lack of customer trust, lack of government support and awareness of technology, and customer suffering in using technology that keeps customers. To introduce an electronic banking service. Improvements are needed to increase client confidence in the system. Another challenge in implementing electronic banking in the country is also the lack of competition from foreign banks. Predominant technical and managerial skills available in commercial bank to adopt e-banking, company culture, resistance to change, high level of illiteracy originate in the limitation to affect the rate of technology adoption.

In general, it can be stated that the implications of the study highlight the factors causing the adoption of electronic banking in Commercial Bank of Ethiopia. The barriers identified in this study to the introduction of e-banking services can help guide the best alternative course of action to improve its development. It will also be well regarded by increasing awareness and responsiveness to the system.

5.4 Recommendations

Based on the above conclusion, the researcher recommends the following views to help Commercial Bank of Ethiopia minimize the factors that face the adoption of e-banking service; With the limited and poor quality of ICT infrastructure, the adoption and practice of e-banking cannot work well, so the government must support banking by investing in the development of ICT infrastructure, providing necessary infrastructure such as electricity and telecommunication services, especially in rural areas of the country.

Banks and stakeholders should engage in continuous research activities to identify customer needs for further development of e-banking services.
Some e-banking customers mostly use manual banking. Therefore, the representative body should work on creating awareness and solving the problems of frequent ATM malfunctions to build consumer confidence in the adoption of e-banking.

Because awareness, e-banking device disruption, trust in the system and organization have factors that positively affect customer comfort in e-banking, Commercial Bank of Ethiopia management and service provider personnel should pay special attention to these dimensions to increase the comfort level of their customers. The bank should continue its efforts to educate and inform customers about the benefits, features, and limitations of e-banking services through various communication channels, such as mass media, in-branch presentations, and targeted awareness campaigns.

The study shows that the majority of the bank's e-banking customers are men. This is unfair, especially in a country where feminist groups are fighting for women's empowerment. It is therefore recommended that the management take note of this phenomenon and bring it back to at least create some gender balance in their future ministry. The bank should consider implementing initiatives to encourage and support the participation of female customers to improve gender diversity and ensure equal access to banking services.

5.5 Direction for further research section

There are several directions for future research that can further contribute to our understanding of the adoption of electronic banking. These directions include:
Investigating the impact of educational programs and campaigns on increasing awareness of e-banking: Future research can focus on studying the effectiveness of educational initiatives in increasing awareness and understanding of e-banking services among customers. This can help banks and policymakers design more targeted and effective awareness programs to promote e-banking adoption.
Exploring the role of technology infrastructure in e-banking adoption: Further research can delve into the influence of technology infrastructure, such as network connectivity and internet speed, on the adoption of e-banking. Understanding the impact of infrastructure on customer experience

and satisfaction can guide banks in making necessary improvements to enhance the usability and reliability of e-banking systems.

Investigating the factors influencing trust in e-banking: Trust is a crucial factor in the adoption of e-banking. Future research can focus on exploring the specific factors that contribute to building trust in e-banking services, such as data security measures, customer support, and transparency in banking operations. This can help banks identify areas for improvement and develop strategies to build and maintain trust among their customers.

Examining the impact of demographic factors on e-banking adoption: Further research can delve deeper into the influence of demographic factors, such as age, gender, and income level, on the adoption of e-banking. Understanding how these factors interact with each other and affect customer behavior can assist banks in tailoring their services to different customer segments and addressing any barriers specific to certain demographics.

Exploring the impact of organizational factors on e-banking adoption: Future research can investigate the role of organizational factors, such as company culture, resistance to change, and employee training, in influencing the adoption of e-banking. Understanding the internal dynamics and challenges faced by banks can guide them in implementing effective strategies to drive e-banking adoption.

By focusing on these directions for future research, we can continue to enhance our understanding of the factors affecting the adoption of electronic banking and develop targeted strategies to promote its widespread adoption among customers.

What would you like to do next?

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Appendix. A

St.Mary university

School of Business and Economics

Department of Master of Accounting and Finance

Questionnaire on Factors Affecting Adoption of E-banking

Dear Respondents,

This questionnaire is designed to gather information about factors affecting the adoption of e-banking services. All responses was used to conduct a study for the partial fulfillment of the requirements for the Degree of Master of Accounting and Finance. I would like to assure you that your confidentiality is guaranteed as I do not ask for your name here, and your responses was used only for research purposes. Additionally, this survey should only take a few minutes of your time. I am grateful for your cooperation in advance.

Sincerely,

Addisalem Sisay
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Email: addissisay97@gmail.com

General Instructions

Part I: General Information

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

1. **Gender of the respondent:**
   - [ ] Male
   - [ ] Female

2. **Age of the respondent:**
   - [ ] 20-30 years
   - [ ] 31-40 years
   - [ ] 41-50 years
   - [ ] 51-60 years
   - [ ] Above 60 years

3. **Educational level of the respondent:**
   - [ ] Primary school
   - [ ] Secondary school
   - [ ] Diploma holder
   - [ ] First degree holder
   - [ ] Master’s degree
   - [ ] Above Master's

4. **Main occupation of the respondent:**
   - [ ] Government Employee
   - [ ] Private Employee
   - [ ] Private Business
   - [ ] Student
   - [ ] Other: _____

5. **Monthly income of the respondent (in Ethiopian Birr):**
   - [ ] Less than 2000 Birr
   - [ ] 2001-3000 Birr
   - [ ] 3000-4000 Birr
   - [ ] 4000-5000 Birr

- [ ] Above 5000 Birr

Part II: Factors affecting adoption of e- banking in Commercial Bank of Ethiopia.

Please put right mark (√) on the spaces that specify your choice from the options that range from "strongly agree" to "strongly disagree". Each choice is identified by numbers ranging from 1 to 5. 4 Strongly Disagree (**SD**) 4-Disagree (**D**) **3**- Neutral (**N**) **2**- Agree (**A**) **1**- Strongly Agree (**SA**)

	Awareness of e-banking	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	The bank advertises and teaches the customers to use e-banking through mass media					
2	I got informed about the service of e-banking outside the Bank					
3	I have informed about the allowed transaction limit using e-banking channels					
4	I have informed about the risks may face when using e-banking service					
5	I have informed about the service fees and charges when using e-banking service					
	Interruption of E-banking Equipment's	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	No other systems which substitute ATM facilities for customers when temporary problem happen in the Machine.					
2	Absence of sufficient technicians in all banks who solve breakdown of ATM machine					
3	My bank has acceptable ICT infrastructure to conduct e-Banking					
4	When there is an ATM breakdown my bank handles the Problem faster.					
5	ATM usage in my bank branch has led to timely and effective withdrawal of cash					
6	Slow internet connection reduces the acceptance rate of E- Banking services.					
7	Because of connection problem sometimes there is a Difficulty to confirm transaction takes place or not.					

	Trust	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	Customers have great degree of belief on the bank and are satisfied with safety of electronic banking facility delivered by the Bank.					
2	I trust in the safety of online money transfer.					
3	I am bothered to custom Electronic banking facility because other people might be capable to access my Account					
4	I am not believed that trustworthy information is transported securely from banks to clients					
	Demographic Factors	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	Male customers of the bank more exercise the E-banking services than female customers.					
2	A high amounts of illiteracy upset the informal practice of E-banking.					
3	Young clients of the bank consume e- banking facilities than old clients.					
4	Clients level of literacy weight the adoption of e-Banking					
5	Customers those have more income use e-banking service than customers who have low income					
	Organizational Factors	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	Applying technological innovation needs large investment budget.					
2	Banks need experienced human resource in order to appliance e- banking.					
3	Banks need experienced IT staffs‟ in performing technological innovation.					
4	Technical and managerial abilities of personnel on using technological innovation have effect on adoption e-Banking					
5	Inaccessibility of experienced and capable employee in related with e-banking is the trial for banks to exercise e-banking					
	Adoption of e-banking	**SA (1)**	**A (2)**	**N (3)**	**D (4)**	**SD (5)**
1	There is a great possibility of using e-banking in my near future.					
2	Using the electronic banking system enables me to accomplish banking activities more quickly.					
3	I will strongly recommend others to use the electronic banking scheme					