ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

OFFICE OF GRADUATE STUDIES PROGRAM

FACTORS AFFECTING THE ADOPTION OF FINANCIAL TECHNOLOGIES IN THE BANKING INDUSTRY OF ETHIOPIA

BY

AKALU ATLAW

Thesis Submitted to Addis Ababa University School of Commerce Graduate Program in Partial Fulfilment of the Requirements for the Master of Science (MSc) in Corporate Finance Specialization in Investment Management**.**

JUNE 2025

ADDIS ABABA, ETHIOPIA

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Berhanu Beza (PhD)

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DECLARATION

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

Declared by:	**Confirmed by Adviser**
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Place and date of submission: Addis Ababa University, School of Commerce, June 2025

ENDORSEMENT

This thesis has been submitted to Addis Ababa University, School of Commerce, Corporate Finance Specialization in Investment Management, Postgraduate Program Unit, for examination with my approval as a university advisor.

_____ _____

Advisor Signature & Date

Contents

ACKNOWLEDGMENTS

First and foremost, I would like to thank God for granting me the strength, wisdom, and perseverance to successfully carry out this project. I am deeply grateful to my advisor, Dr. Berhanu Beza, for his invaluable guidance and support throughout the course of this study. His exceptional patience, dedication, and generosity with his time were instrumental in helping me conceptualize, refine, and develop the project. His mentorship has been both inspiring and essential.

I would also like to express my heartfelt appreciation to my beloved spouse, W/ro Frehiwot Gebretsadik, for her unwavering moral support and understanding. Special thanks go to my children, Blen, Danawit, and Eyosias, whose love and encouragement have been a constant source of motivation.

Last but not least, I extend my sincere gratitude to all the respondents from all the Commercial Banks who took part in this study. Their willingness to participate and provide valuable data was crucial to the completion of this research.

List of Tables

List of Figures

Abstract

The objective of this study is to identify the factors that influence the adoption of financial technologies in commercial banks in Ethiopia. The research has considered five major factors as explanatory variables of the adoption of financial technologies. These explanatory variables are perceived usefulness, security risk consideration, performance expectancy, facilitating condition, and financial technology regulations. As there has not been sufficient research conducted on the topic of the study in Ethiopian financial institutions in general and in commercial banks in particular, the researcher has conducted the study. A quantitative research approach was followed to determine the factors that affect technology adoption in commercial banks. Specifically, an explanatory design was employed to address the objectives of the study, and the timeframe of the study covers examining existing situations using cross-sectional data. Pertinent and adequate data were extracted from both primary and secondary data sources. Since the number of the target population was small, census methods were followed to collect data. The study has considered all of the 31 commercial banks, and pertinent data were gathered accordingly from all respondents. Questionnaire and document analysis techniques have been used to solicit information from respondents and documents. Both descriptive and inferential statistical analyses were used to analyze the data. SPSS version 27 software was used to conduct the statistical tests. The results of the research indicate that all of the explanatory variables considered in the model have a significant positive effect on the adoption of financial technologies in commercial banks in Ethiopia. The effect analysis shows that the model summary of the regression analysis has significant explanatory power with R square and adjusted R square of .926 *and* .911*, respectively. The ANOVA test result of the study indicates that the model is fit to determine the cause-effect association relationship between the explanatory variables and the dependent variable. Specifically, perceived usefulness of the technology had the highest significant effects, while perceived security risk consideration had the least significant effect on the adoption of financial technologies. Finally, the study recommends that commercial banks be required to conduct an adequate assessment of the potential security risk of technologies before adopting the technology. Commercial banks are required to provide adequate and timely training for their employees about financial technologies and their use. Financial regulations are also expected to further improve the adoption of financial technologies in the banking industry.*

Key Terms: Commercial banks, Facilitating condition, Perceived usefulness, Performance expectancy, Security risk, financial regulation, and financial technology

CHAPTER ONE
1. INTRODUCTION

1.1 Background of the Study

Technological creativity and innovation keep shaping the global context, transcending our socio-cultural and politico-economic environments as we recognize and acknowledge the changes in our lives (Deb & Agrawal, 2017). Information communication technologies coupled with the dynamic knowledge of computer science have a far-reaching impact in the current business environment and their application in business organizations have substantially expanded in scope and depth. Beginning from 1980s, organizations began to invest more than fifty percent of their capital in the science of information technology (Patel & Connolly, 2007). In this, one of the core areas that business firms invest their capital is the financial technology which has been an essential transformative tool in the science and technology trend of world. It is also the major goal of new technology applications to harvest the numerous business opportunities (Sa'diyah, 2021). According to the literature on the financial industry (Abed, 2020, and Bagwell & Kellerman, 2023), the emergence of financial technologies brought rapid transformation in the growth of electronic commerce in the world of business transactions.

Financial technology involves the application of modern technological facilities and systems in the delivery of innumerable financial services (Hu, Ding, Li Chen & Yang, 2019). It involves the applications of modern financial technologies, including internet, mobile technologies, big data science, and cloud computing and other technologies to improve the organizational efficiencies, quality of services and, and improving customers' experience and improve the accessibility of financial services. Financial technology firms are resourceful commercial intermediaries that utilize recent scientific developments to aid innovative commercial models, changes to business processes, and the delivery of improved financial services to their clients.

In the literature, it is recorded that financial technologies initially appeared in the late 1980s, and in the beginning of 1990s, along with the rapid development of the internet/which revolutionized the way business communication takes place in every dimension of business transactions. In this,

the emergency of internet has been one of the key determinants of the development of financial industries in general and financial technologies in particular (Firmansyah, Masri, Anshari & Besar, 2022)

According to Firmansyah et al. (2022), the emergency of financial technology is considered as the major transformation in the landscape of the financial industry, determined by technological innovations and global financial operations. It is commonly understood that the adoption of financial technologies is a concept commonly utilized to show the level in which a business company or firm decides to use the financial technologies for its purposes (Carr, 2008). Similarly, Dawood, Yoong, & Rajan, (2023) state that for modern learning organizations, the adoption of financial technologies is considered the foundation of business success. This indicates that the use of financial technologies in business firms has improved organizational performance remarkably. In addition, the wider application of these technologies in the financial sector has challenged the traditional and old-fashioned financial services set-up.

The application of financial technologies supports transparent, efficient, and customer-friendly financial services, which brings cost-effectiveness for service providers. Above and beyond, the rapid evolution of financial technologies has certainly transformed the financial landscape by perplexing the existing financial services providers, such as commercial banks, insurance companies, and other financial organizations that operate in the financial markets (Firmansyah et al., 2022). It is stated in Atnkut (2018) that one of the reasonable benefits of adopting financial technologies for the banking sector is that it smooths the provision of financial services, makes prompt decisions, promotes user-friendly resources, improves organizational performance as planned, and helps to augment the overall sustainable development of the sector. To provide efficient and effective services and achieve their predetermined goals and objectives, banks currently use the latest financial technologies.

The financial industry is rapidly going through technological shifts that promote operational efficiency and service quality, and customer experience. Financial technologies have significantly altered the manner financial institutions, including commercial banks, perform and serve customers. In this, commercial banks have started to invest huge resources in financial technologies to drive value-adding technologies in the promotion of quality goods and services,

and survive in the global banking competition, improve service quality, and minimize transaction costs (Getnet & Sharma, 2023). Currently, the use of the latest financial technologies is becoming the new normal. In this, several studies indicate that innovative and state-of-the-art technologies are altering the financial services are being delivered. Appreciating such development, a number of countries have adopted and contextualized their national legal frameworks to promote the establishment of companies operating in areas of financial technologies: from small startup to big companies (Tnsue, 2022). In this, financial technologies have attracted both financial institutions that provide financial services and technology users as such technologies improve organizational efficiency and users experience. The PWC Report (2017), for instance, recommends that financial technologies made the fast and easy delivery of financial services possible while ensuring high personalization and flexibility. This, in turn, guarantees the best accessibility, efficiency, and profitability of commercial banks.

About the growing financial technology ecosystem, business models, and practices, consideration of the determinants of financial technology adoption in the existing body of knowledge remains crucial, primarily to appraise and indicate the motivation of commercial banks in selecting and using financial technologies (Firmansyah et al., 2022). Accordingly, various research works (Oliveira & Martins, 2011; AlBar & Hoque, 2019; Park & Kim, 2021; Abed, 2020; Bagwell & Kellerman, 2023 and others) show that various factors influence the acceptance of financial technologies in the banking sector. For instance, Oliveira & Martins, (2011) identified three major factors that affects the adoption of financial technologies in the banking industry. These factors are the nature of the technology itself, the nature of the company, and the environment of the company. Albar and Hoque (2019), investigated the acceptability rate of cloud Enterprise Resource Planning (ERP) in high-tech settings, considering the factors that includes effort expectancy, usefulness, competitive advantage, relative advantages, compatibility and complexity of the technologies. On the other hand, Park & Kim (2021) examined the adoption of social commerce focusing on the factors of perceived usefulness, security risk of the technology. Similarly, Abed (2020) investigated the factors that influence the adoption of technologies which includes perceived advantage, usefulness of the system, performance, risk

security and privacy of the technologies. This shows that several factors influence financial technology adoption in the banking sector.

Taking this background into consideration, this research work studied the factors that influence adoption of financial technologies in the Ethiopian banking sector focusing on commercial banks in Ethiopia. These banks adopted financial technologies to modernize their service delivery and efficiency. Hence, the study focuses on all Commercial Banks. In doing this, the study, based on the existing body of literature, considered security risk analysis, perceived usefulness, government regulations, performance expectancy, and facilitation conditioning as the determinants of the adoption of financial technologies in commercial banks.

1.2 Statement of the Problem

The financial sector is highly sensitive to technological dynamics. In several context, including Ethiopia, banks provide various financial services using financial technologies. However, the adoption of financial technologies for the provision of financial services in developing nations like Ethiopia is yet at an infant level (Wondwossen & Sharma, 2019). This can be attributed to various reasons which influence the extent of adoption of such technologies. A number of factors influence the adoption of financial technologies in banking industry which, includes performance expectancy, financial technology regulations, and security of the technology, facilitation conditions, and perceived usefulness (Venkatesh et al., 2003 and Davis, 1989). While there are numerous studies conducted to identify the determinants of the adoption of financial technologies at the global level, there are various inconsistencies and contradictions in the findings of such studies (Sa'diyah, 2021). This attracts and justifies the need for further inquiry into the nature of the issue. Moreover, different research results show that there is an inconsistency of findings in terms of how the factors considered in this study: security risk of the technology (Getenet & Sharma, 2023), usefulness (Wondwossen & Sharma, 2019), effort expectancy (Tnsue, 2022), performance expectancy and facilitation conditioning (Abad-Segura, González-Zamar, López-Meneses, & Vázquez-Cano (2020) affects financial technologies adoption in the commercial banks. Such inconsistencies in the results of studies thus require reconciliatory investigations.

In Ethiopian context, despite the focus that the government has provided to expand integration of financial technologies into the functionality of commercial banks, the integration of financial technologies in the banking industry of the country is lagging. The government had been endorsing various regulatory frameworks to further expand the acceptance and application of financial technologies in the country. Various studies at global and regional levels attribute such gaps to the different determinants that influence the adoption process of the technologies (Bagwell & Kellerman, 2023 & Firmansyah et al., 2022). However, in the Ethiopian context, there is a lack of adequate scientific works that have investigated the factors that affect financial technology adoption in the banking sector of the country.

So far, small number of studies were conducted to assess and examine the adoption of financial technologies in the Ethiopian context. For instance, Tnsue (2022) studied the user's intention toward digital financial service adoption in Ethiopia focusing on customers' perspective. This study assessed the adoption process merely by focusing on customers' viewpoints and did not consider the bank's perspectives. Similarly, Wondwossen & Sharma, (2019) examined the adoption of financial technologies and electronic financial services in Ethiopia based on the analysis of selected customers of the commercial banks. In the same manner, Yemisrach**,** (2018) assessed the customers' ability of e-banking adoption in Ethiopia. Both these studies, similar to the above researchers, focused on the perspectives of customers in adopting financial technologies focusing on e-banking services. Atnkut,(2018) has investigated the factors influencing the application of electronic banking in the banking industry of Ethiopia focusing on five commercial banks. This study has solely focused on electronic banking and did not consider the determinants of the adoption of financial technologies in the context of commercial banks. In addition, Atnkut's investigation has focused on customers' perspectives. This shows that little is known about the factors that affect the adoption of financial technologies focusing on the perspectives of the banks. Thus, up to the knowledge of the researcher is concerned, studying the factors that affect the adoption of financial technologies in commercial banks requires scientific inquiries.

1.3 Research Questions

The leading questions of the study are:

1. How does perceived usefulness affect the adoption of financial technology in the Commercial Banks found in Ethiopia?
2. How do financial technology regulations affect the adoption of financial technologies in the banks?
3. What is the influence of the security risk analysis of the technology on the extent of the adoption of financial technologies in the banks?
4. How does performance expectancy of the technology affect the acceptability of financial technology in such commercial banks?
5. What is the perceived effects of facilitation conditioning of the technology on the adoption of such technologies in commercial banks?

1.4 Objectives of the Study

The following are the general and specific objectives of the study

1.4.1 General Objective of the Study

The study aims to examine the factors that determine the adoption of financial technologies in the banking sector of Ethiopia by focusing on all the commercial banks found in the country.

1.4.2 Specific Objectives of the Study

The specific objectives of the study are:

1. To analyze the effect of the perceived usefulness of the technology on financial technology adoption in the Commercial Banks found in Ethiopia
2. To examine the influence of government financial regulations on the adoption of financial technologies in commercial banks.
3. To analyze the effect of security risk analysis on the extent of financial technology adoption in commercial banks.
4. To evaluate how far the performance expectancy of the technology affects the adoption of such financial technologies in the banks.

5. To examine the perceived effects of facilitation conditioning on financial technology adoption in commercial banks.

1.5 Significance of the Study

The results study has different significance to various concerned bodies. Primarily, the findings may serve as an input to improve the manner financial technologies can be applied and integrated with the banking system to improve service delivery and efficiency. Hence, the management of the banks involved in the study, who are leading the technology adoption team may use the findings as well as the recommendations of this study to improve the manner the banks adopt financial technologies.

In addition, other banks operating in the financial industry of the country may get important notes from the results of the research in improving the manner they adopt financial technologies. The findings of the study will also add important remarks on the existing body of knowledge about the determinants of financial technology adoption in the context of emerging states like Ethiopia where such knowledge is scarce.

Other researchers interested in the study of technology adoptions in general and financial technologies, in particular, will take advantage from the results of the study. Interested researchers can use the results and insights of the study as input to further the scientific body of knowledge as well as practical information available on the theme of the study. The researcher of this study also benefits from the study as it provides the researcher with an opportunity to develop the skills of doing research and expand his knowledge on the emerging financial technologies applicable in the banking industry.

1.6 Scope of the Study

The research has examined the factors affecting financial technology adoption in the banking industry of Ethiopia, focusing on commercial banks found in the country. Accordingly, the study is delimited into the following five major aspects. Concerning the title, the research is delimited to the examination of factors affecting financial technology adoption. It just focuses on analyzing

the key determinants of the adoption of financial technologies, as the majority of the banks in Ethiopia are in the phase of adopting such technologies. In terms of geographic coverage, the study focused on all of the commercial banks found in the state. Based on the National Bank Report (2024), currently, there are 31 functional commercial banks in the country. Hence, all of the commercial banks registered and operating in the banking industry are included in the research. Hence, the target population of the study involves all commercial banks found in the country.

Methodologically, the research applies an explanatory design based on the quantitative framework. The time frame of the study covers examining existing situations using cross-sectional data. Finally, in terms of variables considered in the research, the study focused on usefulness, security risk, performance expectancy, facilitation conditioning and regulation of financial technologies. The study focused on these five factors as variables of the study since existing research works have already studied other variable that affects financial technology adoption in the country.

1.7 Definition of Key Terms

The study has the following key terms and their definition

Financial technology connotes the use of modern information communication technologies in the provision of financial services to customers and improvements of the efficacy of organizational management (Hu et al., 2019);

Perceived usefulness is the degree to which an organization trusts that using a set of financial technologies would improve its organizational performance (Chawla & Joshi, 2019).

When Ethiopian banks or customers believe that FinTech improves service quality or access to financial services, they are more likely to adopt it. This is evident in the increasing usage of mobile banking in urban centers.

Security risk analysis refers to the extent to which an organization considers that the technology system is secure enough to transmit sensitive and confidential information (Merhi, Hone, & Tarhini, 2019).

Security concerns, such as data breaches or fraud, significantly influence adoption. In Ethiopia, trust in digital platforms is low, particularly among older users and people in rural areas. Strong cybersecurity measures and awareness campaigns are needed to build confidence.

Financial technology regulations refer to the financial technology regulations that includes the regulations, directives, and proclamations that dictate the adoption of financial technologies in the financial institutions, including commercial banks, financial security companies and insurance companies (Labonte, 2023). These instruments regulate the adoption of financial technologies using licensing, registration, rulemaking, supervisory, enforcement, and resolution powers.

Financial Technology regulation plays a crucial role. In Ethiopia, regulatory reform is ongoing, but gaps in legal frameworks, data protection laws, and licensing policies for fintech startups still exist. Effective regulation will either accelerate or hinder FinTech adoption.

Facilitating condition refers to the extent that an organization believes that the use of the technology is being aided by structural and technical infrastructure of the organization (Sharma, Singh, & Sharma, 2020).

Adequate infrastructure (e.g., telecom networks), technical support, and digital literacy programs are vital. In Ethiopia, the lack of nationwide internet and electricity coverage hampers widespread adoption, especially in rural areas.

Expected performance is the perception of technology users on how well a technology would support them to conduct organizational activities and achieve goals and objectives (Venkatesh, Thong & Xu, 2012). Similarly, Amnas, Selvam & Kathiravan (2023), defined the concept as the degree to which users trust that utilizing a financial technology would enhance the organizational performance and make the implementation of activities easier or more efficient.

1.8 Limitations of the study

The research focused on the analysis of the adoption of financial technologies in commercial banks, where every aspect of the bank's operation is kept confidential. Hence, getting the consent of respondents in the data gathering phase was very challenging. The research has attempted to overcome such limitations by using professional data collectors trained for similar purposes and who convinced respondents to collect data properly and accurately.

1.9 Organization of the Study

This thesis consists of five chapters. Accordingly, chapter one of the study presents the introductory issues of the chapter. The chapter constitutes the background, the statement and objectives of the study and others. The second chapter presents a review of existing body of literature on the theme of the study. It has three sub-sections: theoretical, empirical, and conceptual frameworks of the study. The third chapter discusses the research methodology and design of the study while the fourth chapter will show the data presentation, analysis, and discussion of the results of the study. The final chapter summarizes the key results of the study and provides the conclusions and recommendations drawn based on the results of the research. A list of references is also part of the thesis.

CHAPTER TWO
2.REVIEW OF RELATED LITERATURE

2.1. Introduction

With an emphasis on the banking sector, the chapter provides an overview of the body of research on the variables influencing the adoption of financial innovations. It makes an effort to develop the study's theoretical, empirical, and conceptual frameworks in accordance with the body of existing literature. The introduction, review of the theoretical literature, review of the empirical literature, and conceptual framework comprise the four sections of this chapter. While the review of empirical literature demonstrates the review of existing studies on the subject of financial technology adoption and aims to clarify the study's research gaps, the theoretical literature will demonstrate the theoretical foundations of the investigation into financial technologies and their adoption. Finally, the conceptual framework of the study will be constructed based on the review of both theoretical and empirical literature. The conceptual framework depicts the cause-and-effect relationship between the explanatory and dependent variables.

2.2 Review of Theoretical Literature

2.2.1 Concept of Financial Technologies

Many companies, including the financial services sector, can expand more successfully and efficiently because of the sophisticated advancements in technology. In today's business world, technology-based creativity and innovation in financial services delivery is termed as financial technology. Financial Technology, "*which integrates finance and technology in its processes, has been highly sought after in the banking industry*" (Demekas, 2019, p: 12). Nowadays, nearly all financial service providers and electronic commerce organizations use digital media to provide services to their customers. The support of information technology (IT) and favorable regulations have led to the exponential growth of financial technologies. Nowadays, technology, business models, talent, capital, and consumers are joined together to cause fundamental financial technology changes (Knight & Khan, 2022). E-payments are one of the most sought-

after financial technology services. The term "e-banking" refers to the rapid and simple access to banking services provided by e-payment-based financial technology (Bagwell, 2023).

According to Firmansyah et al. (2022), financial technology is the use of technology to deliver a range of financial services. According to Baba, Haq, Dawood, and Aashish (2023), the Financial Stability Board also defined financial technology as "*any technology-enabled financial innovation resulting in new business models, applications, processes, or products, affecting financial markets and institutions and provisioning financial services*." The phrase "financial technology" describes the use of technology to deliver financial services (Anyfantaki, 2016).

As technology advances, financial technology is the consequence of combining information and financial technologies. The financial sector makes substantial use of digital technology, also referred to as financial technology, which includes big data, cloud computing, mobile money, mobile banking, online banking, smart investment advice, and a blockchain core. It provides additional financial service points that increase the effectiveness of transactional payment schemes. The financial services industry is changing from traditional financial services to innovative financial technology-based products. Consequently, it provides a greater range of financial services, from created products to pre-existing services and marketplaces (Hoang, Nguyen, Tran, Nguyen, & Vu, 2021). Generally speaking, technology is essential to modern enterprises' success. Technology, particularly financial technology, has successfully improved the overall performance of businesses in general and financial companies, including banks (Bagwell, 2023), in addition to upending the established financial services system (McWaters, 2020).

Globally, FinTech refers to the integration of finance and technology to deliver financial services more efficiently. With innovations such as mobile banking, e-payments, blockchain, and AI, FinTech has revolutionized how individuals and institutions access, manage, and use financial services.

In Ethiopia, this digital transformation is still at an emerging stage. However, the implementation of mobile money platforms like Telebirr, rising internet penetration, and progressive government reforms (e.g., National Digital Payments Strategy) are fostering an environment conducive to

FinTech growth. Commercial banks and fintech companies are beginning to leverage these technologies to reach the unbanked population and improve service delivery.

2.2.2. Characteristics of Financial Technologies

Financial technology is the process that makes companies rely primarily on the application of emerging technologies to conduct core processes and functions provided by financial services. This process and application of technology in financial service delivery affects the manner users and customers store, save, borrow, invest, move, pay, and protect money (Firmansyah et al., 2022). The majority of financial technologies emerged in 2000 and entered the financial industry in 2010 (Knight & Khan, 2022). However, the adoption of such financial technologies shows greater variation across economies. Financial technologies make it not only possible but also easy to move money between accounts, people, countries, and organizations across the globe. Financial technology companies have different natures, ranging from start-ups, growth companies, banks, nonbank financial institutions, and even cross-sector companies (Knight & Khan, 2022).

Nowadays, financial technology disruptions have spread to all sections of the financial industry, including those that were previously thought to be secure from online attacks (Anyfantaki, 2016). In the financial sector, banks have jumped at the chance to create their own digital products and services that are informed by financial technology in reaction to the rapid expansion of these technologies. The rivalry for customer deposits and balances is probably going to get fiercer in the future. Here, the term "financial technology" refers to new and developing technologies that aim to enhance and automate the delivery and usage of financial services. Financial technology is primarily used to help businesses, organizations, investors, users, and consumers better manage their financial operations, procedures, and choices (Bagwell, 2023).

Financial technology is considered by users to be an emerging advancement that aids the business world's efficiency. Its rapid emergence over the past ten years is mostly attributable to advancements in science and technology in general, which are currently being applied to the

banking industry (Arner, Buckley, Zetzsche, & Veidt, 2020). Financial institutions including banks have attempted to incorporate emerging financial technology in financial service delivery and maintain efficiency. There is a wide range of technologies supporting financial technology business models. In addition to digital banking, mobile money, internet banking, and automated teller machines, the latest developments in financial technology have introduced blockchain technology, artificial intelligence, machine learning, and other big data functions (McWaters, 2020). Every use case is different, but the general idea is a group effort to break down the financial services industry, which has traditionally had a highly protected status because of extensive regulation.

FinTech solutions offer fast, secure, and cost-effective ways to transfer, store, borrow, invest, and manage money. They are often driven by startups, banks, and tech firms. Their rapid rise globally has prompted traditional banks to create digital products to remain competitive.

In Ethiopia, FinTech characteristics are seen in mobile wallets, agent banking, and online banking services. However, adoption remains limited by infrastructure, digital literacy, and trust issues. Banks like Commercial Bank of Ethiopia (CBE) are investing in digital platforms to enhance user experience and service efficiency.

2.2.3 Theories of Adoption of Financial Technologies

There are various theories on the adoption of financial technologies in the financial sector. Among these theories, the most prominent are the theory of reasoned action, the Technology acceptance model, and the Unified theory of acceptance and use of technology/UTAUT/ (Venkatesh, Morris, Davis, & Davis, 2003). The following section provides a summary of these theories and a specific model that the study adopts.

1. Theory of Reasoned Action

Fishbein and Ajzen (1975) developed the theory of reasoned action (TRA), which was later refined by Ajzen and Fishbein. Its primary focus was on consumers' rationality in embracing new technology. The reasoned action theory states that a user's intention to perform or not

determines their behavior. The user's intention is influenced by their attitude toward the issue at hand as well as subjective norms. According to Fishbein and Ajzen (1975, p. 3), attitude is "*a person's favorable or unfavorable evaluation of an object*." Whereas, subjective norm was defined as "*the person's perception that most people who are important to him think that he should or should not perform the behavior in question*"; therefore, the subjective norm of an individual is determined by his expectation to comply with referent group perception (Fishbein and Ajzen, 1975, p 5).

The TRA has been validated by numerous empirical studies due to its ability to accurately assess the variables that affect a person's real behavior while embracing new technologies (Otieno, Liyala, Odongo & Abeka, 2016). However, this approach was critiqued for failing to define the claim that influences a person's attitude to act in a certain way (Davis, 1989). The idea was criticized by other academics for failing to distinguish between subjective norms and attitudes.

In a similar vein, the theory of reasoned action was also attacked for failing to accurately forecast whether an individual would act or not in a given circumstance. Sheppard, Hartwick, and Warshaw (1988) added that the distinction between behavioral intention and goal intention was not made clear by the TRA theory. The theory's proponents created a new theory called the Theory of Planned Behavior (TPB) (Ajzen, 1991) in response to criticism of TRA theory. This theory included perceived behavioral control as an additional component influencing intention. But academics also pointed the finger at it (Sniehotta, Presseau, & Araújo-Soares, 2014).

This theory posits that individuals' behavior is shaped by their intentions, which in turn are influenced by attitudes and subjective norms. In Ethiopia, cultural influences, peer pressure, and public perception significantly affect how customers and institutions adopt FinTech.

2. Technology Acceptance Model

After the theory of TRA was highly criticized by different scholars and researchers, a new model called the Technology Acceptance Model (TAM) was developed in 1989 (Venkatesh, Morris, Davis, & Davis, 2003). Davis (1989), was the one who formulated the theory. His model consisted of two major variables named 'perceived ease of use' and 'perceived usefulness' but primarily Davis developed the theory based on the assumption of TRA of (Ajzen and Fishbein,

1975). The technology acceptance model states that a user's intention to accept or reject an information technology system influences his or her actual behavior. However, both perceived usefulness and simplicity of use have a major impact on users' intentions (Davis, 1989). The latter was described as users' opinion that technology would increase their effectiveness if they employed it, and perceived ease of use was defined as users' belief that technology is easy to use (Davis, 1989). Therefore, a technology user would be positively motivated to accept a technology if they believe it is helpful for completing the work and manageable.

Later, Venkatesh and Davis (2000) expanded on this theory by adding the concepts of "social influence processes" and "cognitive instrumental processes." Similarly, after eight years of validating the model, it was extended to TAM3 by considering the adoption of technology in the environment of managerial intervention (Venkatesh and Bala, 2008). The TAM was confirmed by many authors empirically as it can strongly explain the intention of an individual either to accept or not to accept technology. However, TAM was blamed for its failure to clearly state external factors, the model did not consider the effect of social factors (subjective norm) but many authors confessed that subjective norm was an important factor that influences users' intention (Venkatesh and Davis, 2000). Others have criticized the idea for failing to include important factors that are known to have a substantial impact on users' intents when it comes to embracing technology, such as perceived risk, consumer awareness, and perceived trust.

Despite the critics against the model, numerous research works support the application of TAM for investigating the factors that determine the adoption of technology in companies (Olumide, 2016). Similarly, Keskar & Pandey (2018) argue that the Technology Acceptance Model is applicable to measure the adoption of banking technologies in the service delivery of the banking industry.

TAM highlights *perceived usefulness* and *ease of use* as key drivers of technology adoption. In Ethiopia, mobile banking uptake often depends on whether users find the apps simple and useful a challenge given low digital literacy in rural areas.

3. Unified Theory of Acceptance and Use of Technology (UTAUT)

According to the UTAUT theory, people's behavioral intentions dictate how they actually use technology. Four important factors—performance expectancy, effort expectancy, social influence, and facilitating conditions—have a direct impact on the likelihood of adopting the technology Venkatesh, Morris, Davis, & Davis, (2003) The model is an accepted conceptual framework by Venkatesh, Morris, Davis, & Davis, (2003) to comprehend and forecast how people would adopt technology. The theory takes into account a number of elements that affect a person's intention to use technology as well as their actual use of it, and it merges other previous models of technology acceptance. These elements were thought to be crucial in assessing the degree of technological adoption.

Venkatesh et al. (2012) introduced UTAUT2, which expands on the UTAUT model by include a number of new components, including price value, habit, and hedonic motivation. The purpose of these extra variables is to offer a more thorough knowledge of technology adoption. In the domains of information systems, human-computer interaction, and technology adoption research, it has been extensively embraced and expanded. According to the UTAUT2 model, these elements affect users' behavioral intentions, which in turn affect how they actually use the product.

Furthermore, according to the idea that resurfaced in 2012, moderating factors like age, gender, and experience might influence the strength of the connections between an individual's behavior and the degree of technology adoption (Olumide, 2016). The UTAUT model is typically used by researchers and practitioners to assess and forecast technology adoption in a variety of situations, such as the uptake of information systems, mobile apps, and financial technology services (Olumide, 2016).

In this context, this proposed research is conducted based on the assumption of both technology acceptance theory and UTAUT theoretical framework as its theoretical perspectives because these models offer holistic and more thoroughness and suitability for identifying the elements that contribute to the actual adoption and use of financial technology in Ethiopia's financial sector in general and in commercial banks particular.

UTAUT builds on TAM and includes factors like *performance expectancy*, *social influence*, and *facilitating conditions*. These variables are particularly relevant in Ethiopia, where social networks, organizational infrastructure, and government support strongly affect FinTech usage.

2.2.4 Factors Affecting the Adoption of Financial Technologies

2.2.4.1 Perceived Usefulness and Adoption of Financial Technology

The Technology Acceptance Model argues that the technology user's intention is mainly influenced by perceived usefulness (Davis, 1989). Perceived usefulness is the fundamental variable that is used in the analysis of TAM to show how the users' intention is influenced to adopt the technology. Accordingly, the model states that if the user perceives that the technology to be used is easily used for the provision of the service the user is interested in, the user would be positively motivated to adopt the technology. In a similar vein, users will be encouraged to embrace the bank's offered banking technologies if they think they can be readily managed for electronic financial services, unless they reject them. On the other hand, if the user believes that the technology they are considering adopting won't improve their performance, this could make them less inclined to do so (Venkatesh and Davis, 2000). Many empirical studies confirmed that perceived usefulness positively affected financial institutions' intention to accept financial technologies that can be applied in the delivery of financial services to customers (Sikdar & Makkad, 2015).

It is concluded thus that Users are likely to adopt new banking technology if they believe it would help them get banking services when they require financial services. According to empirical research, a company's ambition to implement electronic banking is positively correlated with the technology's perceived effectiveness. Though financial institutions perceive that financial technology would be useful for accessing financial services, if they perceive that it would be difficult to manage, they might not adopt it. Therefore, perceived usefulness is an important variable that is being hypothesized as follows:

Ho1: Perceived usefulness has no significant effect on the adoption of financial technology by commercial banks

Ha1: Perceived usefulness has a significant positive effect on the adoption of financial technology by commercial banks.

2.2.4.2 Performance Expectancy and Adoption of Financial Technology

Performance expectancy refers to "*the user's perception of how well a particular technology or system will help them perform their tasks or achieve their goal*s" (Venkatesh et al. 2012, p. 7). This implies that performance expectancy looks at how much banks and other financial organizations claim that utilizing financial technology will improve their operational performance and make their tasks simpler or more effective. Users are more inclined to embrace and use technology if they think it will enhance their performance or productivity (Bajunaied et al., 2023). The widespread adoption and use of financial technologies in the delivery of financial services depends on improving banks' experiences to fulfill specific performance standards (Bajunaied et al., 2023).

In this context, empirical literature communally highlights the strong cause-effect relationship between technology performance expectancy and technology adoption in financial institutions. In this token, Venkatesh and his colleagues assert that performance expectancy is a condition where a financial institution trusts in the use of a financial technology system to benefit its performance (Venkatesh et al., 2012). In Ghana, for instance, performance expectancy has been found to improve the interest of stakeholders in adopting financial technologies (Mensah, 2022). Similarly, a study conducted in financial institutions reveals that performance expectancy can be assumed as the critical factor of information technology adoption because it demonstrates how adoption can boost output and effectiveness of financial institutions and enable them to provide efficient and timely financial services (Patel & Connolly, 2007). Accordingly, the study formulated the second hypothesis as follows:

Ho2: Performance expectancy has no significant effect on the adoption of financial technology by banks.

Ha2. Performance expectancy has a significant positive effect on the adoption of financial technology by banks.

2.2.4.3 Financial Technology Regulations and Adoption of Financial Technology

Financial technology regulation is one of the most essential government legal concerns as it is challenging society and the state at the current development time, and further policy and legal clarity can possibly improve decision-making in this complex and challenging area. Since the internet's emergency in the late 1990s, several legislative frameworks for regulating technology have been developed and approved by the associated changes in the way the society lives, business operations, and law that this development brought with it (Smith & Miller, 2023).

According to Omarova, (2020) in the financial technology era, the entire financial system is getting bigger, faster, and more complicated, making it harder to handle. In this context, the support that the government makes through its regulatory framework generally has a determinant impact on financial technology adoption, often via the ability of a government to support technology with network effects. The impacts of technology adoption regulation are usually to exclude entry and provide properly big market segments to serve, reducing incentives for cost-reducing innovation but also in many cases increasing the benefits from innovation due to the small number of firms in the market (Kumelachew, 2015). The precise impacts perceived will be contingent partially on the specific price-setting mechanisms chosen by the government that endorsed the regulation.

While financial technologies offer many benefits, it also poses some risks. For instance, compared to traditional financial institutions, financial technology startups are typically subject to less regulation. Furthermore, because they frequently handle sensitive financial data belonging to customers, financial technology companies may be more susceptible to cyberattacks (Hazdun, 2022). The future of financial technologies seems encouraging. However, the development will also likely bring countless exposure to government regulatory frameworks, endorsements, and legal actions.

Bajunaied, Hussin, & Kamarudin, (2023) indicated that financial technology regulations directly affect technology adoption as Regulations in the banking sector will either forbid or mandate the usage of specific technologies or production techniques. This change in legislation was made in order to assess how rules affected the investment strategies of businesses in the sector. For

example, environmental restrictions that mandated the replacement of more outdated systems, processes, and/ or methods industrial technology could have promoted the adoption of new technology. The literature thus reveals that there is a consistent relationship between financial technology regulation and technology adoption. Based on this evidence, the proposed study has formulated the following hypotheses:

Ho3: Financial technology regulation has no statistically significant effect on the adoption of financial technologies by banks**.**

Ha3: Financial technology regulation has a statistically significant positive effect on the adoption of financial technologies by banks.

2.2.4.4 Facilitation Conditions and Adoption of Financial Technology

Facilitating conditions "*represent the perceived resources, support, and infrastructure available to firms for using a particular technology effectively*" (Venkatesh et al. 2012, p. 8). It is the extent to which users think that there is a technological and organizational infrastructure in place to facilitate technology adoption. Therefore, effectively promoting the use of technology should address users' environmental, emotional, and cognitive concerns. It defines the degree to which a company or individual becomes certain of that the organizational and technical infrastructure is available to facilitate the operation of the technology successfully.

In conclusion, the presence of facilitating conditions has the potential to stimulate greater interest and subsequent adoption of financial technology (Arner, Buckley, Zetzsche, & Veidt, 2020). In this context, a study by Bajunaied, Hussin & Kamarudin, 2023) revealed that adequate access to technical support positively influenced users' adoption and usage of financial technologies. In this regard, the study also discovered that digital literacy initiatives, systems, and training programs are crucial for creating favorable conditions for the adoption and use of financial technology. Since facilitating conditions has a significant effect on the adoption of financial technologies, the proposed study has developed the following hypotheses:

Ho4: Perceived facilitating condition has no statistically significant effect on the adoption of financial technology by banks

Ha4: Perceived facilitating conditions have a statistically significant positive effect on the adoption of financial technology by banks.

2.2.4.5 Security Risk Analysis and Adoption of Financial Technology

The term "perceived risk" describes how businesses evaluate the possible drawbacks, unknowns, or weaknesses connected to implementing and utilizing a specific technology, good, or service (Alrawad, Lutfi, Almaiah, & Elshaer, 2023). Security issues play a major role in perceived risk, especially those pertaining to fraud, data breaches, and privacy. People could be reluctant to adopt financial technology services if they believe there is a significant danger involved (Tamilmani, Rana, & Dwivedi, 2021). People may be more likely to use financial technology services if the possible advantages outweigh the hazards. Conversely, a large perceived risk might discourage adoption and damage trust.

Risks associated with technological innovation in the banking sector include both financial and non-financial ones (Patel & Connolly, 2007). It can also be described as bank clients' reluctance to use new banking technologies for financial transactions because they fear losing money or their private financial data. Security is one of the biggest problems in developing nations, second only to inadequate infrastructure (Xue, Hitt, & Chen, 2011). Perceived security risk is the major challenge in the creativity and innovation process and it is considered the most important consideration in the adoption of financial technology in the banking sector.

To promote greater technology adoption and continuous practice, financial technology providers should give top priority to establishing trust via strong security protocols, open communication, and adherence to rules. In this regard, existing literature shows that the adoption of financial technology is influenced by the level of perceived security risk of the technology. For example, a study conducted in 2005 by Luarn and Lin revealed that the banking industry's use of financial technology came with a number of hazards, including concerns about privacy and security. In this context, perceived risk is revealed to have a significant negative effect on the adoption of financial technology. Therefore, the literature concludes that the perceived security risk of financial technology is found to be an important factor which affects the intention to the adoption

of financial technologies. In line with the existing body of knowledge, therefore, the proposed study has formulated the following research hypotheses:

Ho5: Perceived security risk has no significant effect on the adoption of financial technology by banks.

Ha5: Security risk analysis has a significant positive effect on the adoption of financial technology by banks.

In the Ethiopian context, FinTech holds transformative potential, especially in bridging the financial inclusion gap. However, its success is contingent on several interrelated factors:

- Public and institutional perception of its usefulness and performance
- Supportive regulatory environment.
- Availability of infrastructure and skills.
- Addressing security and trust-related concerns.

Theories such as TAM and UTAUT help explain these dynamics and are appropriate for analyzing

FinTech adoption in Ethiopia’s evolving financial landscape.

2.3. Review of Empirical Literature

According to Stella and Duria's (2019) study, "Digital Finance and its Impact on Financial Inclusion," financial technology is essential to people's daily lives. The study's conclusions showed that mobile banking benefits from usability, convenience, accurate timing, and simple interbank account facilities; mobile wallets (apps) benefit greatly from low service fees; and credit cards benefit from low service fees. The study suggests that digital finance, including credit cards, debit cards, mobile wallets (apps), online banking, and mobile banking, has a major influence on financial inclusion. Though digital finance has many negatives on an issue like

affordability, security, adaptability, etc. Every human being intends to avail the facility of digital finance in their lives.

Tam and Hanh (2018) state that seven out of the seventeen Sustainable Development Goals have been thought to be made possible by financial inclusion. As the industrial revolution progresses, financial technology has emerged as the primary force behind financial inclusion in both developed and developing nations. Financial technology's contributions to financial inclusion are obvious; its main goals are to make all financial services more affordable and more widely available around the clock. Vietnam has established a financial technology steering group, created a legal framework on the subject, and is working on a national financial inclusion strategy, according to Le (2017). Financial technology in Vietnam has enormous potential due to infrastructure, market gaps, and demand. Notwithstanding, the obstacles persisted, including from its characteristics, legal structure, limited transaction volume, active clientele, and the general lack of knowledge regarding financial technology for financial inclusion. To improve the use of financial technology in advancing financial inclusion, suggestions have been made to commercial banks, financial technology companies, the State Bank of Vietnam, and other stakeholders (Le, 2021).

According to Soriano (2017), new financial technology (financial technology) businesses that serve the underbanked and unbanked are the best way to understand the role of digital technologies in financial inclusion. With the use of strategy management theories, the researcher determined the critical elements that influence these financial technology start-ups' success as determined by financial performance and financial inclusion. The findings demonstrated that there was a significant and positive correlation between financial inclusion (as measured by Active Staffs) and financial performance (as measured by Annual Revenue) and founders who had previous experience in financial services, a degree of customer-centricity in the company's business model, and strategic partnerships with financial institutions and e-commerce firms.

Four financial technology start-ups from the data sample were subjected to a qualitative analysis, which revealed that additional factors like scalability, previous start-up experience, and product type (pull vs. push) are crucial to the success of the start-ups and offer insights for additional empirical research. With its quantitative, data-driven methodology, this study offers investors

and venture capital firms instant, practical applications for assessing new technological ventures in financial inclusion. Lastly, the findings demonstrate the need to combine quantitative and qualitative data to advance the study of the critical role financial technology start-ups play in promoting financial inclusion in developing nations. In addition to the research findings, institutions also show how fintech and DFS can speed up financial inclusion.

The purpose of the digital financial inclusion (DFI) Principles is to encourage the use of digital methods to accomplish financial inclusion objectives and the associated G20 objectives of inclusive growth and boosting women's economic involvement. Providing high-quality and suitable financial products and services to the underserved and financially excluded is a key component of the DFI Principles. Where feasible, digital technology can be employed to do this. It's significant to note that the DFI Principles acknowledge that financial services accessibility is not enough. Instead, promoting the broad use and comprehension of responsible DFSs is essential for the welfare of individuals, nations, and the world. The DFI Principles also recognize the need to actively balance the promise of digital innovation with the new risks that rapidly evolving technology introduces (Global Partnership for Financial Inclusion, 2016).

There are several studies conducted to determine the factors that affects the adoption of financial technologies at the global level. However, there are various inconsistencies and contradictions in the findings of such studies (Sa'diyah, 2021; Abad-Segura et. al., 2020). This attracts and justifies the need for further inquiry into the nature of the issue. Moreover, different research results show that there is inconsistency of findings in terms of how the factors considered in this study (security risk of the technology, usefulness, effort expectancy, performance expectancy and facilitation conditioning) affect the adoption of financial technologies in the banking industry. These inconsistencies in the findings of studies thus invite scientific inquiries.

In 2001, the state-owned Commercial Bank of Ethiopia (CBE) used Automatic Teller Machines (ATMs) to establish financial technology-based banking for the first time in Ethiopia (Worku, 2015). However, infrastructure-related issues were the main reason it was behind schedule in providing its consumers with services. Dashen and Wegagen banks began providing technology-based services through card payments in 2006 and 2010, respectively, after the State Pioneer Bank (Desta, 2018; Worku, 2015; Zeleke, 2016). Currently, almost all commercial banks in

Ethiopia provide banking services based on financial technologies in one or more ways. In this regard, the government has provided regulatory and legal frameworks to expand the adoption of financial technologies in the banking sector in the country, especially in the last five years. The government had been endorsing various regulatory frameworks to further expand the adoption and use of financial technologies in the country (Metages, 2023). In Ethiopia, e-banking services include mobile banking, internet banking, agent banking, and card-based payments via ATMs and Point of Sale (POS) machines.

The adoption of financial technology in Ethiopia is a topic of interest for many researchers. In 2020, Wondwossen and Sharma did a study to determine the elements that influence Ethiopian bank employees' propensity to use e-finance technologies. Based on the study, bank employees' inclination to use financial technology is positively impacted by perceived utility, subjective norms, and consumer awareness. Another study conducted by Worku (2015); Zeleke (2016), and Tnsuh,(2022) investigated the adoption of electronic banking in Ethiopia. The studies identified several factors that influence the adoption of electronic banking, including perceived ease of use, ICT infrastructure, and e-Security. However, those authors have been having gaps to study in studying the area of adoption of financial technology in the banking sector from banks' perspectives. In general, the above paragraphs show that very little is known about the factors that affect the adoption of financial technologies of commercial banks in Ethiopia from the banks' perspectives. Very little is known about the factors that affect the adoption of financial technologies in the commercial banks of Ethiopia. Therefore, this study is conducted to fill the knowledge as well as empirical gaps by studying the above title, specifically considering the assumptions of TAM and the Unified Theory of Acceptance and Use of Technology.

2.4 Global Insights and Relevance to Ethiopia

Stella and Duria (2019) emphasized digital finance tools—like mobile banking, credit/debit cards, and mobile wallets—as powerful enablers of financial inclusion due to their convenience, speed, and low cost. This is relevant in Ethiopia, where mobile money services (e.g., Telebirr) are beginning to bridge the financial access gap, especially for rural communities.

Tam and Hanh (2018) and Le (2017, 2021) highlighted how financial technology contributes to Sustainable Development Goals (SDGs) by promoting access to affordable financial services. Countries like Vietnam have made progress through national strategies, legal frameworks, and infrastructure investments—a lesson Ethiopia can adopt as it continues to roll out digital finance strategies under initiatives like the National Digital Strategy and Digital Ethiopia 2025.

Soriano (2017) found that start-ups with customer-centric models, strong partnerships, and experienced founders play a critical role in expanding financial inclusion. Ethiopia's FinTech ecosystem is still in early stages, but growing interest from start-ups and commercial banks presents an opportunity to replicate such models.

The Digital Financial Inclusion (DFI) Principles emphasize that access alone is not enough. Efforts must ensure responsible use, financial literacy, and consumer protection. These principles align with Ethiopian challenges, where low digital literacy, limited infrastructure, and cybersecurity risks hinder broader FinTech adoption.

Global research inconsistencies (Sa'diyah, 2021; Abad-Segura et al., 2020) regarding adoption factors (e.g., security risk, performance expectancy) call for localized studies, which is particularly relevant in Ethiopia, where cultural, economic, and regulatory environments differ significantly.

2.4.1 Empirical Studies in Ethiopia

Worku (2015) documented Ethiopia's early FinTech adoption, beginning with ATMs by the Commercial Bank of Ethiopia (CBE) in 2001. However, adoption was slow due to infrastructure challenges.

Dashen and Wegagen Banks followed with card-based services in the mid-2000s. Today, most Ethiopian commercial banks offer FinTech-based services such as mobile banking, internet banking, and card payments.

Wondwossen and Sharma (2020) found that perceived usefulness, subjective norms, and consumer awareness positively influenced bank employees' willingness to use FinTech. This

aligns with the Technology Acceptance Model (TAM) and UTAUT, which help explain user behavior in Ethiopian banks.

Other studies (Worku, 2015; Zeleke, 2016; Tnsuh, 2022) identified factors such as ease of use, ICT infrastructure, and e-security as key determinants. However, they mainly focus on customer or employee perspectives, leaving a gap in understanding adoption from the banks' strategic and institutional perspectives.

2.4.2 Research Gaps in the Ethiopian Context

Despite growing interest and the expanding use of digital finance, few studies in Ethiopia have deeply explored institution-level factors influencing FinTech adoption in commercial banks. Issues like regulatory readiness, institutional capacity, strategic orientation, and risk management need to be researched.

2.4.3 Conclusion and Relevance

The reviewed empirical literature reveals that:

FinTech is a key driver of financial inclusion globally and in Ethiopia. Ethiopia's FinTech ecosystem is evolving, but faces infrastructure, regulatory, and trust challenges.

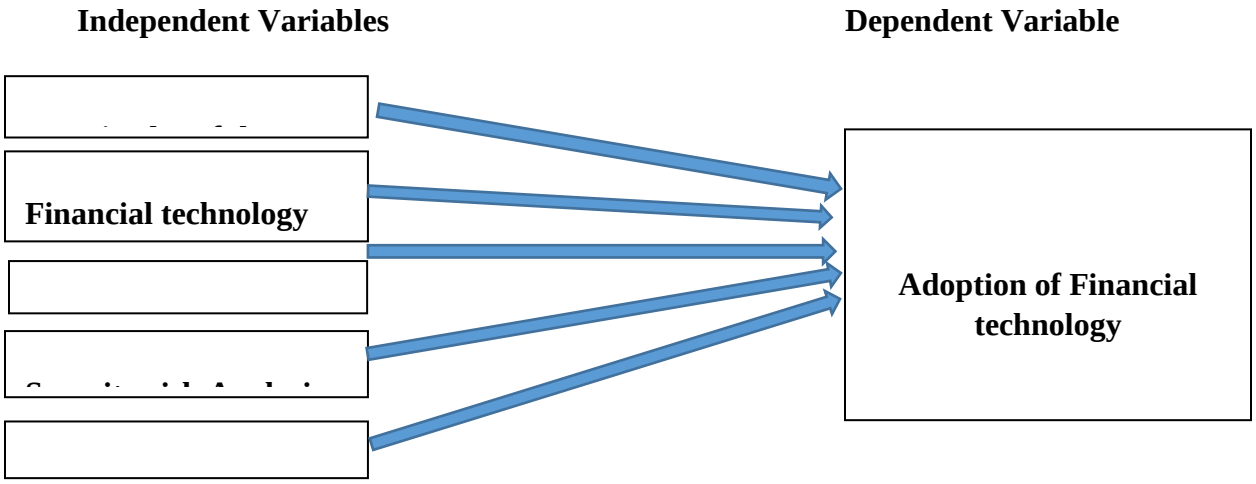
There is a clear need for empirical research from the perspective of commercial banks, focusing on factors such as usefulness, performance expectancy, facilitating conditions, security risks, and regulatory frameworks. This study aims to fill these gaps by applying TAM and UTAUT frameworks to assess FinTech adoption in Ethiopian commercial banks, contributing to both academic knowledge and practical policy-making.

2.5. Conceptual Framework of the Study

A conceptual framework represents the relationship that the researcher hopes to ascertain between the variables or the traits or attributes that the researcher intends to examine (Kothari, 2004). It is often created using a study of previous research on the subject and can be either written or graphic. A diagrammatic depiction that illustrates the connection between the effect and explanatory factors is used. This study is about the factors that affect the adoption of

financial technology in the context of the banking industry. Accordingly, the study is governed by the assumptions of the technology acceptance model and the unified theory of acceptance and use of technology as a conceptual framework. It is also found in the review of empirical literature that the adoption of financial technologies is affected by several factors. Among such factors, the security risk of the technology, usefulness, government regulations, performance expectancy, and perceived conditioning have significant effects on the adoption of financial technologies in the banking industry. Considering both the theoretical as well as empirical literature review, the study has developed the following conceptual framework.

Figure 1: Conceptual Framework of the study



Source: Sikdar & Makkad, (2015); Sa'diyah, (2021); and Abad-Segura et. al. (2020)

CHAPTER THREE
3. RESEARCH METHODOLOGY AND METHODS

3.1Introduction

The research has the objective of determining the factors that influence financial technology adoption in commercial banks found in Ethiopia. To address the aim of the study, the study has developed a methodology that serve as the foundation of scientific investigation. Accordingly, this chapter offers the methodological claims, methods, and techniques of the research. It presents the approach of the research and research design. The data types and sources, target population, the methods of data collection as well as the type of data collection instrument are also discussed. The validity and reliability of data gathering instruments and data analysis techniques that are employed to give the data meaning are also discussed. The following sections present the details of the research methodology and methods of the study.

3.2 Research Approach

Research approaches involve the strategies and measures considered for a study that span the choices from general rules to detailed techniques of data gathering and analysis (Creswell, 2009). It shapes the manner objectives are formulated; problems are articulated, and data is gathered and analyzed to arrive at a usable conclusion. Accordingly, the research followed a quantitative research. As the objective is to determine the factors that affect the process of adopting financial technologies in commercial banks, it sets objectives that are addressed through a quantitative methodology. Hence, the research has gathered and evaluated the data employing statistical tools and techniques. More to the point, this approach is preferably applied as a means to answer the leading questions of the study by analyzing the causal association between variables (Walliman, 2011). These variables, in turn, are measured, characteristically on a five-point Likert scale instrument, so that numerical data is evaluated employing descriptive and inferential statistical tools.

3.3 Research Design

Creswell, (2009) defines a research design as the framework, skeleton, or blueprint which is used to produce valid results to the leading questions of the research and the problem statement. Similarly, Dooley (2007) states that a research design refers to the arrangement of a scientific process, which serves as the glue that holds all components of a research process together. These points show that the research design provides a route and structures the research process as it encompasses the plan that an investigator implements from the initiation to conclusion of the investigation. Accordingly, the research employed an explanatory design, which, according to Kothari (2004), is followed when the research problem is well articulated and systematically defined, and where the investigator has defined certain concerns to be described and explained. The design is also helpful to conduct numerical analysis of data to arrive at generalizable outcomes about the topic of the research. In addition, a cross-sectional strategy is followed as the strategy of the research, where data was gathered in a snapshot from the concerned elements of the commercial banks. The study followed a survey design to collect primary data from study respondents, which is used for explanatory purposes. It is stated in Kothari (2004) that survey design helps to gather data that can accurately be used in explanatory studies.

3.4 Sources and Types

Kothari (2004) states, primary and secondary data sources are the major sources of data for conducting scientific research. Hence, both primary and secondary data sources were used as the sources of pertinent data for this study. Using survey instruments, primary data was generated from the representative employees of the commercial banks. The primary data was also be supported by secondary sources of data generated from the documents collected from the commercial banks and from the National Bank of the country. This involved the collection of banks' strategic plans, annual plans, and reports. Besides, a review of available publications, thesis and dissertations, journal proceedings, periodicals, books, and similar sources are revised to support the primary and secondary data that was collected from banks' representatives. In addition to this, measurable data was gathered from bank representatives via survey instruments developed (questionnaire), which was prepared in a five-point Likert scale format.

3.5 Target Population, Unit of Analysis, and Census Survey

Kothari (2004) states, a population of a study refers to a definite or clearly identified set of persons, sets of things, families, companies, facilities, services, components, or events which are being researched. Hence, the population in a research study ought to fulfill defined requirements, which the investigator studies, and the population ought to be identical and similar. Accordingly, the focus of the study as its target population was all commercial banks found and operate in Ethiopia. Currently, around 31 commercial banks are legally registered by the NBE and are operating in the country (National Bank of Ethiopia, 2024).

The unit of analysis is the individuals or things whose qualities are measured (Kothari, 2004). The unit of analysis is an important element of scientific research. It is the key aspect of research that an investigator considers as the key to determine the details of his/her research plans. It describes the entity concerning which the investigator plans to have something to conclude at the stage of data analysis and completion of the study, possibly the main issue of the study. Accordingly, the focus of the research is the determinants of financial technology adoption in the context of commercial banks in the country. Hence, the unit of analysis of the research is each commercial bank currently operating in Ethiopia.

As stated earlier, the target population of the research was all commercial banks legally recognized by NBE, and data were collected from all commercial banks. As data from the NBE indicates, there are 31 legally registered commercial banks that are operating in the country as of September 2024. Accordingly, the study employed a census survey as the population size is small. As a result, the researcher has used census data collected from all commercial banks.

3.6Tools of Data Collection

In the words of Creswell (2009), various data-gathering instruments are used in scientific research. However, the selection of data collection instruments is justified largely based on the nature of the study, the characteristics of the subjects, the nature of the research problem, the research questions and objectives, the research design, anticipated data, and results. This happens as each of the data collection instruments is used to gather specific data that has unique characteristics. Accordingly, in the research, questionnaire and document review techniques were employed to gather relevant data from primary and secondary data sources. This aids the attainment of the objectives of the study properly and adequately.

A. Questionnaire

The questionnaire was adopted from previous research works, adjusted to fit into the setting of the research, and distributed to illicit information from employees of the banks working in the departments responsible for adopting financial technologies in the commercial banks. The questionnaire is prepared and presented in a Likert scale. Then, the representatives of the banks were requested to rate the items in each heading based on their perception. The questionnaire contained only closed-ended questions that were eventually translated into numerical data suitable for statistical analysis. The investigator has distributed the questionnaire to the representatives of the commercial banks individually in person and collected the filled questionnaire in the same manner.

B. Document Analysis

The document review technique was used to solicit pertinent data by reviewing important documents pertaining to the topic of the research. The technique provided an opportunity in order to get adequate information, which aided the analysis and interpretation of data. Strategic

plans, annual plans, reports, organizational structures, and other relevant data of the banks were collected and evaluated in order to corroborate the primary data.

3.7 Reliability and Validity of Instruments

Reliability and validity are concepts that provide scientific foundations upon which the researcher constructs and evaluates predictor and criterion measures of interest (Kothari, 2004). Reliability and validity matter as a researcher to contemplate whether he/she is studying what he/she is studying and whether the measures used are consistent. Saunders (2003: p 243) defined these concepts as "validity is the extent to which data collection method or measure what they are intended to measure". In addition, reliability is the degree to which the data-gathering tool or the procedures followed in data analysis yield consistent results.

In this, in order to make a generalizable conclusions that go beyond the scope of the research itself, the research needs to replicate the condition in the real world – i.e. it should hold both internal validity (the degree to which the notions concerning the cause and effect are sustained by the research) and external validity (the degree to which the results of the study could be generalized to whole populations or other similar settings) (Walliman, 2011). Hence, in order to confirm the validity of the instrument, the investigator adopted a standardized instrument used by previous researchers (Patel, & Connolly, 2007) for a similar purpose in this context. since the questionnaire is adopted from earlier researchers, the content and construct validity are believed to be ensured. Furthermore, the researcher has consulted experts in the banking industry to comment on the adopted questionnaire's contents and constructs to confirm the face validity of the questionnaire. It helped to know if there were any modifications needed to be adjusted and to increase the degree of validity of the instrument. Besides, the research has ensured the reliability of the instrument through the Cronbach's Alpha test. In this, the reliability of the instrument was measured using Cronbach's Alpha statistics. The measure was conducted for each variable, and the following table 3.1 provides the detailed statistical results.

Table 3.1. Cronbach's Alpha statistics of the instrument

No	Name of Variables	Cronbach Alpha statistics
1	Usefulness of financial technologies	.809

2	Security risk analysis of financial technologies	.747
3	Performance expectancy of financial technologies	.717
4	Facilitations Conditioning of financial technologies	.775
5	Regulations of financial technologies	.832
6	Adoption of financial technologies	.788

Source: SPSS version 27 Output

The test statistics of the reliability indicate that there is a higher level of reliability of instruments, as the Cronbach Alpha statistics for all variables are more than 0.70.

3.8 Model Specification

Considering the issues discussed in the theoretical and empirical literature review conducted in chapter two, the research has developed the following model that guides the definition of variables, data collection, analysis, and hypotheses testing. The model is shown as:

$$Y=\beta 0 +\beta 1UFT +\beta 2SRFT +\beta 3PEFT+ \beta 4FCFT + \beta 5FR$$

Where Y= Adoption of financial technologies

$\beta 0$=Constant term

$\beta 1$=Coefficient of usefulness of financial technologies

$\beta 2$=Coefficient of security risk analysis of financial technologies

$\beta 3$=Coefficient of performance expectancy of financial technologies

$\beta 4$=Coefficient of facilitating condition of financial technologies

$\beta 5$= Coefficient of financial regulations

UFT = Usefulness of financial technologies

SRFT = Security risk analysis of financial technologies

LPFF = Performance expectancy of financial technologies

FCFT = Facilitating condition of financial technologies

FR= Financial regulations

3.9 Method of Data Analysis and Presentation

The data gathered through the questionnaire were analyzed quantitatively with the aid of the SPSS software version 27. To analyze the data, descriptive and inferential statistics were employed. Mean and standard deviation within the descriptive statistics were used to describe the quantified opinion provided by the representatives of commercial banks. Besides, to determine the cause-and-effect relationship between the explanatory and dependent variables, Pearson correlation and multiple linear regression were run in SPSS. Multiple linear regression was employed to determine the combined effects of independent variables on the adoption of financial technologies. The aim of the research, as discussed in chapter one, was to determine the factors that affect financial technology adoption in commercial banks. The study has measured the factors and adoption level of financial technologies through the rated opinions of respondents using a questionnaire prepared in 5 scale. The study hence considered the adoption level of financial technologies as the dependent variable, while those factors that affect the adoption process of financial technologies were considered independent variables (usefulness, security risk, performance expectancy, facilitation condition, and financial regulations).

3.10. Ethical Considerations of the Study

Ethical consideration in research involves the implementation of the ethical principles of informed consent, confidentiality, anonymity, and publication access (Kothari, 2004). Accordingly, any investigator needs to commonly apply these ethical principles of research. These established ethical values should be applied in research process in the fieldwork as well as confirm that the privileges of study respondents in the study are protected. In the data collection process, every data gathering procedure must be followed and conducted after the consent of the respondents to give their opinions is secured. In this research hence, participants of a research were informed about the objectives, worth, and standards of the research, and then data was

collected after they showed their consent. In addition, the study participants were kept anonymous, and they were assured that the data they would provide would be kept confidential and would be used only for academic purposes.

CHAPTER FOUR
4. DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The study has the objective of determining the factors that affect the adoption of financial technologies in the banking industry of Ethiopia. In achieving the objective, the study has employed an explanatory research design within the framework of a quantitative research approach. Data was collected from representative employees working in technology adoption departments of the commercial banks. 31 copies of the questionnaire were distributed to the participants of the study. The study has selected 31 respondents using census survey. All of the respondents have filled the questionnaire and returned it to the researcher properly. This makes the response rate one hundred percent. Accordingly, the analysis and interpretation of data is made based on the responses of respondents. The following sections present the demographic, descriptive, and inferential analysis of the study sequentially, followed by the discussion of results and findings.

4.2 Demographic Characteristics of Respondents

Table 4.1: Demographic characteristics of respondents

Variable Name		Frequency	Percent (%)
Age of respondent	18-25	2	6.5
	26-35	23	74
	36-45	6	19.5
	Total	31	100
Gender of respondent	Male	22	71
	Female	9	29
	Total	31	100
Educational Status of respondent	Bachelor Degree	13	41.9
	MA and above	18	58.1
	Total	31	100
Career Position of respondent	Junior Expert	3	9.7
	Senior Expert	24	77.4
	Management Body	4	12.9
	Total	31	100

Service Year of Respondent	Less than 5 Years	3	9.7
	5-10 Years	23	74.2
	Over 10 Years	5	16.1
	Total	**31**	**100**

Source: SPSS version 27 Output January 2025

The age distribution of study participants shows that the majority of the respondents (74%) were between the age group of 26 to 35 years, while the second largest group, constituting 19.5% of the respondents, were between 36 to 45 years. The remaining 6.5 % of the respondents were in the age group between 18 to 25 years. The above table, number 4.1 indicates that the majority of respondents were male, constituting more than 71% of the respondents, while the remaining 29 % of them were female respondents.

The educational status of respondents indicates that majority of the respondents (58.1%) had master's degree while first degree holders constitute about 41.9% of the respondents. Concerning the career title or positions of the respondents, the majority of the respondents (77.4%) were senior experts while 12.9% of them were at managerial positions. Around ten percent of the respondents were serving the banks at junior-level positions. Regarding the service year of respondents, the majority of the respondents (74.2%) had between 5 to 10 years' service in the banks while about 9.7% of the respondents had between 1 to 5 years of service in the banks. Besides, 16.1 of the respondents had served the banks for over ten years.

Overall, the demographic characteristics of the respondents indicate that the respondents had diverse personal and job-related characteristics. This could benefit the study to ensure the representativeness of respondents in terms of getting reliable and valid responses about the factors affecting the adoption of financial technologies in the banking industry of Ethiopia.

4.3 Descriptive Statistics of Responses

Fundamental to data analysis, descriptive statistics offer instruments for summarizing and characterizing a data set's key attributes (Kothari, 2004). It makes it possible for academics to meaningfully organize, visualize, and evaluate vast amounts of data (Kaur et al., 2018). It serves as a fundamental tool for summarizing and analyzing data across disciplines. Alabi, & Bukola (2023) stated that descriptive statistics, data analysis, and summary to learn more about its properties and distribution.

Accordingly, the study has collected primary data from 31 respondents using a structured questionnaire and conducted descriptive statistical analysis to summarize the data and gain insight into the nature of the factors affecting the adoption of financial technologies in the banking sector of Ethiopia. The following table 4.2 indicates the summary of descriptive statistics on the respondents' responses concerning the variables of the study in terms of mean score and standard deviation. *The mean score analysis is conducted based on the assertion made by previous researchers in similar research works. According to* Khadka (2015), for the Likert *scale, the mean score is made to measure the attitudes of respondents about the intent of the study.* In this, respondents' attitude is measured, and the overall level of agreement or disagreement is then determined based on the analysis of the mean score.

Scholars Willits et al. (2016) and Joshi et al. (2015) suggested that the range of interpreting the Likert scale mean score is given as: 1.0-2.4 (Negative attitude), 2.5-3.4 (Neutral attitude), and 3.5-5.0 (Positive attitude) on the item presented for the respondents. Accordingly, the study has adopted the mean cut point analysis used by Willits et al., (2016) and Joshi et al., (2015) as it is commonly used in various research works.

In addition, the study has used the values of standard deviation to provide meaning to the raw data. The standard deviation shows how much each person's answer to a question differs or deviates from the mean. It indicates to the researcher how dispersed the answers are. It answers a question "Are they concentrated around the mean, or scattered far and wide?" (Bobbit, 2021). One way to determine if a standard deviation is high is to compare it to the mean of the dataset. A coefficient of variation is a way to measure how spread out values are in a dataset relative to

the mean (Nick, 2007). It is the ratio between the standard deviation and the mean. The higher the coefficient of variation, the higher the standard deviation relative to the mean, and in general, a coefficient of variation value greater than one is often considered high (Deborah, 2021). In this, for all variables of the study, the coefficient of variation is below one. This indicates that the data set has relatively small variation and the responses of respondents are closely packed together.

Table 4.2: Descriptive Statistics of Responses

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Adoption of Financial Technology	31	3.00	5.00	4.2129	.61087
Usefulness of financial technologies	31	2.00	5.00	4.0129	.73018
Security risk analysis of financial technologies	31	2.80	4.20	3.5484	.42573
Performance expectancy of financial technologies	31	3.20	5.00	4.1226	.58350

Facilitating Conditions of financial technologies	31	2.00	5.00	4.0323	.68527
Financial Regulation	31	2.40	5.00	4.0387	.78217
Valid N (listwise)	31				

Source: SPSS version 27 Output January 2025

Based on the above assertion, the study has measured the mean value and standard deviation of the responses collected from respondents on each of the variables of the study. Accordingly, Table 4.2 shows the summary of the mean and standard deviation calculated for each variable. The table shows that the mean value for the extent of adoption of financial technologies is 4.21 with a standard deviation of .61, which indicates the majority of the respondents agreed and strongly agreed that the banks have adopted financial technologies regularly, frequently, and properly. This is also supported by relatively medium standard deviation of .61. On the other hand, concerning the usefulness of financial technologies, the study shows that the responses from the respondents had a mean score 4.01 and standard deviation of .73 indicating a higher value of mean and dictates that respondents have agreed that the technologies the banks adopted are useful for the banks to improve the financial services they deliver to their customers. However, the standard deviation of .73 indicates a higher level of variation among the responses given by respondents.

Concerning the security risk of financial technologies, the calculated mean score and SD is 3.54 and 0.42, which indicates that respondents had a view that banks analyze and determine the security risks of financial technologies to build trust. This implies that banks considered in the study calculate security risk before adopting financial technologies. Similarly, the calculated mean score for the variable performance expectancy of financial technologies is 4.12 with a standard deviation of .58. This indicates that majority of the respondents had a favorable attitude toward the performance expectancy roles of financial technologies. The responses of the respondents suggested that technologies adopted by banks enhance operational efficiency, financial performance and customer and employee satisfaction.

Regarding the facilitation conditioning of financial technologies, the mean score and standard deviation 4.0 and .68 are respectively. From this, it can be inferred that majority of the respondents had a view that the banks had adequate technical, and organizational infrastructure and management supports to adopt financial technologies. Employees were also trained to easily adopt and implement the technologies in a user-friendly approach. Similarly, the calculated mean score and standard deviation of 4.0 and .78 respectively, about the roles of financial technology regulations indicates that National bank of Ethiopia provides supports and protection for commercial banks when adopting financial technologies. However, there is a higher level of variation in the responses of respondents concerning the roles of financial regulations in the adoption of financial technologies.

In general, the above descriptive statistics indicates that majority of the respondents had a positive and favorable attitude concerning the adoption of financial technologies. Concerning the factors that affect the adoption of financial technologies, the mean scores of all variable is above 3.5 which shows respondents had a positive attitude. This indicates that adoption of financial technologies were useful, improve the banks' performance, and the banks had adequate infrastructures and personnel to adopt financial technologies. Commercial banks also determine the security risks of financial technologies before adoption. According to the view of respondents, the regulatory frameworks of the government were also found to be supportive of the adoption of financial technologies.

4.4 Factors Affecting the Adoption of Financial Technologies

4.4.1 Correlation Analysis

A Pearson Correlation quantifies the presence and magnitude of a linear relationship between two variables, according to Schober et al. (2018). It analyzes the presence and degree of correlation using a p-value and a coefficient r between -1 and +1. It should only be applied when the presumptions that underlie it are met. The presence of a correlation is determined if the result is substantial. An r of 0.1 is considered modest, an r of 0.3 is considered medium, and an r of 0.5 is considered large, according to Asuero (2006) and Akoglu (2018).

The study has run the Pearson Coefficient test to determine the relationship between the explanatory variables and dependent variable based on this scale. Consequently, the study has performed the analysis to determine the association between the explanatory variables (the usefulness of financial technologies, security risk of financial technologies, performance expectancy of financial technologies, facilitation conditioning of financial technologies and financial technology regulations) and the dependent variable (adoption of financial technologies). The following table shows the Pearson Correlation output generated using SPSS version 27 software.

Table 4.3: Pearson Correlation

Variable		Usefulness of Technology	Security risk analysis	Performance expectancy of technology	Facilitating Conditions of Technology	Financial Regulation
Usefulness of Technology	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	31				
Security risk of analysis technology	Pearson Correlation	**.637****	1			
	Sig. (2-tailed)	.000				
	N	31	31			
Performance expectancy of technology	Pearson Correlation	**.428***	.579**	1		
	Sig. (2-tailed)	.016	.001			
	N	31	31	31		
Facilitating Condition	Pearson Correlation	**.631****	.751**	.473**		

	Sig. (2-tailed)	.000	.000	.007		
	N	31	31	31		
Financial Regulation	Pearson Correlation	**.412***	.551**	.352	.555**	
	Sig. (2-tailed)	.021	.001	.052	.001	
	N	31	31	31	31	
Adoption of Financial Technology	Pearson Correlation	**.741****	.884**	.650**	.849**	.674**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	31	31	31	31	31

Source: SPSS version 27 Output January, 2025

The result of the study shows that all of the explanatory variables considered in the study have a significant correlation with the adoption of financial technologies at p-value of 0.05 level of significance. The direction of the relationship between the explanatory and dependent variables is linear and positive for all variables. The test statistics further show that all of the explanatory variables that have a strong positive correlation with adoption of financial technologies with coefficient value of .741 (the usefulness of financial technologies), .884 (security risk of financial technologies), .650 (performance expectancy of financial technologies), and .849 (facilitation conditioning of financial technologies) and .674 (financial regulations) respectively. In this case, the security risk analysis of financial technologies had the largest correlation, while the performance expectancy of financial technologies had the least correlation with adoption of financial technologies, with r value of .884 and .650, respectively. From the above analysis, it is demonstrated that all of the factors considered in the study had a positive significant relationship with the adoption of financial technologies. This further indicates that the variables considered as factors affecting the adoption of financial technologies possess a strong correlation with the adoption of financial technologies. This result goes along with the research findings of Sa'diyah (2021); Malhotra & Singh, (2007); Guyo (2009), and Tan & Teo (2000). Sa'diya (2021) found

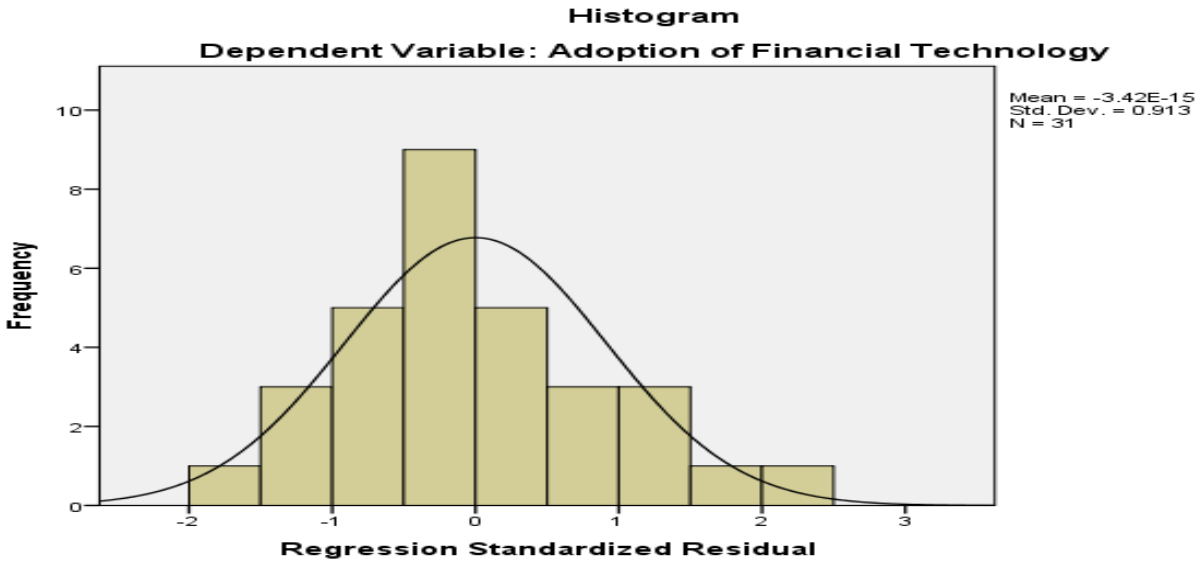
that usefulness and performance expectancy of financial technologies are positively correlated with the adoption of financial technologies. On the other hand, Tan & Teo (2000) examined that security risk and financial regulations are positively related to the adoption of financial technologies. Malhotra & Singh, (2007) and Guyo (2009 asserted that facilitation conditioning has a positive significant correlation with the adoption of financial technologies in commercial banks of India.

4.4.1.1 Assumption of Multiple Linear Regression

The study has conducted assumption tests to check that the data is suitable for multiple linear regression. Accordingly, the following four major assumption tests are conducted and found that the data is suitable for multiple linear regression.

1. **Test of Normality**

Figure 4.1: Histogram

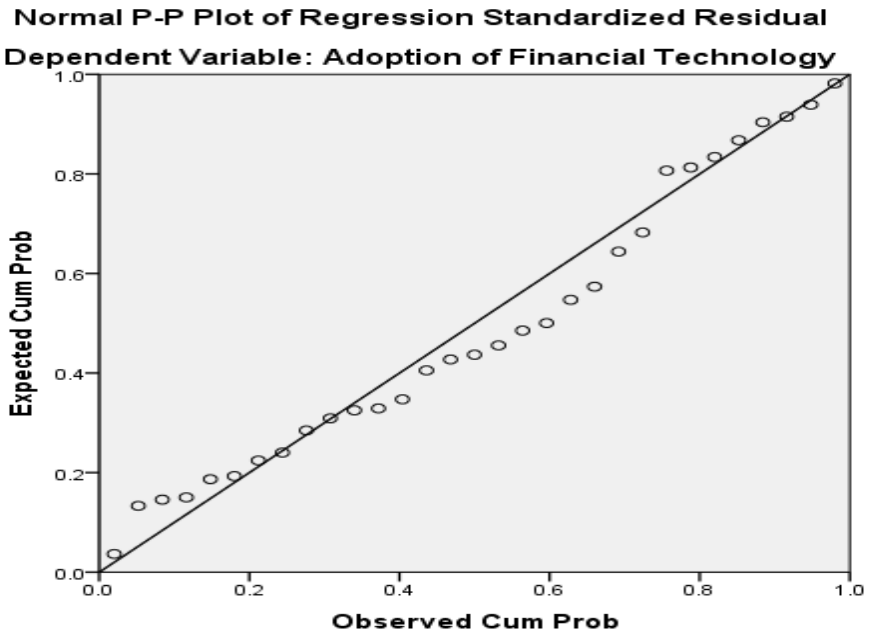


Source: SPSS version 27 Output January 2025

The study has checked the normal distribution of the data using a normality plot test, which is shown by a histogram. According to Dias & Brito (2015), the histogram is a widely used graphing technique. It is employed to provide a summary of continuous or discrete data that is measured on an interval scale. It is frequently used to conveniently depict the main characteristics of the data distribution. Histograms make it easier to see a data set's structure, distribution, and center (Crabill & Maurer, 2008). It can also serve as a visual aid for determining normalcy. One of the fundamental instruments for statistical quality control is a histogram. It offers an excellent method for assessing the data distribution. It can be used to check data for extreme values, or outliers, and helps to understand the distribution of the data. The distribution of a variable is important to understand when selecting appropriate statistical analysis tools (Bityukov et al., 2014). Accordingly, the normality of the data is ensured as the above histogram indicates that the data has a normal distribution. The figure indicates a bell-shaped curve, which presents a normal distribution.

2. Test of Linearity

Figure 4.2: Linearity



Source: SPSS version 27 Output January 2025

An evaluation of the linear relationship between a set of samples' true (assigned) and measured (observed) values is known as linearity assessment (Jhang et al., 2004). In this, multiple linear regression assumes that the dependent and independent variables have a linear relationship. According to Uyanık & Güler (2013), multiple linear regression makes the assumption that the dependent variable and the independent variable's parameters have a linear connection. We cannot apply the model since its accuracy will be greatly diminished if the underlying relationship is not linear. It becomes crucial to confirm this assumption as a result. Accordingly, the study has conducted a linearity test to see the linearity of the relationship between the variables using p-p plot. It found that there is a linear relationship between the independent variables and the dependent variables. The above Figure 4.2 depicts the linearity of the relationship.

3. Test for Multi-Collinearity Problem

One of the assumptions of the classical linear regression model (CLRM) is that there is no multicollinearity among the independent variables included in the regression model (Shrestha, 2020). It occurs when the multiple linear regression analysis includes several variables that are significantly correlated not only with the dependent variable but also with each other. Gujarati

(2014) claimed that there should not be multicollinearity among the independent variables included in the regression model. To prevent mistakes when deciding how each independent variable affects the dependent variable in the model, it is crucial to use the statistical test to check for multicollinearity. According to the problem, there is a high degree of correlation between the predictors, as evidenced by the correlation matrix's R-value above 0.80, tolerance value falling below 0.10, and Variance Inflation Factor (VIF) either larger than 10 or less than 1 (Alin, 2010). Paul (2006) writes that a good linear regression model would not show a strong correlation between the independent variables. Based on this assumption, the study has conducted collinearity diagnosis using Pearson Correlation coefficient (R-value), VIF and tolerance indicators. The following table shows the SPSS output of the collinearity test.

Table 4.4: Multicollinearity diagnosis

Variable	Collinearity Statistics	
	Tolerance	**VIF**
Usefulness of technology	.538	1.860
Security risk analysis of technology	.330	3.030
Performance expectancy of technology	.657	1.523
Facilitating Conditions of technology	.374	2.675
Financial Regulation	.650	1.538

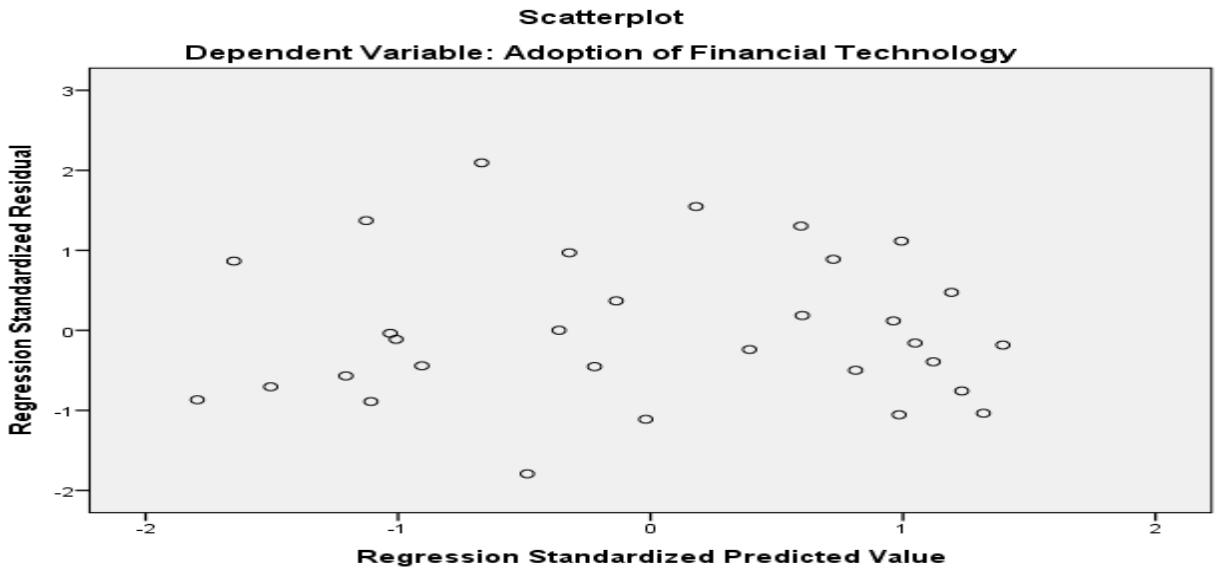
Source: SPSS version 27 Output January, 2025

Table 4.4 indicates that the Variance Inflation Factor (VIF) results for all variables are less than 10 while the tolerance level for all explanatory variables is greater than 0.10. In addition, the Pearson Correlation table 4.3 indicates that the correlation among the explanatory variables of the study is less than 0.80. Consequently, it is concluded from the results of the correlation coefficient value, tolerance level, and VIF value that there is no problem of multicollinearity among the explanatory variables.

4. Homoscedasticity

According to Rosapa et al. (2013), heteroscedasticity is the situation when data defy a statistical assumption. The term homoscedasticity refers to this premise. Statistical power may be reduced or Type I error rates may rise when the homoscedasticity assumption is broken. For theory, research, and practice, the inability to identify and control for heteroscedasticity could have major consequences since it can negatively impact substantive conclusions (Rosopa et al., 2013).

Figure 4.3: Homoscedasticity



Source: SPSS version 27 Output January, 2025

According to the assumption of classical linear regression, the population regression function shows homoscedastic disturbances, meaning that their variance is the same (Gujarati, 2014). Since the values of u are serially independent, their covariance is zero and they are independent of one another (Schmidt & Finan, 2018). However, if the case is different and the variances of ui are variable, the problem of heteroscedasticity appears. Accordingly, the study has conducted a statistical test to examine the scatter plot and found out that there is no problem of heteroscedasticity in the data.

4.5.1.2 Multiple Regression Analysis

The research has the objective of determining the factors affecting the adoption of financial technologies in commercial banks in Ethiopia. The study has considered five major factors that affect the adoption of financial technologies. These factors are usefulness, security risk analysis, performance expectancy, facilitation conditioning, and financial technology regulations. In order to determine the level and direction of influence of these variables on the adoption of financial technologies, the study has employed a multiple linear regression analysis. According to Tranme & Elliot (2008) one method for using data to find links between variables and use these associations to generate predictions is called a linear regression analysis. The authors further explained that this analysis is conducted to determine the adequacy, significance of the model and coefficient of regression through the reading of r square and ANOVA and regression coefficient or table. Based on this claim, the study has run multiple linear regression using SPSS software. The following table shows the model summary of the regression.

Table 4.5: Model Summary Table

Model Summary [b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.962[a]	.926	.911	.18176	1.701
a. Predictors: (Constant), Usefulness of Financial Technologies, Financial Regulation, Performance expectancy of Financial Technologies, Security Risk analysis of Financial Technologies, Facilitation Conditioning of Financial Technologies,					
b. Dependent Variable: Adoption of Financial Technology					

Source: SPSS version 27 Output January, 2025

In the above table, it is shown that the model summary of regression is expressed by r-square and adjusted r square as .926 and .911, respectively. This is helpful to assess the goodness-of-fit of the regression model. This implies that the model considered in the study explains 91.1% of the

variations in the dependent variable is caused by the independent variable considered in the study. It means that 91.1% of the change that happens on the adoption of financial technologies is caused by those five factors considered in the study. The remaining 9.9% of variation in the dependent variable is caused by the variables that are not included in the study. It is inferred from this, the model considered in the study is fit and, statistically, the independent variables explain the change in the dependent variable.

Table: 4.6: ANOVA- Model Adequacy

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	10.369	5	2.074	62.774	.000[b]
	Residual	.826	25	.033		
	Total	11.195	30			
a. Dependent Variable: Adoption of Financial Technology						
b. Predictors: (Constant), Usefulness of Financial Technologies, Financial Regulation, Performance expectancy of Financial Technologies, Security Risk analysis of Financial Technologies, Facilitation Conditioning of Financial Technologies,						

Source: SPSS version 27 Output January 2025

To see whether the model significantly explains the relationship between the factors and the adoption of financial technologies, ANOVA test is conducted. The test predicts whether the regression model on the relationship between the independent variables and the dependent variable is adequate or fit.

Accordingly, the test statistic indicated in Table 4.6 indicates that the model is adequate and a good fit in the relationship among the factors that affect the adoption of financial technology and the adoption process, since the p-value in the ANOVA test is 0.000. This p-value is less than 0.05 and even 0.01 of the significance level considered as a benchmark in statistical analysis to determine the statistical significance of the cause-effect relationship. In summary, the model is

significant at p value of .000 and it thus indicates that the factors are considered as independent variables (usefulness, security risk, performance expectancy, facilitation conditioning, and financial technology regulations) that predict the changes that is observed in the adoption of financial technologies in commercial banks in Ethiopia.

Table 4.7: Coefficient of Regression

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.538	.295		-1.822	.080
	Usefulness of technology	.159	.062	.190	2.570	.017
	Security risk analysis of technology	.505	.136	.352	3.725	.001
	Performance expectancy of technology	.173	.070	.165	2.460	.021
	Facilitating Conditions of technology	.253	.079	.283	3.189	.004
	Financial Regulation	.146	.053	.187	2.770	.010
a. Dependent Variable: Adoption of Financial Technology						

Source: SPSS version 27 Output January, 2025

In order to identify how far each of the factors considered in the study affects the adoption of financial technology in the commercial banks, a multiple linear regression is conducted, and the above Table 4.7 indicates the result of the regression coefficient. The reading in the regression coefficient in the table no. 4.7 indicates that all of five explanatory variables (usefulness, security risk, performance expectancy, facilitation conditioning, and financial technology regulations) have a statistically significant effect on the dependent variable/adoption of financial

technologies/. In view of that, the result indicates that usefulness of financial technologies has (β=.159, p-value=0.017), security risk of financial technologies (β=-.505, p-value=0.001), performance expectancy of financial technologies (β=.173, p-value=0.021), facilitation conditioning of financial technologies (β=.252, p-value=0.004), regulation of financial technologies (β=.146, p-value=0.010).

To summarize, the study has identified that all of predicator variables included in the study significantly determine the adoption of financial technologies in the commercial banks in Ethiopia. When the direction of influence is considered, all of the predicator variables had a significant positive influence on the adoption of financial technologies in the study banks. Moreover, among those predicators, security risk analysis and facilitating conditions of financial technologies had the highest significant influence with beta values of .505 and .253, respectively. This implies that by keeping other variables constant, 50.5% and 25.3% of the change in the adoption of financial technologies is caused by a unit change in the security risk analysis and improving facilitating conditioning of financial technologies respectively. In comparison, the consideration of financial regulation of financial technologies had the least positive significant effect with a beta value of .146, showing that keeping other variables constant, a unit consideration in the financial regulation of financial technologies would result in 14.6% of change in the nature of the adoption of financial technologies.

4.5 Discussion of Results

This section presents the results indicated by regression analysis and discusses the results of the study in the context of the existing body of literature and theoretical viewpoints.

1. **Effects of Usefulness of Technologies on the Adoption of Financial Technologies**

The multiple linear regression result in Table number 4.7 indicates that the usefulness of financial technologies had a positive and significant influence on the adoption of financial technologies in the commercial banks in Ethiopia with values ($\beta = 0.159$, $t = 2.57$, $p < 0.05$). Hence, it is concluded that the null hypothesis is rejected. This finding is in line with the assumptions of technology acceptance model. The theory provides an explanation about the

effects of usefulness of the technologies on the adoption of financial technology. According to the technology acceptance model, an information technology system user's actual behavior is influenced by his/her intention either to accept or not to accept. However, the users' intention is primarily affected by both perceived ease of use and perceived usefulness (Davis, 1989).

Empirically, this finding is similar to the findings of a study conducted by Sikdar & Makkad (2015). The researchers have examined the online banking adoption process in the context of Indian banking customers and found that perceived usefulness of technologies positively affected financial institutions' intention to accept financial technologies that can be applied in the delivery of financial services to customers. Similarly, the study conducted by Sa'diyah (2021) on the analysis of factors affecting the adoption of financial technology applications gives good insight and understanding about the effects of usefulness in technology adoption process. In general, the findings of this study is theoretically justifiable as Deb & Agrawal (2017); Bagwell & Kellerman (2023) and other stressed that usefulness of technologies very vital for the adoption of financial technologies in commercial banks.

2. Effects of Security Risk Analysis on Adoption of Financial Technologies

The results presented in the table number 4.7 of coefficient of regression in the above indicates that consideration of perceived security risk of technologies had a significant and positive effect on the adoption of financial technologies in commercial banks in Ethiopia. The beta value of the variable is 0.505, $t = 3.725$, $p < 0.05$ which shows that perceived security risk had positive significant effect on adoption of financial technologies. This indicates that the null hypothesis is to be rejected. In the literature, it is stated that security concerns, particularly related to data breaches, fraud, and privacy, are prominent factors in perceived risk (Xue, Hitt, & Chen, 2011).

Banks could be reluctant to adopt financial technology services if they believe there is a significant risk involved (Tamilmani, Rana, & Dwivedi, 2021). They might be more likely to use financial technology services since the possible advantages exceed the hazards. On the other hand, a high perceived risk might undermine confidence and discourage adoption (Patel & Connolly, 2007). According to Venkatesh et al. (2016)'s unified theory of acceptance and usage of technology, the perceived security risk associated with a technology has an impact on its adoption.

Empirically, Patel & Connolly, (2007) has investigated the factors influencing technology adoption and discovered that perceived security risk of a technology is a major predicator of adoption of financial technologies. It is found in the study that organizations tend to prefer a technology which has low security risks. In addition, the result of this study is also consistent with the conclusion indicated in the study by Tam & Hanh, (2018), which is conducted on the roles of fintech for promoting financial inclusion in Vietnam. The authors have found out that considerations of banks about the perceived security risk of technologies have a significant and positive effect on the adoption of financial technologies and, in turn, improve the bank's financial performance. Similarly, other empirical findings from the literature indicate that commercial banks adopt technologies well, and are most interested in a technology which has the minimal security risks. For instance, Worku, (2015); Zeleke (2016), and Tnsuh, (2022) investigated the adoption of electronic banking in Ethiopia. The studies identified several factors that influence the adoption of electronic banking, including perceived ease of use, ICT infrastructure, and perceived security risks of the technologies.

3. Effect of Performance Expectancy on Adoption of Financial Technologies

The findings in the multiple regressions, as presented in Table 4.7 above, show that the performance expectancy of technologies had a significant positive effect on the adoption of financial technologies in commercial banks in Ethiopia. The regression coefficient indicates that the value of $\beta = .173$, $t = 2.460$, $p < 0.05$). The value of beta showed that a unit improvement in the performance expectancy of technologies will leads to 17.3% of improvement in adoption of financial technologies in commercial banks. Hence, the null hypothesis is to be rejected. This result is consistent with the theory of UTAUT that is the accepted conceptual framework of (Venkatesh et al., 2003). The model states that the actual use of technology is determined by the behavioral intention of individuals. The probability of adopting the technology is reliant on the direct effect of performance expectancy.

According to Bajunaied et al. (2023), people are more willing to embrace and use technology if they think it will enhance their performance or productivity. Additionally, according to Bajunaied et al. (2023), improving banks' experiences to reach performance targets is essential

for the widespread adoption and use of financial technologies in the delivery of financial services.

In the empirical literature, the research findings of Mensah (2022) conducted in the context of the Ghana focusing on the process of audit practices and technology adoption in the era of the covid-19 pandemic shows that performance expectancy has been found to improve the interest of stakeholders in adopting financial technologies. Similarly, a study conducted in financial institutions by Patel, & Connolly (2007) reveals that performance expectancy can be assumed as the critical factor of information technology adoption because it shows that the adoption can increase the productivity and performance of financial institutions and enable them to provide efficient and timely financial services. According to Xue, Hitt, & Chen (2011), performance expectancy provides opportunities for commercial banks to growth, more responsibilities, and increase organizational performance.

4. Effects of Facilitating Conditions on the Adoption of Financial Technologies

The result in the coefficient of multiple regression indicates that the facilitation condition had a positive and significant effect on the adoption of financial technologies with values ($\beta = 0.253$, $t = 3.189$, $p < 0.05$). This indicates that when commercial banks have improved the adequacy and relevance of facilitation conditions of technologies by one unit, there would be 25% change in adoption of financial technologies.

Theoretically, the results of the study is consistent with the assumptions of the theory of UTAUT. The theory the adoption of a technology is dependent on the direct effect of facilitating conditions. It asserts that the presence of facilitating conditions has the potential to stimulate greater interest and subsequent adoption of financial technology (Arner, Buckley, Zetzsche, & Veidt, 2020). In this context, a study by Bajunaied, Hussin & Kamarudin,2023) revealed that adequate access to technical support positively influenced users' adoption and usage of financial technologies.

Using American colleges as a case study, Lu et al. (2005) investigated the relationship between conducive factors, wireless trust, and adoption intention. The availability of training and assistance are thought to be facilitating factors when it comes to workplace technology use,

according to the study. Numerous technology acceptance studies examined this variable, and the suggested impact on technology adoption was found to be empirically supported.

Similarly, a study by Mahardika et al. (2019), conducted on the experience and facilitating conditions as impediments to consumers' new technology adoption, suggested that facilitating conditions significantly influence the intention to adopt financial technologies. In addition, the results from the study conducted by Catherine et al. (2017) indicates that there is a significant positive relationship between facilitating Conditions and financial technology adoption in Uganda. Thus it seems necessary to provide required resources, information and also continuous support to encourage users.

5. Effect of Regulation of Financial on Adoption of Financial Technologies

The finding from the regression analysis, as shown in Table 4.7 above, indicates that the regulatory framework of financial technologies as an explanatory variable had a significant effect on the adoption of financial technologies with $\beta = .146$, $t = 2.77$, $p < 0.05$. The result further shows that a unit change in the regulation of financial technologies would result in 14.6% changes in adoption of financial technologies. Thus, the proposed null hypothesis is rejected.

The financial system as a system is getting bigger, faster, and more complicated and challenging to control in the age of financial technology, claims Omarova (2020). In this regard, government support through its regulatory framework typically has a determining effect on the adoption of financial technology, frequently through the government's capacity to promote network-effect technology. Regulations governing technology adoption typically have the effect of preventing new entrants and offering appropriately large market segments to cater to. This decreases incentives for cost-cutting innovation, but it also frequently increases the benefits of innovation because there are fewer firms in the market (Kumelachew, 2015).

Financial technologies have many advantages, but there are risks as well. For instance, compared to traditional financial institutions, financial technology startups are typically subject to less regulation. Furthermore, because they frequently handle sensitive financial data belonging to customers, financial technology companies may be more susceptible to cyber-attacks (Hazdun, 2022). Financial technology appear to have a bright future. The development will probably also

result in a great deal of exposure to government endorsements, legal actions, and regulatory systems.

According to Bajunaied, Hussin, and Kamarudin (2023), rules pertaining to financial technology have a direct effect on the adoption of financial technologies since they either forbid or mandate the use of specific technologies or production techniques in the banking sector. Financial regulations might have prompted the adoption of new technology if they necessitated the change of aged, more antiquated systems, processes, and/or methods. This regulatory shift was made in order to predict the effect of regulations on the investment schemes of companies within the sector. As a result, the findings of the research is consistent with the existing body of knowledge that shows, financial technology regulation and technology adoption are consistently related.

No.	**Hypothesis**	**Decision**
1	Perceived usefulness of the technology has statistically significant influence on financial technology adoption in commercial banks	Do not reject
2	Perceived security risk analysis statistically has significant effect on the adoption of financial technologies in commercial banks	Do not reject
3	Performance expectancy of the technology has statistically significant effect on the adoption of financial technologies in commercial banks	Do not reject
4	Perceived facilitating conditions have statistically significant effect on the adoption of financial technologies in commercial banks	Do not reject
5	Financial technology regulation has statistically significant	Do not reject

	influence on the adoption of financial technologies by banks	

CHAPTER FIVE
5.CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The thesis has examined the factors that affect the adoption of financial technologies, focusing on commercial banks in Ethiopia. In doing this, it has considered the five major factors that are theoretically as well as empirically found important in determining financial technology adoption in the banking sector. These factors are perceived usefulness, security risk analysis, performance expectancy, facilitating condition, and financial technology regulations. In line with this, the subsequent sub-chapters show the conclusion, recommendations, and implications of the study.

5.2 Conclusions

The study has investigated how various factors have affected the technology adoption of financial technologies in commercial banks of Ethiopia. Accordingly, the study identified in the descriptive analysis that the dominant number of banks had a favorable attitude toward the acceptance of financial technologies. The mean scores for all variables pertaining to the determinants of the adoption of financial technology are over 3.5, showing that participants had a favorable attitude. This suggests that financial technology adoption was beneficial, enhanced the performance of the banks, and that the banks had the staff and infrastructure necessary to use financial technology. Prior to deployment, commercial banks also assess the security concerns associated with financial innovations. The respondents believed that government regulatory frameworks were also conducive to the uptake of financial innovations.

Regarding the correlation between the factors that affect the level of technology adoption and adoption process, it is found that there is a positive significant association among the factors/

predicators/ and the adoption of financial technologies. The cause-effect analysis shows that the model summary of the regression analysis has significant explanatory power, with R^2 and adjusted R^2 are .926 and .911, respectively. This implies that the model explains that 91.1% of variations in the adoption of financial technologies is caused by the factors taken in the study. The ANOVA test indicates that the model fits in the association between the explanatory variables and the adoption of financial technologies since the p-value is 0.000. This shows, the explanatory variables have statistically significant influence on adoption of financial technology. Besides, the study has also proved that all of the explanatory variables considered in the study have a significant positive effect on the adoption of financial technologies in commercial banks in Ethiopia.

5.3 Recommendations

The following are the recommendations:

1. As the results of the study indicate that the majority of the respondents had a positive perception about the usefulness, security risk, performance, and facilitating conditions of commercial banks in technology adoption. Respondents have also agreed that financial regulations are helpful for technology adoption. However, there is a higher variation in the opinion of participants of the study about the usefulness and financial regulations of financial technologies. This indicates that the respondents did not have consistent view regarding these variables.
    A. Hence, the commercial banks need to consistently consider financial regulations when adopting technologies adequately and properly.
    B. Besides, commercial banks should better conceptualize the usefulness of financial technologies in improving service delivery to customers correctly and holistically.
    C. Moreover, the leadership of commercial banks need to develop and establish adequate and relevant infrastructure that is suitable to adopt financial technologies.
2. The results of descriptive statistics shows huge number of employees hold a neutral view (see annex 2) concerning the determinants of the adoption of financial technologies. This probably shows that respondents did not have adequate awareness of the adoption process

of financial technologies. Hence, the commercial bank leadership is advised to concretize the adoption of technology and the factors that affects the practices.

3. The study has the finding that the factors that are taken in the research have substantial influence on the adoption of financial technology hence, they are important and relevant to make appropriate decision to accept or not to accept financial technologies. Therefore, all factors needs to be exercised to bring remarkable change on banks' ability to adopt financial technologies.
4. Significant number of the respondents disagree that commercial banks analyze both financial and non-financial risks when adopting financial technologies. This requires improvement in the sense that commercial banks conduct the financial as well as non-financial risk analysis using risk analysis techniques. In addition, commercial banks are recommended to analyze security concerns related to data breaches and fraud in adoption of financial technologies
5. Furthermore, some of the respondents showed their disagreement toward the existing mechanisms in place by banks to conduct assessments of the potential negative consequences of adopting financial technologies. Their views suggest that the banks need to critically assess the negative consequences of technologies before adopting it through potential risk assessment methods.
6. Significant number of respondents had a neutral view on whether the banks adopt financial technologies which increase the satisfaction of its customers, this indicates that the banks need to properly communicate and aware their employees how financial technologies improve customers' satisfaction.
7. Some of the respondents had a neutral and disagreement view regarding the availability of adequate technical infrastructure for adopting financial technologies in commercial banks. Accordingly, banks need to fulfill the required infrastructure that help them adopt financial technologies properly. In addition, it is found in the study that large number of respondents had a neutral and opposing view on the provision of adequate training to employees when adopting financial technologies, hence, banks need to provide timely training to employees about financial technologies.

8. Significant number of respondents disagree and maintained a neutral view about the continuously support that the regulations endorsed by the National Bank of Ethiopia and other government bodies provides to commercial banks to adopt of financial technologies. Accordingly, the regulations endorsed by NBE arrange institutional mechanisms to continuously support commercial banks to adopt financial technologies.
9. Finally, in a country like Ethiopia where the banking industry is expanding rapidly and where there is a plan to allow foreign banks to enter into the local banking industry, adopting emerging financial technologies is indispensable. Hence, the banking sector needs to properly determine the factors that affect the adoption process and integrate necessary the assessment of the potential usefulness, security risk and performance expectancy of technologies before adoption. In addition, the regulatory frameworks endorsed by the National Bank of Ethiopia should also be further improved. The regulations be continuously support and control the adoption of financial technologies.

5.4 Recommendations for Further Research

Similar studies will use this research paper as a springboard. However, other factors that have effect on the adoption of financial technologies, including effort expectancy, ease of use, social affect of technologies, and others, are not considered in this study. Hence, this requires further scientific investigation, and other studies need to focus on these topics. Secondly, other research works are required to examine the effects the factors considered in this study in different organizational set-up other than commercial banks. In this, future research works can go deeper into this subject considering other explanatory variables and other organizational set-up. Finally, this research work has found out that all of the determinants considered in the study have significant influence on adoption of financial technologies. These findings should also be validated in other remaining commercial and non-commercial financial institutions not considered in this study.

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Annex 1

Addis Ababa University

College of Business and Economics

School of Commerce

Questionnaire to be filled by Commercial Bank's Financial Technology Adoption Division Heads, Deputy Heads and Experts

Informed Consent

My name is Akalu Atlaw, MSC student at Addis Ababa University School of Commerce. Currently, I am working on my thesis entitled the "**Factors Affecting the Adoption of Financial Technologies in the Banking Industry of Ethiopia".** I am conducting this study as partial fulfillment of the requirements of the Master's degree in corporate finance. Thus, this questionnaire is prepared to collect data for you as representatives of the banks. Accordingly, the study has identified you as a vital source of primary data which is very compulsory to complete the study appropriately. Hence, the responses you provide in this questionnaire are very pertinent in that it enables the researcher to come-up with valid, credible, and valuable research findings. Such findings, in turn, are very crucial in that they enable the creation of improved understanding among stakeholders regarding the factors affecting the adoption of financial technologies in commercial banks in Ethiopia. The true responses you give will thus be used as pertinent primary information for the study and have a large contribution to the achievement of the thesis.

The purpose of the study is exclusively academic. Hence, the personal identity of respondents will be kept anonyms in all process of the study and therefore, no one knows as to who have participated in filling the questionnaire. Besides, the information you may provide in this questionnaire will be held confidential and it is exclusively used for doing this research. Hence, I kindly request you to be honest and benevolent in providing the right answers to the questions. It will take you about 10 minutes to have answers to the questions listed in the questionnaire. Therefore, I kindly ask you to have patience in answering the questions well.

I am very grateful for your support in advance!

Akalu Atlaw

Section I. Demographic Information (Please tick or circle your choice).

1. Gender
   1. Male 2. Female
2. Age
   1. 18 to 25 years 3. 36 to 45 years
   2. 26 to 35 years 4. More than 45
3. Tenure/service in the bank
   1. Less than < 1year 3. Between 5-10 years
   2. Between 1-5 years 4. Over 10 years
4. Education level accomplished:
   1. Certificate 3. First Degree
   2. Diploma/10+3 4. MA degree and Above
5. Job Position:
   1. Junior Expert
   2. Senior Expert
   3. Management body
   4. Other

Section II: Please indicate the most appropriate opinion/response with the scale below.

(1) Strongly Disagree (2) Disagree (3) Neutral (4) Agree (5) Strongly Agree

1. Perceived Usefulness of the Technology

No.	Item	Scale of measurement				
		1	2	3	4	5
1	The financial technologies the bank adopts are easily used for the provision of service the customers need					
2	The financial technologies which the bank adopts can be easily managed for electronic financial services					
3	The financial technologies adopted would enhance the bank's performance					
4	The financial technologies adopted are easily communicated with customers of the bank					
5	The financial technologies adopted are easily operated by bank officers					

2. Security Risk of the Financial Technology

No.	Item	Scale of measurement				
		1	2	3	4	5
1	The bank conducts assessments of the potential negative consequences of adopting financial technologies					
2	The bank security concerns related to data breaches, and					

	fraud are considered in adoption of financial technologies					
3	The bank adopts financial technologies which build the trust of its customers					
4	The bank analyzes both financial and non-financial risks when adopting financial technologies					
5	The bank considers the privacy of private financial information when adopting financial technologies.					

3. Performance Expectancy Financial Technology

No.	**Item**	**Scale of measurement**				
		1	**2**	**3**	**4**	**5**
1	The bank adopts financial technology which will enhance its operational performance					
2	The bank adopts financial technology that makes its activities easier or more efficient					
3	The bank adopts financial technologies that improve the performance of its employees					
4	The bank adopts financial technologies that enable the provision of timely financial services					
5	The bank adopts financial technologies which increase the					

	satisfaction of its customers					

4. Facilitation Conditioning of **Financial Technology**

No.	**Item**	**Scale of measurement**				
		1	**2**	**3**	**4**	**5**
1	The bank has adequate technical infrastructure for adopting financial technologies					
2	The bank has an organizational structure that supports the adoption and use of financial technologies					
3	The bank adopts financial technologies that respond to the cognitive, emotional, and contextual concerns of users					
4	The bank's top management adequately supports the adoption of financial technologies					
5	The bank provides adequate training to its employees when adopting financial technologies					

5. Financial Technology Regulations

No.	**Item**	**Scale of measurement**				
		1	**2**	**3**	**4**	**5**
1	The National Bank of Ethiopia and other government bodies regulations encourage the adoption of financial technologies					
2	The regulations endorsed by the National Bank of Ethiopia					

	and other government bodies are clear and understandable for bank's decision making to adopt financial technologies					
3	The regulations endorsed by the National Bank of Ethiopia and other government bodies provide adequate financial protection for banks which adopts financial technologies					
4	The regulations endorsed by the National Bank of Ethiopia and other government bodies do not limit the budget allocated by the bank for the adoption of financial technologies					
5	The regulations endorsed by the National Bank of Ethiopia and other government bodies continuously support and control the adoption of financial technologies by the bank					

6. Adoption of Financial Technology

No.	**Item**	**Scale of measurement**				
		1	**2**	**3**	**4**	**5**
1	The bank frequently adopts new financial technologies					
2	The bank regularly use financial technology platforms for its financial needs					
3	The bank is an exemplary for other commercial banks in the adoption of financial technology					
4	The bank has adequate resources for adopting financial					

	technologies					
5	The bank has adequate capacity to navigate and troubleshoot issues on adopted financial technologies					

Annex 2

Cases of Descriptive Statistics

PUFT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	3	9.7	9.7	12.9
	Neutral	6	19.4	19.4	32.3
	Agree	16	51.6	51.6	83.9
	Strongly Agree	5	16.1	16.1	100.0
	Total	31	100.0	100.0	

PUFT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	2	6.5	6.5	9.7
	Neutral	6	19.4	19.4	29.0
	Agree	12	38.7	38.7	67.7
	Strongly Agree	10	32.3	32.3	100.0
	Total	31	100.0	100.0	

PUFT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	3.2	3.2	3.2
	Neutral	6	19.4	19.4	22.6
	Agree	11	35.5	35.5	58.1
	Strongly Agree	13	41.9	41.9	100.0
	Total	31	100.0	100.0	

PUFT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	6	19.4	19.4	19.4
	Agree	10	32.3	32.3	51.6
	Strongly Agree	15	48.4	48.4	100.0
	Total	31	100.0	100.0	

PUFT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	6.5	6.5	6.5
	Neutral	7	22.6	22.6	29.0
	Agree	8	25.8	25.8	54.8
	Strongly Agree	14	45.2	45.2	100.0
	Total	31	100.0	100.0	

SRFT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	5	16.1	16.1	16.1
	Neutral	20	64.5	64.5	80.6
	Agree	6	19.4	19.4	100.0
	Total	31	100.0	100.0	

SRFT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	19.4	19.4	19.4
	Disagree	12	38.7	38.7	58.1
	Neutral	13	41.9	41.9	100.0
	Total	31	100.0	100.0	

SRFT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	2	6.5	6.5	9.7
	Neutral	4	12.9	12.9	22.6
	Agree	16	51.6	51.6	74.2
	Strongly Agree	8	25.8	25.8	100.0
	Total	31	100.0	100.0	

SRFT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	16.1	16.1	16.1
	Agree	15	48.4	48.4	64.5
	Strongly Agree	11	35.5	35.5	100.0
	Total	31	100.0	100.0	

SRFT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	4	12.9	12.9	12.9
	Agree	11	35.5	35.5	48.4
	Strongly Agree	16	51.6	51.6	100.0
	Total	31	100.0	100.0	

PEFT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	2	6.5	6.5	9.7
	Neutral	5	16.1	16.1	25.8
	Agree	16	51.6	51.6	77.4
	Strongly Agree	7	22.6	22.6	100.0
	Total	31	100.0	100.0	

PEFT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	3.2	3.2	3.2
	Neutral	6	19.4	19.4	22.6
	Agree	13	41.9	41.9	64.5
	Strongly Agree	11	35.5	35.5	100.0
	Total	31	100.0	100.0	

PEFT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	16.1	16.1	16.1
	Agree	13	41.9	41.9	58.1
	Strongly Agree	13	41.9	41.9	100.0
	Total	31	100.0	100.0	

PEFT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	3.2	3.2	3.2
	Neutral	4	12.9	12.9	16.1
	Agree	12	38.7	38.7	54.8
	Strongly Agree	14	45.2	45.2	100.0
	Total	31	100.0	100.0	

PEFT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	3.2	3.2	3.2
	Neutral	7	22.6	22.6	25.8
	Agree	9	29.0	29.0	54.8
	Strongly Agree	14	45.2	45.2	100.0
	Total	31	100.0	100.0	

FCFT1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Neutral	5	16.1	16.1	19.4
	Agree	13	41.9	41.9	61.3
	Strongly Agree	12	38.7	38.7	100.0
	Total	31	100.0	100.0	

FCFT2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	2	6.5	6.5	9.7
	Neutral	5	16.1	16.1	25.8
	Agree	10	32.3	32.3	58.1
	Strongly Agree	13	41.9	41.9	100.0
	Total	31	100.0	100.0	

FCFT3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	3.2	3.2	3.2
	Neutral	4	12.9	12.9	16.1
	Agree	18	58.1	58.1	74.2
	Strongly Agree	8	25.8	25.8	100.0
	Total	31	100.0	100.0	

FCFT4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	5	16.1	16.1	16.1
	Agree	16	51.6	51.6	67.7
	Strongly Agree	10	32.3	32.3	100.0
	Total	31	100.0	100.0	

FCFT5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	9.7	9.7	9.7
	Neutral	8	25.8	25.8	35.5
	Agree	10	32.3	32.3	67.7
	Strongly Agree	10	32.3	32.3	100.0
	Total	31	100.0	100.0	

FTR1

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	1	3.2	3.2	6.5
	Neutral	5	16.1	16.1	22.6
	Agree	13	41.9	41.9	64.5
	Strongly Agree	11	35.5	35.5	100.0
	Total	31	100.0	100.0	

FTR2

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	4	12.9	12.9	12.9
	Neutral	5	16.1	16.1	29.0
	Agree	10	32.3	32.3	61.3
	Strongly Agree	12	38.7	38.7	100.0
	Total	31	100.0	100.0	

FTR3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	3.2	3.2	3.2
	Disagree	1	3.2	3.2	6.5
	Neutral	6	19.4	19.4	25.8
	Agree	11	35.5	35.5	61.3
	Strongly Agree	12	38.7	38.7	100.0
	Total	31	100.0	100.0	

FTR4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	9.7	9.7	9.7
	Neutral	6	19.4	19.4	29.0
	Agree	7	22.6	22.6	51.6
	Strongly Agree	15	48.4	48.4	100.0
	Total	31	100.0	100.0	

FTR5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	2	6.5	6.5	6.5
	Neutral	7	22.6	22.6	29.0
	Agree	9	29.0	29.0	58.1
	Strongly Agree	13	41.9	41.9	100.0
	Total	31	100.0	100.0	