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**COLLEGE OF BUSINESS AND ECONOMICS  
POST GRADUATE STUDIES**

**Mobile Money Services (CBE-Birr) services Adoption in Commercial Bank of Ethiopia**

A THESIS SUBMITTED TO THE DEPARTMENT OF MASTRER OF BUSINESS  
ADMINISTRATION

PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIRMENTS FOR THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRARION IN MANAGEMENT

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October, 2024

ADDIS ABABA, ETHIOPIA

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## STATEMENT OF DECLARATION

I, Petros Mulualem, hereby declare that this Master's degree thesis titled "**Mobile Money Services (CBE-Birr) services Adoption in Commercial Bank of Ethiopia**" is the result of my original research and work under the guidance of Abera Legesse (Phd). In Master of Business Administration (Management).College of Business and Economics, Addis Ababa University.

I confirm that this thesis has not been previously submitted in part or in whole for any other degree or diploma at this or any other university.

All sources used in the research in the preparation of the study have been properly acknowledged and referenced.

I properly grasp that any evidence of plagiarism or other form of academic misconduct will result in disciplinary action against me in accordance with the university regulation.

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## Statement of Certification

This is to certify that the thesis prepared by Petros Mulualem entitled “**Mobile Money Services (CBE-Birr) services Adoption in Commercial Bank of Ethiopia**” submitted in partial fulfillment of the requirement for the degree of master of business administration in management compliance with the university and meets the accepted standards with respect to originality and quality.

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## **ACKNOWLEDGEMENT**

First and for most I would like to thanks the almighty God who take care and guide me on the right path in every circumstance of my life . I would like to thank my advisor Dr.Abera Legesse whose expertise was invaluable advice and constructive feedback and the time he devoted until finalization of this paper.my thanks also goes to all my family for their invaluable support . All my family members do have their shares in this work. They were continuously helping and encouraging me throughout the year until finalization of the paper.

I would like to also express the deepest appreciation to the institutions, respondents and officials contributed significantly to the study by completing questionnaires. Finally, I would like to thank the author of the secondary source literature from which I derived the thesis content.

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## **List of ACCRONYMS AND ABREIVATIONS**

ANOVA-Analysis of Variance

ATM –Automatic teller machine

CBE- Commercial bank of Ethiopia

CPS- Cloud payment system

DIT- Diffusion Innovation Theory

E-BANKING: Electronic banking

ETB- Ethiopian Birr

IB: Internet banking

ICT-information communication

IT-Information Technology

MB: Mobile banking

MMS: Mobile money service

MNOs-Mobile network operators

NBE-National Bank of Ethiopia

PC-Perceived cost

PEU-Perceived ease of use

PIN –Personal Identification Number

POS-Point of sales

PR- Perceived risk

PRMN- Perceived reliable mobile network

PSE-Perceived self-efficacy

PT-Perceived trust

PU- Perceived usefulness

RA-Relative Advantage

SMS –Short Message Services

SPSS-Statistical Package for Social Science

TAM-Technology Acceptance Model

TOE –Technology Organization Environment

TPB-Theory of Planned behavior

TRA-Theory of Reasoned behavior

USSD-Unstructured Supplementary Services

UTAUT-Unified theory of acceptance and use of technology

VIF: Variance Inflation Factor

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## **Abstract**

*This study is aimed to examine Mobile money service (CBE Birr) services adoption in commercial Bank of Ethiopia. The study used the technology acceptance model to analyze or to scrutinize the factors that affect the adoption of mobile money services or CBE-Birr services in commercial bank of Ethiopia.as the result of the study key factors influencing the adoption are perceived usefulness', perceived risk ,perceived ease of use perceived self-efficacy ,perceived reliable mobile network ,perceived risk and perceived cost To achieve the main objective of the study the researcher developed conceptual frame work model to deal the relationship of the variable. The study used quantitative approach with explanatory designing method .The study was conducted on customer of CBE-Birr user in commercial bank of Ethiopia through cross sectional survey .out of 237 questioners' that have been distributed 203 were used in the analysis of the study. The study found that perceived usefulness, perceived ease of use had positively significant relation with the adoption of mobile money or CBE Birr services. Whereas perceived trust, perceived reliable mobile network, and perceived self –efficacy had positive relation with the adoption of mobile money services or CBE Birr services. Perceived cost had insignificant effect or had no relation with the adoption of mobile money services based on the study. Perceived risk had negatively affected the adoption of mobile money services or had negative effect on the adoption of mobile money services based on the study. The researcher recommends that the services should be provided in different local languages because of most Ethiopian people cannot read and understand the foreign language and the design of the services also should be user-friendly or easy to use.*

**Key terms:** Adoption, Mobile Money, CBE Birr, Perception, Payment, Technology

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

The concept of mobile money has been around for several decades but it wasn't until the early 2000s that it has begun to gain traction as viable financial system. The first mobile money service was developed and launched in Kenya in 2007 by Safaricom, and today there are more than billions of mobile money customers making it the most popular and successful in the world (Museba et al., 2021). An important strategy is the collaboration by banks and mobile network operators (MNOs) to deliver mobile phone-based money transfer services (Ehrbeck, 2012; Jenkins, 2008). The Eastern African region, specifically Kenya is taking the lead. Mobile money is considerably cheaper than other alternatives to cash.

Mobile money customers can deposit and with draw cash from branch or agents, send money to subscribe and unsubscribed users buy air time, buy goods, cash out, pay bill, donating services ,pay for nedaj, pay for electricity and water , etc. (<https://internal.portal>), 2024

Mobile money services have become a ubiquitous tool in some developing economies, allowing individuals to digitally transact money without formal bank accounts. The impacts, where documented, have been sizeable: For example, poverty decreased by two percentage points in Kenya. However, adoption still lags in many economies and, even where there is universal adoption, product innovation over the rails of these digital accounts has been slow.

Mobile payments can be convenient, fast and secure. They can, however, still vulnerable to issues with technology like fraud. In particular, if there are issues with the host phone, mobile payments may be unable to work.

**Agent banking** is a kind of branchless banking which is significantly cheaper alternative to conventional branch-based banking that allows financial institutions and other commercial players to offer financial services outside traditional bank premises (Hassan, et al, 2011). Agent banking means the conduct of banking business on behalf of a financial institution through an agent using various service delivery channels (NBE directives Number FIS /01/2012). Mobile

and Agent Banking means the conduct of banking business on behalf of a financial institution through an agent using various service delivery channels; so as to conduct various banking activities which primarily consists of opening and maintaining mobile/regular accounts and accepting deposits; performing fund transfer or cash in and cash out services using mobile devices (NBE Directive No.FIS/01/2012)

Mobile and Agent banking service has enabled banking institutions to compete more effectively in different banking organization by extending their services without restriction of space and time through established third party with the application of technology. However, the adoption of mobile and agent banking system is a recent phenomenon in Ethiopia (Yikeber zigale2018).

Mobile banking is the use of smartphones or tablets to access banking services, with a mobile banking; you have ready access to a host of banking functions. For example, you can check your savings bank account balance, transfer funds to another user, initiate money transfers open a Fixed Deposit account, and pay utility bills, transfer to other banks (p2p payments), transfer to CBE accounts, transfer to tell birr, top up air time, etc customers can transfer per transaction around two thousand birr via mobile banking (single transaction) but pay to beneficiary is possible more than two thousand per transaction. Customers can transfers three thousands birr per day and costumers access txn (account statement) tenth times per day via mobile banking (CBE procedure, March, 2023)

## **1.2. Background of the organization**

The history of the Commercial Bank of Ethiopia (CBE) dates back to the establishment of the State Bank of Ethiopia in 1942. CBE was legally established as a share company in 1963 after splitting of State Bank of Ethiopia in to National Bank and Commercial Bank. In 1974, CBE merged with the privately owned Addis Ababa Bank. Since then, it has been playing significant roles in the development of the country. Currently CBE has more than 35 million account holders and the number of Mobile and Internet Banking users also reached more than 12.1 million as of February 30<sup>th</sup> 2023 .(CBE report, 2023)

Commercial bank of Ethiopia is one of the prominent financial organizations that give conventional and none conventional banking services to customers with more than 80 years of

experience. Currently it has more than 1940 branches in the country and outside the country like Djibouti and south Sudan and with having more than 50,000 employees currently (<https://internal.portal>), December, 2023

Commercial bank of Ethiopia is now providing services to customers with new technologies such as automatic teller machine (ATMs), pose(point of sale), mobile banking ,internet banking, card less banking ,agent banking such as CBE birr and integrated with third party as well, (CBE procedure,2020)

Mobile money system is introduced by commercial bank of Ethiopia in accordance with NBE directive number; FIS/01/2012.it was in testing phase from June2017 to December 2017 and become live in December 12, 2017.

**Mission:** We are committed to realize stakeholder’s value through enhanced financial intermediation by deploying best professionals and technology (CBE, procedure, 2019)

**Vision:** To become world class commercial bank by the year 2025

**Values:** our core values detailed as follows are operating principles that guide our internal conduct as well as our relationship with our customers, partners and shareholders (CBE, procedure, 2019)

### **1.3. Statement of the problem**

Despite the rapid growth of mobile money services globally, adoption remains low in the Commercial Bank of Ethiopia, particularly in rural areas. The factors influencing customer adoption and the success of these services are not well understood. This represents a significant knowledge gap that must be addressed to maximize the potential impact of mobile money services in Commercial Bank of Ethiopia.

Furthermore, the CBE has recently introduced mobile money services, but faces challenges in gaining market share and competing with other mobile money service providers. Understanding the factors that influence customers' adoption and success of CBE's mobile money services is therefore critical to the success of the service.

Therefore, the main objective of this study is to analyze mobile money or CBE Birr services adoption in commercial bank of Ethiopia, with a focus on identifying the negative impact and imperfection to increased adoption and success. Specifically, the study aims to deal the key factors that influence customers' adoption and success as well as usage of mobile money services (CBE-Birr services) in Commercial bank of Ethiopia and assessing perceived usefulness, perceived ease of use ,perceived self-efficacy ,perceived trust, perceived reliable mobile network ,perceived risk and perceived cost impact the adoption and success of CBE-Birr services or mobile money services in commercial bank of Ethiopian in Addis Ababa town in some selected branches in the same manner it deals the main perceived determinant of the customers to increased adoption and success of mobile money service or CBE-Birr services in Commercial bank of Ethiopia.

By addressing these and the likes, the study aims to provide insights into the barriers and opportunities of mobile money adoption and usage in Ethiopia, and offer recommendations for improving the design and implementation of mobile money systems to increase their impact on financial inclusion and economic development

#### **1.4. Research question**

In this study the researcher tried to overcome or tried to answer the following questions.

- 1). what are the key factors that influence the adoption and success of mobile money services, and how do they impact the user experience?
- 2). To what extent perceived trust, perceived usefulness, perceived ease of use, perceived trust, perceived mobile networks perceived cost and perceived risk impact the adoption and success of mobile money services in commercial bank of Ethiopia?

#### **1.5. Objective of the study**

##### **1.5.1 General objective**

The general objective of the study is Mobile Money Services adoption (CBE Birr) Services adoption in Commercial Bank of Ethiopia.

### **1.5.2 .Specific objective**

The specific objectives of the study are:

- To examine the impact of perceived usefulness, perceive cost, perceived risk and trust of mobile money services (CBE-Birr) in Commercial Bank of Ethiopia.
- To describe influential factors that influence adoption and success of mobile money services in commercial bank of Ethiopia and Identifying the major factors affecting mobile money system in Commercial Bank of Ethiopia.

### **1.6. Scope and limitation of the study**

The study intends to describe the key factors that affecting the adoption and success of mobile money or CBE-Birr services or cloud payment system (CBE birr) in Ethiopia banking industry in commercial bank of Ethiopia in some selected branches. This study is focused on commercial bank of Ethiopia in Addis Ababa town in selected branches. The research is limited to examining of factors affecting in implementation of mobile money system in commercial bank of Ethiopia.

#### **1.6.1. Limitation of the study**

The major drawback of the study is: - limited empirical evidence, Limited resource. Limited primary sours for the study.

Some respondents were unwilling to give information about the adoption and success of mobile money services may be for the fear of victimization and some are busy in their offices work to give information and to fill the questioners. There is also some inconsistency in the response of the questionnaires that they did not finish all the questionnaires and some respondents were not returned.

### **1.7. Significance of the study**

The study is vital to commercial bank of Ethiopia by identifying major factors affecting the adoption and success of mobile money system or Mobile payment banking system or digitalization of the system and having a clear understanding of the factors that make the organization less advanced in digital payment system and technology. The study also indicators for the area which should be improved the organization and make competitive in technology and confirms its reliability and availability. Since mobile money system (CBE Birr or cps) enhances

the payment system more customers come to the organizations and the organization will be benefited. Commercial bank of Ethiopia (CBE) is the first and the leader bank in Ethiopia banking industry. A new technology such as mobile money services or CBE-Birr services introduced in the organization helps to the organization to offer a range of benefits that make financial transactions more accessible, convenient, secure, efficient, and cost-effective. Private Banks also another beneficiary by the study, using the study they overcome factors affecting their payment system. The last, the study serve as the ground for further studies and motivate the researcher to scrutinize in depth and having updating understanding on the area.

### **1.8. Organization of the study**

The research is structured in five chapters. The first chapter one include background of the study, statement of the problem, research objectives, research questions, significance, scope, limitation and organization of the study. Chapter two focused literature review which comprises theoretical and empirical review with conceptual frame work. Chapter three presented the research methodology that contained the research approach, design, target population, sampling technique and sample size, method of data analysis and reliability and validity. Then the study engaged in considering the ethical issue of the respondents. Chapter four presented the result and discussion which comprise the descriptive statistics relating to respondent's demographic characteristics and the adoption and usage of the services and inferential statistics of the correlation analysis, multi co linearity and multiple linear regression analysis of all variables deployed in this study. Chapter five provided conclusion, recommendations that faced in the process conducting this study and the study contribution to future research

# CHAPTER TWO

## 2. RELATED LITRATURE REVIEW

This chapter provides theoretical and empirical frame works for the study by reviewing related literatures on factors affecting adoption of mobile money service in CBE into two broad sections. The first section presents theoretical literature on the factors affecting the adoption and success of mobile money service.

The second section devoted to the review of empirical study in other countries at large and in Ethiopia along the gapes observed in particular.by intervening in each section, the researcher picks the gaps witnessed in empirical studies and shows this to be bridged by this study.

### 2.1 Theoretical reviews

Mobile money system refers to wide range of financial offerings.it is applied in the payment system of mobile carriers. That gives easy, efficient and reliable mobile money services for end users and provides a new reliable revenue channel for both carriers and their partners(*Mobile Money System Overview*, n.d.). according to Smith ,J.2021 mobile money service refers to a technology that allows people to use their mobile phone to conduct financial transaction such as many transfer ,payment of bill, buy air time ,buy goods, to check own account etc. History of mobile money services can be traced back to the early 2000s when mobile phone companies in developed country start to experiments .with the idea of using their network to enable financial transaction, as of 2021,Mobile money service has been adopted by millions of people who previously had little or no access traditional banking services, mobile money service have also been used to provide financial service in emergency situation such as natural disaster or pandemics demonstrating their potential impact beyond traditional financial service (Smith,J.2021)an AI generated article.

Mobile money service could become general platform that transforms entire economies as it is adopted across commerce ,health care ,agriculture and other sectors(Maradung, 2013).mobile money a term often used to describe technology that enables individual that to perform electronic financial services(store ,send and receive money using mobile phone without necessarily owning a formal bank account with deposit money banks. The mobile money user

account is usually the same as the phone number. It is sometimes quoted or mentioned as “mobile wallet” or by some specific name like MPesa (Joseph, 2020)

### **2.1.1 Over view of mobile money service**

The informal way of making a payment such as carrying money is susceptible to robbery and theft (Maradung, 2013). While money transfer through families and friends are sometimes misused and at a time does not reach on time to its destination. While money sent through parcels and letters companies may be expensive or may be stolen, other barriers related with the formal and semi-formal system includes delay. At the same time commercial banks are undergoing rapid change the majority of them pushed by information and telecommunication (Maradung, 2013). The first misconception the public and even professional often have is that mobile money is catch-it-all term used to refer to all financial services transaction like remittance, fund transfer, bill payment, air time top up and utility subscription carried out through the use of mobile phones. (Joseph, 2020). Today mobile money services prompting account ownership and payments in developing and emerging countries (Hamdan, 2019). Mobile phone payment is preferable way in sending and receiving money in Africa (Ali & Dhaha, 2014). Mobile money improve customer satisfaction and avoid customer friction (Koloseni & Mandari, 2017). The availability of mobile money service represents services facilities and availability of services has been recognized as important determinant of service quality (Twum et al., 2023).

### **2.1.2 Overview of mobile money service in Ethiopia**

The general public mostly considered as mobile money service is the same as mobile banking which is wrong conception clearly indicate that mobile banking is not the same as mobile money. But they are related (Joseph, 2020). Mobile banking is another aspect of mobile financial service that allow customer of banks to access their account and perform various monetary transaction using their mobile phone in the form of APP (android) or USSD as common in Ethiopia. But except mobile money in general, mobile banking is only available those who have formal account in a bank (Joseph, 2020). Mobile banking has greater penetration relative to mobile money service in Ethiopia context in case of commercial bank of Ethiopia however mobile money services is greater penetration and patronage in developed countries as compared to developing countries due to their level of infrastructure development most unbanked people of

the developing countries often relies on mobile money services to conduct any financial transaction in their mobile phone without owning a bank account (Joseph, 2020). The implementation of mobile money services has accelerated, particularly in developing nations, to succeed the infrastructural difficulty or inadequacy that traditionally hindered the low-end segment of the population(Okello Candiya Bongomin & Ntayi, 2020).

### **2.1.3. Merit of Mobile Money services**

Mobile money services have the potential to improve services beside the reach of the formal financial sector .it can improve national payments systems by providing innovative ways to meet transaction need of customers.(Maradung, 2013).the ubiquity and convenience of mobile money services brings invaluable and immeasurable opportunities in the delivery of financial services. the opportunities includes reaching vast number of new customers and providing better service to existing financial services customers .the opportunities include increase affordability ,service convenience ,flexibility and security (Marumbwa, 2013).mobile money is developed as a tool to serve unbanked(unreached )population by allowing them to make financial transaction using their phone number(Joseph, 2020). Technology has helped in increasing the productivity, quality, and business performance of mankind(Prakash et al., 2022)

### **2.1.4. Application security issues in mobile money service**

Financial security control has influence on users behavioral intention additional security feature in current mobile money banking system is out of place. Security issue has become critical issue in mobile money banking system out of which Ghana has no exception (Ekow Kelly & Palaniappan, 2022). The most vital security recommendation in mobile money service is mostly related to users taking additional precautions on their devices. Other studies also proposed that security precautions, to include two-factor-authentication, the use of a unique password and ensuring secured transaction operation and security settings on the type of mobile technology used(Ekow Kelly & Palaniappan, 2022).according to the study financial security has impact on users attitude in mobile money service and it has significant impact on behavioral intention and have positive impact on perceived usefulness and perceived ease of use(Ekow Kelly & Palaniappan, 2022). Security and trustworthiness of a service have been recognized as most critical factors with every target customer segment when the use of service delivery channel is

decided. According to the study customer will never use mobile financial service if they do not believe that their money will not be safe(Maradung, 2013).mobile money service user especially illiterate people are specially concerned about security issues. These involve financial fraud, account misuse and user-friendliness issues like difficult in remembering like complexes password or pin and different codes for different transactions (Maradung, 2013).

### **2.1.5. Factors affecting mobile money system**

Many researchers try to have used different theoretical framework in the study of adoption and success of new technological innovation like mobile money services among frame work that have been developed in the past studies include TAM by Davis(1986).perceived financial cost has been added to the original TAM constructs and found to be positively associated with customer intention to use mobile money service (Maradung, 2013).the higher the usage cost the less willing the customer to adopt mobile money service the less usage cost the better willing customer to adopt mobile money service(Maradung, 2013). Factors driving mobile money service and its growth of mobile payments are rapid distribution of mobile phone and socioeconomic conditions and lower costs as well as new initiatives like local money transfer, remittance. Mobile money services for the unbanked or branchless systems are important drivers to reduce poverty and to succeed inclusive economic growth(Museba, 2021)

### **2.1.6.. Demographics factors**

Demography is both quantitative and qualitative aspects of human population(Partial et al., 2018). Impact of demographics on electronics services adoption has been studied in the past. Studies shows on the adoption of new technology is adopted by male ,younger ,more educated, and higher income person relative to those who do not adopt the technology(Maradung, 2013)

**Education** house hold income and education have shown to have significant effect on the adoption of internet banking. The higher education level achieved to adopt internet banking .according to this studies the more educated the greater level of adopting internet banking but not mobile money services (Maradung, 2013) . Having all other factors being constant, the use of mobile money service has insignificant effect on level of education.

**Income** has a significant effect on the adoption of mobile money service (Maradung, 2013) according to this studies high level of income in Australia intends to use internet banking but not mobile money services . Having all factors constant income is insignificant effect on the adoption of mobile money services.

**Age** previous studies shows that older people are resistant to adopt the new technology based services(Maradung, 2013) according to this studies the younger generation more likely adopt the internet banking but not mobile money services. All other things are equal use of mobile money service to access banking and financial service not significantly determined by age individual.

Employee status the employment status of individual is significant factors weather an individual uses or adopt mobile money service. Other things being equal, the use of mobile money services to access banking and financial services is not significantly determined by the employment status of individuals.

Gender or sex is among the most researched demographic determinant in mobile and electronic services. that men are more likely than women to use the internet and the rate of adoption is high for young people(Maradung, 2013) .according to the studies women are less adopted in adoption of new technology in relative to men. *Other things being equal, the use of mobile money services to access banking and financial services is determined by gender of individuals (maradung, 2013).*

### **2.1.7. Technology acceptance Model (TAM)**

TAM was originally developed to predict users initial adoption of new IT(Hong et al., 2006).TAM is intention based model stipulating that the intention to adopt new technology is good predictor of its actual usage, User intention to adopt new technology that explain two primary perceptual factors: perceived ease use of and perceived usefulness(Hong et al., 2006).

The study adopted theoretical framework of the technology acceptance model (TAM).there is quiet sufficient studies on the need for technology to determine user adoption of technology-oriented product or services (Ekow Kelly & Palaniappan, 2022).TAM was developed by davis (1986) to explain computer usage behavior based on the model in elaborating any adoption of information system, perceived usefulness and perceived ease of use are two vital determinants.

**Perceived usefulness:** it shows how technology or system aids users in technology acceptance model to achieve positive job outcome (Ekow Kelly & Palaniappan, 2022). Perceived usefulness is the degree to which a person believe that using particular system would enhance his or her job performance(Chau, 1996)

**Perceived ease of use:** is an individual's expectation of how easy the target system will be to understand. The degree to which a person believes that using a particular system would be free of effort(Id & Nur, 2022).

**Perceived self-efficacy** is concerned about the judgment of the execution course of action required to deal with prospective situation. Self-efficacy beliefs are theorized to function as main determinant of behavior(Davis, 1989) **Perceived Cost** the degree to which individual views utilizing mobile money service will incur cost(Hong et al., 2006).

**Perceived risk (PR)** limits the adoption of the interaction or adoption and success of a new technology and applications. As a result, citizens might have a negative view impacting their attitude (ATT) toward reusing new technology and applications. Perceived Risk (PR) has a negative influence related to Attitude (ATT) towards adoption of mobile money service(Alhadid et al., 2022).

**Theory of reasoned action (TRA)),** The main goal of the TRA is to elaborate the relationship between attitude and behavior(Roh et al., 2022). TRA explain the relationships between attitudes and behaviors within human actions(Roh et al., 2023).**TRA** explained that the exact behavior follows from behavioral intention and this behavioral intention is generated by ones attitude towards behavior and subjective norm. **TRA** is highly depend on an individual beliefs, and TAM predicts consumers, perceived usefulness and perceived ease of use regarding new technologies(Roh et al., 2022)

**Theory of planed behavior (TPB)** an individual's intention influence behavior. The intention is influenced by attitude toward behavior, subjective norms, and perceived behavioral control; it is an improvement of Theory of Reasoned Action(Sarosa, 2022).

**Unified theory of acceptance and use of technology (UTAUT)** is a model which is developed and validated, that have six constructs performance expectancy , effort expectancy, social influence, facilitating conditions which are hypothesized that are vital determinant of user

behavioral intention new technology or information technology(Kuria Waitara, 2015). According to the study of UTAUT, performance expectancy, effort expectancy, and social influence are hypothesized to impact behavioral intention to use a technology, while behavioral intention and facilitating conditions determine technology use; and that gender, age, experience, and voluntariness of use have moderating effects in the acceptance of information technology(Kuria Waitara, 2015).based on the UTAUT performance expectancy is users perception of a technology to assist the achievement of intended goal (Technology, 2020).effort expectancy concerns users perception of ease in using technology (Technology, 2020).facilitating conditions the existence of technical infrastructure and support in the use of an innovation. Social influence It is the extent to which the opinion of important others such as families and friends affect a user's decision to use a technology(Technology, 2020). Behavioral intention it is the tendency of users' to involve in a behavior(Technology, 2020)

**Diffusion of Innovations Theory (DIT):** was developed by Rogers (1983) .Rogers defines diffusion as the process in which an innovation is communicated thorough certain channels over time among the members of a social system(Sahin & Rogers, 2006). Mobile money service can be examined using technology adoption

**Relative advantage:** is to explain in what extent the new innovation or product is perceived as better than the existing product(Abebe, 2020).it describes the degree to which an innovation is regarded as offering more benefits than its predecessor. Relative advantage results in increased efficiency, economic benefits and enhanced status. Past studies found that relative advantage of an innovation is positively related to the rate of adoption(Al-jabri, 2012)

**Compatibility** refers to the degree that an innovation is perceived as being consistent existing values, beliefs, habits and present and past experiences.an innovation can be compatible or incompatible with values, norms and beliefs with already existing ideas. Compatibility is a significant precursor in determining customer attitude towards mobile money adoption.it had significant correlation with new technology adoption and use(Al-jabri, 2012)

**Complexity** is the degree to which an innovation can be considered relatively challenging to understand and use. Studies or researcher found that complexity negatively impact the adoption

of new technology. Complexity is the opposite of ease of use. Ease of use implies to the degree to which mobile money service is considered as easy to gasp and operate(Al-jabri, 2012)

## **2.2 Empirical literature review**

Several studies have been conducted to examine the relationship between mobile money services adoption and its determinants or factors affecting the adoption and success of mobile money service in developing as well as developed countries. Given the empirical literature available on the topic of this thesis, it is difficult to present the result of all the studies.

### **2.2.1 Studies in other countries**

There are international studies on factors affecting the adoption and success of mobile money services among them Maradung ,in 2013, Tobbin & Kuwornu, 2011, Joseph, 2020 conducted a survey in Botswana ,Zimbabwe and Nigeria respectively in order to understand users behavioral intention to use mobile money service based on the extension of technology acceptance model(TAM) it was observed that several factors including socio-economic and cultural factors, perceived usefulness, perceived ease of use, trust and security ,awareness and education affect the adoption and success of mobile money services. ayiesa n. ohese(2018) studied about factors affecting adoption of mobile money payment services by students at institutions of higher learning in Kenya and he was found that students were more likely to pay their fees using mobile money payment options if transaction amount is small. On the other hand, students were less likely to pay their fees using mobile money services if they have to pay a lot of money at once and he conclude that amount of transaction affect adoption of mobile money service in Kenya. He also stated that perceived risk and transaction cost are negatively affecting the adoption of mobile money services in institute of higher learning in Kenya.

Zahiruddin,Shahin MIA, Md (2021) studied in the title of, “The Impact of Perceived Risk and Trust on Adoption of Mobile Money Services: An Empirical Study in Pakistan\*the study examined that perceived risk, particularly security risk, privacy risk, and financial risk, have a significant impact on the adoption of mobile money services in the country. The study also found a significant impact of perceived trust on mobile money adoption in Pakistan.

### **2.2.2 Studies in Ethiopia**

In Ethiopia factors affecting the adoption and success of mobile money services (CBE-BIRR) are studied in a certain extent. *Getachew Gebisa (2021) and Addisu yalew(2018) in bahidar university they studied about the determinant of the adoption of mobile money services in commercial bank of Ethiopia*, in their study they observed that cultural factors and trust as well as demographic factors such as age, gender and education level are the main determinant of mobile money service in the area of Bahirdar city.

Hayat nesibue(2017) in marketing management in AAU ,she studied about the adoption of mobile banking in case of commercial bank of Ethiopia based on technology acceptance model(TAM) in her research she found that Perceived usefulness, The perception of ease of use, Perceived credibility or Compatibility, Perceived Self-Efficacy are found to have a positive significant influence on mobile banking adoption whereas perceived risk found to have negative significance influence in the adoption of mobile banking technology.

### **2.3 Gaps observed in the studies**

Generally in Ethiopia context mobile money service is at its infant stage and limited studies or almost none on the specific, factors affecting the adoption and success of mobile money CBE-BIRR services this might be mobile money services is a recent phenomenon to our country's banking industry and limited studies on technological advancement So this study will be the first of its kind in studying mobile money services in AAU and this study will be a great milestone and literature reference to future studies on factors affecting the adoption and success of mobile money (CBE-BIRR)services while there are numerous studies on the adoption and success of mobile Banking in general.

The mobile money services are still relatively new in commercial bank of Ethiopia and probably immature, hence further study is needed to identify additional factors that facilitate adoption and success of mobile money service in case of CBE. Exploring for extra variables that will mitigate our ability to grasp the actual use and predict usage intention more accurately is needed.

2.4. Conceptual frame work

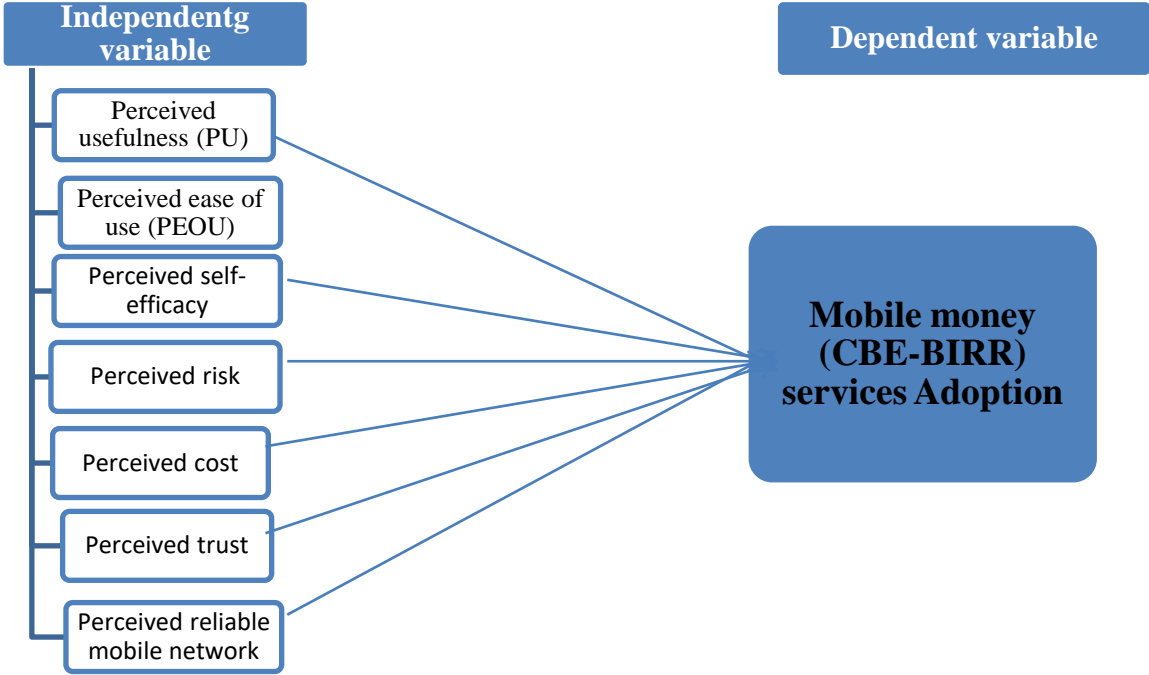


Figure 2.1 Model developed the key factors that affect the adoption and success of mobile money or CBE Birr services based on extended TAM model (sources: self-prepared)

## **2.5 Research Hypothesis development**

The main intention of the study is to examine key factors that affect the adoption and success of mobile money services or CBE-Birr services in commercial bank of Ethiopia in some selected branches .to achieve the aim of the study, researcher Proposed a hypothesis based on the conceptual framework formulated.

The researcher formulated the following hypothesis:-

**Perceived usefulness:** According to Bhatti et al. (2007), individuals frequently assess the outcomes of their actions and make decisions based on how desirable they find the perceived usefulness. As a result, perceived usefulness will affect their intention to accept and adopt a system.

From the reasoning outlined above, the following hypothesis is proposed.

H1: customer's perception of usefulness of CBE-Birr services are directly and positively related with the adoption and success of mobile money services.

**Perceived Self-efficacy:** This variable has been discussed in earlier studies (extended TAM, Luarn & Lin, 2004). Perceived self-efficacy relates to an individual's assessment of their capability to carry out actions needed to manage future situations (Bandura, 1982). It encompasses the knowledge, skills, and abilities necessary for utilizing new information technology. So, the following hypothesis is formulated.

H2: there is positive relation between perceived self-efficacy and adoption and success Of CBE-Birr services or mobile money services.

**Perceived ease of use:** Previous research indicates that although the direct impact of perceived ease of use is significant over time, its indirect effect tends to strengthen (Venkatesh & Morris, 2000). Systems that are easier to navigate are likely to promote greater usage and task completion compared to those that are difficult to use (Venkatesh & Morris, 2000). As a result, a positive correlation between perceived ease of use and the adoption of mobile money services is anticipated in this study. Therefor the following hypothesis is formulated.

H3: there is positive relation among perceived ease of use and the adoption and success of CBE-birr services.

Perceived risk: The risk or uncertainty associated with making the right purchase decision and its potential outcomes is factor affecting the amount of information consumers gather (Loudon and Bitta, 1993). According to the literature, perceived risk may directly impact users' intentions to use mobile money services leading to the formulation of the following hypothesis.

H4: As users' perceptions of the risks in related to mobile money services or CBE-Birr services increase, their adoption and success of using CBE-Birr services or mobile money services decreases.

Perceived cost: Ching and Ellis (2004) suggest that the adoption of an innovation is influenced by its perceived costs and benefits. The costs associated with an innovation include initial investment, operational, and usage expenses. Rothwell and Gardiner (1984) note that user needs are shaped by two main types of factors: price and non-price. In this context, Gupta (1988) highlights price as a significant factor in brand switching. For consumers to adopt new technologies, they must be competitively priced compared to alternatives; otherwise, adopting the new technology may not be feasible for them. This variable has been examined in previous research on mobile money services adoption (extended TAM, Luarn & Lin, 2004). Based on this literature, perceived cost is likely to directly affect users' intentions to use mobile money services, leading to the formulation of the following hypothesis.

H5: the higher the perceived cost in related to CBE-Birr services or mobile money services the lower like hood of the customer adoption and success of the services.

H6: there is positive relationship between perceived reliable mobile network and the adoption and success of CBE-Birr services or mobile money services.

H7: As the higher user's perception of trust with associated to CBE-Birr services or mobile money services there will be higher adoption and success of CBE-Birr services or mobile money services.

## CHAPTER THREE

### 3. RESEARCH METHODOLOGY

This chapter deals with research methodology to explain or to test factors affecting the adoption and success of mobile money services in banking industry of Ethiopia in case of commercial bank of Ethiopia. On the basis of prior studies, on computer technology and information system acceptance, the use of the information system (IT) was preferred to be the precursor for advancement (Maradung, 2013). This chapter covers the research design, population of the study, sampling procedure, data collection methods, data analysis, reliability and validity of the study and ethics

The adoption of mobile money service or success of mobile money services is the dependent variable in the study, whereas **Demographics Factors**, such as age, gender, education level, income etc. **Technology acceptance factors** such as user's attitude and perception towards the technology such as perceived usefulness, perceived ease of use, perceived risk, perceived cost, perceived security, and perceived credibility, perceived self-efficacy, perceived reliable network can influence their adoption and usage intention. **Trust and Security:** factors that related to users' trust in the mobile money services security methods and their trust in the system's reliability significantly influence their willingness to adopt and use mobile money services. **Accessibility and Convenience:** Factors such as network coverage, mobile money services agents or outlets significantly impact adoption and success of mobile money services. **Awareness and Knowledge:** the level of user awareness and grasping of mobile money services and their familiarity with the interface can significantly influence their decision to adopt and use the mobile money service. These are all about the independent variable mentioned above.

#### 3.1. Research Approach

This study is deigned to a quantitative research approach. Since Quantitative research approach is preferable for a study where a problem involves identifying factors that influence an output (adoption and success of mobile money service). Due to the quantitative nature of the study, it covers who, what, when, where, and how questions in the questioner and were asked to respondents and answered accordingly. The goal of this research is to identify perceived determinants of Mobile money services adoption or CBE-Birr service adoption in case of commercial bank of Ethiopia in Addis Ababa town in selected branches.

### **3.2. Research Design**

Research designs and methods for a particular study is somehow challenging task. However, in this study cross-sectional survey strategy through structured questionnaires to answer the research questions was deployed. The methodology referred to set of techniques that researchers use to conduct an enquiry whereas the design of the study is explanatory research type. Explanatory research is a type of research design that intended to scrutinize cause and effect relationship.

### **3.3. Target Population**

Population is commonly used term to denote the number of people or items in a single area or in a defined area.it is refers to a cohort of individuals or participants with the specific attributes of interest and relevance(Yalew, 2018).The target populations for this study were customers who registered for CBE-BIRR Mobile money service specifically found in Addis Ababa commercial bank of Ethiopia. From Addis Ababa town the researcher selected five branches these are Abiy branch, Addis Ababa branch, Finfine branch ,Mexico branch, Meskele Square branch and Kirkos district and head office employee. The selection of the branch is due to high number of CBE–birr customers and high volume of transaction (CBE Report 2023) so that the researcher is able to find appropriate respondents. According to customer status report in 2023 in Commercial bank of Ethiopia there are more than 9.9 million mobile money services (CBE-BIRR) customers as whole(CBE portal, report 2023). Since the study was conducted in five branches as the data obtained from the management information system of the commercial bank of Ethiopia by December 2023 there were about 25000 mobile money services customers within these five branches therefore the population of the study will be customer of commercial bank of Ethiopia who are using mobile money services or CBE-Birr services. An appropriate sample size is crucial for making meaningful conclusions in a study. While a large sample can be difficult to manage, a small one may lead to inaccurate results. Thus, it's essential to choose a sample size that yields statistically significant outcomes. Additionally, it's important to ensure that the selected sample reflects an unbiased perspective.

Based on the formula of Yamane (1967) the sample size will be

$$\begin{aligned}n &= N/(1+N(e^2)) \\ &= 25000/ (1+25000(0.05^2)) \\ 393.7 &\approx 337\end{aligned}$$

Therefore, out of the 25000 mobile money services customers the researcher selected 337 customers randomly to accurately represent the situation; the researcher utilized the existing category of CBE. The study focused on these specific branches because they were the most convenient for the researcher to conduct the survey.

### **3.4. Sampling Techniques and sample size**

Sampling involves selecting specific elements from larger population to represent the entire population(Ofosu-Boateng, 2020). The study used Stratified random sampling method. The data was collected via stratified sampling distribution. stratified sampling is the process by which the population is divided into identical groups called strata, and sample is randomly sorted out from each stratum(Maradung, 2013).the motivation for selecting stratified systematic sampling method in the study was due to the population is uniformly sampled. Then, questionnaires were randomly distributed to those users of CBE-BIRR mobile money services customers while they physically came to the chosen branches for the purpose of getting other banking services. Consequently the sample was collected from both customer of CBE-Birr user and employees in in commercial bank of Ethiopia. The researcher prepared and distributed a total of 237 questioners, out of these questioners 203 or 85.65% questioners were filled and returned .the remaining 34 or 14.3% not returned back. The total of 203 filled questioners was used in the data analysis throughout this study.

### **3.5. Data analysis**

Data analysis is a means of cutback and buildup of data to a manageable size, summary development, and identification of patterns and application of appropriate techniques in analysis during the analysis of the data, the researcher used frequencies, standard deviations and mean.in general in the data analysis descriptive statistics, inferential analysis, regression analysis are applicable in the study. The study also used Pearson's correlation to determine any relationship between variables. This study used Statistical Package for Social Science (SPSS V .26) to do data analysis after sorting and coding of the raw data and findings presented in form of Tables and 0 to find literature on the area of the topic and related literature to have full data on the research topic this confirms the validity of the content. The researcher reviewed widely the related literature to prepare questioners. The questioners are reviewed and checked by the

advisor before questioners were distributed to ensure questioners were unbiased free from any confusion and had completed well.

In addition to this, the researcher confirm the statistical validity of the research , the researcher had collected quantitative data using cross-sectional survey questioner and analyzed the data using SPSS V.26 , descriptive statistics ,correlation ,regression ,linearity , Homoscedasticity ,normality etc. were dealt in detail to observe the relationship of the dependent and independent variable and to arrive in real conclusion in the study.

### **3.7. Ethical Considerations**

Research needs not only Proficiency and diligence, but also it requires honesty, integrity , reliability ,Confidentiality(Maradung, 2013). Ethics are moral principles that govern person's behavior or conduct. It is established principle that govern moral choices about individuals' behavior and our relationships with others(Maradung, 2013)

Personal data had kept strictly secrete and the questionnaires were distributed only those voluntary participants. Regarding to this questioner, participants were not harmed physically or emotionally.

## CHAPTER FOUR

### 4. DATA ANALYSIS, PRESENTATION, INTERPRETATION AND RESULT DISCUSSION

This chapter presents a description of the results from the data gathered from customers whose registrations of mobile money services or CBE-Birr service were active at commercial banks of Ethiopia. Data analysis was conducted based on the collected data through questionnaire surveys.

#### 4.1. Results

This chapter presents mainly descriptive analysis on dependent and independent variable of the study and the result of regression analysis that comprise the main finding of the study.

##### 4.1.1 Respondents Profile Result

The study had a sample size of 237 respondents. Out of this 203 were obtained this represents 85.65% response rate.

##### 4.1.2. Respondent Gender Profile

Table 4.1 Gender

	Frequency	Percent
Male	125	61.6
Female	78	38.4
Total	203	

Source: survey results in my consumption

According to the finding 61.6% of the respondent were indicated male while 38.4 % of the respondents were female. This is clearly indicates that the majority of the respondents were males. This implies that most of the mobile money services or CBE-Birr services users (adopters) are male based on the data the researcher collected. Based on the study males are more experienced with the technology i.e. the mobile money or the CBE-Birr adoption.

### 4.1.3. Respondent Age Profile

Table 4.2 Respondents Age

	Frequency	Percent
18-25	48	23.6
25-35	105	51.7
35-45	25	12.3
45-55	17	8.4
55+	8	3.9
Total	203	100

**Source: Survey Result, 2023**

According to the Age variable the highest percentage of mobile money services or CBE-Birr series adopters are between 25 years and 35 years old, Followed by the year 18 years and 25 years, Followed by between the year 35years and 45 years, followed by 45 years and 55 years, followed by 55+ years .from this study as age increase the mobile money or CBE-Birr adopters decrease this implies that when age increase the technology adoption will decrease based on this study. We can conclude that youth are more adoptable to the new technology i.e. mobile money services.

### 4.1.4. Respondents Educational Profile

Table 4.3 Respondents Educational Level

	Frequency	Percent
High School Completed	21	10.3
Diploma	59	29.1
Degree	72	35.5
Masters and Above	22	10.8
Others	29	14.3
Total	203	100

**Source: Survey Result (2023)**

From the 203 respondents, 72 or 35.5% Had university degree this followed by 59 or 29.1% respondents were Had a diploma, 29(14.3%) who specifies other, 22 or 10.8% respondents Had masters and above, 21 or 10.3% respondents were high school completed .from this study educational level has no significant effect on the adoption of mobile money or CBE-Birr services. based on the study as education level increase no significant change on the adoption of the system or CBE-birr services.

#### 4.1.5. Respondent Occupational Profile

Table 4.4 Respondents Occupation Status

	Frequency	Percent
Student	7	3.4
Employed	78	38.4
Self employed	54	26.6
Unemployed	40	19.7
Others please specify	24	11.8
Total	203	100

**Source: Survey Result in my consumption**

Based on the result in the above table in regarding occupation status the highest percentage 78 or 38.4% of the respondent were employed followed by 54 or 26.6% percent of the respondents were self -employed and 40 or19.7%were unemployed, 7or 3.4% were students and 24 (11.8%) were others. based on the study employed has significant effect on the adoption of CBE-Birr services followed by self-employed.

#### 4.1.6. Respondents monthly Income Profile

Table 4.5 Respondents monthly income

	Frequency	Percent
<1000	3	1.5
1000-2500	14	6.9
25000-4500	51	25.1
4500-6000	58	28.6
6000-10000	56	27.6
>10000	21	10.3
Total	203	100

**Source: Survey Result in my consumption**

Based on the result given in the above table 4.5 which related to monthly income variable of the respondents, based on this study the highest percentage (28.6% ) of the respondents earn between 4500-6000ETB that followed by 27.6% of the respondents ranged between 6000-10000ETB, followed by 25.1% of the respondents earn between 2500-4500ETB, followed by 10.3% of the respondents earn greater than 10000ETB, followed by 6.9% of the respondents earn in the range of 1000-2500ETB, followed by 1.5% of the respondents earn below 1000ETB. based on this study monthly income do not have significant effect on the adoption of mobile money services as it is seen from the research as income increase mobile money services do not increase this implies that monthly income will not have significant effect on the adoption of the services.

#### 4.1.7. Respondents Time of Registration Status Profile

Table 4.6 respondents' Registration time of status

	Frequency	Percent
Less than one year	79	38.9
Greater one year	124	61.5
Total	203	100

**Source: Survey data of 2023, in my consumption**

According to table 4.6, 124 or 61.5% of the respondents were register and using mobile money services or CBE-Birr services greater than one year whereas 79 or 38.9% of the respondents were register and using mobile money services or CBE-Birr services less than one year. This implies that there is increment of the registration or there is gradual adoption in the technology.

**Table 4.7 respondents' influence to register**

	Frequency	Percent
Advertisement	80	39.4
Family and friends	42	20.7
Banks policy	75	36.9
Others	6	3.0
Total	203	100

**Source: Survey data of 2023**

According to the table and the statically result most respondents are influenced to register by advertisement

That is 80 or 39.4 % of the whole respondents. The next major respondents were influenced by banks policy which is 75 or 36.9 % of the whole respondents, followed by 42 (20.7%) were influenced by family and friends and the rest 6 (3%) respondents were influenced by others. In this study advertisement has the significant effect on the introduction of CBE-Birr services which is followed by banks policy according to the study.

**Table 4.8 Respondents how often to use**

	Frequency	Percent
Daily	82	40.4
Weekly	82	40.4
Monthly	39	19.2
Total	203	100

**Source: Survey Result in my consumption**

According to the table above the respondents, most of the respondents tend to use the services daily and weekly with the same percentage of 80 (40.4%) followed by monthly 39(19.2%).according to the study majority of the customer use the services daily and weekly with similar duration and followed by the monthly usage adoption.

**4.1.2 Descriptive Statics**

This section analyzes or deals with the descriptive statics of mobile money services or CBE – Birr services provided by Commercial Bank of Ethiopia

**4.1.2.1 Adoption and Usage of mobile money services or CBE-Birr services**

To understand the frequency that the services provided by the organization under CBE-birr services are used by customers are vital and provides important feedback for the organization development and automation. Customer feedback is crucial. This is a clear indication whether the service is meeting customer needs or not. Besides it also indicates that weather customer know or not about the services to measure the frequency of mobile money services or CBE-Birr

services customer were asked to rate how frequently they used the services ranging from never to always on a numerical scale of 1-5 the result of respondent rating were as shown below.

Table 4.9 survey finding of usage of mobile money services or CBE-Birr services

	No of respondent	Mean	Std. Deviation
Balance inquiry	203	3.41	.942
Send Money to CBE account	203	2.76	.983
Pay for NedaJ	203	2.25	1.168
Pay for Water and electricity	203	3.0788	1.22422
Transfer to donation	203	1.8719	.77290
Buy air time or top up	203	3.2562	1.07786
Cash withdrawal services	203	3.3695	.86543

**Source: Survey data Result of 2023**

As it is depicted in the above table customer response in the mean, the respective statement ranged between 1.8 to 3.4 .the highest mean which is 3.4 this implies most of the respondent use the services balance inquiry most often and the least used services is transfer to for donation and the second least used services is pay for Nedaj which is rarely used with a mean of 1.8719. The second, the third, the fourth, the fifth and the sixth are cash withdrawal, buy airtime, pay bill for

water and electricity and send to CBE account respectively. From the SPSS analysis in the above table there is no services that never used by the customer. This information is very important for the organization to determine which services are frequently used and to automate its digitalization for customer satisfaction and to have more customers as well. From this study we can draw conclusion that customers are on the adoption of the services and the organization should more advertise for the purpose of creation of awareness in the CBE-Birr services or mobile money services.

From the study the lowest standard deviation indicates that the data points close to the mean whereas the highest standard deviation tells us that the data points are distributed wider range of the mean of the data.

#### **4.1.2.2 Key Factors affecting mobile money services or CBE-birr services in commercial bank of Ethiopia**

it is crucial for mobile money services or CBE-Birr services provider to grasp the key factors that affect the adoption and success of mobile money services or CBE-birr services to able to provide automated services that meet customers need and expectation. CBE-Birr customers requested to rate how important the identified factors that affect their decision to sign up for CBE-Birr services ranging from strongly disagree, disagree, agree, and strongly agree on numerical scale. The results of the respondents are depicted below.

Response of respondents on perceived usefulness, perceived ease of use, perceive trust, perceive self- efficacy, and perceive risk, perceived cost and reliable mobile network

**Table 4.10:**

	No of Respondents	Mean	Std. Deviation
Perceived Usefulness	203	3.7898	.61396
Perceive ease of use	203	3.2746	.69252
Perceive trust	203	3.1712	.52530
Perceive Self – efficacy	203	3.4039	.89519
Perceive Risk	203	3.0008	.70017
Perceive Cost	203	2.1823	.62154
Reliable Mobile Network	203	3.7159	.61766

**Source: Survey data Result of 2023**

From the above table based on the average mean score calculation in the customer response perceived usefulness is the major factor that affect the adoption and success of mobile money services or CBE-Birr services. The major second factor is reliability of mobile network. the third and the fourth factor that affect the adoption and success of CBE-birr services are perceive self-efficacy and perceive ease of use whereas the fifth and the sixth are perceive trust and perceive risk.in this study perceive cost is the least factor that affect the adoption and success of mobile money services or CBE-birr services. Generally based on this study perceived usefulness have significant effect on the adoption of mobile money services .that is the highest in the adoption of the mean and perceived reliability of mobile network is the second to affect significantly the adoption of mobile money service.

Perceived cost is insignificant in the adoption of mobile money services or CBE-Birr services based on the study.

From the study the lowest standard deviation indicates that the least variability or the data points close to the mean whereas the highest standard deviation tell us the data points are faraway or distributed wider range of the mean of the data.

From this study the lowest deviation from the mean is perceived self -efficacy and the highest deviation from the mean are perceived trust. Generally there is no significant deviation in the study of the analysis of the mobile money service adoption.

## 4.2. Regression Analysis, Assumption and Tests

### 4.2.1 Correlation Analysis

In the correlation analysis perceived trust is significantly correlated with perceived cost at 0.01 levels or it is significantly correlated 99% percent confidence level. The correlation analysis perceived risk is significantly correlated with perceived usefulness and perceived reliable mobile network' at 0.05 level of significance or it is significantly correlated 95% percent confidence level.

Perceived cost is significantly correlated with perceived usefulness' and perceived reliable mobile network at significance level of 0.05 or at 95% confidence level of significance.

Perceived reliable mobile network is significantly correlated with perceived cost and perceived risk in the significance level of 0.05 or 95% confidence level.

The correlation analysis can be high degree correlation analysis, moderate correlation analysis, low degree correlation analysis and no correlation analysis

Pearson correlation analysis is ranged between (-1) to (+1), the correlation (+1) implies that the correlation is perfect positive (upward sloping) linear relationship correlation whereas the correlation (-1) implies that the correlation is perfect negative (downward sloping) linear relationship and the correlation (0) indicates that there is no correlation within the variable.

Perceived cost is significantly cost is significantly correlated with perceived usefulness' with negative correlation direction with 0.05 (2 tailed) significance level or 95% of confidence level.

Significance level at 0.05 or 2 tailed mean the relation of the direction of the two variable not determine the relation may be the same i.e. positive, positive or negative, negative or the relation of the variable is different direction

Table 4.11: Correlations analysis

		PU	PEU	PSE	PT	PR	PC	RMN
PU	Pearson Correlation	1	.221**	.014	.092	-.169*	-.150*	-.031
	Sig. (2-tailed)		.002	.841	.193	.016	.033	.665
	N	203	203	203	203	203	203	203
PEU	Pearson Correlation	.221**	1	.106	.011	.057	.132	-.110
	Sig. (2-tailed)	.002		.132	.873	.423	.060	.119
	N	203	203	203	203	203	203	203
PSE	Pearson Correlation	.014	.106	1	-.101	.099	-.005	-.111
	Sig. (2-tailed)	.841	.132		.151	.161	.947	.116
	N	203	203	203	203	203	203	203
PT	Pearson Correlation	.092	.011	-.101	1	-.003	.239**	-.099
	Sig. (2-tailed)	.193	.873	.151		.964	.001	.162
	N	203	203	203	203	203	203	203
PR	Pearson Correlation	-.169*	.057	.099	-.003	1	.115	.168*
	Sig. (2-tailed)	.016	.423	.161	.964		.103	.016
	N	203	203	203	203	203	203	203
PC	Pearson Correlation	-.150*	.132	-.005	.239**	.115	1	-.150*
	Sig. (2-tailed)	.033	.060	.947	.001	.103		.033
	N	203	203	203	203	203	203	203
RMN	Pearson Correlation	-.031	-.110	-.111	-.099	.168*	-.150*	1
	Sig. (2-tailed)	.665	.119	.116	.162	.016	.033	
	N	203	203	203	203	203	203	203

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

From this analysis perceived usefulness is significantly correlate with perceived ease of use ,perceived risk and perceived cost with significance level of 0.01 ,0.05and 0.05 respectively and the direction of the relationship is positive and negative ,negative respectively.

Perceived ease of uses significantly correlates with perceived usefulness’ with significance level of 0.01 or 95% confidence level.

Perceived ease of use correlated moderately perceived self- efficacy and it has low correlation with perceived trust and perceived risk where as it has weak correlation with perceived reliable mobile network. Perceived self -efficacy is moderately correlated with perceived ease of use and has low correlation with perceived usefulness and perceived trust where as it has weak correlation with perceived trust and perceived risk.

### 4.2.2 LINEARITY

The analysis of variance table gives the information about the dependent and the independent variables relation, weather there is statistically significant linear relationship or not. The Analysis of Variance table analyzed between the variable adoption and perceived usefulness. From the table the “p “value is 0.000 this indicates that there are strong positive relationship in the adoption and perceived usefulness implies that the linear model is good conformance for the data. The very low value of p-value indicates that the relation of the variable is statistically significant. Also the F statistical value indicates the linear relationship. Higher value of F indicates that there is linear relationship.

**ANOVA Table**

			Sum of Squares	df	Mean Square	F	Sig.
Adoption * pu	Between Groups	(Combined)	2.326	9	.258	4.111	.000
		Linearity	1.470	1	1.470	23.387	.000
		Deviation from Linearity	.856	8	.107	1.701	.100
Within Groups			12.133	193	.063		
Total			14.458	202			

Fig 4.1 analysis of linearity in variance table

The table shows while there is significant association between adoption and perceived usefulness, perceived usefulness explains small portion of the variance in the adoption and successes of mobile money services or CBE-Birr services. Deviation from the linearity the value of “p” is 0.100 (sig=0.100) indicating that there is no significant deviation of linearity in the relationship of the variables i.e. adoption and perceived usefulness.

### 4.2.3 MULTI COLINEARITY

Tolerance and variance inflation factor are used to determine whether there is multi co linearity or not in multiple linear regressions analysis tolerance value range from 0 to 1 if the tolerance value closer to 0 there is high probability of multi co linearity where as if tolerance closer to 1 indicates that there is no multi co linearity

Variance inflation factor is used to determine whether there is multi co linearity or not. If the value of variance inflation factor greater than 10 there will be multi co linearity. If the value of variance inflation factor less than 10 there will not be multi linearity. As variance inflation factor closer to 0 there will be no multi co linearity in the analysis.

From this study as shown below variance inflation is less than 10 and closer to 1 and the tolerance value is closer to 1 this clearly indicates that there is no multi co linearity in the study.

Table 4.12: Multi co linearity

<b>COLLINEARITY STATISTICS</b>	
TOLERANCE	VIF
0.874	1.144
0.898	1.113
0.909	1.100
0.952	1.050
0.908	1.101
0.962	1.160
0.913	1.096

Source: survey: 2023, regression result

From SPSS V.26 statically result “VIF” dictates the Multi Co linearity existences. Multi co linearity can be detected by variance inflation factor (VIF) and tolerance. If “VIF” value is less than or equal to ten no severity multi co linearity exists. In this study the value of “VIF” as shown in the above is less than ten hence there is no multi co linearity in the model.in this study the assumption of multi co linearity is well satisfied and there is no problem of multi co linearity as a whole.

### 4.2.3 Homoscedasticity Assumption

Homoscedasticity analysis is one of the assumption of multiple linear regression the so called the assumption of equal variance in other words the unexplained term in the dependent variable or the error term is constant throughout the observation. The variance of the residuals is identical. in other words the distribution of the residuals around the regression line could have alike or common outline and disperse, irrespective of the expected values.

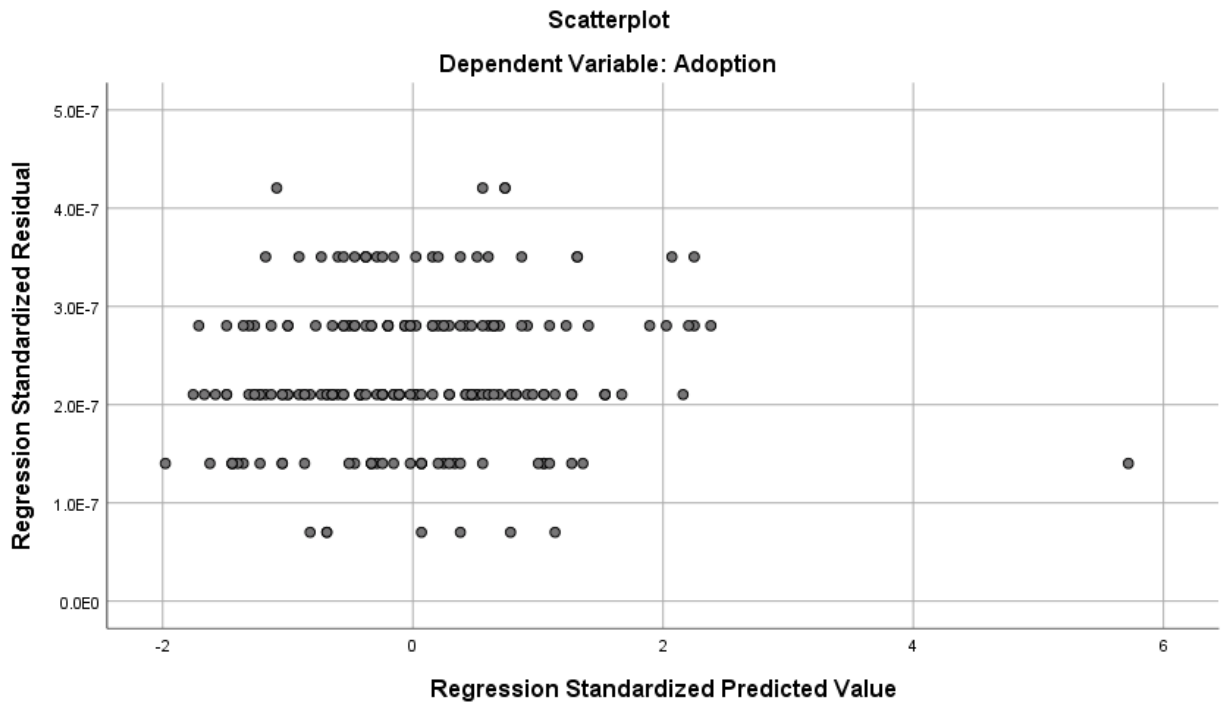


Fig 4.2 Homoscedasticity assumption

As it is stated above the homoscedasticity is satisfied if the variable or the unexplained term is equal throughout the distribution. The scatterplot shows spread of the variable or the data point is not alike that leads to homoscedasticity in some extent violated the spread is wider in some area and narrower in some area that leads to homoscedasticity problem. in the homoscedasticity the variable should spread out or there exist equal distribution in that case homoscedasticity satisfied.

#### 4.2.4 NORMALITY ASSUMPTION

The Q-Q Plot data shown below tell us almost the data are normally distributed and suitable for the analysis and there is no significant abnormality in the data analysis. The x-axis denotes the observed values of the dependent variable "Adoption" whereas the y-axis denotes expected normal values. The black line denotes almost perfect normal distribution. If the data points (black dots) closely follow this line, it indicates that the "Adoption" variable is approximately normally distributed.

In this study, the data points closely follow the normal spread line, implies that the "Adoption" variable is definitely normally distributed. The points display a linear outline that is typical behavior of a normal distribution.

The Normal Q-Q plot provides a visual assessment of the normality of the data, which is an important assumption in many statistical analyses.

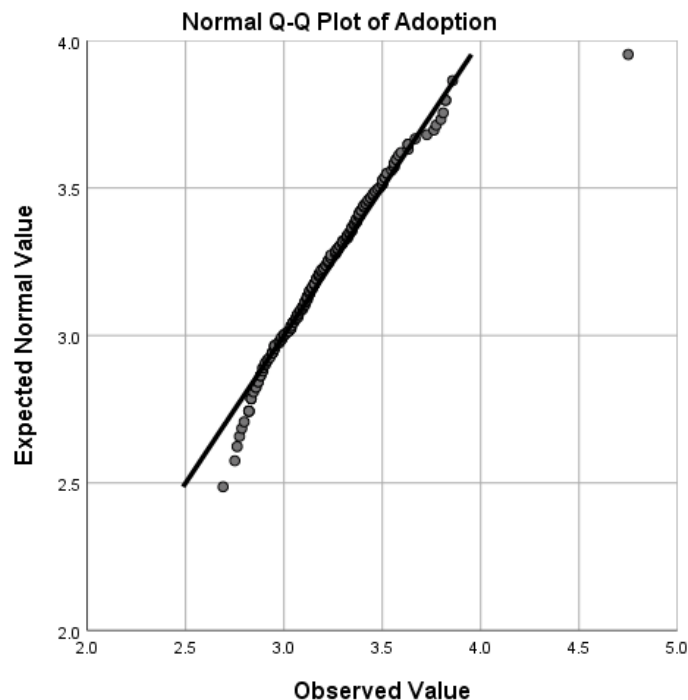


Fig 4.3 Q-Q Plot

Normal distribution is symmetrical about the mean implies that data near the mean are more usual than data in far from the mean .in SPSS normality is critical due to many statically test consider the data is normally distribute. From the above fig 4.1 points are almost near to the

strait line. If the points are distributing far away the mean we justify that normality problem and since the points are now approaches to the line normality are satisfied.

In the Q-Q Plot shown above dictates that data are almost distribute in unbiased manner and the points almost closely follow the trends or approaches near the mean indicates that normality is satisfied.

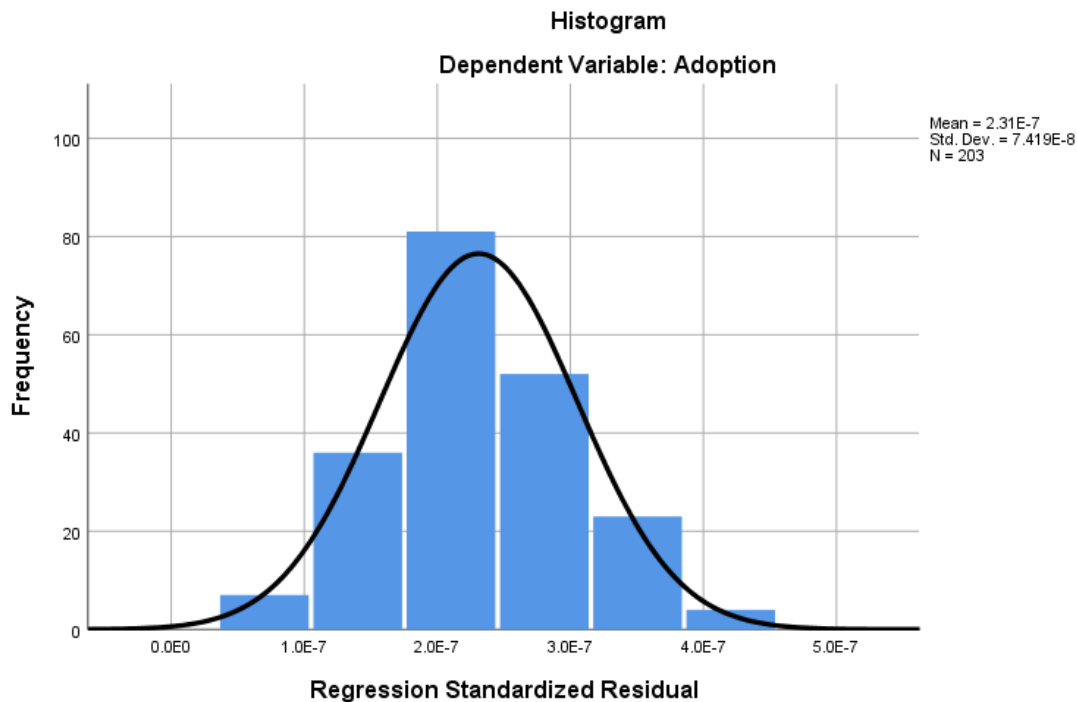


Fig 4.4 Histogram distribution of normality

The spread of the "Adoption" or the dependent variable present almost normally dispersed. Symmetric bell-shaped curve the histogram has a symmetric, bell-shaped curve, which is the typical behavior of a normal distribution. Dispersed around the mean, most of the observations are focused around the mean, with the highest frequency appearing near the central part of the distribution. The frequency will decrease as we go away from the mean in similar manner in both directions, which is the real indication of the assumption of the analysis is satisfied well.

### 4.3 Regression Result

This section primarily focused on the results of an assessment regarding the key factors influencing mobile money services, specifically CBE-Birr services at the Commercial Bank of Ethiopia. The findings indicated that the identified key factors include perceived usefulness, perceived ease of use, perceived self-efficacy, perceived trust, perceived risk, perceived cost, perceived trust, and the reliability of the mobile network.

Table 4.13

Dependent and independent variables	Sum of square	df	Mean square	F	Sig	Accept or reject
Adoption*PU	2.326	9	258	4.111	.000	Accept
Adoption*PEU	4.388	13	.338	6.335	.000	Accept
Adoption*PSE	3.891	12	324	5.831	.000	Accept
Adoption*PT	2.092	11	190	2.937	.001	Accept
Adoption*RMN	1.604	9	178	2.676	.00	Accept
Adoption*PC	2.595	9	288	4.691	.006	Reject
Adoption*PR	5.204	12	434	8.904	.000	Accept

#### 4.3.1 Perceived usefulness and mobile money or CBE Birr services adoption

Perceived usefulness is identified as a key factor influencing the acceptance of mobile money services, such as CBE Birr, in Ethiopia's commercial banking sector. This suggests that for users to embrace mobile money or CBE Birr services, they must see them as effective and faster alternatives to traditional banking methods.

This result is found to be in line with to Bhatti et al. (2007), individuals frequently assess the outcomes of their actions and make decisions based on how desirable they find the perceived usefulness. As a result, perceived usefulness will affect their intention to accept and adopt a system.

#### 4.3.2 Perceive ease of use and mobile money or CBE Birr services adoption

In terms of the impact of perceived ease of use on mobile money or CBE Birr services adoption in Ethiopia, as shown in the results section, this study found a positive and statistically significant relationship between the two. This finding was consistent with the results by (Venkatesh & Morris, 2000). As a result, a positive correlation between perceived ease of use and the adoption of mobile money services is anticipated in this study.

### **4.3.3. Perceived Risk and mobile money services or CBE Birr services adoption**

The results of this study indicate that, in commercial bank of Ethiopia, certain factors hinder the use of mobile money services. Consumers feel that mobile money is unsafe, and they are concerned about disclosing personal information. This finding suggests that as the perceived risks associated with mobile money services decrease, individuals are more inclined to become active users. Consequently, perceived risk has a negative impact on consumer behavior related to mobile money services. This finding was found to be consistent with (Loudon and Bitta, 1993) that It was found that perceived risk is a crucial factor to consider when designing and developing mobile money or CBE Birr services.

### **4.3.4 Perceived cost and mobile money services or CBE Birr services adoption**

In the context of commercial bank of Ethiopia, perceived cost was found to have a statistically insignificant impact on customers' adoption of mobile money services. This finding contradicts previous research on mobile banking adoption (extended TAM, Luarn & Lin, 2004), which indicated that perceived cost insignificantly affects mobile banking adoption. Therefore, this suggests that cost considerations do not determine users' adoption in commercial bank of Ethiopia from utilizing mobile money services.

### **4.3.5 Perceived self-Efficacy and mobile money services adoption**

This study found a positive and significant relationship between perceived self-efficacy and mobile money services adoption. These results align with previous research (extended TAM, Luarn & Lin, 2004), which identified perceived self-efficacy as a key factor influencing mobile money services adoption. This suggests that in commercial bank of Ethiopia, users need the necessary knowledge, abilities, and skills to effectively use new information technology.

### **4.3.6 Perceived trust and mobile money services adoption**

The study found a positive and significant relationship between perceived trust and mobile money services adoption. These results align with previous research (extended TAM, Luarn & Lin, 2004), which identified perceived trust as a key factor influencing mobile money services adoption. This suggests that in commercial bank of Ethiopia, users need the necessary knowledge, abilities, and skills to effectively use new information technology

### **4.3.7 Perceived trust and mobile money services adoption**

This study found a positive and significant relationship between perceived mobile network and mobile money services adoption. These results align with previous research (extended TAM, Luarn & Lin, 2004), which identified perceived mobile network as a key factor influencing mobile money services adoption.

#### **4.4 Discussion of the result**

This section discussed mainly the output factors affecting mobile money services or CBE-Birr services in commercial bank of Ethiopia. The finding showed that the selected key factors are perceived usefulness, perceived ease of use, perceived self- efficacy, perceived risk, perceived cost, perceived trust and perceived reliable mobile network.

Perceived usefulness is one key factor that affects the adoption and success of mobile money services or CBE-Birr services .the study showed that if the mobile money services or CBE-Birr is accepted by the user they could perceive it as useful.

In this study the finding showed perceived usefulness had a positive significance in the adoption and success of mobile money services or CBE-Birr services in commercial bank of Ethiopia.

Perceived ease of use and mobile money services or CBE-Birr services adoption in commercial bank of Ethiopia showed ,the finding that it had a positive significant relation with the adoption and success of mobile money services. Perceived ease of use is affecting the adoption and success of the services in positively manner based on the study.

Perceived cost and mobile money services or CBE-Birr service in commercial bank of Ethiopia, Perceived cost had no any effect on the adoption of mobile money services or CBE-Birr services or perceived cost had insignificant effect on the adoption of mobile money services or CBE-Birr services in commercial bank of Ethiopia based on the study.

Perceived Risk and mobile money or CBE-Birr services adoption, according to this study in commercial bank of Ethiopia key factors that affect mobile money or CBE-Birr services adoption and successes are customers perception of having risk during in usage of the services .in this study the finding showed that perceived risk negatively affecting the adoption and success of mobile money services or CBE-birr services.

Perceived self-efficacy and mobile money services or CBE-Birr services adoption, the research showed that perceived self -efficacy had positive relation with the adoption and the success of mobile money or CBE-Birr services. Perceived reliable mobile network and adoption of mobile money services or CBE-Birr services in the case of commercial bank of Ethiopia, study showed that perceived reliable mobile network is the key factors in the adoption of the services i.e. perceived reliable mobile network is significantly related in the adoption of the services. The relation is positively significant in the adoption of the services.

## CHAPTER FIVE

### 5. CONCLUSION AND RECOMMENDATION

The aim of this study is identify the key factors that affect the adoption and success of mobile money services or CBE-Birr services in commercial bank of Ethiopia in Addis Ababa town in selected branches to assess perceived determinant of mobile money services or CBE-Birr services. based on quantitative analysis of the research it can be stated that perceived usefulness ,perceive ease of use ,perceive self-efficacy ,perceived cost, perceived reliable mobile network , perceived trust, perceived risk are important factors to considering the adoption and success of mobile money services or CBE-Birr services

In this chapter based on the finding of the study, presents the conclusion, recommendation and future work of the study.

#### 5.1 Conclusions

The study try to grasp how perceived usefulness', perceive ease of use, perceived self -efficacy, perceived risk ,perceived cost ,perceived reliable mobile network affect the adoption and success of mobile money services or CBE-Birr services.in this study five (5) likert scale was used to measure the variables. Conclusions are drawn on factors influencing the adoption of CBE-Birr services.

The adoption and success of mobile money services or CBE-Birr services are influenced by the technological acceptance models these are perceived usefulness', perceive ease of use, perceived self -efficacy, perceived risk, perceived cost, perceived reliable mobile network and perceived trust.

From this study most respondents are male this leads to the conclusion males are more adoptable for the services and the new generation or the youth are more adoptable based on the study Educational level status , monthly income had no significant effect on the adoption and success of the services based on the study . Advertisement, occupation status had significant effect on the adoption and success of mobile money services.

Perceived usefulness', perceive ease of use ,perceived self-efficacy had positive significant effect on the adoption and success of mobile money services whereas perceived risk had negative significant effect on the adoption of mobile money services based on the study. perceived, cost had insignificant effect based on the study.

In this study variables or factors are determined and some factors had significant effect and the rest are insignificant effect on the adoption of mobile money services or CBE-Birr services.

Generally, perceived usefulness perceived eases of use, perceived risk, perceive trust; perceive reliable mobile network had significant effect on the adoption and success of mobile money services or CBE-Birr services. But Perceived cost had no any effect on the adoption of mobile money services or CBE-Birr services or perceived cost had insignificant effect on the adoption of mobile money services or CBE-Birr services in commercial bank of Ethiopia based on the study.

Perceived Risk and mobile money or CBE-Birr services adoption: according to this study in commercial bank of Ethiopia key factors that affect mobile money or CBE-Birr services adoption are customers perception of having risk during in usage of the services .in this study the finding showed that perceived risk negatively affecting the adoption and success of mobile money services or CBE-birr services.

Perceived self-efficacy and mobile money services or CBE-Birr services adoption, the research showed that perceived self -efficacy had positive relation with the adoption and the success of mobile money or CBE-Birr services.

Perceived reliable mobile network and the adoption of mobile money services in commercial bank of Ethiopia, the study showed that perceived reliable mobile network is significant factor in the adoption and success of mobile money or CBE-Birr services

## **5.2 Recommendation**

The following suggestions to improve customer's adoption of mobile money services or CBE-Birr services are recommended for private banks to launch mobile money services or CBE-Birr services. Banking industries should introduce a new service like mobile money services to be competitive that allow users to have more alternatives and get more values from mobile money services or CBE-Birr services. mobile money services is important for all customers so, banks

should aim to make their mobile money services as simple and easy to use as possible so that customers do not perceive them as being complicated or difficult to use .this is clear indication for the front end developers to make the user interface user-friendly .

The main limitation what I observed is the services are only in one language i.e. English the bank should focused in providing in different languages and different services considering customer life style and culture.

From the finding of the study only those who are educated are user of mobile money services therefore Commercial bank of Ethiopia take into consideration and try to innovate new services or feature to satisfied the need and the expectation of the customer.

### **5.3 Future research**

The study may not have dealt with all factors that affect mobile money services or CBE-Birr services future studies could address other factors besides factors that mentioned from this study that affect the adoption and success of mobile money services.

This study focused in demographics factors but future study should include on geographical factors or conducting cross-region comparison studies.

The studies should takes place in depth in user studies to a better grasp the psychological and behavioral factors that affect the adoption and success of mobile money services throughout the country.

Customers of mobile money services are not expected to come in branch physically while using in the services hence CBE-Birr can save time, transportation cost etc. due to this and the rest un explained reason mobile money services has significant effect on customer level as well as country level economic contribution

Conducting further study in depth in digitalize banking system or mobile money services weather it is affected by other cashless banking system like mobile banking and internet banking. Therefor the importance of mobile money services or CBE-Birr services is not questionable. For this fact further study or research is required or advisable on the digitalization especially in mobile money services. Future studies also should include moderation variables i.e. user's demographic characteristics like age income, education in the variable relationships.

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## APPENDIX



QUESTIONNAIRES ON: an assessment of key factors affecting the adoption and success of Mobile Money services (CBE-Birr) in cases of Commercial Bank of Ethiopia, Addis Ababa town

Dear respondents: The objective of this research questionnaire is to gather data from you in order to assess the key factors that influence or affecting customers' behavior or customers' perception to use Mobile money or CBE-Birr service. The quality of the research finding for this study will be based on the accuracy of the information you will provide. I assure you that the information you provide is going to be reported, demonstrated and communicated in aggregate and utmost care and confidentiality is maintained. My thanks also go to you, for your cooperation and take a time from your precious time to complete this quaternary.

**Notice:** -

- Do not write your name
- Mobile money services is the subscription name or another name of CBE-Birr in case of commercial bank of Ethiopia

## **PART I: Demographics Instructions**

### **Demographic profile of respondents**

#### **1. Sex**

(1) Male

(2) Female

2. Age group (1) 18-25 (2) 25-35 (3) 35-45 (4) 45-55 (5) 55+

3. Highest educational level achieved: (1) High School completed (2). Diploma  
(3) Degree (4) Masters&+ 5.others

4. Occupational status (1) student (2) employed (3) self-employed (4) unemployed  
(5) others

5. Gross income within a month in Birr: (1) <1000 (2) 1000-2500 (3) 2500-4500 (4)  
4500-6000 (5) 6000-10000 (6) 10000+

6. is your mobile money or CBE-birr is active to use? (1) Yes (2) No

7. How long you have been using mobile money service or CBE-Birr? (1) Less than 1 year  
(2) Greater than 1 year

8. With whom you are influenced to register mobile money service or CBE-birr services? (1).  
Advertisement (2) Family (3) Bank procedure (4) Others

9. How often you intend to use mobile money service or CBE-birr? (1) Daily (2)  
weekly (3) monthly

## PART II: Mobile Money Services

1.) off the following 1 up to 5 scale ,state how often you intend to use the following mobile money services or CBE-Birr on average in a month, by ticking the appropriate box,

Where (A) Never, (B) Rarely, (C) Sometimes, (D) Often, (E) Always

		(A)	(B)	(C)	(D)	(E)
		Never	Rarely	Sometimes	Often	Always
1	Balance enquire					
2	Send money to CBE account					
3	Pay for nedaj					
4	Pay bill for water or electricity					
5	Transfer to Donation					
6	Buy air time or top up					
7	Cash withdraw services					

**PART III: Key factors affecting mobile money service or CBE –Birr service adoption.**

Please indicate the extent that you agree, disagree or neutral with each of the following stated, by ticking

“X” from the scale of 1 to 5 that best conform your level of agreement to mentioned idea.

**N.B.** (A) Strongly Disagree      (B) Disagree      (C) Neutral      (D) Agree  
(E) Strongly Agree

The following are some factors that affect the adoption and success of mobile money services or CBE-Birr services please indicate level of your choice.	(A)  Strongly Disagree	(B) Disagree	(C) Neutral	(D) Agree	(E) Strongly Agree
<b>1.Perceived usefulness</b>					
1.1)I get mobile money service or CBE –birr service useful for my banking needs					
1.2)I find CBE-Birr service is convenient and accessible every where					
1.3)Mobile money services is useful way of making payment					
<b>2.Perceived ease of use</b>					
2.1)Learning to use mobile money service is easy					
2.2)CBE provide guidelines ,how to use mobile money services or CBE Birr facility					
2.3) Mobile money service or CBE Birr requires a simple process.					

2.4)Using mobile money services or CBE-Birr makes my life easier					
<b>3.Perceived trust</b>					
3.1 I do not believe that to transfer money through mobile money services or CBE-birr with my phone is possible					
3.2) I suspect that payment transfer is possible in mobile money or CBE-birr services					
3.3) I do not know how to use mobile money or CBE-birr services for that matter I afraid to use CBE-birr services					
3.4) I trust that using CBE-birr service or mobile money services, do not expose to risk					
<b>4.Perceived Self-Efficacy</b>					
4.1) I do not need somebody else how to use mobile money services or CBE-birr services because I can learn it by my self					
4.2) I use mobile money services because it is user-friendly					
4.3) I use mobile money services or CBE birr because I have seen the CBE advertisement simply					
4.4) I use mobile money services or CBE-birr because CBE workers have shown me how to do it					

<b>5.Perceived Risk</b>					
5.1) I do not have full trust the technology provided by CBE (mobile money services or CBE-Birr services)					
5.2) Mobile money services or CBE-Birr services is unreliable because I afraid that the amount that I transfer may not credited the concerned body					
5.3) If I lose the mobile phone as a mobile money services user or CBE-birr user, in the meantime, I will lose my money as well.					
<b>6.Perceived cost</b>					
6.1) It is costive to use mobile money services or CBE-birr services for withdrawal cash					
6.2) Using mobile money services or CBE –birr increases my costs					
6.3) I perceive that mobile money service (CBE-birr)is having un fair commission					
<b>7.Reliable mobile network</b>					
7.1) I suffered by mobile network to use Mobile money services or CBE-birr birr services					
7.2) I believe that network coverage affects me not to use Mobile money services or CBE-birr services					
7.3) I will continue to use Mobile money services or CBE-birr services if there is accessibility of the network everywhere					

***Thank you for your unreserved co-operation!!***

