ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

MBA PROGRAM

Factors Affecting CBE-Birr Payment Service Adoption by University Students in Ethiopia: Case study on Universities collected school fee through CBE-Birr

A Thesis Submitted to School of Business and Economics in partial Fulfilment of the requirements for the degree of Master of Business Administration (MBA) in Financial Services

BY: Yibeltal Tissassie

Advisor: Temesgen Worku (Ph.D.)

December, 2022

Addis Ababa, Ethiopia

Declaration

This thesis has not previously been accepted for any degree and is not being concurrently submitted in candidature for any degree in any university. I have undertaken the study independently with the guidance and support of my research advisor Dr. Temesgen Worku. Other sources are acknowledged by citations giving explicit references. A list of reference is appended.

Signature: _____

Yibeltal Tissassie

This thesis has been submitted for examination with my approval as a university advisor.

Advisor's Signature: _____

Temesgen Worku (Ph.D)

Letter of Certification

This is to certify that Mr. Yibeltal Tissassie has completed his thesis entitled "Factors affecting the adoption of CBE-BIRR Payment services by University Students" Case study on Universities collected school fee through CBE-Birr. In my opinion, all the material used for the paper has been duly acknowledged and this paper is appropriate to be submitted as a partial fulfilment of the requirement for the award of Degree in Master of Business Administration (MBA) in Financial Services.

Name Yibeltal Tissassie Sign…… Date……

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge.

Advisor: Temesgen Worku (PhD) Signature_____ Date _____

Addis Ababa University

College of Business and Economics

MBA PROGRAM

Factors Affecting CBE-birr Payment Service Adoption by University Students in Ethiopia: Case study on Universities collected school fee through CBE-Birr

BY: Yibeltal Tissassie

Name and Signature of Members of the Examining Board

Temesgen Worku (Ph.D.)	_____	_____
Advisor	Signature	Date
Takele Fufa (Ph.D.	_____	_____
Internal Examiner	Signature	Date
_Demis Dea (Ph.D.	_____	_____
External Examiner	Signature	Date

Table of content **Page**

List of table

List of figure

Acronyms

ATM-automated teller machine

AW-awareness

CBE-Commercial Bank of Ethiopia

CBEBPSAD- CBE-Birr payment services adoption

CPO- cash payment order

DIT- diffusion of innovation theory

DV-dependent variable

EET- electronic fund transfer

E-money- electronic money

ICT-information communication technology

IV- independent variable

MB-mobile banking

MMTs-mobile money transfer services

MNO- mobile network operator

MP-mobile phone user

NBE-National Bank of Ethiopia

OTC- over the counter

PEOU-perceived ease of use

POS-Point of sale

PR-perceived risk

PT-perceived trust

PU-perceived usefulness

TAM-Technology Acceptance model

TV-transaction value

VIF- variance inflation factor

Abstract

This paper aims to identify the factors affecting the adoption of CBE-Birr payment services by university students in Ethiopia. As you all know that the business dynamic is changing continuously reserving its own development cycle. Moreover, the covid-19 pandemic has completely changed the way banks and other institutions interact with their customers, forcing them to accelerate their digital transformation strategies. Even before covid-19, the world has been amidst a process of moving towards a cashless economy, and the use of wallets and alternative payment methods was already on the rise. Among the various schemes that need digital intervention, school fee is the one and the most challenging for families and the school too. The researcher used primary data collected from 388 sample respondents. The sample students were selected randomly, and simple random sampling technique was employed to select the sample respondents. The researcher used the binary logit model to identify factors that significantly affect student's adoption of CBE-Birr payment service and analyzed through SPSS 26. The study used CBE-Birr payment service adoption as a dependent variable and perceives usefulness, perceived ease of use, perceived risk, perceived trust, and awareness and transaction value as independent variable. The findings of analysis showed that perceive usefulness, perceived ease of use, perceived risk, perceived trust, and awareness and transaction value have significant effect and positive relationship on CBE-Birr payment service adoption with p-value of 0.042, 0.000, 0.042, 0.001, 0.014 and 0.039 respectively. Perceived risk and transaction value was found to be significant at p-value 0.042 and 0.039 and negatively correlated with the coefficient value of -1.286 and -1.080 respectively with the probability of CBE-Birr payment services adoption decision. Finally, this thesis can forward suggestions for services providers aimed to enhance adoption of CBE-Birr payment services by students need to be diversified with emphasis on increasing student's awareness and their perception about CBE-Birr usefulness, ease of use and trust. Based on the research finding, the researcher recommended that the services provider should emphasize on and aware to the benefits that students and universities will obtain in the aspects of cost savings, ease, and flexibility when using CBE-Birr payment services. And also Commercial Bank of Ethiopia/services providers enforce National Bank of Ethiopia to amend mobile money limit on deposit in that account and daily transaction limit to increase CBE-Birr payment services adoption.

Key words: CBE-Birr payment services, NBE, CBE, Adoption

Acknowledgements

First, I want to thank and provide hymn to God and his virgin mother saint marry. In God's will and with the help of his virgin mother saint marry that this study finalized.

I am grateful for my advisor, Temesgen worku (PhD) for his important and valuable advice throughout the study.

My parents and Friends are supportive and they are the reason why I am here, I want to mention my deep gratitude for my mother and father and also my lovely wife.

Finally, I wish to acknowledge the efforts and support of others individuals and their institutions that led to the success of this study especially my respondents (Kotebe university of education and Addis Ababa university students) for their cooperation in filling and responding the questionnaires.

Chapter One

Introduction

1.1 Background of the study

Natural as well as legal persons carry out much transaction by the usage physical cash in terms of note, coins and bills for so long and nonetheless notably relay on it at some stage in the world and nevertheless more in the developing world. But since the diffusion of information technology, people have the comfort of choosing how to carry out payment transactions using information technology instruments and services like mobile phones, credit cards, and debit cards e.t.c. For decades not only human, financial institutions have used powerful computer networks to automate millions of daily transactions. E-banking is a system of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of checks, cash, or other negotiable instruments (Kamrul.H, 2009).E-banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to another, rather than by cash or check. (Ayana,g, 2014).

However, introduction of information technology into the banking industry to use E-banking service is the last decade phenomena. Currently most of Ethiopian banks have started providing technology based services and product like ATM (payment cards), Mobile Banking, Internet Banking, Point of sale and electronic fund transfer CBE-BIRR mobile money services and other E-banking services to their customers. And thus, in the last decade, mobile phone technology has appeared as the most potential and well suited channel for financial inclusion to

reduce operational and human resource cost significantly in which digital services are provided.

According to Voorhis and M, (2007), mobile phones (MP) are slowly making a significant impact in financial service providers, especially on the world of banking sector and mobile phones is bridging the digital mechanism between the developed and the developing countries in financial institute (including CBE) and millions of poor people use handsets to transfer money, pay for goods, access sophisticated financial service, enabled financial services to reach the unbanked and unsaved population through mobile money service.

The easy way of conducting financial transactions is the key motivator towards going digital. Mobile payment services have so many advantages that were not available in the traditional way of payments and transaction (Kumari and Khanna, 2017). According to the author, well known advantages are privacy, integrity due to easy of tracking transactions, good transaction efficacy as a result of elimination of time spent counting and sorting cash, appropriateness, convenience, low financial risk of carrying cash and also money laundering is reduced.

like other Electronic banking service providers, CBE-BIRR customers can transfer money to subscribed or unsubscribed users to account number, deposit and withdraw cash from agents, buy airtime, pay different bills and other significant benefits directly without scratching mobile cards number and pay for goods and services (Henos. D., 2018). And the mobile banking service-CBE-Birr services help the banks in resource mobilization and broaden their customer's base and it has also enabled banking institutions to compete more effectively in different places by spreading their products and excel services by providing banking services through mobile phone.

However, the adoption of the CBE-BIRR payment service is a recent phenomenon in Ethiopia and not many studies which are related with the title of Factors affecting adoption of CBE-BIRR payment service' were not made. But recent years have witnessed for an increasing convergence of digital banking and adopting the technologies with the integration of telecommunications, data communications and mass communication into a single medium. (Lucey, 2005).

Commercial bank of Ethiopia in recent time delivers services for customers to pay different bills through CBE-Birr payment service. Some of these institutions are Addis Ababa water and sewerage authority, Addis Ababa University, kotebeUniversity of education, Ethiopian Electricity power authority with short code number 878787,242424, 303030,707070 respectively (Cbeportal, 2019).

In recent time we noted high growing inclination of mobile money services adoption by learning institutions, it is important for institutions to encourage and promote full adoption of this mode of payment in learning institutions in order to reduce high queues of students paying their fees over the bank counters. To see to it that mobile money payment services succeed, there is need to have a well laid down infrastructure for both users and services providers. For the users, they need to apply for the service from the service provider after making sure that they have a reliable network. The service provider will then organize training to the personnel who will run the mobile money payment platform and later deliver the portal to the user (Ayiesa N. ohese. 2018).

Some universities in Ethiopia launched a CBE-BIRR pay bill number more than 2 years ago to help students pay their fees conveniently via their mobile devices. This was also aimed at making fee receipting very easy and prompt since it is a real-time kind of transaction.

Thus, the researcher have interested to determine factors that affect the adoption of the CBE-BIRR payment service by university students in Ethiopia at government universities in Addis Ababa those collected school fee via CBE-BIRR. The researcher used two theoretical frame works in the study of adopting new technological innovation. Technology Acceptance Model (TAM) (Davis, 1989) Diffusion of Innovations Theory (DIT) (Rogres, 1995).

1.2. Statement of the problem

Nothing like the neighbor countries like Kenya and Uganda which are developing countries, Ethiopia is a country where the majority of its populations are unbanked and are not use of digital banking technologies for various reasons like unbalanced of banks presence throughout the country, low level of services accessibility, low level of adoption the technologies compared to other African countries. (Bekalu, 2019).

Numerous individuals adopt for mobile banking services as a means for their daily transactions. Compared to developing countries to developed countries the adoption of mobile banking has been slower, the banking sectors have started to giving their services through various channels like automatic teller machines (ATMs), mobile banking, internet banking and Point of Sale (POS) terminal as alternative beyond their branches. Among mobile financial services Commercial Bank of Ethiopia by 2017 launched CBE-birr (www.cbe.portal.et). Other service delivery channels like agent banking, M-birr that focus on accessibility of the unbanked population has been started following the development of mobile technology. (Zerayeh.s. 2013)

Mobile money service-CBE-birr allows offering financial service outside the traditional banking premises to directly make cash transfer to beneficiaries

through their mobile phone number, transfer of fund from CBE-birr account to account number deposit and withdraw cash from agents, buy air time directly without scratching mobile cards and pay different bills. There are some other roles and advantage of mobile money services- CBE-birr for financial services providers' institutions and for user especially in rural and non-bank areas, in the form of cost and time savings, efficiency, fraud and error reduction, adoptive flexibility, client security and convenience. (CBE-birr procedure, 2017)

According to Osewa (2018), mobile payment services make life easy due to advantages of its being an easy to user service, good services for the unbanked and that the service can easily be accessed by the poor rural population.

Reaves, Scaife, Bates, Traynor and Butler (2015) noted that although most of modern commerce relies on payments that are cashless in nature, it is apparent that not all economies have access to the benefit of such systems and mostly in developing world where physical currency remains the norm. Mobile money payment system, with great reliance on development of mobile networks and mobile devices, are expected to make sure that they bridge this gap.

Frydrych, Scharwatt and Vonthron (2015) found out that Cot D'Ivoire is among the first countries that have taken up mobile money payment system as a medium of paying tax collections, school fees, healthy services and official documents to the public institutions. The researchers noted that the school registration fee payment has worked well due to the efforts by the Ministry of National and Technical education of of Cote d'Ivoire as a result of digitizing students' records since 1998. The researchers further stated that before, the country`s all fee payment was done by cash which was vulnerable to theft, security issues and even bribery.

According to Braniff (2017) in his study on why schools in Africa aren't taking advantage of mobile money payment services noted that 99% of Secondary Schools registration fees in cot d'ivoire are via mobile money. The same study reported that Uganda is among countries that have highest mobile money activities. However, the use mobile payment system has not picked up as expected. The schools and learning institutions have not included the idea of settling school bills and fees through mobile phones. It went on to emphasize that by using mobile money payment services, Ugandan parents will have a faster and cheaper process of fee payment without even leaving home.

Even if CBE-Birr has the above and many untouched advantages for the users as well as to the banks, some challenges are faced. Such as intentional and noticeable mal-operations and unforeseen mal-operations which are about to expose the bank to a significant financial loss (CBE Birr Report, 2017). Not only this but also, there are many other challenges to adopt and practice the services of CBE Birr mobile money transactions.

According to CBE Birr procedure (2017), many other challenges and problems like acceptance of the service by the societies, accessibility, availability of other related services and the limitation of amount involved on it are also the challenges that faced the CBE in this mobile technology service. But in this report and in the previous study, the major factors that affect the adoption of CBE Birr payment services were not specifically identified. CBE-Birr procedure (2017),also clearly stated the benefits of CBE-Birr service that are included opening and maintaining account, fund transfer, cash-deposit and cash-withdrawal, payment, air time recharge /top up, bulk transfer /file upload, salary payment and account management without identified the factors affecting adoption of mobile banking service- CBE-Birr .

A Study conducted by FirehiwotAbebe (2020), factors affecting mobile payment adoption by merchants in Ethiopia by using variables reflected in this study usefulness, ease of use, security, cost, compatibility, social influence, enjoyment, anxiety, knowledge, and innovativeness. As a result, she found that ease of use, usefulness, relative advantage; trust, risk, attitude and cost are influencing factors for mobile payment adoption whereas compatibility was found to have an insignificant effect on merchants' mobile payment adoption. Attitude is the most influencing factor of the merchant's mobile payment adoption.

As the researcher observed at the time of university student's payment of tuition fee, even university students can pay their tuition by CBE-Birr payment service in practical almost all students go to branches to pay their tuition. This can lead to unnecessary expenses and harassment for students.

Thus, the problem is needed to be investigated to identify the factors that impede the customers/students to accept and to be use the CBE-Birr payment service by its own without going to branches. These problems have created practical research gap and initiate the researcher to identify the factors of the problems and eager to seek to fill the discrepancy by investigating the factors influencing the adoption of CBE-Birr payment services.

Thus, this study would attempt to fill the gap and contributes to the literature on the mobile money payment services-CBE-birr payment service and this was why the researcher had the interest to study the issue under this researcher topic and seeks to examine the factors affecting CBE-Birr payment services by university students by using independent variables of perceived ease of use, perceived awareness, perceived trust, perceived usefulness, perceived risk, and transaction value.

1.3 Objective of the study

1.3.1 General objective

The general objective of the research is to examine the determinants of CBE-birr payment services adoption among University students in Ethiopia.

1.3.2 Specific objectives

- To identify the University students' adoption/satisfaction level of CBE-BIRR payment service.
- To understand the relationship between student's perceptions and adoption of CBE-BIRR payment services
- To determine the relationship between transaction value and adoption of CBE-BIRR payment service.

1.4 Research Hypothesis

The researcher has set and formulated the following tentative assumption which was tested after analysis of the collected data.

H1: Perceived usefulness has positive and significant effect on the CBE-Birr payment services adoption.

H2: Perceived ease of use has positive and significant effect on the adoption of CBE Birr Payment Service

H3: Perceived risk has a significant negative influence on the adoption of CBE-birr payment services adoption.

H4: Perceive of trust has positive and significant effect on the adoption of CBE Birr Payment Service.

H5: Perceived awareness has a positive and significant effect on the CBE-birr payment services adoption.

H6: Transaction value has a negative and significant effect on the CBE-Birr payment services adoption.

1.5. Significance of the study

These research may contribution some significant for different organs, from those for management of university students come up with a relevant policy on CBE-Birr payment service that affected their fee collection mandate.

For policy makers and regulators like NBE and CBE will found the study very relevant because it informed the policy formulation in respect for regulation of CBE-Birr payment service it will important to achieve the goal of creating cashless society in Ethiopia.

This study will enable the management of Addis Ababa University and Kotebe University of Education come up with a relevant policy on CBE-BIRR Payment Service That affected tier fee collection mandate. It also gave them the financial consequence of CBE-BIRR Payment Service on their institute performance which enabled them come up with strategies on how and maximize CBE-BIRR Payment Service benefits.

For CBE-Birr payment services users, the study will be of great use to them because they will be able to understand what CBE-Birr payment services entails and this will guide them in making more informed decisions.

Furthermore, the research will also serve as a reference material for anyone who needs to undertake a further study on the same or related topic.

1.6. Scope of the Study

The main focus of this study is to identify the factors affecting the adoption of CBE Birr payment services. And geographically, the study centered on only in government universities at Addis Ababa that collect school fee through CBE-Birr payment service.

The researcher would be limited in time scope to collect data and complete the study from June 2018 entry up to January 2022.

The researcher aimed to deal this research by using adoption of CBE-Birr payment service as a dependent variable, and perceived ease of use, perceived awareness, perceived trust, perceived usefulness, perceived risk, and transaction value as independent variables.

1.7 Limitation of the Study

The researcher usually does not get everything as they expect to study something. For conducting the study, there may be different obstacles that hinder the researcher. So far it is expected that the researcher was face limitation in the flowing aspects.

The result of the study was depend on the individuals' response who participant in the study. I.e. This research was depended on the perceptions of CBE Birr payment services customers. Therefore; some variables like cost, relative advantage, income, support, that can affect the CBE Birr payment service adoption but not measured in the study which were called extraneous variables/

error term were not included. The second limitation in this research were related to the sample size for primary data sources; because, the number of participants included in the sample were not good representative of the whole population (the whole Government university students) means that only small sample respondents were selected and responded from only government universities held in adds Ababa that collect school fee through CBE-Birr. The researcher identified only the factors that affect the adoption of CBE Birr payment service. During data collection the problems were occurred, because, some respondents were not be volunteer to fill and give appropriate response. The other limitation where Lack of sufficient previous studies in Ethiopia concerning the "factors that affect adoption of mobile money payment services -CBE Birr payment services".

1.8 Organization of the study

This research paper was organized in to five chapters. The first chapter concerned with the introductory parts. The second chapter of the study included the ideas about the theoretical and empirical literature review on customers' adoption of CBE Birr payment services. The third chapter was concerned with methodological frame work of approaches and survey design used types of data, methods of data collection, target population and sampling technique. The fourth chapter deal with the presentation, analysis and interpretation of data. And finally, the findings, conclusions and recommendations were discussed in chapter five forwarded by the researcher.

Chapter Two

Literature Review

Under this chapter the theoretical and empirical evidences focusing on determinants CBE-Birr payment services adoption will be presented. Accordingly, the first section, 2.1 presents theoretical frame work; while the second section 2.2 present empirical literature reviews and 2.3 present conceptual frameworks

2.1 Theoretical Literature

2.1.1 Electronic-banking

Due to Technology is evolving faster than ever, and as banking and money management becomes increasingly electronic, it's important to understand new capabilities not only for convenience, but also for security. For decades' financial institutions have used powerful computer networks to automate millions of daily transactions. In the 1950s the Bank of America was one of the first institutions to develop the idea that electronic computers could take over the banking tasks of handling checks and balancing accounts, which was at that time, extremely labor-intensive. Other institutions gradually joined the effort and progressed away from using paper checks and toward all-electronic banking. (Daneil.E, 1999)

Electronic banking has variety of meanings all refer to the same meaning; the following section show some of these definitions. E-banking is a form of banking service where funds are transferred through an interchange of electronic signal between financial institutions, rather than exchange of cash, checks or other negotiable instruments. E-banking, also known as electronic funds transfer (EFT),

is simply the use of electronic means to transfer funds directly from one account to another, rather than exchange funds by check or cash. (Kamrul, 2009)

Electronic-banking is defined as a variety of self-service platforms such as mobile money banking, internet (online) banking, mobile banking, TV banking, Agent banking, phone banking, whereby customers access these services using electronic devices. (Pikkarainenet al.2004).

Another definition of E-banking is that `E-banking is the use of a computer to regain and process banking data (statements, transaction details, etc.) and to initiate transactions (transfer, payments, requests for services, etc.) directly with a bank or with other financial service provider distantly via a telecommunications network'' It should be noted that electronic banking is a bigger platform than just banking via the internet. (Yang,Y., 1997)

Generally, E-banking has a variation of definitions all refer to the same meaning, the following section show. from of those definitions, Some Banks like the largest government owned Commercial Bank of Ethiopia (CBE), Zemen Bank, Dashen bank and Wegagun bank uses ATM machine and other technological tools to provide service to the customers in addition to service provided at bank office. (Ayana, 2014)

There are various electronic banking systems, and they range in size. An example of a small system is an ATM network, a set of interconnected automated teller machines that are linked to a centralized financial institution and its computer system. An example of a large electronic banking system is the Federal Reserve Wire Network, called Fed wire. This system allows participants to handle large, time-sensitive payments, such as those required to settle real estate transactions.

Among those E-banking services, mobile phone technology service, after successfully launched testing its functionality for six months Commercial Bank of Ethiopia officially launched its mobile money services named CBE Birr on December 11, 2017. CBE-BIRR, (which is one type of E-banking service) is an agent banking service introduced by Commercial Bank of Ethiopia in accordance with NBE directive number FIS/01/2012. It was in testing phase from June 2017 to December 2017 and became live in December 12, 2017.

2.1.2 Mobile Money Service

In developing countries Mobile technologies are changing economic life, where many people are using cell phones for a range of financial transactions, such as receiving and sending money transfer. Indeed, mobile money is already being used by banks and mobile network operators to provide millions of unbanked consumers a way to store access money digitally. The limited information available suggests that for millions of consumers in developing countries, mobile money is transforming lives by providing access to financial services and the ability to pay and be paid electronically. Mobile money allows unbanked people to use their phones as a bank account: to deposit, transfer, withdraw money and also people can use mobile systems to pay utility bills and pay for goods in merchant shops with their headset. (ACP Observatory on Migration, 2014)

Kenya started Mobile money services in 2007 through M-PESA (in Swahili "M" stands for mobile, "Pesa" for Money), a popular mobile money service offered by a local mobile network operator, Safaricoms. Since then, the mobile money industry has rapidly expanded particularly in developing economies in Africa and South Asia such as India, Bangladesh, and Pakistan. (ACP Observatory on Migration, 2014)

The definition of "mobile money" differs across the communication industry as it covers a wide scope of overlying applications.

In general, mobile money is defined as service in which the mobile phone (number) is used to access financial services (GSM Association, 2010). There are three major mobile money services:

1. Mobile banking, which is only one type of mobile money services. It allows customers of a financial institution to access their money, only available to people who possess a formal bank account.
2. Mobile payment, also known as m-payment: it is a service that allowing unbanked people to purchase or sell goods and services at a merchant and also it allows pay different bills at a merchant shop/store in presence or distantly using their mobile wallet through their mobile phone, instead of cash.
3. Mobile transfer also known as money transfer of person to person P2P or mobile remittances: it is a service that allows unbanked society to send or receive small sums of money to or from any other mobile phone user (even if they are subscribed to different telephone services providers) across the country, from rural to urban areas, and across international borders. Mobile transfer services, which are available from their mobile phones without the need for a bank account but can transfer to bank account. In practical terms, mobile transfer and mobile payment services are accessible from electronic account, linked to the sim card in the mobile phone. This electronic account is knowing as Mobile Wallet and it protected by a person identification number (PIN), with accounts debited or credited as soon as the transaction takes place. To do transfer or payment mobile phone users need to deposit cash into their mobile wallet at the outlet of an agent of local mobile telecommunications company or banks. The agent will get the money from the customer and

transmit it to the company through his/her own mobile phone. (ACP Observatory on Migration,2014)

2.1.3 Mobile money Payment

Different researchers define mobile payment in different ways. Mobile money payments are growing to the next generation of electronic payments, the mobile channel. Advances in technology have enabled alternative functionalities for mobile handsets beyond the original visions of the originators of handsets or wireless communication architectures to supporting a new and viable channel for mobile financial services, including account transfers and bill payment, domestic and international Person to Person transfers, proximity payments at the point of sale, and remote payments to purchase goods and services (Endeg, 2019)

Mobile payment defines According to Kaw (2014), it is a transfer of funds in return for goods or services in which a mobile device is functionally involved in executing and confirming payment. It intends to improve the purchasing process by making it faster and more convenient by substituting other kinds of payments and be alternative to cash and card-based payments. But in time it has now evolved into a saving vehicle and a way to transfer money without any good or service accompanied. It is a proven added value for the customer as it enables them to consult their account balance before making a purchase and get rid of all the cash in their pocket (Nurhussen, 2016). Using mobile phones for business to consumer payment transaction processing is also known as mobile payment (Key &Dietmar, 2014).

In addition, Mobile payments can be referred to as a two-sided market, where retailers or merchants accepting mobile payments represent one side, and customers using the service another (Eisennman, Parker, & Van Alstyne, 2006).

Both sides express certain expectations about the benefits of mobile payments. So, consumers expect easy to use solutions, better quality, and personalization of the service, guaranteed security, low service costs, and ubiquitous infrastructure. According to Hayashi (2012), consumers can make three types of payments with a mobile device such as a cell phone or tablet computer. The first payment type consists of person to person transfers initiated from a mobile device. These transfers include non-commercial payments from one consumer to another and commercial payments from a consumer to a small scale merchant, such as a plumber or gardener. The second is for goods and services purchased over the internet on a mobile device. The third is mobile payments at a point of sale (POS), which are payments initiated from a mobile device at physical locations, such as grocery store, restaurant, or gas station (Hayashi, 2012).

2.1.4 Mobile Payment technologies

According to Hayash&Bradford (2009), technologies that enable mobile payment are still fragmented where there is no dominant method for making mobile payments. The choice of technologies significantly affects requirements for consumer and merchant use, business models, and funding sources. There are three main technologies that have emerged for mobile payments are NFC, codebase for example, barcode and QR code, and the last is cloud-based (Hayash& Bradford, 2009).

1. NFC (neer field communication) enables wireless devices to communicate over a short distance. A consumer completes a transaction by tapping or waving a mobile device at a merchant's point of sale (POS) device.
2. Barcodes and QR codes store information that can be ready by a scanner or mobile device that has a code reader application installed. One way to make a payment using these codes is for a consumer's mobile device to display a

barcode or QR code containing payment information that is scanned by a POS device.

3. Could technology use remote servers to store data, eliminating upfront investments in software and hardware, and removing value limits on stored data. One way to make a cloud-based mobile payment is to use a consumer consumer's mobile phone number with a personal identification number (PIN) entered into a PIN pad at a merchant's POS. Other cloud based methods rely on location-based technology that monitors a consumer's location (for example, inside a given store) with a mobile payment application. Each of the three technologies is

   used in some existing mobile payment applications, such as Apple Pay, Samsung Pay, QR Pal, QR pay, Android Pay, Google Pay, and Pay Pal (Ramos, Montoro, Liébana, & Gil, 2016; Gao& Mei, 2009; Trütsch, 2016)

2.1.5. Structure of a Typical Mobile Money Service

The mobile money services that the researchers have analyzed have many similarities in the approach taken to service delivery. In Ethiopian case, mobile money services are introduced by different financial institution some of the mobile money service are M-birr, Hello cash Abay bedeje and also CBE birr. Those mobile money services have the same features as well they have differences. So generally in this section, covered the standard structure of these mobile money services, in order to provide context for the rest of the paper. This description below is not intended to comprehensively cover all existing mobile money services, but to be broadly representative of all those the study have seen, and to the best of the authors knowledge, broadly representative of the majority of existing services.

Owner / Operator: Mobile money services are typically operated and owned operated by either a Mobile Network Operator (MNO) or a financial institution (typically a bank). Each type of organization has its pros and cons, mobile network operators(MNO) have the benefit of owning the cellular network, providing and having access to customers' mobile phones, and frequently have a physical presence in the relevant communities, but typically do not have experience in evolving or distributing financial services, nor the regulatory ability to do so. In turn, banks have the benefit of already offering similar services to the banked population, but must partner with a Mobile network operator to access consumers' phones, and must often develop new business models to succeed in lower income Populations (Rajiv Lalishan and Sachdev, 2015).

In general, the enquiry of which type of company deploys mobile money services is decided by regulators – in those countries in which Mobile network operators are allowed to deploy their own mobile money services, they have tended to be the first movers, whereas in countries like Ethiopia where they are prevented from doing so, banks have tended to be the first movers.

Bank Account Operator: Money flowing through a mobile money service must typically be held in a regulated account of some kind. In many conditions, even when the service is operated by a nonbank, a regulated bank is used as a back-end provider to actually hold customer funds as a custodian. These funds typically cannot be intermediated by the bank or the mobile money operator, and are also distant from the bankruptcy of the mobile money operator; however, the applicability of deposit insurance protections varies from country to country. In addition, any interest accumulating on such funds typically can't be passed through to account holders. Convert it into electronic form, which they can then

use to make payments or transfers directly through their phone (Rajiv LalIshan and Sachdev, 2015).

Services delivered over the counter (OTC) require the customer to physically meet a representative of the mobile money operator, where the customer provides cash for transactions to the representative, who then uses his / her own mobile phone and mobile money account to effect the transaction and takes the cash. Many services offer customers both options.

Distribution Network: Mobile money operators typically control an "Agent Network" to distribute their services to customers. Agents are typically either a) retail locations directly owned by the Operative, b) existing merchants, generally small independent stores or sometimes chains, which have been signed up by the Operator, or c) a mix of both (Rajiv LalIshan and Sachdev, 2015).

To reach scale, however, most mobile money services must eventually leverage outside merchants. In many cases, there is a hierarchy of agents, with larger agents having responsibility for managing a pool of smaller agents. Agents are typically located in close proximity customers they are serving, and provide services including account registration, cash-in/cash-out, and OTC transactions, in addition to potentially helping market the service and educate customers. Thus, agents are the primary way in which customers interact with the system.

Customers Served and Fee Structure: on this case Mobile money operators typically require at least one party in a transaction to be a customer of the service (i.e. they must have an account with the operator), though services differ in whether they require both parties to be customers (e.g. whether a customer can send a Person to Person transfer to a non-customer).While, the different fee structure are employed by many mobile money services, however they are

typically all a) transaction-based (i.e. fees charged on a per-transaction basis), and b) involve fees charged to consumers. Transactions can include both transfers to others (e.g. Person to Person transfers), or cash-in / cash-out. Services typically set fees in order to encourage different behaviors they believe will be beneficial to their service. (Rajiv LalIshan and Sachdev, 2015).

Service Delivery Method: Mobile money services are typically delivered in one of two ways – either over the counter (OTC) or directly through a customer's mobile phone. Services delivered directly through a customer's phone require the customer to put cash into their mobile account. Mobile money services are being deployed rapidly across emerging markets as a key tool to further the goal of financial inclusion. Financial inclusion, the development of novel methods to enable individuals at the base of the pyramid to access formal financial services and become part of the formal financial system, is considered a key pre-requisite for lifting these populations out of poverty and for driving economic growth (Rajiv LalIshan and Sachdev, 2015).

2.1.6 Advantage of Mobile Payment

As a promising payment method, mobile payment technology is perceived as a secure and effective substitute for traditional debit/credit card payment. Scholars claimed that mobile payment technology would become a major future payment method. Compatibility with lifestyle, perceived usefulness, subjective norm, and security are the major predictors of consumers' intention to adopt mobile payment technology (Dennehy andSammon, 2015).

The potential benefits to consumers of mobile payments can be evaluated by comparing mobile payment methods to traditional payment methods in terms of key payment attributes. Some attributes, such as convenience, cost, security, and

acceptance by merchants, Mobile payment technologies could bring many benefits to consumers and merchants. Mobile payment systems could act as a digital wallet, storing coupons and loyalty information. Because of the growing storage and computing capacity of mobile phones, they could also become repositories for purchases of goods and services. Mobile payment technologies could help customers keep purchase records, and could address the problem of lost receipts and rejected returns (Hayashi, 2012).

There is also the potential for better payment security. In most credit card transactions, consumers use the same number over and over again to effectuate charges, without a Personal Identification Number. Neither consumers nor companies can ensure that the array of individuals who handle credit card numbers keep them securely. Mobile payment technologies could leverage information about the consumer, location information, security features on the device, and one-time account identifiers to more effectively verify buyers identifies, thereby achieving more secure transactions (Dennehy andSammon, 2015). Properly implemented, such advances could reduce the harm created by embezzled credit card numbers and make it more difficult to engage in in-person credit card fraud (Dennehy andSammon, 2015).

Dennehy and Sammon (2015) identified the following advantages to different stakeholders of mobile payment.

A) Financial Institutions

Mobile payments offer financial institutions the opportunity to protect the current account and associated loan products and to avoid further dis-intermediation from the consumer by third parties in the on-line payment space. Mobile payments also offer financial institutions the opportunity to reduce the use of cash and its

associated costs, as well as the opportunity to service unbanked and under-banked communities cost-effectively.

B) Mobile Network Operators

Mobile payments provide MNOs with the opportunity to recoup the cost and return on the investment made in infrastructure through increased air time and data usage by consumers. Mobile payments also provide MNOs with the opportunity to create new revenue streams by diversifying into new areas of business based on evolving consumer needs and behaviors.

C) Merchants

The benefits of mobile payments for the merchant include; higher throughput at the point-of-sale (POS); the ability to send real-time messaging to consumers; and the reduction of service costs through unmanned or remote POS locations. Mobile payments using NFC technology can also enable merchants to create deeper customer relationships and richer individualized shopping experiences by offering value-added services such as digitized loyalty cards and coupons.

D) Consumers

Mobile payments could allow consumers to make payments ‘anytime, anywhere’, becoming less dependent on the need to carry cash which in turn could reduce the risk of theft.

E) Regulators

Regulation can provide secure and efficient payment systems to the delivery of value to the markets. This, in turn, can provide governments with the opportunity

to enhance financial services, particularly for the unbanked and under-banked populations.

2.1.7 CBE Birr practice (Mobile Money Service in Ethiopia)

In some part of Africa the introduction of mobile money transfer service has brought about accelerated development due to its nature of facilitating financial transactions in a quick, safe and fast way. The first Mobile money service was launched and developed in Kenya in 2007 by Safaricom, and today there are more than 15 million mobile money customers making it the most popular and successful mobile money in the world (Ardic, 2011).

CBE Birr has a number of definitions used to explain Mobile money services. One of the definitions is widely used to describe Mobile money as banking and financial transactions using mobile phones or devices for any financial purpose (Ivatury and Pickens, 2006). CBE Birr is a transaction method which money is transferred from one person to another through a mobile device without intermediate. It is a new payment method for purchases of products and services which uses in all kinds of mobile devices and wireless communication technologies (mobile telecommunication networks, Internet.

CBE birr is a mobile based banking whereby the bank selects, trains and authorizes agents to offer banking services on behalf of the bank through a mobile phone. CBE Birr is believed to contribute a lot to build up saving culture of the public and streamline financial transaction and payment system of the country (www.combanketh.et, 2019). Commercial Bank of Ethiopia introduced CBE birr (an agent banking service) in accordance with NBE directive number FIS/01/2012. It was in development phase for long period of time and became live in 2017. Like other agent banking service providers, CBE Birr customers can

transfer money to subscribed or unsubscribed users, transfer to bank account number, deposit and withdraw cash from agents, buy airtime directly without scratching mobile cards and pay for goods and services. (Henos, D.2018).

Commercial Bank of Ethiopia has more than 1,590 branches in Ethiopia and CBE-BIRR is taking advantage of this huge number of networked branches to recruit new agents and customers.

The CBE Birr Service includes: transfer to bank account number, money deposit, money withdrawal, domestic and international money transfers to both registered and non-registered users, Mobile airtime Top-up (Ethio telecom credit), checking account balances, other administrative services (PIN change, language change, and statement), bulk disbursement and payment of goods. Once money has been deposited on his/her account, it is very convenient for the Subscriber to transfer money anywhere within Ethiopia. Of course the recipient must either be a Subscriber or simply have a mobile phone. It is much faster and more convenient than going to a bank: If a Subscriber lives in Addis ababa, and wants to send money to his family back in Bahir Dar, it's as easy as sending a text: typing some numbers on a mobile phone, and within a few seconds, the recipient gets a message in his/her mobile. He/she then goes to his local Agent (shop, petrol station, butcher, etc.) and collects the money right away. The user can use for mobile card payment system. (Alelign, 2019).

There are another significant benefits to be gained by the use of mobile technology by financial services providers' institutions and for users especially in rural and nonbank areas, in the form of cost and time savings, efficiency, fraud and error reduction, foster flexibility, client security and convenience (Admassu and Asayehg, 2014)

After a subscriber has been resisted in CBE Birr customer with fulfillment of Eligibility Criteria (SIM card ,Account number, age=18 years.), the financial institutions including CBE have given to their subscribers two types of CBE Birr service channels.

a) USSD (Unstructured supplementary service data by dialing*847# and gets CBE Birr services like send money, cash out, buy air time, buy goods, pay bill, balance, mini statement, change PIN, and language,,,,,)

b) WEB by android smart phone data.

As per National Bank of Ethiopia directives (2012), Once registered on the CBE Birr System, subscriber can access the CBE Birr service by dialing*847# and hit send, like a normal phone call. To select the operation, with a very simple method of navigation, the user shall type in the number of the menu he/she wishes to access, and hit the „Send" button to receive the next screen, with more options. Some models of mobile will require subscribers to select a reply option in order to enable typing the number of the menu item you wish to access.

All transactions and accesses to the system by the Branch and the agent are free of charge. All M-BIRR Mobile customers" accounts have debit and balance limits set by the National Bank of Ethiopia. A maximum daily debit transaction (payment, fund transfer, and cash out) limit of 6,000birr and a maximum balance available in a mobile account of a person 25,000birr (CBE Birr procedure.16th janu.2017).

Commercial bank of Ethiopia has found the mobile money service as a vital to improve resource mobilization. Essentially, the CBE Birr services have agent banking, mobile payment and mobile transfer; through which it can reach

potential new and unbanked customers. CBE has started the CBE birr service by creating branches as a top organization and branches are given a mandate to create agents and customers. Agents on the other hand, are entitled to recruit customers (CBE Birr assessment, 2017).

Those parties have their own responsibilities to achieve the objective of the bank regarding to CBE birr. CBE Birr (Mobile Money) service is the best option for CBE to contribute for the financial inclusion strategy. In this regard, CBE in its role in the country would use the branchless option to be accessible to the society.

2.1. 8 Factors influencing to adopt mobile money/CBE Birr/

There are different factors influencing CBE Birr service adoption, and the factors that impede users from using the services actively.

Mobile money adoption has gained special attention in academic studies during the past years to investigate factors of adoption especially in Kenya and Zimbabwe. Adopting of new technological innovation many researchers have been used different frame works in the study. Among frameworks that have been developed based on the past studies includes; Technology Acceptance Model (TAM) (Davis,1989), which posit the two sets of beliefs, i.e., perceived ease of use (PEOU) and perceived usefulness (PU) to determine individual's acceptance of a technology. Theory of Reasoned Action (TRA) (Fishbein& Ajzen1975), Theory of Planned Behaviors(TPB) (Ajzen 1991), which deals with the intention of adopting and the factors affect the use technology such as attitude, subjective norms and perceived behavioral control. The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkateshet, al, 2003) Diffusion of Innovations Theory (DIT) developed by Rogers (1995) this model is developed to explain how the diffusion of innovations takes place in the social system.

2.1.9 Technology Acceptance model (TAM)

Technology acceptance model (TAM) that mainly contains two most important determinants perceived ease of use (PEOU) and perceived usefulness (PU) was developed by Davis (1986). This model explains the computer-usage behavior and clarifying the adoption of any information system.

Perceived Ease of Use -Davis (1989) defined perceived ease of use as the degree to which a person believes that using a particular system would be free of effort. Many studies have shown that the impact of perceived ease of use on a user's intention to adopt an innovation is either directly or indirectly through perceived usefulness. Chitungo and Munongo (2013) in their study on the adoption of mobile financial services in Zimbabwe found that perceived ease of use has a positively significant influence on the adoption of mobile financial service. Perceived ease of use has been extensively studied with perceived usefulness, and both have been found to have a positive influence on the adoption of mobile banking and mobile financial services (Yu 2012; Cheney 2008; Dahlberg et al. 2014; Dass and Pal 2011). Based on these empirical studies the researcher proposes the following hypothesis:

H1: Perceived ease of use has a positive effect on the adoption of CBE-Birr payment services

Consequently, these two factors may not fully explain the factors which predict the acceptance of a technology application such as mobile technology banking – CBE-Birr services. Therefore, the previous studies have extended the original TAM with added constructs such as perceived risk, perceived compatibility, perceived playfulness, perceived enjoyment, and perceived cost. (HAYAT, 2017).

Perceived Usefulness - Perceived usefulness on the other hand refers to the degree to which an individual perceives that using a particular system would enhance his/her job performance (Liu and Li, 2009). (Aldas, 2012) assert that perceived usefulness refers to the advantages that financial transactions offer and whether using a mobile phone is useful for performing financial transactions. Based on these studies the following hypothesis is proposed:

H2: Perceived usefulness has a positive effect on the adoption of CBE-Birr payment services.

2.1.10 Diffusion of Innovation Theory (DIT)

The other widely used theory is Diffusion of Innovation Theory, which helps to understand customer‘s behavior whether adoption or non-adoption of an innovation. In the theory, diffusion is defined as the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003). The theory highlights five perceived characteristics that impact the adoption and non-adoption of an innovation which are: relative advantage, perceived compatibility, simplicity or complexity of use, trial ability and observeability (Rogers, 2003) as the key characteristics that enable an innovation to be taken up by a population. From the above characteristics some of the main construct of the theory include in the study are;

Relative advantage: According to (ROGRES, 2002), relative advantage define as the degree to which an innovation is perceived as better than the idea it supersedes. It refers to whether the innovation is perceived to be superior to the product or service from which it progresses. Potential adopters want to know the degree to which a new idea is better than an existing practice. Hereafter relative advantage is often the content of network messages with regard to an innovation.

This construct is similar to the perceived usefulness in the Technology acceptance model, defined as the degree to which a person believes that a particular information technology would enhance his or her job performance.

Complexity: Rogers (2002) describes complexity as the degree to which an innovation is perceived as relatively difficult to understand and use. Complexity is similar to the perceive ease of use component of TAM and is a significant predictor of the intention to use and adopt an innovation as the more complex an innovation is the slower its rate of adoption will be slow. (LIU, 2009). Adoption will be less likely if the innovation is perceived as being difficult complex to use.

Compatibility: as per Rogers (2003) defines, compatibility as the degree to which an innovation is perceived to be consistent with existing values, past experiences and the need of potential users. In the context of mobile money, compatibility refers to the extent to which mobile-money is consistent with consumers' lifestyle and current needs (Kleijnen et al., 2004). An innovation can be compatible or incompatible with socio-cultural beliefs or values and with earlier introduced ideas or with client needs for innovations. The compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (Rogers, 1983). Based on this the following hypothesis is formulated;

Awareness: provides the familiarity about the existence of the product they wish to buy in future (Alkhunaizan& Love, 2012). Therefore, the information about the existence of the e-money service or prior experience creates user awareness and hence, user intention to use the service will create. As per the study of Laforet and Li (2005) and Tobbin (2013) awareness of a person is one of a factor which can affect the acceptance and adoption of mobile banking. Bhanot et al. (2012) highlighted that financial education to the low-income individuals, distance to the

banks and government contribution as the factors influencing mobile banking adoption and where Chen (2013) suggested that these factors are part of the individual awareness. Therefore, awareness of the customers can be a one of a main factor which can affect the adoption of mobile money service. Standing from the above literature the following hypothesis has proposed;

H3: There is a positive relationship between Awareness and customers CBE-Birr payment services adoption**.**

Perceived Risk (PR): - risk as a consumer‘s belief about a potential uncertain negative outcome from the use of the service (Tobin, 2011). Customers would want to take minimal risk with their choices. Every consumer is faced with two types of risk in the purchasing decision, uncertainty and eventual negative consequence of the purchase. It is important that a mobile money service is less complex for use by all, making it easy for all consumers to adapt to it especially in emerging markets. (Lee, 2009) suggested that the adoption of mobile financial services creates concern that there may be financial losses, password security, network errors, hacking and loss of personal information. So it stated that perceived risk has a negative influence on CBE Birr adoption. Based on the above literature the following hypothesis has proposed;

H4: Perceived risk has a significant negative influence on the adoption of CBE-Birr payment service.

Perceived Trust (PT): - Mobile Money environment, like all business transactions require an element of trust. To become a feasible unit of doing business mobile money service should overcome user distrust (Siauetal, 2003) for the purpose of this study, perceived trust is defined as a measure of consumer‘s level of assurance that the service will be provided with minimum possible

hindrance. Consumers need to have a belief that the network is reliable. Dass (2011) in their study on the adoption of mobile financial services among the rural unbanked found that villagers preferred channels which can be trusted to conduct monetary transaction. Based on the above rationale, the following hypothesis is formulated:

H5: Perceived trust has a positive influence on the adoption of CBE-Birr payment services

Volume or Value of Transaction and Mobile Payment Services

Mobile money payments usage has really grown and it is expected to grow further. According to Capgemini (2011) in the study on ways mobile phone payments can take advantage of banking inclusion, an approach for financial services institutions, defined volume of transaction or value of transaction as the amount of money a noble money payment system user intent to transact at one given time. Users in developed economies because of a very large number of unbanked population, there has been higher volume of mobile money transaction and the volume keeps increasing.

According to National Bank of Ethiopia directive No-FIS/01/2012 set limit on the maximum balance that should be available in a mobile account of a person with a financial institution at any time shall not exceed birr 25000. And also daily mobile money banking transaction that involves debiting of an account by a person with financial institution shall not exceed birr 6000. Based on the above rationale, the following hypothesis is formulated:

H6: Transaction volume has a negative influence on the adoption of CBE-Birr payment service.

2.2 Empirical Literature

Different studies have been conducted to examine the relationship between Mobile banking service- mobile money/ Cbe-Birr adoption and its determinants in various countries.

But, there are limited numbers of studies conducted in Ethiopia on the adoption technological innovation; some researchers have done on factors of adoption of CBE-Birr Payment Services.

According to Ayiesa (2018) in his study of adoption of mobile payment services among students in institutions of high learning by using three variables transaction volume, persevered risk and transaction cost. From those the researcher found that students battled with perceived financial and social risks by potential users, fear in transacting large amount of money and fear to incur higher transaction charges.

According to Firehiwot (2020) has investigated on adoption mobile payment series by merchants in Addis Ababa and Oromia special zone conclude that ease of use, usefulness, relative advantage, trust, risk, attitude and cost are influencing factors for mobile payment adoption whereas compatibility was found to have an insignificant effect on merchant's mobile payment adoption. The researcher also found that Attitude is the most influencing factor of the merchant's mobile payment adoption.

(Esayas,2018) has investigated on adoption of mobile money service in Addis Ababa and concluded that factors that are limiting the adoption and use of more of the M-Birr products after registering for the service, participants have indicated that the most important factors are 'available services on M-Birr', Knowledge of

service' and 'convenience'. Both three factors were the most standout factors identified by participants. They clearly indicated that what is limiting the adoption is the availability of the service itself along with the consumers' knowledge rather than the different attributes of existing services like phone type, cost and security.

(Sewalem, 2018) in his study on challenges and opportunities of CBE Birr service in Ethiopia conclude that growing acceptance of CBE Birr service by agents, merchants and individual customers and has a positive perception towards usefulness and ease of use of CBE Birr payment system; Information Communication Technology infrastructure development and NBE policy direction are among the existed opportunities in the implementation of CBE Birr service in the CBE.

Research conducted by Henos, 2018, on "challenges and prospects of agent banking in Ethiopia: the case of CBE-BIRR and M-BIRR". The aim of his study was focused on only identified and analyzed the external factors challenges and prospects of agent banking (mobile money) services in Ethiopia. In his study, he found that the major challenges which include Lack of Awareness of both customers and service provider/agents, NBE regulations and limitations, lack of budget, Poor advertisement, unavailability of new and additional services, illiteracy, dependability of the service and Poor network quality and he concluded that the service should be available in voice and other channels to illiterate customers.

In summarizing, in developing countries there has been a relatively limited number of evidence on the factors affecting adoption of CBE-Birr payment services by university students. Finally, to the knowledge of the researcher, in Ethiopia context their appear to be not enough to examine the factors of affecting adoption of CBE-Birr payment services by University students. Therefore it is

hoped that this study fills a gap and provide useful support for better understanding the factors affecting mobile money (CBE-BIRR) payment services adoption by university students those pay school fee by CBE-Birr.

2.3 conceptual Framework

Numerous researches conducted on mobile money service adoption have combined Technology Acceptance Model (TAM), (Davis, 1986) and Diffusion of Innovation theory (DIT). The measurements of customers' adoption to use CBE-BIRR mobile money service is carried out with the aid of as a base TAM model with making some adjustments instead of using copy of the TAM model that explains the computer-usage behavior, adoption of any information system by adding the two most important determinants- perceived risk and perceived trust variables in to TAM model variables. In this study, the researcher will combine the extended TAM model with Diffusion of Innovation theory (DIT) developed by (Rogers, 2003) which explains how the diffusion of innovations takes place in the social system and describes how newideas and technologies spread and adopted or rejected in different cultures. DIT model is extended along with perceived Trust and perceived Risk to investigate factors influencing CBE Birr adoption in commercial bank of Ethiopia.

Therefore, the study needs to use the combined extended TAM model and Diffusion of Innovation theory (DIT) models as a conceptual framework for this study which is revising by different scholarly literature reviews and formulated as follows

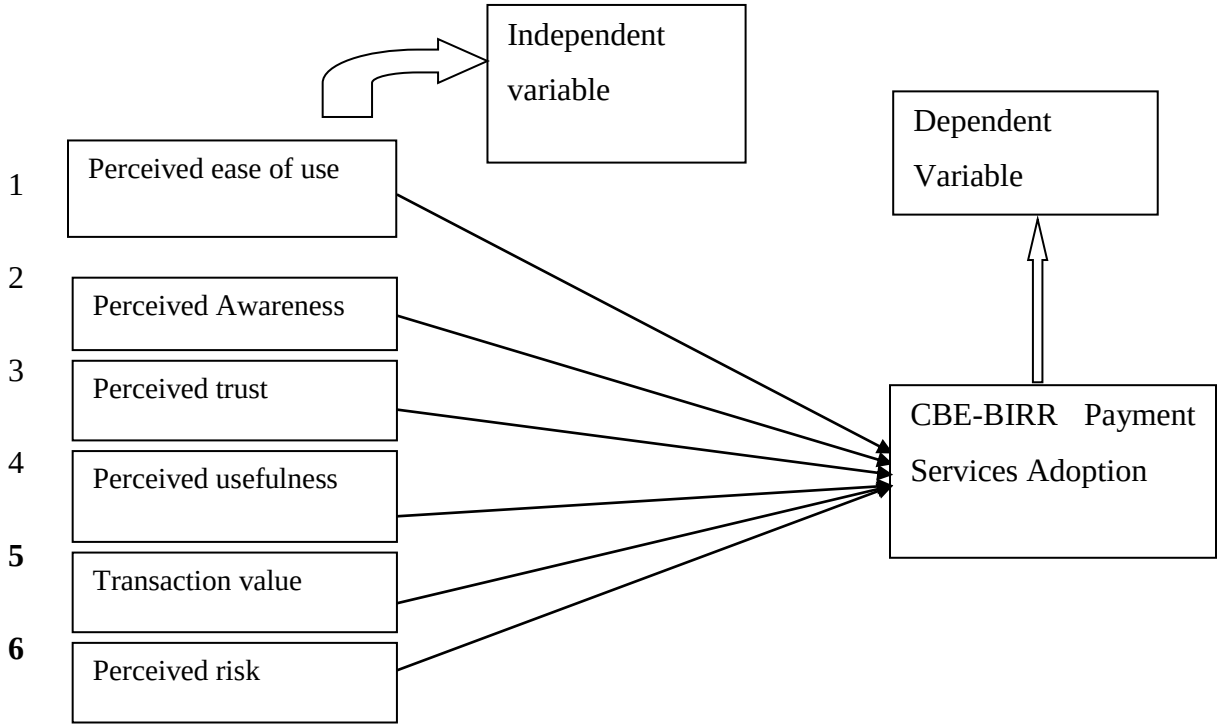

Figure 2. 1 Model developed by the researcher the relation between Variables Based on extended TAM model (Luarn, 2005) and DIT model (Rogers, 2013).

Chapter Three

Research Methodology

3 Introduction

This chapter describes the research design, source and data collection method, data analysis and statistical tools used in the study.

3.1 Research Approach

The significant argument here is that the use of both quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach achieves alone, the researcher used both qualitative and quantitative research approach in this study. Because, this is based on the assumption that quantitative method would enough to address the research problem and qualitative approach would have employed to categorize the dependent variable. According to Bekalu, 2019, in quantitative research approach in general and inferential approach in particular, the study would involve sample respondents and its determinants where findings would be inferred to the entire population. The research would show the adoption/satisfaction level of customers/students in number by using quantitative approach. (Mesin, 2018).

3.2. Research Design

To measure the effects and determine the relationship between the independent variables with dependent variable (adoption of CBE-Birr payment services), the researcher used both explanatory and descriptive research design to accomplish the study's objectives. The descriptive Statistics in this research used to measure

students/customer's Status of CBE-birr payment service adoption by %age, level of satisfaction by %age. In this study, the explanatory research design used to explain the nature of the relationship between the adoptions of CBE-Birr payment service/dependent variable with students'/customers' perception/independent variables (by using econometrics analysis).

3.3. Population of the study

The target population of this study was distance weekend and extension students of Addis Ababa University and kotebe University of Education, those targeted homogeneous populations are 12,764.

3.4 Sampling Techniques and Sample Size

To save the time and cost the researcher should select representatives from the entire population/parameter and this technique is known as sampling (Dawson, 2006). To make generalization about the whole population, different sampling designs and procedures used to get the truly representative sample (Israel,G.D., 1992).The method of sampling technique which used by the researcher was proportional sampling which was a probability sampling(utilized some form of random selection) and used simple random sampling technique. The sample size for a given study should consider the time and financial constraints, minimize exposure to small sample bias, homogeneity of the population and were as representative as possible. When the response for the attributes/characteristics being measured was assumed a dichotomous, the use of (Yamane, 1967) tables and formulas to determine sample size is more appropriate. The researcher was prefer 5% of margin error because the population is so large and homogenous and that if smaller Percentage for margin of error in the formula is selected, the larger

the sample size would be difficult to distribute and collect responses. Numerically, calculated in the following way by using 95% confidence level.

Equation: $\mathbf{n} = \boldsymbol{N} /\mathbf{1}+\mathrm{N}\ (\mathrm{e}^{2)}$

$\mathbf{n} = \boldsymbol{N} /\mathbf{1}+(\mathbf{0.0}5)^2$, n= $12{,}764/\mathbf{1}+12{,}764(\mathbf{0.0}5)^2 = 387.84 \approx 388$

Size, 'e' = is the error of confidence level. The selection of sample respondents for the study was done by using simple random sampling techniques as follows

Table 3.1: Sample size and population determination

Number ofcolleges	Number of students	Sample size proportion	Sample size
AAU	9,549	9,549/12,764 = 75%	291
Kotebe of Education	3,215	3,215/12,764 = 25%	97
total	12,764	100%	n=388

3.5 Data type, source, and method of data collection

In order to address the identified objectives, the researcher used both primary data and secondary sources. Primary data is the original data or information which was collected by the researcher for the project on hands (Zikmund,W.G., 2003).primary data was collected through structured questionnaire adapted from previous researches on the subject that prepare for the survey based on literature review and objective of the study. The secondary sources that the researcher was used as references and guide included journal, article, and organizations' manual and report.

3.6 Data presentation and analysis

To evaluate the effects of various factors on the CBE-birr payment series adoption, chi square, pairwise correlation were used by using binary logistic regression. The data collected through questioner techniques was processed and analyzed in accordance with the characteristics of the data and the respondent. And therefore, the descriptive and econometric analysis was done by SPSS version 26 for analyzing the data collected through questionnaire. In this study, the researcher employed both inferential statistics (correlation coefficient, regression) and descriptive statistics such as (frequency, percentage, mean, standard deviation) and by using SPSS software version26.

Econometrics: Binary logistic regression model is used to examine the relation of each factors and to examine the determinants of CBE Birr payment services adoption. Because, the selection of model that has been applied in specific research is depend on the dependent variable (adoption of CBE birr payment services) which is dichotomous (dummy) form that is the probability of a positive outcome for a binary 0 or 1 outcome variable. The value of 0 indicates that non-adopter and 1 indicates that adopters of CBE-Birr payment services. Therefore, according to (Endeg.G, 2019), the estimation dichotomous values require the use of qualitative response models and the non-linear probability models, logit models was the possible alternatives. Binary logistic regression model was developed to predict the effects of independent variables on dependent variable and to test the developed hypothesis so as to determine the significance of the impact of various factors affecting the adoption of CBE –birr payment services. Then this model has been incorporated the factors of the explanatory variables on the adoption of CBE-Birr payment services.

3.7 Variables description and their measurements

This paper of questionnaires would be designed to include three parts. The first part of the paper included demographic information about the respondents that were gender, age and education of the respondent and the second part of the questionnaires asked the respondents would about dependent variable "adoption of CBE-birr payment services" which was categorical adopter or non-adopters and the third part of the questionnaire asked the respondents would be about the variables of interest in this study which were perceived usefulness, ease of use, perceived trust, perceived risk, awareness and transaction value. The items in the questionnaire about independent variables would be measured by using five-point likart scales, ranging from strongly agree to strongly disagree that measured the explanatory/ independent variables.

3.8 Model formulation and Specification

The aim of this research was to examine the relationship between factors of CBE-Birr payment services with CBE-Birr payment services adoption.

To model regressions when the dependent variable is dichotomous/dummy, the model takes 0 or 1 values, a probability model that has two features are necessary: (1) as Xi increases, Pi = E(Y = 1 | X) increases but never steps outside the 0–1 interval, and (2) the relationship between Pi and Xi is nonlinear; rather log thus, one can easily use cumulative distribution function (CDF) and the logistic model could be written in terms of the odds ratio and log of odds ratio (Gujarati, 2004). Both of Logistic and Probit regression models satisfy the above two features. But, even though there is no basis in statistical theory for preferring one over the other, there are two practical advantages of the logit model over probity model (Fox, 2010). The first one its simplicity: the equation of the logistic CDF is very simple.

The second is its interpretability: the inverse linearizing transformation for the logit model is directly interpretable as log-odds, while the inverse transformation for probity does not have a direct interpretation. By taking in to consideration these advantages, the researcher favored to use binary logistic regression model to predict the effects of independent variables on the dependent variable. Therefore, customers/students CBE birr payment service adoption probability was model as a dichotomous variable with values of 1 'if students adopt CBE birr payment service and 0 'otherwise' Here the dependent variable was dichotomous, i.e. to adopt or not: thus, the dependent variable Yi = 1 if the students adopts CBE birr payment service, and Yi = 0 if the students doesn't adopt CBE-Birr payment services. To adopt or not to adopt in relation to independent variables could be depicted in linear probability as follow: Pi = E(Y=1/Xi) = ß1+ ß2Xi

Where X is the independent variable and Y=1 means the students adopts CBE birr payment services; thus, the adoption of CBE birr payment services can be expressed as follow; Pi = E(Y=1/Xi) =1+exp [1-(ß1+ß2Xi)] = 1+exp (-Zi)…… (1)

Where Zi =β1 + β2Xi. It is the cumulative logistic distribution function (CDF). Here Zi ranges from -∞ to ∞ and Pi ranges between 0 and 1; Pi is non-linearly related to Zi (i.e. Xi); thus, satisfying the two conditions required for a probability model. But, this non-linearity of Pi both in X and β's creates a problem in estimating parameters. To overcome this problem, there is a need of another equation. Here, Pi is the odds ratio of the probability of adopting and it is given by; 1/1+exp (−*zi*)

Then the (1-Pi) is the probability of not adopting, since, Zi =β1 + β2Xi.the above equation can be rewrite in understandable manner as follows. 1 – Pi) = 1/1+exp (-zi)

Therefore, one can write:$Pi/1 - pi\ =\ 1 + exp\ (zi)/1 + exp(-zi)$---------- (2)

Pi/ (1-Pi) is the equation that express the odds ratio in favor of adopting the CBE Birr payment services, i.e.; the ratio of the probability that a student's adopt the CBE Birr payment services to the probability that not adopt CBE Birr payment services. Taking the natural log of the odds called the "logit" ="Zi" (2), then the formula;

$$log\ (pi/1 - pi)\ =\ Zi$$
$$=\ ß1 + ß2Xi$$
$$+\ ß3X3\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(3)$$

This log of odds ratio is linear both in X's and in the parameters. Therefore, the logit model of adoption for the sample respondent students was expressed as follows; with intercept term (β0) and Xi independent variables can be equated as: log (pi/1-pi) = Zi=ß0+ß1X1i +ß2x2i +….ßnxni Here, ß0 stands for the intercept term, B1 is the average change in Zi per one unit increase in X1, controlling for the other predictors, while Xn are the hypothesized determinants of CBE birr payment services adoption, and ßn are the parameters to be estimated. Therefore, the model employed has the following form, with the error tem: and then for estimation purpose, it is requited as

$$P(CBEBPSA) =\ In\left(\frac{pi}{1} - pi\right)$$
$$=\ \beta 0\ +\ \ \beta 1PU +\ \beta 2PEU +\ \beta 3PR +\ \beta 4PT +\ \beta 5AW$$
$$+ \beta 6TV \ldots + \varepsilon$$

$$i.e. p(CBEBPSA) = = \beta 0 + \sum{}^{k}{}_{i}{=}1\ \beta ixi + \acute{\varepsilon} i$$

CBEBPSA=the dependent variable which identifies whether an individual has adopted or not Adopted CBE Birr Payment services.

β = Slope of Coefficient PT= Perceived trust

β1, β2, β3, β4,β5,……. =marginal effects AW=awareness

PR=perceived Risk ε= Error term/other undefined factor

PEU= perceived ease of Use K=number of IDV involved in the model

PU= Perceived Usefulness Xi=Vector of independent variables

TV= transaction Value

3.9 Definitions and Descriptions of Variables

The study included variables of CBE birr payment service adoption as dependent variable and perceived risk, perceived trust, awareness, perceived usefulness perceived ease of use and transaction value as explanatory variables Here under these variables were defined and described.

Dependent variable (DV): CBE Birr payment service adoption would be given a value of '1' to the CBE Birr payment services adopters while '0' would be assigned to non-adopter. To assess the status of CBE Birr payment service adoption by students, respondents were asked whether they used CBE Birr or not in the form of 'Yes' or 'no' response question. Therefore, adoption of CBE Birr payment services was used as dependent variable in the regression analysis

Independent variables (IV): The independent variables selected based on the existing theories and empirical studies (Kalkidan, 2016) Wang et al., 2003). The definitions of these selected explanatory variables are given below. And they was measured by using positioning statements - a variation of the verbal rating scale and are often known as agree/disagree scales or Likert scales after the person who popularized them. The level of agreement is ranged from 1 to 5(strongly disagree to strongly agree).

Perceived usefulness: is the degree to which an individual believes that he or she would benefit from using e-banking (Davis, 1989).

Perceived ease of use: is the extent to which a person believes that using a particular system would be free of effort (Davis, 1989).

Perceived risk: means the uncertainty about the outcome of the use of the innovation (Gerrard and Cunningham 2003). The interpreters for perceived risk applied in this study are loss of trust with the technology provided by the bank, fear of leaking personal information and fear of losing money if the phone is stolen.

Perceived trust: is the degree to which an individual trusts or believes the new innovation (new technology or product, CBE-Birr payment services).

Awareness: is the knowhow or knowledge of a person about the innovation (new technology or product).

Transaction Value: This is the amount a consumer transacts using his/her mobile phone at any one given time (Safaricom, 2018).

3.10. Model Diagnostic Tests

To test model fit-test and multicolinearity problem detected diagnostic tests were conducted and the final regression result was presented in table 4.10 below. Before the start of complete analysis various diagnostic tests were conducted to make the data ready for regression any analysis should incorporate examination of logistic regression diagnostic before reaching a final decision on model adequacy (Hosmer et al., 1997). For binary logistic regression models, to determine the usefulness and goodness of the model used in indicating the amount of variation in the dependent variable, model R square, described as Nagelekerke R^2- statistics (from a maximum approximately of 1 to minimum value of 0) and p value were tested. Since Nagelekerke R^2 was founded 0.951, the model was fitted well. In a rule of thumb p-value of 0.05 is taken as a reference in assessing the goodness of fit test. In this research the prob> chi^2 was found to be 0.000 which is less than 0.05 (see appendxE) . Therefore the model was good.

3.10.1 Multi-collinearity Tests

Multicolinearity represents the degree to which variables' effect can be predicated or accounted for by the other variables in the analysis. This problem (high standard errors, wrong signs in regression coefficient,) arises when two or more variables (or combination of variables) are highly correlated with each other. According to Wooldridge (2002), Variance inflation factor (VIF) and tolerance level (1/VIF) are the two important tools to measure multi-collinearity problem As a rule of thumb, a variable exceeds 10, that variable is said be highly collinear. According to wooldrige, by rule of thumb, VIF value of 5 or tolerance indexes of 0.20 are used as a critical point to indicate serious multi-collinearity problem. Thus, a good regression model must not have a multi-collinearity problem and

that the value of variance inflation factor (VIF) must have a value between 1 and 10 and the tolerance level should be more than the 0.2. And, the minimum and maximum VIF values for this test were found 1.082 and 3.50, respectively, with the mean value of VIF was 2.2 and the minimum value of tolerance level is 0.286 (se appendix E). Thus, there was no severe multi-collinearly problem between the variables.

3.11 Ethical Considerations.

To keep the confidentiality of the data given by respondents, the respondents would not be required to write their name. The respondents would be assured that their response treated in severe confidentiality. The researcher stated that the purpose of the study in the introductory part of the questionnaire and assured that the questionnaire were not used to other purposes. The questionnaires would be distributed only to voluntary participants with giving thanks in advance.

3.12 Validity and Reliability

Table 3.2 Reliability statistics

Reliability Statistics		
Variables	**Cronbach's Alpha**	**No of items**
Perceived usefulness	**.770**	**3**
Perceived ease of use	**.868**	**4**
Perceived risk	**.781**	**4**
Perceived trust	**.920**	**4**
Awareness	**.882**	**3**
Transaction value	**.808**	**4**
Total	**.878**	**22**

Cronbach's alpha was used to assess the internal consistency of variable in the research instrument. It represented as a number between 0 and 1. According to Zikmundet al., (2000) scales with coefficient alpha between 0.6 and 0.7 indicate fair reliability. Hence, as observed from the above table 3.3 this study's Cronbach's alpha coefficient was for perceived usefulness 0.770 for, 0.868 for perceived ease of use, 0.781 for perceived risk, .920 for perceived trust, 0.882 for awareness and 0.808 for transaction value indicated that fair internal consistency and reliability among the items within ach factors.

Chapter Four

Results and Discussions

4.1 Descriptive analysis

To identify the factors affecting student's CBE-Birr Payment service adoption decision, a systematic sample of 388 students from the sample frame were taken from Addis Ababa University and Kotebe Education University. As a result, data collected from observations were used for the analysis purpose.

4.1.1 Demographic profile of the respondents

As shown in the table of Demographic profile 4.1 below, of the total 388 sample respondents 204 (52.6%) were female respondents and the remaining 184(47.4%) were male respondents. From those sample respondents majority of them 303(78.1%) were aged 18-27 followed by aged 28-37 76(19.6%) and 9(2.3%) were covered by the aged between 38-47 years old. With regard to the education level those study on university of the respondent, 287(74%) sample respondents were Bachelor Degree students and the rest 101(26%) respondents were Master's degree students.

Table 4.1 demographic characteristics of the respondents

variable	Category	frequency	Percentage (%)
Gender	Male	184	47.4
	Female	204	52.6
Age	18-27	303	78.1
	28-37	76	19.6
	38-47	9	2.3
Education level study in university	Bachelor degree	287	74
	Master degree	101	26

Source: own survey, 2022

4.1.2 Status of CBE-Birr Payment Service Adoption

To assess the status of CBE-Birr payment services adoption by university students of Addis Ababa and Kotebe Education University, students were asked whether they are using CBE-Birr Payment services or not in the form of 'Yes' or ' No' response question. Similar studies, for instance, (Alelign, 2019; Fitsum, 2019) used such type objective response and direct measure of binary dependent variable in determining the CBE-Bir usage. As a result, for the purpose of investigating explanatory variables affecting customers CBE-Birr payment services adoption decision, both students who did adopt and did not adopt were included in the analysis.

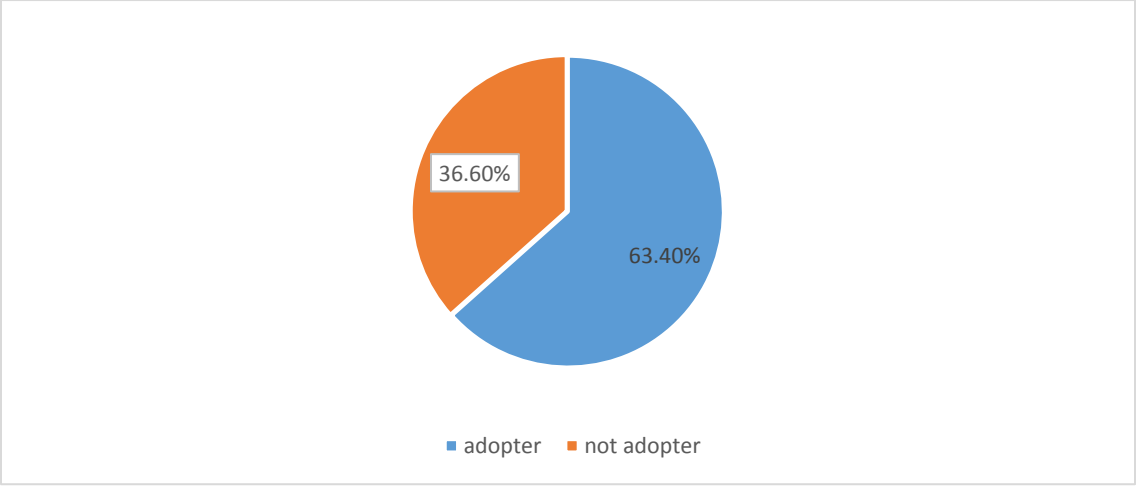

Figure 4.1 Status of CBE-Birr Payment service adoption

From observed in table 4.2 below and figure 4.1 above, from the total sample respondents of 388, 246 (63.4%) respondents are found adopters of CBE-Birr payments services, while 142 (36.4%) are non-adopters. This implied that although the majority of the customers/ students are found to be adopters of the service, not few in numbers who did not accept the new technology of CBE-Birr services, and indicated the rest that additional investigations were needed to increase adopters by identifying the hinder factors.

Table 4.2 CBE-Birr Payment service adoption status

		Frequency	Percent	Cumulative Percent
	non-adopter	142	36.6	36.6
	adopter	246	63.4	100.0
	Total	388	100.0	

Source: own survey, 2022

4.1.3. Respondent's level of Satisfaction about CBE-Birr Payment Services

To know the usage level of CBE-Birr payment services that given by commercial Bank of Ethiopia and the respondent's current level of satisfaction with CBE-Birr payment service services, the respondents were asked to indicate that are you active CBE-Birr payment service user or not and their level satisfaction about CBE-Birr payment services. The response shows that 46.6% of the total respondents are satisfied followed by 35. % neutral, 12.1% are extremely satisfied, 5.7% are dissatisfied and the reaming 0.5 were strongly dissatisfied. This implies that on average majority of users are satisfied by the CBE-Birr payment services.

Table 4.3 CBE-Birr payment service satisfaction level

	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Satisfied	47	12.1	12.1	12.1
Satisfied	181	46.6	46.6	58.8
Neutral	136	35.1	35.1	93.8
Dissatisfied	22	5.7	5.7	99.5
extremely dissatisfied	2	.5	.5	100.0
Total	388	100.0	100.0	

Source: own survey, 2022

4.1.4 Factors affecting adoption of CBE-Birr payment services

In this part of the study, institutional and students/customers related factors that affect CBE-Birr payment services usage were prepared in five likert scale response questions(1= strongly Disagree, 2= Disagree, 3= neutral, 4= Agree, 5= Strongly Agree) as per result the data was interpreted by using percentage and chi-square, p-value.

Perceived usefulness

Table 4.4 shows that 170 of CBE-Birr payment service adopters are agreed and 60 are strongly agreed on the perceived usefulness of CBE-birr payment service adoption, 57 of CBE-Birr payment services non-adopters are neutral and also 51 of them are disagreed on perceived usefulness of CBE-Birr payment services respectively. The result shown in the table 4.4 below, indicated that there was existed a strong relationship between perceived usefulness and CBE-Birr payment services adoption with the chi-square test p-value 0.042 at 5% significant level, showing that there is significant association between perceived ease of use and CBE-Birr payment service adoption.

Table 4.4 Perceived usefulness and CBE-Birr payment service adoption

CBE-Birr payment service adoption	level of agreement						Chi2-test P-Value
	Stro. Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	3	51	57	31	0	142	0.042
Adopter	0	8	8	170	60	246	
Total	3	59	65	201	60	388	

Source: own survey, 2022

Perceived ease of use

Table 4.5 revealed that 141 of of CBE-Birr payment service adopters are agreed and 88 are strongly agreed on the perceived ease use of CBE-birr payment service adoption, 72 of CBE-Birr payment services non-adopters are disagreed and 42 of them are neutral perceived ease of use of CBE-Birr payment service respectively. The result shown in the table 4.5 below, indicated that there was existed a strong relationship between perceived ease use and CBE-Birr payment services adoption with the chi-square test p-value 0.000 at significant value of 5 %.

Table 4.5 perceived ease of use and CBE-Birr payment service adoption

CBE-Birr payment service adoption	level of agreement						Chi2-test P-Value
	Stro.Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	12	72	42	16	0	142	0.000
Adopter	0	11	6	141	88	246	
Total	12	83	48	157	88	388	

Source: own survey, 2022

Perceived Risk

Table 4.6 revealed that 155 of of CBE-Birr payment service adopters are disagreed and 55 are strongly disagreed on the perceived risk of CBE-birr payment service adoption, 62 of CBE-Birr payment services non-adopters are disagreed and 55 of them are neutral perceived risk of CBE-Birr payment service

respectively. The result shown in the table 4.6 below, indicated that there was existed a strong relationship between perceived risk and CBE-Birr payment services adoption with the chi-square test p-value 0.042 at the significant value of 5 %.

Table 4.6 Perceived risk and CBE-Birr payment service adoption

CBE-Birr payment service adoption	**level of agreement**						**Chi2-test**
							P-Value
	Stro. Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	9	62	55	15	1	142	0.042
Adopter	55	155	19	17	0	246	
Total	64	217	74	32	1	388	

Source: own survey, 2022

Perceived Trust

Table 4.7 revealed that 139 of CBE-Birr payment service adopters are agreed and 93 are strongly agreed on the perceived trust of CBE-birr payment service adoption, 69 of CBE-Birr payment services non-adopters are disagreed and 46 of them are neutral perceived trust of CBE-Birr payment service respectively. The chi square test of p-value 0.042 shows that there is significant relationship between perceived trust and CBE-Birr payment services adoption.

Table 4.7 Perceived trust and CBE-Birr payment service adoption

CBE-Birr payment service adoption	level of agreement						Chi2-test
							P-Value
	Stro. Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	16	69	46	11	0	142	0.010
Adopter	1	2	11	139	93	246	
Total	17	71	57	150	93	388	

Source: own survey, 2022

Awareness

Table 4.8 revealed that 139 of CBE-Birr payment service adopters are agreed and 87 are strongly agreed on the awareness of CBE-birr payment service adoption, 60 of CBE-Birr payment services non-adopters are disagreed and 49 of them are neutral on awareness of CBE-Birr payment service respectively. The chi square test of p-value 0.014 shows that there is significant relationship between perceived trust and CBE-Birr payment services adoption.

Table 4.8 Awareness and CBE-Birr payment service adoption

CBE-Birr payment service adoption	**level of agreement**						**Chi2-test P-Value**
	Stro.Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	23	60	49	6	4	142	**0.014**
Adopter	0	5	15	139	87	246	
Total	23	65	64	145	91	388	

Source: own survey, 2022

Transaction value

Table 4.9 revealed that 129 of CBE-Birr payment service adopters are agreed and 50 are strongly agreed on the transaction value of CBE-birr payment service adoption, 80 of CBE-Birr payment services non-adopters are agreed and 45 of them are neutral on transaction value of CBE-Birr payment service respectively. The chi square test of p-value 0.039 shows that there is significant relationship between perceived trust and CBE-Birr payment services adoption.

Table 4.9 Transaction value and CBE-Birr payment service adoption

CBE-Birr payment service adoption	level of agreement						Chi2-test P-Value
	Stro.Disagree	Disagree	Neutral	Agree	Stro. Agree	Subtotal	
Non-Adopter	0	11	45	80	6	142	**0.039**
Adopter	3	13	51	129	50	246	
Total	3	24	96	209	56	388	

Source: own survey,2022

4.2 Econometric analysis

Under this section econometric analysis was discussed to identify the correlation analysis and the significant factors that affect the adoption of CBE-Birr payment services.

4.2.1 Correlation analysis

To determine the direction and strength of linear relationship existing between variables a correlation analysis was used. To test the correlation between variables included in the model, pairs-wise correlation test was run. As a general rule, multi-collinearity is a problem when the correlation result is above 0.80 and below -0.80 (stock & Watson, 2007), and the correlation coefficient r gives a measure in the range of -1, +1 of the relationship between two variables. R=0 means no correlation, r= +1 means perfectly positive correlation and r=-1 means perfectly negative correlation. Thus, the correlation coefficients of all variables included in this study were ranged between -0.371and 0.849 indicated that low negative correlation and high positive correlation and no multi-collinearity problems were found in the regression model (see appendix C).

4.2.2 Result of analysis of binary logistic regression

Regression analysis was performed in order to test the contribution of the independent variables to the dependent variable. In this section the result of binary logistic regression, impact and significance of each explanatory variable on the dependent variable was discussed. The table below shows model which includes all predictor's values shown in the robust test of model coefficients is given in a Hosmer and Lemeshow Test chi-square of 76.161 which is significant at 0.05. as the table 4.10 below shows, the regression estimation result investigated that there are factors that have explanatory power to determine students CBE-Birr payment service adoption decision in the study area at 5% significance level. This regression result shows that CBE-Birr payment service adoption decision is positively correlated with perceived usefulness, perceived ease of use, perceived trust, and student awareness and transaction value. However, the result reveals that CBE-Birr payment services adoption is

negatively correlated with perceived risk and transaction value of CBE-Birr payment service adoption. The researcher can have observed that the independent variables included in the model sufficiently explain variation in the dependent variable, which was shown by high value of NagelkerkeR^2 (95.1%). Moreover, probability of chi^2 =0.000 is statistically significant at 5% significance level, which indicated that well explanatory variables taken together are significant in explaining the model. Therefore, the model can be valid to determine variables that significantly affect adoption of student's CBE-Birr payment services in the study area. As it was seen from table 4.10 below, out of six hypothesized explanatory variables for the determinant of CBE-Birr payment services adoption; all variables were found to be statistically significantly associated with the CBE-Birr payment services adoption at 5% significance level in the study area. These variables are perceived usefulness, perceived ease of use, perceived risk, perceived trust, student awareness and transaction value were statistically significant at 5%. Furthermore; the variables come up with the expected sign.

Table 4.10: Hosmer and lemeshow test

Hosmer and Lemeshow Test

Chi-square	df	Sig.
76.161	8	.000

Table 4. 11 Binary Logit Regression Result

								95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1[a]	PU	1.239	.610	4.134	1	.042	3.453	1.046	11.406
	PEU	2.206	.537	16.910	1	.000	9.081	3.173	25.989
	PR	-1.286	.633	4.123	1	.042	.276	.080	.956
	PT	2.238	.663	11.409	1	.001	9.377	2.559	34.366
	AW	1.198	.486	6.073	1	.014	3.313	1.278	8.589
	TV	-1.080	.524	4.246	1	.039	.340	.122	.949
	Constant	-15.362	3.086	24.786	1	.000	.000		

a. Variable(s) entered on step 1: PU, PEU, PR, PT, AW, TV.

Exp(B)= Exp(B) means “e to the power B” or eB¬Called the “odds ratio”, e is a mathematical constant used as the “base” for natural logarithms • In logistic regression, eB is the factor by which the odds change when X increases by one unit. As has been described, the outcome categories in the estimation were CBE-Birr payment service students/ customers with adopter and non-adopter. From the above table 4.11 the Exp(B)= result shows the degree to which the students to adopt CBE-Birr payment services. Therefore, other factor being constant when there is a change by one percent in one of explanatory variable; the probability to adopt CBE-Birr payment service is changed by that factor on average.

4.3. Interpretation of the model’s result

By binary logistic regression analysis, influential predictor variables are characterized by odds ratios, mfx and p –values. From the table 4.11 above the odd ratio which was obtained by the ration of the probability the adopt of CBE-Birr payment service divided by the probability that would not adopt the technology.

Odds ratios or relative risk >1 indicates that a positive relationship between independent variable and dependent variable.

Odds ratios < 1 indicates that a negative relationship between Independent variable and dependent variable. Then as shown in the table 4.11 above, the odd ration result of all variables greater than 1 implied that these variables have positive relationship with dependent variable, while the odd ratio of independent variable "perceived risk and transaction value" = 0.276 and 0.340 respectively less than 1 depicted the negative relationship between perceived risk, transaction value and CBE-Birr payment services adoption. Variables that have significant explanatory power in determining the CBE-Birr payment service adoption decision are interpreted in this section.

PU (perceived usefulness):

Perceived usefulness was found a positive significant factor that affect student's CBE-Birr payment services adoption decision with p-value 0.042 and odds ratio 3.453. P-value 0.042 shows that perceived usefulness is statically significant at 5 % significance level and odds of ratio result 3.453 indicated that the likelihood of adopting CBE-Birr payment services for students who perceive CBE-Birr payment service useful is 3.453 times higher than their counterparts. This is due to most students choose to adopt mobile money payment services because they see the benefits they could obtain and also the convenience and any time anywhere accessibility. In the hypothesis testing, based on the coefficient of regression table 4.11 above, the result has shown the perceived usefulness has a positive coefficient of 1.239 and statically significant at p-value of 0.042, indicated that in the "H1": - perceived usefulness has positive and significant effect on adoption of CBE-Birr payment services was accepted. This finding is consistent with most of the previous research findings. (Firehiwot (2020)) found

that perceived usefulness was a positive significant factor that affect the adoption decision of CBE-Birr payment services.

PEOU (perceived ease of use)

Perceived ease of use was found a positive significant factor that affect student's CBE-Birr payment services adoption decision with p-value 0.000 and odds ratio 9.081. P-value 0.000 shows that perceived ease of use is statically significant at 5 % significance level and odds of ratio result 9.081 indicated that the likelihood of adopting CBE-Birr payment services for students who perceive CBE-Birr payment service ease of use is 9.081 times higher than their counterparts. This is due to most students choose to adopt mobile money payment services because the services availed by different language. In the hypothesis testing, based on the coefficient of regression table 4.11 above, the result has shown the perceived usefulness has a positive coefficient of 2.206 and statically significant at p-value of 0.000, indicated that in the "H2": - perceived ease of use has positive and significant effect on adoption of CBE-Birr payment services was accepted. This finding is consistent with most of the previous research findings. (Firehiwot (2020)) found that perceived ease of use was a positive significant factor that affect the adoption decision of CBE-Birr payment services.

PR (perceived risk):

As it was expected and hypothesized, perceived risk was found a negative factor that affect student's CBE-Birr payment services adoption decision with p- value 0.042 and odds of ratio 0.276. 0.042 of p-value shows that perceived risk is statically significant at 5% significance level and odd ratio result 0.276 indicated that when the fear of risk is increased by one percent, the odds ratios in favor of adopting CBE-Birr payment services is decreased by 0.276 times as compared to

those who have not perceived the risk. This is because even if the service has its own security personal identification password the some student's may not have trust on it. As shown in the table above, statically significant at p-value of 0.042 at 5% level of significance in 95% of confidence interval with negatively coefficient value of - 1.286 affects the adoption of CBE-Birr payment services and therefore, the "H3": perceived risk has significant effect on adoption of CBE-Birr payment services was accepted. This finding is reliable with most of the previous research effect on adoption of CBE-Birr Payment services. (AYIESA (2018) and Firehiwot (2020)) found that perceived risk was a negative significant factor that affect the adoption decision of CBE-Birr payment services.

PT (perceived trust):

As per expected perceived trust was found a positive significant factor that affect student's CBE-Birr payment services decision with P-value 0.001and odds of ratio 9.377. 0.001 of p-value shows that perceived trust is statically significant at 5% significance level. Other factors remains constant, the trust level increase by one percent the odds ratio in favor of adopting CBE-Birr Payment services increase by factors of 9.377 times. This shows that customers who have higher trust level on the services can adopt CBE-Birr payment services than CBE-Birr payment services with lower trust level. From this finding the researcher could conclude that perceived trust has positive and significant effect on adoption of CBE-Birr payment services and thus, the "H4" was accepted.

This finding is reliable with most of the previous research effect on adoption of CBE-Birr Payment services. (Firehiwot (2020)) found that perceived trust was a positive significant factor that affect the adoption decision of CBE-Birr payment services.

AW (Awareness):

As it was expected awareness was found a positive significant factor that affect student's CBE-Birr payment services decision with P-value of 0.014 and odds of ratio 3.313. P-value of 0.014 indicates that students' awareness is statically significant at 5% significance level. Other factors remains constant, the awareness level increase by one percent the odds ratio in favor of adopting CBE-Birr Payment services increase by factors of 3.313 times. This shows that customers who have higher awareness level on the services can adopt CBE-Birr payment services than CBE-Birr payment services with lower awareness level. From this finding the researcher could conclude that awareness has positive and significant effect on adoption of CBE-Birr payment services and thus, the "H5" was accepted.

This finding is reliable with most of the previous research effect on adoption of CBE-Birr Payment services. (Firehiwot (2020)) found that awareness was a positive significant factor that affect the adoption decision of CBE-Birr payment services.

TV (Transaction Value):

As it was hypothesized and expected transaction value was found a negative significant factor that affect student's CBE-Birr Payment services adoption with odds ratio of 0.340 and p-value 0.039 indicated that the "H6": was accepted. and odd ratio result 0.340 indicated that when the transaction value increased one unite, the odds ratios in favor of adopting CBE-Birr payment services is decreased by 0.340 times as compared to those who have not affect the transaction value. This is because the service has its own transaction daily value limit of up to 6000 and the student's school fee most of the time is above the limit.

This finding is reliable with most of the previous research effect on adoption of CBE-Birr Payment services. (AYIESA (2018)) found that transaction value was a negative significant factor that affect the adoption decision of CBE-Birr payment services.

Chapter Five

Summary, conclusion and Recommendation

5.1 Summary of the finding

The objective of the study was to identifying the factors that affect student's CBE-Birr payment services adoption by university students those paid school fee by CBE-Birr though data's collected with structured questionnaire collected from 388 students. Therefore, this part of the research summarize the major findings of the study from the various factors influencing adoption of CBE-Birr payment services. The study found out that from the demographic profile most of the respondents were female, and most of the respondents" age category is within 18-27 years old, most of the respondents of education status is bachelor degree students. The finding of the study on the level of satisfaction of using CBE-Birr payment services, majority of the respondents reviled that they were satisfied in the usage of CBE-Birr services. The finding of the study reviled that student's perception like perceived usefulness, perceived ease of use, perceived trust were a positive significance factor that affect customers/ student's CBE-Birr payment services adoption decision but perceived risk and transaction value has a negative effect to adopt the services. In addition student's awareness were positive significant factors that affect student's CBE-Birr payment services adoption.

5.2 Conclusions

As per the data which are presented, analyzed and interpreted in chapter four the following conclusions are made.

The findings of regression analysis showed that, perceived usefulness has a positive significant factor in determining adopting CBE-Birr payment service adoption. This implicates that, since adoption of CBE-Birr payment services useful in long time, the probability that adopting CBE-Birr payment services increases. And the researcher can conclude that when the benefit and value of the payment services is clear, student's become adopters of the services.

The study also shows that perceived ease of use was a positive significant factor that affects students CBE-Birr payment services adoption decision. This indicates the availability of CBE-Birr payment services in various languages like English, Amharic, Afan Oromo, Tigrigna and Somalia increase the probability of adoption. (The school fee payment done not only by students but also by parents so various languages play great role to adopt the services.)

The study found that, perceived trust was a positive significant factor that affects student's adoption of CBE-Birr payment services. Therefore, user with high level of confidence in the services are more readily build initial trust in CBE-Birr payment services and willing to accept the services. Thus the researcher can concluded that, when the student's believed that the services is trustworthy and overcome thinking of failure, the probability to adopt it well would be higher and vice versa.

The finding of the study revealed students/ customer awareness was a positive significant factor that affects the adoption of CBE-Birr payment services. This

shows that, when the level of awareness of the student's in using CBE-Birr payment services and its benefit, similarly it increase the level of adoption.

The finding of the study found that perceived risk was a negative significant factor in determining CBE-Birr payment services adoption. It reflects that, when the students perceive using CBE-Birr payment services leads to different risk; at the same time it would be too difficult to adopt the services. Thus, it can be conclude that the lower the perceived risk of CBE-Birr payment services the higher users of the technology.

The study revealed transaction value was a negative significant factor in determining CBE-Birr Payment services adoption. It reflects that, when the students have limit problem to pay school fee; at the same time it would be too difficult to adopt the services. Thus it can be conclude that the daily transaction limit affect the adoption of the payment services.

5.3. Recommendations

Based on the research findings and conclusions above, the following are recommendations forwarded in order to boost CBE-Birr payment services than the past.

To increase the trustworthy of the services, the university should acknowledge receipt of payment formal to students promptly, the bank give wireless connectivity and enhance network infrastructure to avoid transaction delay and also both should be able to provide substantial and operational support to the students and make promotion in relation to the trust worthiness of the services and the risk safeguard using the CBE-Birr payment services by the students.

Since, perceive ease of use found to have most statistically significant effect on adoption of CBE-Birr payment services, the researcher recommended the services provider to deliver the services to the customers in various local languages. This is because the school fee payments are paid not only by students but also by parents or relatives. So to access the services easily different language is important.

Even if the services has its own personal identification number (PIN password) some students may not have trust on it. And therefore, the researcher recommended the banks and services providers to project higher security when providing CBE-Birr Payment services in order to yield higher students adoption.

As can be seen from the result finding, students who have awareness about the benefit of CBE-Birr adoption are more willing to adopt. Therefore, the researcher recommended that the banks should create more call center, advertisement, promotion and other awareness creation program to push students.

Due to the transaction value those paid by students are high, the CBE-Birr payment services adoption was affect. Therefore, Service provider enforce the National Bank of Ethiopia to amended the transaction amount that customers deposit in the mobile money account and daily transaction value to increase adoption of the services by students.

The bank should emphasize on the benefits that students will obtain in the aspects of cost savings, convenience, and flexibility when using CBE-Birr payment services. Currently the school fee payment collection is done only by two government universities. So to increase the number of universities to collect school fee through digital/ CBE-Birr the bank should give emphasize to the above

recommendation and create awareness for the benefit of CBE-Birr services to students and universities.

5.4. Recommendations for further research

Future researchers could include other variables to identify the factors of affecting CBE-Birr payment services by university students.

Reference

ACP Observatory on migration (2014), Mobile Money Services: A Bank in Your Pocket. Overview and opportunities

Aldas. (2012). Key drivers of internet banking services. In Online Information Review, Vol26 (5) (pp. 672-695).

Alelign. (2019). Factors affecting the Adoption of Agency Banking (CBE-BIRR) service.Ardic, P.e. (2011). Acess to financial services and the financial inclusion, around the world.

Ayana,g.(June 2014). Factors affecting adoption of Electronic Banking System in Ethiopia. Journal of MIS and E- Commerce vol.1. No.1

Bekalu, T. (2009), Factors Affecting adoption of mobile Banking

Capgemini. (2011). Mobile payments: How can Banks seize the opportunity? An approach for financial services Institutions, 12

CBE. (2018). Branch Banking Procedure.

CBE. (2017). CBE-Birr procedure.

Chatain, Hemandez-Cross, Borowik and Zeran. (2008). Integrity in Mobile-Phone Financial Services. .Washington D.C: World Bank Working Paper No.146,

Chen, L, (2008). A model of consumer acceptance of mobile payment international journal of Mobile Communications,

Dahlbreg, T, Mallat, N, &Ondrus, J. (2014). Mobile Payment Market and Research-Past, present and future, journal of International Development, 2(3), 45-49

Daniel, N. (2015). Relationship between Mobile Banking and Financial Inclusion in Kenya, (November).

Davis. (1986). "Perceived usefulness, perceived ease of use, and user acceptance of information. MIS Quarterly, Vol.1 (13), Pp. 318-339.

Davis. (1989). "Perceived usefulness, perceived ease of use, and user acceptance of information. MIS Quarterly, Vol.1 (13), Pp. 318-339.

Dennehy,D. and Sammon D. (2015). Trends in mobile payments research: A literature review. Journal of innovation Management, 3(1), 49-61

Eisennman, T., Parker, G., & Van Alstyne, M. (2006, January). Strategies for two-sided markets. Harvard Business Review, 84, 92–101.

Endeg, G. (2019).Determinants of CBE Birr Adoption among customers of Commercial Bank of Ethiopia;

Esayas. (2018). investigated on adoption of mobile money service and. factors that impede the customers to adopt and Use more of the M-birr product after registering the services.

Firehiwot Abebe. (2020), Factors affecting mobile payment adoption by merchants in Ethiopia

Frydrych, J. and Scharwatt, C. Vonthron, N. and G. (2015). Paying school fees with mobile money in Côte d'Ivoire: A public-private partnership to achieve greater efficiency, (September).

Gao, J., & Mei, H. (2009). A 2D Barcode-Based Mobile Payment System. International Journal of Modern Trends In Engineering and Research, 1-10

GSM Association. (2017), State of the Industry Report on Mobile Money, Decade Edition2006-2016

Hayashi.F(2012). Mobile Payments: What's in it for Consumers? Economic Review, 35-66.

Hayash.F, & Bradford, T. (2009). Mobile Payments: Merchants' Perspectives.

Hayat.N. (2017). Mobile Banking adoption in Ethiopia: A Case of Commercial Bank of Ethiopia. . Submitted to Addis Ababa University, online available.

Henos, D. (2018). Challenges and Prospects of Agent Banking in Ethiopia. M-birr and CBE-Birr

Isreal, G.D. (1992).determining sample size

Ivatury and Pickens. (2006). Mobile phone banking and low-income customers: evidence from South Africa, Washington D.C, UN Foundation retrieved February 20, 2008.

Kamrul, H. (2009). E-banking and. In The future of banking, school of business. Bangladesh.

Key,&Dietmar, (2014). What Influences Consumers' Intention to Use Mobile Payments? Augsburg, Germany: University of Augsburg.

Kumari. N, and khenna. J (2017), Cashless Payment: A Behavioral Change to Economic Growth. International journal of Scientific Research and Education, 05(07), 6701–6710. https://doi.org/10.18535/ijsre/v5i07.03

Lauren Braniff. (2017). Schools in Africa aren't taking advantage of mobile money – why?

Lucey.(2005). Management Information Systems. In Book Power. LONDON

Nurhussen, N. (2016). M-payment Framework in Ethiopian Context.

Osewa, O. (2018). Money in Motion: 7 Benefits and Reasons why Mobile Money is the Future - Business - Naira land.

Rajiv Lalishan and Sachdev. (2015). Mobile Money Services-. Design and Development for Financial Inclusion.

Ramos. I, Montoro. F. J., Liébana, F., & Gil, J. (2016). NFC technology acceptance for mobile payments:

A Brazilian Perspective. Revista Brasileira de Gestao de Negocios, 1-26.

Reaves, B., Scaife, N., Bates, A., Traynor, P. and Butler, K. R. B. (2015). Mobile Money, Mo (bile)

Analysis of Branchless Banking Applications in the Developing World. 24th USENIX Security

Symposium (USENIX Security 15), 20(3), 17–32https://doi.org/10.1145/3092368

Rogres. (2002). Diffusion of Innovations.5th Edition,. New York: Simon & Schuster, Inc.,.

Rogres. (2003). Diffusion of Innovations.5th Edition, NEWYORK: Simon & Schuster, Inc.

Safaricom. (2018). M-PESA. Retrieved from https://www.safaricom.co.ke

Sewalem. (2018).Challenges and Opportunities of CBE-Birr service in Ethiopia.

Siauetal. (2003).Developing a Framework for Trust in Mobile Commerce

Trütsch, T. (2016). The impact of mobile payment on payment choice. Financial Markets and Portfolio Management, 1-30.

Tobin. (2011). toward a model of Adoption in Mobile Banking by the Unbanked. Qualitative study. Online available.

Voorhis and M. (2007). The impact of mobile money service in financial service providers.

Yang, Y. (1997). Internet banking Service Adoption'. International journal of bank marketing, 505-525.

Yamane, Taro. 1967. Statistics: An Introductory Analysis, 2nd Ed., New York: Harper and Row.

Zerayeh.s. (2013). Competition in Ethiopian Banking Industry. International scholar journals, 1(5), 176-190.

Zikmund, W.G. (2003). Business research methods (3rded.) for worth. Harcourt College

Appendix A: Questionnaire

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

MBA PROGRAM

Dear Respondents; this questionnaire was designed to gather relevant information from randomly selected University Students about the "Factors that affect the adoption of CBE Birr Payment service'' at State owned Universities held in Addis Ababa.

The participants of this survey are totally voluntary-based and the information you provided used to conduct the study for the partial fulfillment of MA in MBA program

The aim of this questionnaire is only to assess the main perceived determinant of CBE-Birr payment service adoption and therefore, your secrecy would be strictly maintained and not used for any other purposes.

YibeltalTissassie Mob.0912850181

Gmail: yibeltaltissassie94@gmail.com

If you have any ambiguity with regard to the questionnaire, please contact me by using the above mentioned address.

Part-I RESPONDENTS'DEMOGRAPHIC INFORMATION

Please put right mark (√) in front of your choice box that express yourself.

1. Gender (1) Male ☐ 2) Female ☐

2. Age: (1)18-27 ☐(2)28-37☐ (3)38-47☐ (4)48-57 ☐(5) ≥58 ☐

3. Education level study in university:

(1) Bachelor Degree ☐ (2) Master Degree ☐(3) PhD or above ☐

Part II: CBE-BIRR PAYMENT SERVICES ADOPTION

4. Are you active user in CBE Birr payment service? (1) Yes (0) No

Part III: CBE Birr Payment Services

5. How do you rank your level of satisfaction when you are served by from CBE-Birr Payment services?

(1) Extremely Satisfied☐ (2) Satisfied☐ (3) Neutral☐ (4) dissatisfied☐ (5) extremely dissatisfied☐

Part-IV: FACTORS AFFECTING CBE BIRR PAYMENT SERVICE ADOPTION

Please, respond to all items given below by putting right mark (√) in the appropriate space provided by using the following scales: 1 = strongly disagree 2 = disagree 3= neutral 4 = agree 5 = strongly agree

No-	Constraints	1	2	3	4	5
	1. Perceived Usefulness					
1.1	I think that using CBE Birr payment service is useful for my banking needs more.					
1.2	There is no time and space limit to access my CBE Birr account and get information.					
1.3	I think that using CBE Birr payment service would enable me to complete banking activities/payment of school fee more quickly.					
	2. Perceived Ease of Use					
2.1	CBE Birr payment service provides clear instruction which is easy to understand and use the services available.					
2.2	CBE Birr payment service displays in clear and easily understandable language					
2.3	There is lack of technical support and follow up from the concerned expert					
2.4	I think that it is easy and does not require a lot of mental effort to use CBE Birr payment service to accomplish my bank tasks.					
	3. Perceived Risk					
3.1	CBE Birr service may not perform well and may process payments incorrectly because of network problems.					
3.2	There is possibility of increasing financial risk when using CBE-birr payment services					

3.3	There is a risk of sending money to a wrong student identification number when using CBE-birr payment services					
3.4	I am worried about the security of transactions and fear of risk to adopt and use CBE birr payment services					
	4. Perceived Trust					
4.1	Lack of trust on banks is considered as barriers for the adoption of CBE Birr payment services.					
4.2	When and if transaction errors occur, I will get adjustment from banks.					
4.3	After using CBE-birr payment services, I always keep conformation message for future reference.					
4.4	It is difficult to trust the technology provided by the banks.					
	5. Awareness					
5.1	I am aware that commercial bank of Ethiopia offers CBE Birr payment service.					
5.2	The bank gives enough information about the benefit of CBE Birr payment service.					
5.3	I know pretty well how to use CBE Birr payment service.					
	6. Transaction value					
6.1	Transaction value affects my usage of CBE-birr payment services					
6.2	I have always paid my full fee via CBE-birr payment services					

6.3	I prefer paying my fee through the Bank when the amount I am paying higher					
6.4	I find it hard to keep high amount of money in my phone, hence can't do higher value transaction via CBE-birr payment					

Appendix B: Multicollinearity Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.930	.076		-12.283	.000		
	PU	.101	.016	.175	6.202	.000	.476	2.100
	PEU	.148	.014	.316	10.614	.000	.428	2.335
	PR	-.052	.015	-.076	-3.589	.000	.850	1.176
	PT	.150	.016	.338	9.295	.000	.286	3.500
	AW	.086	.015	.197	5.911	.000	.340	2.944
	TV	-.012	.012	-.020	-.988	.324	.924	1.082

a. Dependent Variable: Cbe-Birr Payment service adoption

Appendix C: Correlation Coefficient Analysis

Correlations

		Cbe-Birr Payment service adoption	PU	PEU	PR	PT	AW	TV
Cbe-Birr Payment service adoption	Pearson Correlation	1						
PU	Pearson Correlation	.740**	1					
PEU	Pearson Correlation	.812**	.644**	1				
PR	Pearson Correlation	-.371**	-.250**	-.337**	1			
PT	Pearson Correlation	.849**	.679**	.687**	-.264**	1		
AW	Pearson Correlation	.798**	.593**	.658**	-.306**	.794**	1	
TV	Pearson Correlation	.165**	.174**	.205**	-.222**	.123*	.158**	1

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

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

Appendix D; Binary logit regression result

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.f Lower
Step 1[a]	PU	1.239	.610	4.134	1	.042	3.453	
	PEU	2.206	.537	16.910	1	.000	9.081	
	PR	-1.286	.633	4.123	1	.042	.276	
	PT	2.238	.663	11.409	1	.001	9.377	
	AW	1.198	.486	6.073	1	.014	3.313	
	TV	-1.080	.524	4.246	1	.039	.340	
	Constant	-15.362	3.086	24.786	1	.000	.000	

a. Variable(s) entered on step 1: PU, PEU, PR, PT, AW, TV.

Appendix E: Model Summary

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	48.660[a]	.695	.951

a. Estimation terminated at iteration number 9 because parameter estimates changed by less than .001.