ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS SCHOOL OF COMMERCE

AN ASSESSMENT OF MOBILE BANKING ADOPTION IN CASE OF COMMERCIAL BANK OF ETHIOPIA NORTH ADDIS ABABA DISTRICT

A Project Work Submitted to Addis Ababa University School of Commerce in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Arts in Project Management

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Determinants of Mobile Banking Adoption in case of Commercial Bank of Ethiopia North Addis Ababa District

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DECLARATION

I, **Tigist Degu**, declare that this work entitled **Determinants of Mobile Banking Adoption in case of Commercial Bank of Ethiopia North Addis Ababa District** is outcome of my own effort and that all source of materials used for the study have been duly acknowledged. I have conducted it independently except the guidance and suggestion of the research advisor. This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfilment of the degree of Masters of Art in Project Management.

Tigist Degu

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ACRONYMS AND ABREVIATIONS

AF- Adoption Factors

ATM - Automated Teller Machine

CBE – Commercial Bank of Ethiopia

COM- Compatibility

DIT- Diffusion Innovation Theory

E-Banking - Electronic Banking

ICT - Information Communication Technology

NBE- National Bank of Ethiopia

PC- Perceived Cost

PCR- Perceived Creditability

PEU- Perceived ease of use

POS - Point Of Sales

PSE- Perceived Self Efficacy

PU- Perceived Usefulness

TALC- Technology Adoption Life Cycle

TAM- Technology Acceptance Model

TOE- Technology Organization Environment

Abstract

The objective of this study is to assess the factor that determine of mobile banking adoption on commercial bank of Ethiopia North Addis Ababa District. The study tries to build on two widely used models for technology adoption, the extended Technology Acceptance Model and Diffusion Innovation Theory. By combines the two widely used models, factors that determines mobile banking adoption for this study are perceived usefulness, perceive ease of use, perceived credibility, Compatibility, Perceived self-efficacy, and perceived cost. Survey was conducted using questionnaire. Out of 395 questionnaires that have been distributed, 372 were usable. Collected data was analysed using Statistical Package for Social Science. Convenience sampling method were used to select samples from Arat kilo, Silassie, Arada Giorigis branches. Both descriptive and correlational research design were used. The research result shows perceived usefulness, perceived ease to use, and compatibility have significant positive correlation with adoption factors. Perceived cost has significant negative correlation with adoption factors. Perceived self- efficacy and perceived creditability have moderate and insignificant positive correlation with adoption factors respectively. Finally, the study recommend to Commercial Bank of Ethiopia to continuously innovate and offer better mobile banking service features, highly secured and reliable applications to enhance users' confidence and create deep awareness to community concerning the mobile banking products they offer and the benefits associated with using mobile banking services.

Keywords: Mobile banking adoption, extended Technology Acceptance Model, Diffusion Innovation Theory

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CHAPTRE ONE

INTRODUCTION

This chapter address the following issues. background of the study, back ground of the organization, statement of the problem, research questions, research objective, significance of the study, scope of the study, limitation of the study, and organization of the whole paper respectively.

1.1 Background of the Study

Technological advancements in the area of telecommunications and information technology have continued to revolutionize the banking industry. The delivery of financial services has experienced major changes during the past few years. A feature of the banking industry across the globe has been increasingly becoming turbulent and competitive. Banks, aided by technological developments, have responded to the challenges by adopting a new strategy, which emphasizes on attempting to build customer satisfaction through offering better products and services and at the same time to minimize operation costs (Sohail & Shanmugham 2003).

In the past decades, all banks in Ethiopia performed their work in traditional/manual system. Currently almost all bank in Ethiopia uses modern banking system to perform their work together with traditional system. The pioneer bank to introduce modern banking to the country is commercial bank of Ethiopia (CBE). It is the first bank in Ethiopia to introduce ATM service for local users. Currently CBE has more than 15.9 million account holders and the number of Mobile and Internet Banking users also reached more than 1,650,000 as of June 30th 2017. Active ATM card holders reached more than 3.7 million. The Vision of CBE is "To become a world class commercial bank by the year 2025". http://www.combanketh.com/about_us/company profile

In order to achieve this objective the bank engaged in various activities. From this activities one is strengthen electronic banking and creating cash less society. Electronic banking is an electronic connection between bank and customer in order to prepare, manage and control financial transactions (Burr, 1996). Electronic banking contains internet banking, mobile banking and electronic card. In order to use electronic card the user have to go to the place where ATM machine or POS machine are available. The biggest limitation of the internet banking is the requirement of a personal computer with an internet connection, not a big

obstacle in developed countries, but definitely it is a barrier in a developing country. To overcome these limitations recent innovations in communications have enabled the launch of new access methods for banking services; one of these is mobile banking; whereby a customer interacts with bank via mobile device (Barnes & Corbitt, 2003). The researcher emphasize on mobile banking which was a recent innovation. The researcher assess the factor that determine mobile banking adoption.

1.2 Background of the Organization

The history of the Commercial Bank of Ethiopia (CBE) dates back to the establishment of the State Bank of Ethiopia in 1942. CBE was legally established as a share company in 1963. In 1974, CBE merged with the privately owned Addis Ababa Bank.

The vision of CBE is to become a world-class commercial bank by the year 2025. The Bank mainly engages in providing the banking services including accepting deposits; providing short, medium and long term loans; buying and selling foreign exchanges; buying and selling negotiable instruments and securities issued by the government, private organizations or any other person.

The Bank has been playing a significant roles in the economic growth and development of the country. It is a pioneer bank to introduce modern banking to the country. It has more than 1280 branches stretched across the country. The leading African bank with assets of 485.7 billion Birr as on June 30th 2017. Plays a catalytic role in the economic progress & development of the country. The first bank in Ethiopia to introduce ATM service for local users. Currently CBE has more than 15.9 million account holders and the number of Mobile and Internet Banking users also reached more than 1,650,000 as of June 30th 2017. Active ATM card holders reached more than 3.7 million. As of June 30, 2017, 1501 ATM machine and 6,811 POS machines were available.

The bank has strong correspondent relationship with more than 50 renowned foreign banks like Commerz Bank A.G., Royal Bank of Canada, City Bank, HSBC Bank, CBE has a SWIFT bilateral arrangement with more than 700 others banks across the world. CBE combines a wide capital base with more than 33,000 talented and committed employees. Pioneer to introduce Western Union Money Transfer Services in Ethiopia early 1990s and currently working with other 20 money transfer agents like Money Gram, Atlantic International (Bole), Xpress Money, CBE has opened four branches in South Sudan and has been in the business since June 2009.

CBE has reliable and long-standing relationships with many internationally acclaimed banks throughout the world. http://www.combanketh.com/about us/ company profile

The Bank is governed by directives issued by the National Bank of Ethiopia in addition to various laws of the country. CBE is supervised by Board of Directors.

1.3 Statement of the Problem

In recent year the bank industries engaged various project to develop innovative product and service. This help the banking industries to converted from the only use of traditional banking system to technology base system together with traditional system. The reason behind the projects are to become competitive, to be cost effective, to increase customer satisfaction and so on. ICT has provided the opportunity for customers to access banking services without necessarily going to the bank branches. The projects that was developed recently enable the banking services to being offered through electronic delivery channels. Among the newest that is offered one is mobile banking, which provides services via mobile phones and personal digital assistants (Saleem & Rashid, 2011).

Mobile banking is a subset of electronic banking. It enable the users to access banking services in the place where they are, without going anywhere. CBE's Mobile Banking services enable to access bank accounts, make fund transfers, payments and balance inquiries as well as get instant notifications on all accounts linked with MB services-using the SMS, XHTML and DOWNLOADABLE application channels. http://www.combanketh.com/E-payment/mobile banking.

Even if there has been a growth in the adoption of mobile banking by the commercial banks in Ethiopia in recent years, when we compared to its account and ATM holders it is very low. As June 30th 2017 the account holders are 15.9 million and active ATM holders are 3.7 million. But mobile banking users are 1.65 million which include internet banking users. When we calculate in percent mobile banking users are lower than10% of account holders and 44 % of active ATM holders. When we came to North Addis Ababa district recent performance of mobile banking, in 2017/2018 it achieved only 78% of the plan. In order to become world class bank on 2025 and to be competitive in banking industry, CBE have to take measurements to increase the number of mobile banking users. The study seek towards examining determinant of mobile banking adoption on commercial bank of Ethiopia north Addis Ababa district.

There are a number of researches that have been done on mobile banking adoption by various scholars, most of them were conducted in countries such as Taiwan (Luarn and Lin 2005), Brazil (Laukkanen et al 2010), and Singapore (Riquelme and Rios 2010). All of these researchers studies various mobile banking adoption factors and get inconsistent results. But when we come in to our country relatively little attention given to it and we get very few researches about mobile banking. This study therefore intended to fill this gap in a local context and contribute its part to literature of mobile banking.

1.4 Research Questions

The research address the following questions

- What are the factors that determine mobile banking adoption?
- How do these factors relate to mobile banking adoption?
- Which factor is highly related to mobile banking adoption?

1.5 Objectives of the Study

1.5.1 General Objective

The general objective of the study is to assess the factor that determine of mobile banking adoption on commercial bank of Ethiopia North Addis Ababa District.

1.5.2 Specific Objectives

- To assess the factors that determine mobile banking adoption.
- To examine the relationship between these factors and mobile banking adoption.
- To identify the factors highly related to mobile banking adoption.

1.6 Significance of the Study

The banking industry is engaged and has done various projects to become competitive, to be cost effective, to increase customer satisfaction and to achieve their objectives. Examining the result of the project and identifying the problem will help to know whether the bank is on the right track or not and to take corrective measures. This research on determinants of mobile banking adoption can help commercial bank of Ethiopia decision makers to know the factors that determine mobile banking adoption, the relationship between the factor sand mobile banking adoption and the reason why the number of mobile banking users has not increased as much as expected. The research will be a starting point to take big research that include all

districts of commercial bank of Ethiopia. By taking the recommendation to identified problems and taking appropriate measures to solve problems CBE will achieve its objective.

This study also add its part to the existing body of the literature.

1.7 Scope of the Study

There are three electronic banking users. Internet banking users, ATM users, and Mobile banking users. From the three the research only focus mobile banking users. The determinants of mobile banking adoption are many and vary from one researcher to other researcher. This research was limited only on six variables that determine mobile banking adoption. These are perceived usefulness, perceived ease of use, perceived creditability, compatibility, perceived self-efficacy, and perceived cost. In addition to this, geographically the study is limited to three selected branches of Commercial Bank of Ethiopia north Addis Ababa district. The researcher choose branches based on their number of mobile banking users.

1.8 Limitation of the Study

As mentioned above, the study was limited on three selected branches of Commercial Bank of Ethiopia North Addis Ababa District. This is because of time and lack of sufficient fund that hinder to include a large number of branches that nearly represents the total population of the study. Mobile banking is in its initial stage in Ethiopia. This cause shortage of up to date reference materials and research works from the country perspective, this also has narrowed the content of the study.

1.9. Definitions of the Terms

Mobile banking could be defined as a facility which provides banking services such as balance enquiry, funds transfer, bill payment, and transaction history via a user's mobile phone. (Cudjoe, A.G, 2015).

Perceived usefulness means the extent to which an individual believes that he or she would benefit from using mobile banking. (Davis et al, 1989).

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

Perceived credibility is defined as users' perception of protection of their transaction details and personal data against unauthorized access. (Luarn & Lin 2005).

Perceived self-efficacy is defined "as a judgment of one's ability to use a mobile banking service" (Luarn & Lin, 2004).

Perceived cost is defined as the extent to which a person believes that using mobile banking will cost money (Luarn & Lin 2005).

Compatibility is defined as the degree to which an innovation is perceived as being consistent with the existing values, past experiences and the needs of potential adopters. (Rogers, 2003).

1.10 Organization of the Paper

The research will be structured in five chapters

Chapter one present introductions part. This includes background of the study and the company, statement of the problem, research questions, specific and general objectives of the study and finally, scope and limitation of the research.

Chapter two presents the literature review regarding the research area of the paper and sets out the theoretical frameworks for the research.

Chapter Three deals with; methodology of the study and include the research design, data source and type of the data, sampling techniques and data collection.

Chapter Four include, data presentation, analysis and interpretation

Chapter Five; the last chapter of the study presents the finding, conclusion and recommendation of the study.

CHAPTER TWO

LITERATURE REVIEW

This chapter discussed the relevant literature that has been reviewed in the area of determinant of mobile banking adoption. The issues discussed include the theoretical review on mobile banking and the empirical study on the determinants of mobile banking adoption. The chapter also presented the conceptual framework that was adapted in conducting the study and the variables under the study.

2.1 Theoretical Review

2.1.1 Definition of Mobile Banking

Mobile Banking allows consumers to perform banking services (i.e. alerts, banking transactions and balance enquiries) with the use of their mobile devices. It is very important to understand what banking business is all about. Banks are businesses that deal with money, therefore banking involves any service given and received money from the bank, people open accounts with banks to save money and other people go to the bank to borrow money. Mobile banking could be defined as a facility which provides banking services such as balance enquiry, funds transfer, bill payment, and transaction history via a user's mobile phone. (Cudjoe, A.G, 2015). Mobile banking is an application of mobile commerce which enables customers to access bank accounts through mobile devices to conduct and complete bank-related transactions such as balancing cheques, checking account statuses, transferring money and selling stocks (Kim et al.2009).

Mobile banking also means performing banking activities which primarily consist of opening and maintaining mobile/regular accounts and accepting deposits; furthermore, it includes performing fund transfer or cash-in and cash-out services using mobile devices (NBE Directive, FIS-01-2012).

2.1.2 Benefits of Mobile Banking

Both customers and banks benefit from mobile banking services. Mobile banking also allows customers to perform banking transactions 24 hours a day, 7 days a week, and 365 days a year (Eckhardt, et al 2009). Customers don't need to stand at the bank counter for various enquiries about their account. Customers can save their valuable time and travelling cost in reaching the

bank for their financial transactions (Sunil and Durga 2013). Convenience is one of the benefits of mobile banking. The usefulness of conducting banking transactions at home or from the office eliminates the difficulties that are associated with driving to the bank, the cost of petrol, and parking.

Mobile banking enables banks to reduce cost of courier, communication, paper works, etc and also it reduces costs in setting up a branch and the resources to process transactions (Sunil and Durga 2013). In addition to this banks providing mobile banking services can have competitive advantage over those banks, which are not providing this service.

2.1.3 Mobile banking Functionalities

Balance Enquiry: which allows viewing a real time account balances.

Enquiry of mini statement or account history: allows to view the last six transactions or statements

Account Transfer: which allows to transfer fund from one's own account to another accounts

Payment: which allows payment (transfer) to the predefined beneficiaries

Changing PIN: which allows PIN changing

De-subscribe from the service: which gives the option to the customer to discontinue the subscription of mobile banking services

Help:- which list all commands that customer can use to perform mobile banking service in SMS channel. http://www.combanketh.com/E-payment/mobile banking.

2.1.4 Mobile Banking in Ethiopian Banking Industry

In recent year the bank industries engaged various project to develop innovative product and service. This help the banking industries to convert from the only use of traditional banking system to technology base system together with traditional system. The reason behind the projects are to become competitive, to be cost effective, to increase customer satisfaction and so on. ICT has provided the opportunity for customers to access banking services without necessarily going to the bank branches. The projects that was developed recently enable the banking services to being offered through electronic delivery channels.

The electronic banking service was ushered into the Ethiopian market in 2001 when the largest state owned, Commercial Bank of Ethiopia (CBE) introduced ATM to deliver service to the local users (Gardachew 2010).

After this the electronic banking service scope was further expanded to mobile banking when

Dashen Bank signed an agreement with iVery, a South African E-payment technology company, for the introduction of mobile commerce in April 21, 2009. According to the agreement, iVery Payment Technologies has licensed its Gateway and MiCard E-payment processing solution to Dashen Bank. Dashen's Modbirr users can transfer 500 birr to other Modbirr users in 24 hours a day. This would make Dashen Bank the first private bank in Ethiopia to acquire E-commerce and mobile merchant transactions (Amanyehun 2011).

However, mobile banking came into full practice after several years of trials and errors as well as wait-and-see attitude by customers. Since then, mobile banking has shown a gradual growth across many various parts of Ethiopia. Despite the very high mobile penetration rate, the use and adoption of mobile banking services remains low.

2.1.5 Factors Affecting Mobile Banking Adoption

Many theories have been developed to study the framework of innovation adoption, however, with regards to present studies theories such as technology acceptance model (TAM), Extended Technology Acceptance Model (Extended TAM) and Diffusion of Innovations Theory (DIT) have been widely used.

TAM focuses on IS use based on social psychology theory, and has valid and reliable instruments (Luarn & Lin, 2004). As defined by Davis (1989), two basic determinants – perceived usefulness and perceived ease of use are instrumental in explaining the users' intention and behaviour towards the use of new technology

As noted by Davis (1989), future research of IS/IT usage has to address the other variables which affect usefulness, ease of use and user acceptance. Consequently these two determinants may not fully explain the factors which predict the acceptance of a technology application such as mobile banking. Luarn and Lin (2004) modified the original TAM by adding perceived credibility which was defined by Wang et al (2003), perceived self-efficacy which was confirmed (Agarwal, Sambamurthy, & Stair, 2000, and perceived financial cost which was found in Mathieson et al (2001).

Perceived usefulness

Perceived usefulness is one of the fundamental elements of TAM. The degree to which a person believes that using a particular system would enhance his or her job performance. Perceived usefulness is strongly associated with productivity. (Davis et al, 1989) Perceived usefulness also means the extent to which an individual believes that he or she would benefit from using mobile banking. (Wang et.al 2003) agree that most customers choosing mobile services because they see their benefits. The reasons people use mobile banking is that they find the systems useful to their transactions and saves their time as well. Mobile banking also benefits banks in the form of declining the number of branches which reduces the cost per transaction. Luarn and Lin 2005) found that perceived usefulness is a vital factor determining the mobile customer usage. Perceived usefulness is found to be the most significant factor influencing the intention to use mobile banking. This finding suggest that if mobile banking is to be accepted by users, they should perceive it as a useful and quicker way of doing banking transactions compared with the traditional banking system.

Perceived ease of use

TAM points that perceived ease of use influence the innovation acceptance. It decrease the effort paid in learning and applying new technologies. Many researches give support to TAM that perceived ease of use has positive impact on perceived usefulness and mobile services adoption (Porteous 2011, Ezeoha 2005). Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). A system which is easier to use will facilitate more system use and task accomplishment than systems that are hard to use (Venkatesh & Morris, 2000).

Perceived Credibility

The customer's intention to use an innovation or mobile device can be influenced by security and privacy. Security is a major problem facing customers whenever they make online transaction (Cudjoe et.al 2015). Perceived credibility is defined as users' perception of protection of their transaction details and personal data against unauthorized access. It is about personal belief that a user has in the system to carry out a transaction securely and maintain the privacy of personal information. Luran & Lin (2005) note the correlation between perceived credibility and the readiness to adopt mobile banking.

Perceived Self-efficacy

The self-efficacy of mobile banking is defined "as a judgment of one's ability to use a mobile banking service" (Luarn & Lin, 2004, p.879). Self-efficacy could include the knowledge, ability and skills needed to use the new Information Technology. The existence of a relationship between perceived self-efficacy and perceived ease of use was proposed by Davis (1989) and Mathieson et al (2001).

Perceived Cost:

Perceived cost is defined as the extent to which a person believes that using mobile banking will cost money (Luarn & Lin 2005). These costs could typically include the cost of the mobile devise, network charges, and transaction charges for bank costs as well as costs for data sent via the network infrastructure. The cost consideration may prevent many people from choosing this mobile banking service (Luarn & Lin, 2004). Moreover, hardware /software and financial resources were important for users of an information system (Mathieson et al, 2001). Based on the literature, perceived cost was likely to directly influence the user's intention to use mobile banking.

Diffusion of Innovations Theory (DIT)

Diffusion of Innovations Theory (DIT) was developed by Rogers (2003) to explain how the diffusion of innovations takes place in the social system. Mobile banking adoption can be examined using the Technology Adoption Life Cycle (TALC) which describes how new ideas and technologies spread in different cultures. According to TALC the stages by which a person adopts an innovation includes awareness of the need for an innovation, decision to adopt or reject the innovation, initial use of the innovation to test it and continued use of the innovation. Through these stages diffusion is accomplished. There are five different categories of adopters namely innovators, early adopters, early majority, late majority and laggards. Innovators are those people, who want to be the first to try the innovation, are interested in new ideas and are willing to take risks. Early adopters are people who represent opinion leaders; they enjoy leadership roles, embrace change opportunities and do not need convincing for them to change. Early majority adopt new ideas before the average person but they typically need to see the innovation work before they are willing to adopt it. Late majority are people who are sceptical of change and will only adopt an innovation after it has been tried by the majority. Laggards are bound by tradition and are very conservative; hence they fear innovation. (Rogers, 2003).

Rogers (2003) identifies three characteristics of innovations: relative advantage, compatibility, and complexity. Adopters have invariably been found to have different perceptions about these characteristics in comparison with non-adopters. According to (Kotler 2000), the characteristics of an innovation affect its rate of adoption. Some products catch on immediately, whereas others take a long time to gain acceptance. If the innovation is perceived to be better than the existing system (a measure of its relative advantage), is consistent with the needs of the potential adopter (a measure of its compatibility), and is easy to understand and use (a measure of its complexity), it is more likely that a favourable attitude towards the innovation will be formed (Ching and Ellis, 2004)

Relative Advantage

Relative advantage describes the degree to which an innovation is perceived as being better than its precursor (Rogers 2003). Relative advantage refers to the comparative benefits that a user of mobile banking may avail which he/she could not get from other traditional banking services as mentioned by (Pikkarainen et. al 2004). The users are more likely to adopt mobile banking if they believe using mobile banking will gain more relative advantages as compared to other traditional banking channels.

Relative advantage, in one sense, indicates the strength of the reward or punishment resulting from the adoption of an innovation. There are a number of sub-dimensions of relative advantage such as the degree of economic profitability; decrease in discomfort; time saving; and effort (Rogers 2003). 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 so we include the Relative advantage factor in perceived usefulness factor.

Compatibility

Compatibility is defined as the degree to which an innovation is perceived as being consistent with the existing values, past experiences and the needs of potential adopters. An innovation can be compatible or incompatible with socio-cultural values and beliefs; with previously introduced ideas; or with client needs for innovations (Rogers 2003).The compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption.

Complexity

Complexity is defined as the degree to which an innovation is perceived to easy to understand and use. Adoption will be less likely if the innovation is perceived as being complex or difficult to use (Rogers 2003). Customers will reject an innovation if it is very complex and not user friendly. In this context, Cooper and Zmud (1997) report ease of use of innovative products or services as one of the three important characteristics for adoption from the customer's perspective. Research by Davis (1989) has found that perceived complexity is associated with the adoption of electronic technologies.

In Ethiopia banking industry mobile banking adoption in early stage, we include the complexity factor in perceived to ease of use factor.

2.2 Empirical Studies

Several studies have been conducted by different researchers in different developed and developing countries to examine the determinant of mobile banking adoption. Among them the following are some.

Luarn and Lin (2005) conducted a survey in Taiwan in order to understand user's behavioural intention to use mobile banking service based on the extension of technology acceptance model (TAM). It was observed that the financial cost, perceived usefulness, self-efficacy, credibility and perceived ease of use were the factors influencing the behavioural intention to use mobile banking. In this finding, it was also observed that credibility was a major issue, which has a stronger influence on user's behavioural intention than the technology acceptance model (TAM) of perceived ease of use and perceived usefulness.

Wessels and Drennan (2010) conducted a study to identify and test the key factors stimulating and hindering the adoption of mobile banking, as well as the effect of user's attitude on the intention of use. They found out that perceived usefulness, perceived risk, cost, and compatibility have significant effect on the adoption of mobile banking. In this study, attitude toward mobile banking was considered as a moderating variable

Sripalawat et al. (2011) conducted a study to examined positive and negative factors affecting mobile banking acceptance in Thailand. Subjective norms, perceived usefulness, perceived ease to use, were considered as the positive factors, and device barrier, perceived risk, lack of information, and perceived financial cost as the negative factors. They found that the positive factors have more influence than negative factors towards the acceptance of mobile banking.

Cheah et al (2011), this was an empirical study that was conducted with the aim of investigation on the factors that affect the Malaysian customers from adopting mobile banking services. From the study, variables such as perceived ease of use, Perceived usefulness and relative advantage were found to be positively and significantly related to the intention to adopt mobile banking services while a constructs such as perceived risk was found to be negatively correlated with the adoption of mobile banking.

Koenig-Lewis et al. (2010) conducted a study on predicting the continuation of the use of mobile banking services by young users in England, aiming at investigation of barriers of mobile banking adoption. Their findings revealed that compatibility, perceived usefulness, and risk are significant factors affecting the adoption of mobile banking. Compatibility not only has a strong positive effect on the adoption of mobile banking, it is also identified as one of the most important independent variables affecting perceived ease of use, perceived usefulness, and credibility. The variables of trust and credibility were identified as having significant effect on reducing the total perceived risk.

Ayana (2012) studied factors that affect adoption of E-banking in the Ethiopian banking industry. The study was conducted based on the data gathered from four banks in Ethiopia; three private banks (Dashen bank, Zemen bank and Wegagen bank) and one state owned bank (commercial bank of Ethiopia). A mixed research approach was used to answer the research questions that emerge through the review of existing literature and the experiences of the researcher in respect of the E banking system in Ethiopia. The study statistically analyses data obtained from the survey questionnaire. A research framework developed based on technology-organization environment model (TOE) developed by Tornatzky and Fleischer. The result of the study indicated that, the major barriers Ethiopian banking industry faces in the adoption of Electronic banking are: security risk, lack of trust, lack of legal and regulatory frame work, Lack of ICT infrastructure and absence of competition between local and foreign banks. The study suggests a series of measures which could be taken by the banking industry and by government to address various challenges identified. These measures include: Establishing a clear set of legal framework on the use of technology in banking industry, supporting banking industry by investing on ICT infrastructure and banks needs to be focused on technological innovation competition rather than traditional bases of retail bank competition.

Cudjoe et.al (2015) conduct a research on determinants of mobile banking adoption in the Ghanaian banking industry in a case of Access bank Ghana limited. The studies used theories

such as innovation diffusion theory, technology acceptance model (TAM), and theory of reasoned action (TRA). The research framework were developed by perceived financial cost, social influence, perceived credibility, perceived usefulness, perceived ease of use, perceived self-efficacy, compatibility and awareness. All this factors had some level of significant effect on consumer adoption rate in Access Bank. Looking at the research framework which is eight in numbers, it was observed that, two serve as a major drawback for consumer adoption of mobile banking services in Access Bank. From this research finding, perceived credibility (security and privacy) and perceived financial cost were the major drawbacks while social influence, perceived usefulness, associated reward, perceived self-efficacy, compatibility, awareness and perceived ease of use are seen as determinants of mobile banking adoption in Access Bank.

Kalkidan (2016) conducted a research on factors influencing the usage of mobile banking in Ethiopia. This study was conducted based on the data gathered from customers of Commercial Bank of Ethiopia and United Bank in Addis Ababa, Ethiopia. The study use Technology Acceptance Model (TAM) and Innovation Diffusion Theory (IDT) by integrating perceived risk, trust and awareness into the established models. Survey was conducted using questionnaire. The research results found relative advantage, compatibility, perceived trust, perceived usefulness, and perceived risk as major influencing factors for mobile banking adoption whereas perceived ease of use and awareness were found to have insignificant effect on mobile banking usage for bank customers located in Addis Ababa, Ethiopia. The study recommended banks to consider investing in campaigns and arranging information sessions to demonstrate the features of mobile banking services, and its benefits over traditional channels.

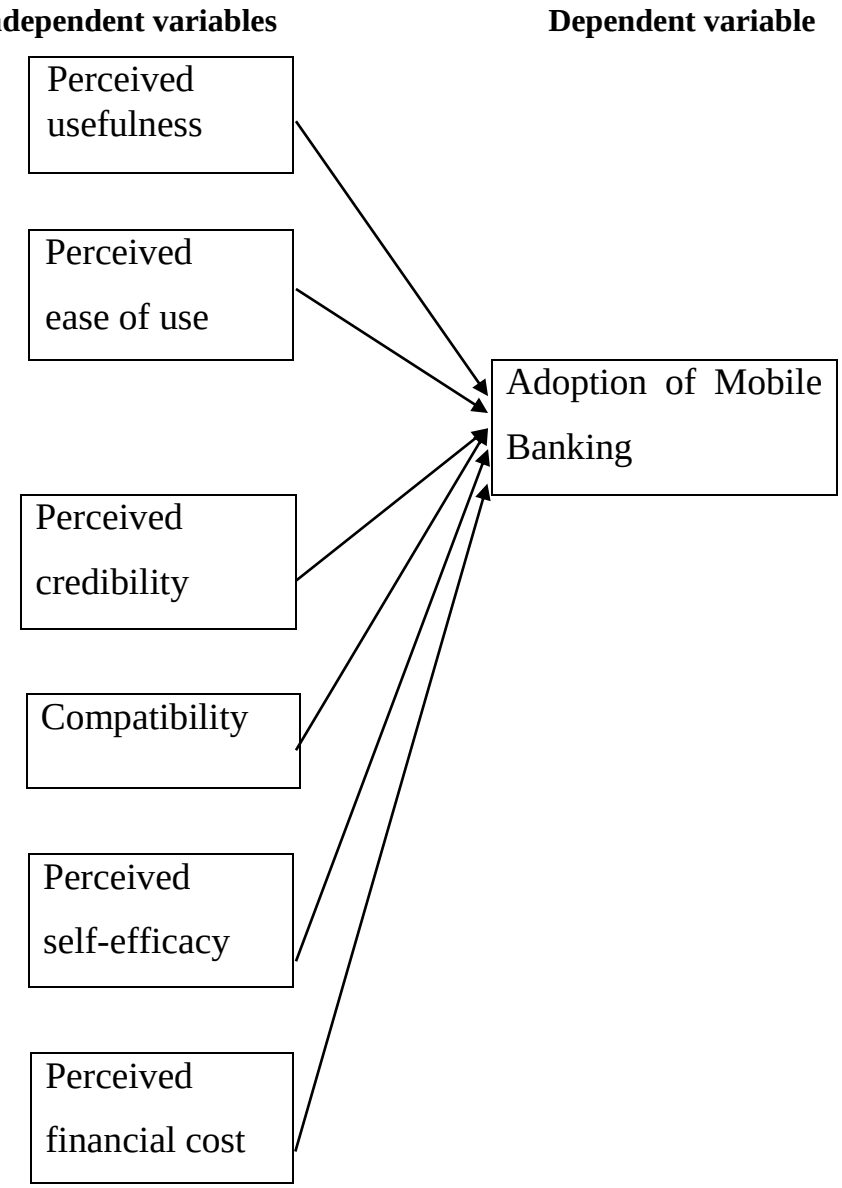
2.3 Justification of model used

Several researches on mobile banking adoption have combined the Diffusion of Innovation Theory and Technology Acceptance Model (Riquelme & Rios 2010). Puschel et al. (2010) affirm that taken individually the models have limited predictive power but integrating the two into a single framework results into more predictability. In their investigation on mobile banking, Puschel et al. (2010) have integrated elements from Roger's innovation diffusion theory and Davis Technology acceptance model (TAM). This research also combine TAM and IDT. As a result for this research the factors determining mobile banking adoption are perceived ease of use, perceived usefulness, Perceived credibility, compatibility, perceived self-efficacy, and Perceived finance cost.

2.4 Conceptual Framework

The conceptual framework of this study was organized based on the purposes of the study and the existing theories and ideas in the literature.

This frame work explain the interaction between the independent variables and the dependent variable.



Model developed by the researcher based on extended TAM model (Luarn and Lin, 2005) and DIT model (Rogers, 2003).

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter deals with research methodology that was used in this study. It includes research design, population of the study, sampling technique and sample size, data collection tools, method of data analysis, validity and reliability, and ethical consideration.

3.2 Research Design

Research design defines as the general plan of how the research questions will be answered. The study used both descriptive and correlation analysis in order to answer the statement of the problem and meet the research objectives. The reason behind using descriptive study design is that the researcher had no control of the variables rather than only report what happened in the area where the research is conducted. According to Kothari (1990) the major purpose of descriptive research is to describe the state of affairs as it exists at present. This study used descriptive analysis to describe the determinants of mobile banking adoption. The research approach is quantitative one.

3.3 Population of the Study

In this study, the target population was comprised of customers who use mobile banking in commercial banks of Ethiopia north Addis Ababa district. The number of customers that uses mobile banking in North Addis Ababa district were 210,371.

3.4 Sampling technique and Sample size

Purposive sampling were applied to select three branches from all branch in north Addis Ababa district. The branches were selected based on the number of mobile banking users. The selected branch were Arat kilo, Silasie, and Arada Giorgis branch. The total number of population in the selected branches who use mobile banking are 31,260.

The determination of sample size is based on the nature of population (heterogeneity or homogeneity), nature of the study (qualitative or quantitative), and availability of finance and other resources. Hence, representative and adequate number of sample size was taken to perform a meaningful analysis Kothari (2004). The sample size (n) was determined by using the formula n=N/1+N (e) ^{2}(Adil, 2011)

n =N/1 + N (e) 2

= 31,260 / (1+31,260*(0.05^2)

= 395

Where, N = number of total population

n = sample size required;

e = margin of error 5%

Stratified sampling method were used to determine the proportion of respondents from each branches. Then convenience sampling technique was employed to select the respondent from each branch.

Table 3.1: Summary of survey respondents

Branch	Number of mobile banking users	Number of sample
Arat Kilo	14,604	185
Silassie	8,978	113
Arada Giorgis	7,678	97
Total	31,260	395

Source: survey data, 2018.

3.5 Data Collection Tools

Both primary and secondary data sources were used in order to obtain relevant information. The primary data were gathered through structured questionnaire that comprised close ended questions and one open ended question. The questionnaire was developed based on previous empirical literature. The questionnaire comprised of close-ended questions were developed on a five point Likert scales ranging from 5 (strongly agree) to 1 (strongly disagree).Background questions about respondents were also included in the instrument.

The secondary data were gathered from through reviewing different files, company internet, brushers and annual reports of the banks. The relevant data that were collected from different data sources especially from journal article that help to fill the knowledge gap and understand

the concepts, definitions, theories and empirical results through reviewing various relevant journals articles from internet.

Table 3.2 Summary of Measures

Variables	**Source of Questionnaire**
Mobile banking adoption	Cheng et al. (2006), Hsu and Chiu (2004)
Perceived Usefulness	Cheng et al. (2006), Davis (1989), Wang et.al (2003)
Perceived Ease of Use	Cheng et al. (2006), Davis (1989), Moore & Benbasat (2001)
Perceived credibility	Cudjoe et.al (2015), Luarn & Lin (2004)
Compatibility	Lin (2011), Moore & Benbasat (2001)
Perceived self-efficacy	Luarn & Lin (2004) Wang et al.,2003)
Perceived cost	Luarn & Lin (2004)

Source: Developed for the research

3.6 Method of Data Analysis

Data from the field were assembled, sorted, and coded to have the required quality, accuracy and completeness. The analysis of data were done with the help of the statistical software of Statistical Package for Social Sciences (Version 20). The statistical methods of analysis include both descriptive analysis and a correlation analysis through SPSS version 20. A descriptive analysis were used to present and interpret the data collected through questionnaires. Descriptive statistics such as frequency distribution was used to make the analysis more meaningful, clear and easily interpretable A Pearson correlation had been used to determine the relationship between dependent and independent variable. This study used quantitative data analysis method.

3.7 Validity and Reliability

Reliability is an attribute in which data collection procedures can be repeated with the same results. According to Kothari (2004), measuring instrument is reliable if it provides consistent results. The reliability of each categories of the questionnaire were checked by the Cronbach-Alpha test using SPSS software. To ensure the validity, the researcher made use of different

literature for the questionnaire. The instruments were developed after the researcher studied the literature on the research area.

3.8 Ethical Consideration

Ethical issues are expected to be considered in any kind of research study. Therefore this paper has taken into consideration those ethical issues on access and use of data, analysis and report of the findings in a moral and responsible way. The respondents were told the purpose of the study and asked their permission. Participants were assured that the data collected from them will remain confidential and that anonymity will be maintained.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Response Rate

Data was collected by using structured closed questionnaires with one open ended questions, and analysis was done using SPSS version 20. A total of 397 questionnaires were distributed to the three branches. The response rate were 94.2 %, which is satisfactory.

Table 4.1 Rate of Respondent

No.	Branch name	No. of questionnaire distributed	No. of questionnaire Returned	%of questionnaire returned
1	Arat Kilo	185	181	98 %
2	Silassie	113	101	89 %
3	Arada Giorgis	97	90	92.8 %
	Total	**395**	**372**	**94.2%**

Source: survey data: 2018.

4.2 Demographic Data

4.2.1 Demographic Characteristics of Respondents

Table 4.2 Demographic characteristics of respondents

Variables	Category	Frequency	Percent
Gender	Male	223	59.9 %
	Female	149	40.1 %
	Total	**372**	**100 %**
Age	18-30	156	41.9 %
	31-40	132	35.5 %
	41-50	66	17.8 %
	> 50	18	4.8 %
	Total	**372**	**100 %**
Educational Status	< & = Diploma	235	36.3%
	= First Degree	135	63.2%
	>& = Master	2	0.5 %
	Total	**372**	**100%**

Source: Analysis of Survey data 2018, using SPSS 20

As is shown in table 4.2 above, 223 of the respondents were male which represent 59.9% of the total respondents, while the 149 were females which are 40.1% of the total respondents. Considering the age groups of the respondents, the higher number of respondents was in the range of 18-30 years, which represent 41.9%, followed by age groups of 31-40 years which represent 35.5%, the age group 41-50 and >50 represent which represent 17.8% and 4.8% respectively. Based on table 4.2, the educational status of the respondents were the following, 36.3 % of the respondents have diploma and less and 63.2 % of the respondents have first Degree, the remaining 0.5% have masters and above.

4.2.2 Access to Mobile Phone and Bank Account and Use of Mobile Banking

Table 4.3 Access to Mobile Phone and Bank Account

	Response	Frequency	Percent
Do you have mobile phone?			
Valid	"Yes"	372	100
Do you have bank account in CBE?			
Valid	"Yes"	372	100
Do you use the mobile banking services provided by your bank?			
Valid	"Yes"	372	100

Source: Analysis of Survey data 2018

To determine whether the respondents were in possession of a mobile phone, bank account, and use mobile banking service the respondents were requested to indicate whether they currently possess a mobile phone, bank account and use mobile banking service. As it is shown in the table 4.3, 100% of the respondents had a mobile phone, bank account and using mobile banking service.

4.3 Reliability Analysis

Table 4.4 Reliability Test (Cronbach's Alpha)

Variables	**Cronbach's alpha(r)**
Perceived Usefulness	0.870
Perceived ease of use	0.857
Perceived Credibility	0.841
Compatibility	0.746
Perceived Self-Efficacy	0.894
Perceived cost	0.867
Adoption Factors	0.861

Source: Analysis of Survey data 2018, using SPSS 20

The reliability of scale shows how free the data is from random error. Therefore, it is always advisable to select that scale that is reliable (George & Mallery, 2003). Internal consistency is one of the most commonly used scales of reliability. It refers to "the degree to which the items that make up the scales are all measuring the same underlying attributes (i.e. the extent to which the items "hang together") (Pallant, 2005). The most commonly used statistics to measure internal consistency is Cronbach‟s coefficient alpha.

George and Mallery (2003) provide rules of thumb. According to their rules, reliability coefficients should be at least 0.70 and the higher the better. Furthermore, as suggested by the authors, if scale item were to exhibit an item to total correlation of <0 .5 – unacceptable or less the item should not be included in further analysis. Reliability coefficient for items in each variable (Cronbach‟s alpha) is greater than 0 .7 which showed higher reliability of the items used in measurement of the variables.

As shown in table 4.4 Cronbach's Alpha coefficients of all variables is greater than 0.7, therefore it is statistically acceptable. The Cronbach‟s alpha value for all items suggested that the data collected through questionnaires is reliable and can be used for further statistical analysis.

4.4 Descriptive Statistics Analysis

Perceived Usefulness

Table 4.5 Summary of Survey Findings for Perceived Usefulness

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived Usefulness							
PU	I find Mobile banking useful for my banking needs.	-	-	3.2%	38.7%	58.1%	Strongly agree
PU	Mobile banking improves my work and life efficiency	-	-	3.2%	54.8%	42 %	Agree
PU	Mobile banking is more convenient than other banking options	3.2%	9.7%	29%	32.3%	25.8%	Agree
PU	Mobile banking allows me to easily acquire the information I need	-	-	6.5%	38.7%	54.8%	Strongly agree

Source: own survey, 2018

As it is shown on table above 58.1% of the respondents strongly agree and 38.7% of the respondents agree that mobile banking is useful for their banking needs. 3.2% of the respondents were neutral about mobile banking usefulness for their banking needs. Majority of the respondents found mobile banking is useful for their banking needs.

When the respondent were asked if mobile banking improves their work and life efficiency, 54.8% respondents agree, 42% respondents strongly agree, and 3.2% respondents were neutral. Majority of the respondents found mobile banking improves their work and life efficiency.

The respondents were also asked if mobile banking is more convenient than other banking options. 32.2% of respondents agree, 29% of respondents neutral, 25.8% of respondents strongly agree, 9.7% of respondents disagree and 3.2% strongly disagree. Majority of the respondents were agreed that mobile banking is more convenient than other banking option.

When they were asked if mobile banking allows them to easily acquire the information they need, 54.8% of the respondents strongly agree, 38.7% of the respondents agree, and 6.5% of

the respondents were neutral. Majority of the respondent strongly agree mobile banking allows them to easily acquire the information they need.

Perceived ease of use

Table 4.6 Summary of Survey Findings for Perceived ease of use

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived ease of use							
PEU	Learning to use mobile banking is easy for me.	-	-	9.7%	51.6%	38.7%	Agree
PEU	Using mobile banking makes it easier for me to conduct my own banking transactions	-	-	3.2%	51.6%	45.2	Agree
PEU	It is easy to use mobile banking	-	-	3.2%	38.7%	58.1%	Strongly Agree
PEU	Using mobile banking is often frustrating because I need to remember the access code to do further banking transaction each time.	3.2%	9.7%	35.5%	25.8%	25.8%	Neutral

Source: own survey, 2018

As it is shown on table above 51.6% of the respondents agree, 38.7% of the respondents strongly agree, and 9.7% of the respondents were neutral when they were asked if learning to use mobile banking is easy for them. This implies majority of the respondent were found learning to use mobile banking is easy for them.

When they were asked that using mobile banking makes it easier for them to conduct their own banking transactions, 51.6% of the respondents agree, 45.2% of the respondents strongly agree, and 3.2% of the respondents were neutral. This implies majority of the respondent were found using mobile banking makes it easier for them to conduct their own banking transactions.

The respondents were also asked that if it is easy to use mobile banking, 58.1% of the respondents strongly agree, 38.7% of the respondents agree, and 3.2% of the respondents were neutral. This implies majority of the respondent were found mobile banking is easy to use.

When the respondents asked that using mobile banking is often frustrating because they need to remember the access code to do further banking transaction each time. 35.5% of the respondent were neutral, 25.8% of the respondent were agree, 25.8% of the respondent were strongly agree, 9.7 of the respondent were disagree, and 3.2% of the respondent were strongly disagree.

Perceived Credibility

Table 4.7 Summary of Survey Findings for Perceived Credibility

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived Credibility							
PCR	I do trust the technology provided by the banks		3.2%	22.6%	35.5%	38.7%	Strongly Agree
PCR	My banking details are safe even if my phone is stolen or lost.	-	-	22.6%	38.7%	38.7%	Agree/ Strongly Agree
PCR	I'm worried about using mobile banking because other people may be able to access my account.	9.7%	16.1%	32.3%	25.8%	16.1%	Neutral
PCR	When and if transaction errors occur, I will get compensation from banks	-	-	3.2%	54.9%	41.9%	Agree

Source: own survey, 2018

As it is shown on table above 38.7% of the respondents strongly agree, 35.5% of the respondents agree, 22.6% of the respondents neutral, and 3.2% of the respondents were disagree when they were asked if they do trust the technology provided by the banks. This implies majority of the respondent trust the technology provided by the banks.

When they were asked about their banking details are safe even if their phone is stolen or lost, 38.7% of the respondents strongly agree, 38.7% of the respondents agree, 22.6% of the respondents were neutral. This implies majority of the respondent agreed their banking details are safe even if their phone is stolen or lost.

As it is shown on the table above 32.3% of the respondents neutral, 25.8% of the respondents agree, 16.1% of the respondents strongly agree, 16.1% of the respondents disagree and 9.7% of the respondents were strongly disagree when they were asked that they are worried about using mobile banking because other people may be able to access their account.

They were also asked when and if transaction errors occur, they will get compensation from banks, 54.9% of the respondents agree, 41.9% of the respondents strongly agree, and 3.2% of the respondents were neutral.

Compatibility

Table 4.8 Summary of Survey Findings for Compatibility

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Compatibility							
COM	Mobile banking service fits well with the way I like to control and manage my banking transactions	-	-	6.5%	38.7%	54.8%	Strongly Agree
COM	Mobile banking is compatible with my lifestyle	-	9.7%	12.9%	29%	48.4%	Strongly Agree
COM	I am satisfied with current mobile banking service this stage because it is already a part of my daily life.	12.9%	9.7%	22.6%	32.2%	22.6%	Agree

Source: own survey, 2018

As it is shown on table above 54.8% of the respondents strongly agree, 38.7% of the respondents agree, and 6.5% of the respondents were neutral when they were asked mobile banking service fits well with the way they like to control and manage my banking transactions. This implies majority of the respondent were found mobile banking service fits well with the way they like to control and manage my banking transactions.

As it is shown on the table4.8 above, 48.4% of the respondent were strongly agree, 29% of the respondent agree, 12.9% of the respondent neutral, and 9.7% of the respondent were disagree

when they were asked mobile banking is compatible with their lifestyle. This shows mobile banking is compatible with their lifestyle.

They were also asked that they are satisfied with current mobile banking service this stage because it is already a part of their daily life. 32.2% of the respondent agree, 22.6% of the respondent strongly agree, 22.6% of the respondent neutral, 9.7% of the respondent disagree, and 12.5% of the respondent were strongly disagree. This implies majority of the respondent were satisfied with current mobile banking service this stage because it is already a part of their daily life.

Perceived Self-Efficacy

Table 4.9 Summary of Survey Findings for Self-Efficacy

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived Self-Efficacy							
PSE	I use mobile banking because someone has shown me how to do it	-	-	3.2%	38.7%	58.1%	Strongly Agree
PSE	I do not need anyone to teach me how to use mobile banking because I can learn it by myself	3.2%	38.7%	32.3%	19.3%	6.5%	Disagree
PSE	I use mobile banking because I have seen someone else using it	-	-	3.2%	38.7%	58.1%	Strongly Agree

Source: own survey, 2018

As it is shown on table above 58.1% of the respondents strongly agree, 38.7% of the respondents agree, and 3.2% of the respondent were neutral, when they were asked that they use mobile banking because someone has shown them how to do it. This implies majority of the respondent were use mobile banking because someone has shown them how to do it.

When the respondent were asked that they do not need anyone to teach them how to use mobile banking because they can learn it by their self, 38.7% of the respondents disagree, 32.3% of the respondents neutral, 19.3% of the respondents agree, 6.5% of the respondents strongly agree, and 3.2% of the respondents were strongly disagree. This implies Majority of the

respondent were disagree that they do not need anyone to teach them how to use mobile banking because they can learn it by their self.

They were also asked that they use mobile banking because they have seen someone else using it. 58.1% of the respondent strongly agree, 38.7% of the respondent agree, and 3.2% of the respondent were neutral. This implies majority of the respondent were use mobile banking because they have seen someone else using it.

Perceived cost

Table 4.10 Summary of Survey Findings for Perceived cost

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Perceived cost							
PC	It costs a lot to use mobile banking	48.4%	45.1%	6.5%	-	-	Strongly disagree
PC	Using mobile banking increases my banking costs	38.7%	45.2%	9.7%	6.5%	-	Disagree

Source: own survey, 2018

As it is shown on table 4.10 above 48.4% of the respondents strongly disagree, 45.1% of the respondents disagree, and 6.5% of the respondents were neutral when they were asked it costs a lot to use mobile banking. This implies majority of the respondents strongly disagree that it costs a lot to use mobile banking.

When they were asked that using mobile banking increases their banking costs, 45.2% of the respondent disagree, 38.7% of the respondent strongly disagree, 9.7% of the respondent neutral, and 6.5% of the respondent were agree. This implies majority of the respondents disagree that using mobile banking increases their banking costs.

Adoption Factors

Table 4.11 Summary of Survey Findings for Adoption Factors

	Statement to evaluate	Rating point					
		1	2	3	4	5	Remark
Adoption Factors							
AF	I intend to use mobile banking in the future	-	-	3.2%	38.7%	58.1%	Strongly agree
AF	I will regularly use mobile banking in the future	-	-	16.1%	48.4%	35.5%	Agree
AF	Using mobile banking will be good for me	-	-	3.2%	54.9%	41.9%	Agree

Source: own survey, 2018

As it is shown on table 4.11 above 58.1% of the respondents strongly agree, 38.7% of the respondents agree, and 3.2% of the respondents were neutral when they were asked that they intend to use mobile banking in the future. This implies majority of the respondents intend to use mobile banking in the future.

When they were asked that they will regularly use mobile banking in the future, 48.4% of the respondent agree, 35.5% of the respondent strongly agree, and 16.1% of the respondent were neutral. This implies majority of the respondents will regularly use mobile banking in the future.

As it is shown on table 4.11 above 54.9% of the respondents agree, 41.9% of the respondents strongly agree, and 3.2% of the respondents were neutral when they were asked that using mobile banking will be good for them. This implies majority of the respondent believes using mobile banking will be good for them.

Table 4.12 Mean and standard deviation of variables

Variables	N	Mean	Std. Deviation
Perceived Usefulness	372	3.68	1.061
Perceived ease of use	372	3.58	1.072
Perceived Credibility	372	3.23	1.185
Compatibility	372	3.29	1.225
Perceived Self-Efficacy	372	2.87	.977
Perceived cost	372	1.58	.611
Adoption Factors	372	4.16	.678
Valid N (list wise)	372		

Source: own survey, 2018

Based on Table 4.12 above, Perceived usefulness has the highest mean score of 3.68, followed by Perceived ease of use 3.58. Compatibility, and Perceived Credibility have 3.29, and 3.23 mean score respectively. Perceived cost has least mean score of 1.58, followed by perceived self-efficacy which has 2.87 mean score. Based on the mean score we got, it can be concluded that respondents were moderated during their response. This implies the bank expected to work hard on these variables to increase mobile banking adoption.

4.5 Pearson Correlation Analysis

Table 4.13 Correlation Matrix

Variables	Adoption Factors (AF)
Perceived Usefulness(PU)	.838**
Perceived ease of use (PEU)	.806**
Perceived Credibility (PCR)	.236
Compatibility (COM)	.684**
Perceived Self-Efficacy(PSE)	.423
Perceived cost (PC)	-.617**

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

4.5.1 Correlations between perceived usefulness and adoption factors

As the table 4.13 above shows perceived usefulness has relatively strong and significant positive correlation with adoption factors (.838*). This result that is found is in line with (Luarn and Lin, 2005) finding that states perceived usefulness having a positive correlation in mobile banking usage and Cheah et al (2011) finding, Perceived usefulness were found to be positively and significantly related to the intention to adopt mobile banking services.

The possible reason for the significant positive relationship could be majority of mobile banking user choose to adopt mobile services because they understand the benefits they could obtain from adopting it.

4.5.2 Correlations between perceived ease to use and adoption factors

As the table 4.13 above shows perceived ease to use has relatively strong and significant positive correlation with adoption factors (.806*). This finding is consistent with the results founded by (Sripalawat et al. 2011, Cudjoe et.al. 2015) that is stated in previous empirical studies that perceived ease of use has a positive and significantly related to the intention to adopt mobile banking services.

The possible reason for the significant positive relationship could be majority of mobile banking users choose to adopt mobile services because they find mobile banking ease to learn, to use and to conduct their own banking transaction.

4.5.3 Correlations between perceived creditability and adoption factors

As the table 4.13 above shows perceived creditability has statistical insignificant positive correlation with adoption factors (.236). This finding is inconsistent with the results founded by (Luarn and Lin 2005) perceived creditability statistical significant correlation with adoption factors. Therefore the possible reason for the insignificant positive relation is majority of mobile banking users have not have enough confidence on the mobile banking service on privacy and security issues.

4.5.4 Correlations between compatibility and adoption factors

As the table 4.13 above shows compatibility has strong and significant positive correlation with adoption factors (.684*). This finding is consistent with the results founded by Wessels and Drennan (2010) that is stated in previous empirical studies. The possible reason for the significant positive relationship could be majority of mobile banking user choose to adopt mobile services because they find mobile banking compatible with my lifestyle.

4.5.5 Correlations between perceived Self-Efficacy and adoption factors

As the table 4.13 above shows perceived Self-Efficacy has moderate and positive correlation with adoption factors (.423*). This finding is consistent with the results founded by (Luarn and Lin 2005) that Self-Efficacy has positive correlation determinants of mobile banking adoption. The possible reason for the significant positive relationship could be majority of majority of mobile banking user choose to adopt mobile services because they see someone else using it and shows them how to use.

4.5.6 Correlations between perceived cost and adoption factors

As the table 4.13 above shows perceived cost has strong and significant negative correlation with adoption factors (-.617*). This finding is consistent with the results founded by (Sripalawat et al. 2011) that perceived cost has significant negative correlation with adoption factors. The possible reason for the significant negative relationship could be majority of mobile banking user choose to adopt mobile services because it did not cost a lot and didn’t increase their banking cost.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Summary

The study was conducted to assess the factors that determine of mobile banking adoption on commercial bank of Ethiopia North Addis Ababa District. The determinants of mobile banking adoption are many and vary from one researcher to other researcher. This research was limited only on six variables that determine mobile banking adoption. They are perceived usefulness, perceived ease to use, perceived creditability, compatibility, perceived self-efficacy, and perceived cost. The study was conducted on three branches in North Addis Ababa district. The branches were Arat kilo, Arada Giorgis, and Silassie branches.

The researcher employed survey design, quantitative methods, correlation and descriptive research types in order to assess the factor that determine of mobile banking adoption. In addition to this the study used questionnaire as a data collection instruments. And in the descriptive statistics mean, standard deviation and frequency was employed and Pearson correlation coefficient used as data analysis methods in the SPSS process.

The results of the descriptive statistical analysis indicated that perceived usefulness has the highest mean score followed by perceived ease of use, compatibility, perceived credibility, and perceived self-efficacy respectively. Perceived cost has least mean score.

The finding of the correlation analysis shows that there is a positive relation between perceived usefulness, perceived ease of use, perceived credibility, compatibility, perceived self-efficacy respectively and adoption factors (dependent variable). There is negative relationship between perceived cost and adoption factors (dependent variable). Perceived usefulness, perceived ease of use, compatibility, and perceived cost have statistically significant correlation. Perceived self-efficiency has moderate correlation and perceived creditability has statistically insignificant correlation.

5.2 Conclusion

From this present study the researcher concluded that

Perceived usefulness was found to have a significant and positive relation with mobile banking adoption. This result suggests that for mobile banking technology to be accepted by users, they should perceive it as a useful, it should improves their work and life efficiency, it should be more convenient than other banking options, and allows them to easily acquire the information

they need. Therefore; it can be concluded that people will adopt mobile banking services when the value and benefit of mobile banking is evident.

The perception of ease of use was found to have a positive and significant relation with mobile banking adoption. The result indicate that in order to adopt mobile banking, mobile banking should be easy to learn, use and it should be easier to conduct banking transaction. Therefore; it can be concluded that people will adopt mobile banking services when it is easy to learn and use.

Perceived creditability was found to have a positive and insignificant relation with mobile banking adoption. This result came because of the mobile banking service have not have the expected amount of trust on privacy and security issues. This implies that in order to adopt mobile banking, the mobile banking service providers (both the banks and mobile network provider) should be trustworthy and banking details should be safe even if my phone is stolen or lost.

Compatibility was found to have a positive and significant relation with mobile banking adoption. The result indicate that in order to adopt mobile banking, people have to perceive mobile banking as consistent with their existing beliefs, values, lifestyle and past experience, should be satisfied with current mobile banking service. Therefore, it can be concluded that when mobile banking is found to be compatible then adoption of mobile banking increases.

According to the study, Perceived Self-Efficacy have a positive and moderate relation with mobile banking adoption. This implies that users' knowledge, ability and skills are needed to use the mobile banking. Therefore, it can be concluded that when the people perceived self-efficiency increase, adoption of mobile banking also increase.

According to the study, perceived cost have a negative and significant relation with mobile banking adoption. The results indicates that when the customer believes that mobile banking service cost and increase banking cost, they are not willing to adopt mobile banking. Therefore, it can be concluded that if the perceived cost increase the mobile banking adoption will be decreased.

5.3 Recommendation

Based on the above findings, the following Recommendation are suggested to increase mobile banking adoption.

Perceived usefulness and perceived ease to use are highly correlated with mobile banking adoption, so the bank should continue to innovate and invest in mobile banking services which allow users to have more alternatives and get more values from mobile banking services. In addition to this, the banks should aim to make their mobile banking as simple and easy to use as possible so that customers do not perceive them as being complicated or difficult to use. This gives insights for user interface developers to design user friendly system.

In order to increase perceived creditability and to reduce unnecessary worries the bank should create deep awareness to community concerning the mobile banking security and privacy and staff interaction in order to make them realize that the service is safe to use. In addition to this the bank should banks and service providers should continuously innovate and offer better security and reliable applications to enhance users' confidence towards mobile banking services.

Compatibility is one of the significant correlated variables in adoption of mobile banking. The bank should emphasize in designing different banking features of the service considering customers' lifestyle, culture and language.

Perceived cost is one of the variables which is correlated negatively to mobile banking adoption. The bank should create awareness to the community about mobile banking service that mobile banking decreases their banking cost.

In general, banks should have to make improvement on all determinants factors of mobile banking adoption in order to increase mobile banking users and create cash less society. In addition to this the Bank should create deep awareness to community concerning the mobile banking products they offer and the benefits associated with using mobile banking services through advertising their products and services on mass media as well as through organizing public exhibition and talk shows. The bank should also attract the community to use the technology by diverse incentive campaigns. This will enable the Commercial Bank of Ethiopia achieve its objectives.

5.4 Suggestions for Future Research

The future research can be done by focus on other related factors that affect mobile banking adoption. This research is limited on six determinant factors that affect mobile banking adoption. The determinant factors are perceived usefulness, perceived ease to use, perceived creditability, compatibility, perceived self-efficiency and perceived cost. It is therefore recommended that further research should be done to unveil other factors such as social influence and associate rewards.

Furthermore, this research was conducted in North Addis Ababa district. The findings of this study may not be generalized to the whole commercial bank of Ethiopia districts or to other commercial banks in Ethiopia. Generalization of the present findings should, therefore, be examined in future research in other districts and other commercial bank with balanced gender, and more heterogeneous samples.

REFERENCE

Adil Sohail(2011),Impact of leadership style on Organization commitment: Journal of Economics and Behavioral Studies Vol. 3, No. 2, pp. 145-152, Aug 2011 (ISSN: 2220-6140).

Agarwal, R., Sambamurthy, V., & Stair, R. M. (2000). Research report: The evolving relationship between general and specific computer self-efficacy – An empirical assessment. Information Systems Research, 11(4), 418–430.

Amanyehun, R. 2011, Mobile Commerce First from Dashen, Viewed 21 March 2016, from: http//:www.addisfortune.com/archive.

Ayana.G, 2012, 'Adoption of Electronic Banking System in Ethiopian Banking Industry: Barriers and Drivers', AAU Repository, 11-15.

Barnes, S. J. & Corbitt, B. (2003). Mobile banking concepts and potential. International journal of mobile communication, 1(3), 273-288.

Barnes, S. J. (2003). Mobile banking concepts and potential. International journal of mobile communication, 1(3), 273-288.

Burr, W.(1996) "Wie Information stechnik die Bank organization verändern könnte," Bankund Markt, 11, pp. 128–31.

Cheah, C. M., Teo, A. C., Sim, J. J., Oon, K. H., and Tan, B. I. ,2011, 'Factors Affecting Malaysian Mobile Banking Adoption: An Empirical Analysis', International Journal of Network and Mobile Technologies, 2(3), 149-160.

Cheng, T., Lam, D. and Yeung, A. (2006), "Adoption of internet banking: an empirical study in Hong Kong", Decision Support Systems, Vol. 42 No. 3, pp. 1558-72.

Ching and Ellis, 2004, "Marketing in Cyberspace: what factors drive e-commerce adoption?" Journal of Marketing Management, Vol.20 pp 409-429.

Cooper and Zmud (1997) "Information Technology Implementation Research: A technological diffusion approach", Management science, Vol.36 (2), pp 123-139.

Cudjoe, A.G., Anim, P.A. and Nyanyofio, J.G.N.T. (2015) Determinants of Mobile Banking Adoption in the Ghanaian Banking Industry: A Case of Access Bank Ghana Limited. Journal of Computer and Communications, 3, 1-19.

Cruz, P., Neto, L. B. F., Munoz-Gallego, P., and Laukkanen, T, 2010, 'Mobile Banking Rollout in Emerging Markets: Evidence from Brazil', International Journal of Bank Marketing, 28 (5), 342-371.

Davis, F.D., 1989." Perceived usefulness, perceived ease of use, and user acceptance of information technology", MIS Quarterly, 13(3): 319-340.

Davis, L. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management Science, 35(8), 982–1003.

Eckhardt, A., Laumer, S. and Weitzel, T. (2009), 'Who influences whom? Analyzing workplace references social influence on IT adoption and non-adoption', Journal of Information Technology, 24 (1), 11-24

Ezeoha, A.E., 2005, 'Regulating Internet Banking in Nigeria: Problems and Challenges Part 1', Journal of Internet Banking and Commerce, 10.

Gardachew, W., 2010, 'Electronic -Banking in Ethiopia: Practices, Opportunities and Challenges', Journal of Internet Banking and Commerce, 15(2), 2-9.

George, D., &Mallery, P. (2003) SPSS for Windows step by step: A simple guide and reference. (4th ed.), Boston: Allyn& Bacon.

http://www.combanketh.com/about us/ company profile.

Hsu, M-H and Chiu, C-M. (2004), "Internet self-efficacy and electronic service acceptance", *Decision Support Systems*, Vol. 38 No. 3, pp. 369-81.

Kalkidan G., 2016, Factors Influencing Usage of Mobile Banking in Addis Ababa, Ethiopia

Kim, G., Shin, B. and Lee, H.G. 2009, 'Understanding dynamics between initial trust and usage intentions of mobile banking', Information Systems Journal, 19 (3), 283-311.

Koenig-Lewis, N., A. Palmer, and A. Moll, 2010, 'Predicting Young Consumers' Take up of Mobile Banking Services', International Journal of Bank Marketing, 28, (5), 410-432.

Kothari, C. (1990). Research Methodology: Methods and Techniques, New Age International (P) Ltd Publisher, New Delhi.

Kothari, C.R. (2004). Research Methodology: Methods and Techniques .2nd ed. India: New Age International Publishers.

Kotler and Amstrong, 2000, Marketing: An Introduction. New York: Prentice Hall.

Lin., H., 2011,"An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust," *International Journal of Information Management*, Vol. 31, No. 3: 252-260.

Luarn, P., & Lin, H.H. 2004, Toward an understanding of the behavioural intention to use mobile banking. Computer in Human Behaviour, 21(6), 340- 348.

Luarn, P. and Lin, H.-H., 2005, 'Toward an Understanding of the Behavioural Intention to Use Mobile Banking', Computers in Human Behaviour, 21, 873-891.

Mathieson, K., Peacock, E., & Chin, W. W. (2001). Extending the Technology Acceptance Model: The Influence of Perceived User Resources. DATA BASE for Advances in Information Systems, 32(3), 86–112.

Moore, C.G., & Benbasat, I. (2001). Development of an instrument to measure the perceptions of adopting an information technology innovation. Information Systems Research, 2(3), 192-222.

National Bank of Ethiopia, 2012, Regulation of Mobile and Agent Banking Services Directives No. FIS /01/2012.

Pikkarainen, T., 2004, 'Customer Acceptance of Online Banking: An Extension of the Technology Acceptance Model', Internet Research, 3, 224-235.

Pallant, J (2005), SPSS Survival Manual. Second edition, Ligare Pty Ltd, Sydney.

Porteous, D., 2011, 'The Enabling Environment for Mobile Banking in Africa', Bankable frontier.

Puschel, J., Mazzon, J. and Hernandez, J., 2010. 'Mobile banking: proposition of an integrated adoption intention framework'. International Journal of bank marketing, 28 (5),389-409.

Riquelme, H., and Rios, R. E., 2010, 'The Moderating Effect of Gender in the Adoption of Mobile Banking', International Journal of Bank Marketing, 28(5), 328-341.

Rogers, E.M., 2003, Diffusion of Innovations. 5th Edition, Simon & Schuster, Inc., New York, 175.

Saleem, Z. & Rashid, K. (2011). 'Relationship between Customer Satisfaction and Mobile Banking Adoption in Pakistan, International Journal of Trade, Economics and Finance', Vol. 2, No. 2, pp. 537-544.

Sohail, M. and B. Shanmugham,(2003) "E-banking and customer preferences in Malaysia: An empirical investigation," Information Sciences, Vol. 150, No. 3/4: 207-217, 2003.

Sripalawat, J., Thongmak, M. and Ngramyarn, A., 2011, M-banking in Metropolitan Bangkok and a Comparison with other Countries, The Journal of Computer Information Systems, 51(3), 67-76.

Sunil K. M., and Durga P. S., 2013, 'Mobile Banking Adoption and Benefits towards Customers Service', Modern engineering Management Studies (MEMS), 2(1), 2319 2526.

Tiwari, R. and Buse, S., 2007, The Mobile Commerce Prospects: A Strategic Analysis of Opportunities in the Banking Sector', Hamburg University Press, Hamburg.

Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their roles in technology acceptance and usage behaviour. MIS Quarterly, 24(1), 115–139.

Wang, Y. S., Wang, Y. M., Lin, H. H., & Tang, T. I. (2003). Determinants of user acceptance of internet banking: An empirical study. International Journal of Service Industry Management, 14(5), 501–519.

Wessels, L., Drennan, J., 2010. An investigation of consumer acceptance of M-banking. International Journal of Bank Marketing 28 (7), 547–568.

APPENDIX I: QUESTIONNAIRE

Addis Ababa University

College of Business and Economics

School of Commerce

Dear Sir/Madam

My name is Tigist Degu, a graduate student in Addis Ababa University School of Commerce. The aim of this questionnaire is to identify the Factors that determine Mobile Banking adoption in the case of Commercial Bank of Ethiopia, North Addis Ababa District. Your participation in this study will be valuable and greatly appreciated. Information gathered will be treated with utmost confidentiality and will not be used for any other purpose.

Thank you for your invaluable time and cooperation in advance.

Best Regards,

GENERAL INSTRUCTIONS

There is no need for writing your name

In all cases where answer options are available please make tick mark (√) in the appropriate box where the choice is appropriate for you.

Part l General Information

1. Gender: Male ☐ Female ☐

2. Age 18 - 30 ☐ 31 - 40 ☐ 41– 50 ☐ above 50 ☐

3. Educational status?

   Diploma and below ☐ First Degree ☐ Masters and Above ☐

Specific Questions:

4. Do you have mobile phone? Yes ☐ No ☐

5. Do you have bank account in CBE Yes ☐ No ☐

6. Do you use the mobile banking services provided by your bank? Yes ☐ No ☐

Part ll; Factors that determine Mobile Banking adoption

Please indicate the extent of your level of agreement and disagreement with the following statement. Please tick (√) your appropriate answer based on the following rating.

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

Q. No	Statement to evaluate	Rating point				
		1	2	3	4	5
Perceived Usefulness						
1	I find Mobile banking useful for my banking needs.					
2	Mobile banking improves my work and life efficiency					
3	Mobile banking is more convenient than other banking options (e.g. Internet banking, going to a bank branch)					
4	Mobile banking allows me to easily acquire the information I need					
Perceived ease of use						
5	Learning to use mobile banking is easy for me.					
6	Using mobile banking makes it easier for me to conduct my own banking transactions					
7	It is easy to use mobile banking					
8	Using mobile banking is often frustrating because I need remember the access code to do further banking transaction each time.					
Perceived Credibility						
9	I do trust the technology provided by the banks					
10	My banking details are safe even if my phone is stolen or lost.					
11	When and if transaction errors occur, I will get compensation from banks.					
Compatibility						
12	Mobile banking service fits well with the way I like to control and manage my banking transactions.					
13	Mobile banking is compatible with my lifestyle					
14	I am satisfied with current mobile banking service this stage because it is already a part of my daily life.					

Perceived Self-Efficacy						
15	I use mobile banking because someone has shown me how to do it					
16	I do not need anyone to teach me how to use mobile banking because I can learn it by myself					
17	I use mobile banking because I have seen someone else using it					
Perceived cost						
18	It costs a lot to use mobile banking					
19	Using mobile banking increases my banking costs					

Part III; Question Related to Mobile Banking adoption

Please indicate the extent of your level of agreement and disagreement with the following statement. Please tick (√) your appropriate answer based on the following rating.

1= strongly disagree 2= disagree 3= neutral 4= agree 5= strongly agree

Q.NO	Adoption Factors	Rating point				
		1	2	3	4	5
20	I intend to use mobile banking in the future					
21	I will regularly use mobile banking in the future					
22	Using mobile banking will be good for me					

23. Any other opinion _____

_____

_____