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St. Mary's University, Ethiopia

**MASTERS OF BUSINESS ADMINISTRATION IN ACCOUNTING AND
FINANCE**

SCHOOL OF GRADUATE STUDIES

Assessment of Mobile Banking Services Usage in

Commercial Bank of Ethiopia

**A Thesis Submitted for partial fulfillment of the requirements for MBA in
Accounting and finance**

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Addis Ababa Ethiopia

DECLARATION

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

hareya tsadik

Name

Signature & Date

LETTER OF CERTIFICATION

This is to certify that Hareya Tsadik has carried out his research project work under my supervision, on the topic of “**ASSESSMENT OF MOBILE BANKING SERVICES usage in the COMMERCIAL BANK OF ETHIOPIA**”. This work is original in its nature and it is suitable for Submission in partial fulfillment of the requirement for the award of Degree of masters of Business administration in accounting and finance.

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ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

Assessment of mobile banking services usage in Commercial Bank of Ethiopia

By; Hareya Tsadik

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Abstract

With the convergence of banking services and mobile technologies, users are able to conduct banking services at any place and at any time through mobile banking. This is, therefore; mobile banking has a vital advantage for customers. The main purpose of this study is to assess the practice of mobile banking in Commercial Bank of Ethiopia. In so doing, the research used the extended TAM Model, which deals with the factors influencing the practice of mobile banking i.e., Convenience (perceived usefulness and perceived ease of use), perceived trust, perceived risk, perceived cost. Data for the study was collected through questionnaires which were distributed for 200 respondents and analysis of findings are done based on 180 complete responses. The study employed frequency for analysis. Accordingly, the research has found that customers in the CBE perceived that mobile banking service is useful and easy to use. In addition, customers at CBE perceive that infrastructure is the most critical factor for the customer to use mobile banking service.

KEYWORDS:-CBE, Mobile Banking, TAM, customers

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Worldwide the way in which banks deliver services has undergone a paradigm shift with the banks increasingly going towards the provision of electronic services in the self service mode. Tough competition and increasing customer expectations have forced all major commercial banks, irrespective of the sectors, to adopt the provision of banking services through ATMs, internet banking, mobile banking etc. The services through these channels offer tremendous advantage both to the banks and their customers. For the banks, the advantages are reduced transaction costs and lesser crowding in their branches. For the customers, these channels offer the convenience of doing bank transactions from the places of their choice, even homes and conducting them any time of the day they want (Koshy, 2009). The increase in competition and change, co-operation, globalization and convergence, as well as changing consumer preferences means that new strategies to attract and maintain customers are essential. The Internet is therefore being considered as a strategic weapon and will revolutionize the way businesses operate to seize opportunities and overcome threats. The banking sector is no exception, the Internet is causing major delivery changes and is bringing about a transformation of this sector this is because the financial sector is one of the most affected by technology banking has always been a highly information intensive activity that relies heavily on technology to acquire, process, and deliver the information to all relevant users. Increasingly competition in the financial services sector is forcing providers to develop and utilize alternative delivery channels IT and Internet technology is therefore a revolutionary approach for banks to provide convenient, reliable and expedient services to bank customers (Tan & Teo, 2000 cited in Jaruwachirathanakul, 2003). In banking, in the past, the technology strategy was considered as subordinate to business strategy. But now with so much advancement in technology it has become as important as business strategy. 2 Technology has provided an altogether new way of interacting and providing service to bank customers rather than merely replicating activities of the bank employees (Koshy, 2009). The banking industry has witnessed significant advancement in technology just like any other sector. The adoption of e-banking service is one of the

advancement that affects banking operations entirely. With the adoption of self-service technology by the banks, e-banking system has continued to service the populace well. Electronic banking offers convenience to costumers and it provides banking services well beyond the traditional service period. It therefore encourages a cashless society and every sector of the economy whether financial or nonfinancial organization is adopting computer based approaches to the service rendered. Mobile banking which is a type of electronic banking is becoming more popular in modern banking and as such has been a subject of interest among researchers. Mobile banking means a financial transaction conducted by logging on to a bank's data base using a cell-phone; such as viewing account balances, making transfer between accounts, or paying bills. It is a term used for performing balance checks, account transactions, payments etc, via a mobile device such as a mobile phone. In recent times e-banking is most often performed via SMS or the mobile internet and can also use special program called client downloaded to the mobile (Oluma et.al, 2016). Electronic banking technologies have contributed to improving of effectiveness of banks' distribution channels through reducing the transaction cost and increasing the speed of service, mass customization, marketing and communication activities, and maintaining the customers and attracting new ones, From the customer's perspective, e-banking allow customers to save time and cost. Due to the advantages of e-banking for both banks and customers, the adoption of electronic banking recently has rapidly grown as a channel of distribution of banking products and services (Bucevska, 2011). The concept of mobile-banking is generally used to refer to the new technologies that enable access to banking services via mobile phones. mobile-banking, also referred to as cell phone banking, is the use of mobile terminals such as cell phones and personal digital assistants (PDAs) to access banking networks via the wireless application protocol (Francois et.al 3 2015). Mobile banking involves mini-statements and checking of account history, alerts on account activity or passing of set thresholds; monitoring of term deposits, access to card statements, mutual funds/equity statements; insurance policy management, pension plan management, access to loan statements; status on cheque, stop payment on cheque, ordering check books, balance checking in the account, PIN provision, change of PIN and reminder over the internet, domestic and international fund transfers, recent transactions, due date of payment, micro-payment handling, mobile recharging, commercial payment processing, bill payment processing, peer to peer payments and deposit at banking agent (Cudjoe et.al, 2015). In Ethiopia, the first bank that deployed mobile

banking service is the state-owned Commercial bank of Ethiopia. However, online banking is in its infant stage. Even though, the concept of online banking implemented in Ethiopia with a single service of SMS message during late 2008, it does not show that much improvement as its age. Now a day some banks are adopting e-banking system which is the state of the art. In addition, many banks are making what seem like huge investments in technology to maintain and upgrade their infrastructure, in order not only to provide new electronic information based services, but also to manage their risk positions and pricing. The earliest forms of electronic and communications technologies used mainly in Ethiopian banking offices were automation devices. However, Telephones, telex and facsimile were employed to speed up and make more efficient the process of servicing clients (Mattewos, 2016). Banking institution cannot increase their customer base in the mobile banking environment without knowing what factors enable or inhabit consumers from adopting such service. As there are ever increasing pressures on telecommunications operators and banking institutions to increase their revenue, it is important to understand what drives consumer adoption of mobile banking services but failure to do so could result in a loss of market share and limited growth in the mobile banking sector for both financial and network operators.

1.2. Statement of the Problem

Commercial bank of Ethiopia have spent huge amounts in establishing mobile banking systems, but the adoption and usage rate of mobile banking is still lower than expected and remains insignificant compared to the entire banking transactions. For instance the bank has only managed to recruit 625,000 new mobile banking in 2015/16 physical year but the actual new mobile banking activated was 431,677 customers (72% activations below the planned 80% activation) and total mobile banking registered stood at 1.1 million out of over 13.3 million accounts –holders as of December 30, 2016. This amounts account to only 8% of all commercial bank of Ethiopia customers. Furthermore, in the same period, mobile banking transaction stood at 868,464 with a total value of birr 3.5billion (CBE, 2016/2017).

The bank had hoped that it would be able to capture most, if not all of these mobile phone subscribers into its M-Banking platform which is available to both account and non-account holders. It is true that mobile banking is an infant stage since its introduction in 2013 for the Ethiopian society. It is therefore important for the banking industry to understand the factors that affect the technology adoption decision of mobile banking users.

Previous studies in various countries identified the factors that determine the adoption of mobile banking services. For example, studies by Alsheikh and Jamil (2014) in Saudi Arabia, Yu (2012) in Taiwan, Oliver (2012), Ndumba et.al (2014) and Abdullatif (2015) in Kenya, Fall et.al (2015) in Senegal, and Cudjoe et.al (2015) in Ghana have shown that the apathy of the bank consumers towards mobile banking services affected the adoption negatively, while customers belonging to the well educated, young, relatively well-off and residing mainly in urban areas, etc adopted the technology. Studies conducted about the determinants of adoption of mobile banking services in Ethiopian commercial banks by Mattewos (2016) and Laekemaryam (2016) found out that perceived usefulness and perceived ease of use of the technology to have positive relationship with the adoption of mobile banking whereas perceived risk has negative relationship with the adoption of mobile banking.

1.3. Research Question

To address the research problem ,the following research questions are formulated“.

1. What is the advantage of mobile banking service for customers?
2. How can to extend mobile banking service easily for customers in Ethiopia?
3. Why not use some customers mobile banking is there any effect?
4. What are factors that affect mobile banking in the case of commercial bank of Ethiopia?

1.4. Objectives of the study

1.4.1. The General objective

The general objective of the study is to examine the assessment of mobile banking usage in commercial bank of Ethiopia.

The specific objectives of the study include:

1. To examine the effect of demographic factors on the adoption of mobile banking technology by bank customers.
2. To examine the effect of customers experience on technology and voluntarism to use on the adoption of mobile banking in commercial bank of Ethiopia.
3. To examine the influence of user's perceived risk on the adoption of mobile banking.

1.5. Scope of the Study

The scope of the study was sufficiently defined in order to ensure that the breadth, depth and detail of the study were compatible and sufficient to address the stated goal. The boundaries were determined from the perspectives of conceptual, methodological and target population aspect .Mobile banking is an application It provides by a bank or financial institution that uses its customer to access transactions by using smart phones, mobile devices &tablets. The technology acceptance model is used to measure the acceptance of new technology based on the customer wants. Besides the finding will help to understand customers" perception about mobile banking adoption

1.6. Limitation of the Study

From this study was identified the limitations of pre-specifying factors affecting mobile banking adoption of commercial banks customers in Addis Ababa. Convenience sampling may applicable if the population is homogeneous (Kothari, 2004). Here, the target population was assumed having similar characteristics, since customers can get the service online from any branch and anywhere for the service. The limitation of the study was the lack of previous studies in Ethiopian context on the topic of mobile banking usage and adoption factors. And also it was not

possible to include all factors that affect usage of mobile banking in one study only selected factors were considered for the study.

1.7. Significance of the Study

This study is deal with determinant of mobile banking adoption in commercial bank of Ethiopia in case of South Addis Ababa district and will contribute to the adoption literature in the area of mobile banking. More specifically, the finding from this research can be used by banks to improve their service and enhance the adoption of the mobile banking services

.Therefore, the result of this study will contribute to the banking industry by suggesting them. to improve the practice of service delivery by the bank and will inform policymakers by pinpointing to them the importance of factors related to risk of technology adoption.

1.8. Organization of the study

The thesis is structured as follows, Chapter two indicates a review of the related literature both theoretical and empirical review, The third Chapter three discusses research design and Methodology and chapter four presents result and discussion. Finally the last chapter is presented conclusions and recommendations.

CHAPTER TWO

2. Literature Review

2.1 theoretical literature reviews

The innovation of technology faced many reactions by the people, some people perceive that it makes the task easier and time saving while on the other hand some people perceive it according to the perspective of risk and fear (Azam et al., 2014). Now a day's technology like E-Banking makes the task easier. The day's work an individual can complete within hours due to advent of technology. Many institutions adopt the technology so that they can easily access to their customers. Banking sector more focused upon E-Banking because it helps them to get more competitive advantage by providing better service quality E-Banking service was started from developed countries and it was originated with Automated Teller Machine (ATM) since 1980. But in 1990 the banking sector started to perform their banking transaction through telephone. But in 1995 internet banking service was introduced in USA, E-Banking is the abbreviation of Electronic Banking; it is defined as all the transaction can take place through electric system like web. E-Banking is the way that generates connection between the service provider and the customers. E-Banking helps all customers to make the transactions, to access their account or to get the information through the internet. Banking sector usually use the approach of E-banking for competition. Due to the introduction of technology many banking sector use this technology for the purpose of information source as well as transaction, as the results E-Banking users can perform many banking transaction like balance inquiry, paying of bill, checks writing transfer of funds from one account to another. E-Banking provides facility to their customers and to fulfill customer's expectation about this service. The great risk is involved in this advance technology E-Banking. As there is numbers of hackers who also use this facility and can hack customer's personal information. This thing can reduce people trust and their using behavior of E-Banking (Azam et al.,2014).

Financial services industry over time has opened to historic transformation that can be termed as electronic developments which is advancing rapidly in all areas of financial intermediation and financial markets such as e-finance, e-money, electronic banking (e-

banking), e-brokering, e-insurance, e-exchanges, and even e-supervision. The new information technology (IT) is turning into the most important factor in the future development of banking, influencing banks' marketing and business strategies. In recent years, the adoption of e-banking began to occur quite extensively as a channel of distribution for financial services due to rapid advances in IT and intensive competitive banking markets. The driving forces behind the rapid transformation of banks are influential changes in the economic environment include among others innovations in information technology, innovations in financial products, liberalization and consolidation of financial markets, deregulation of financial inter-mediation. These factors make it complicated to design a bank's strategy, which process is threatened by unforeseen developments and changes in the economic environment and therefore, strategies must be flexible to adjust to these changes. The e-banking is transforming the banking and financial industry in terms of the nature of core products /services and the way these are packaged, proposed, delivered and consumed. It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness. Banks and other businesses alike are turning to IT to improve business efficiency, service quality and attract new customers. Technological innovations have been identified to contribute to the distribution channels of banks and these electronic delivery channels are collectively referred to as electronic banking (Elisha, 2010).

The evolution of banking technology has been driven by changes in distribution channels as evidenced by automated teller machine (ATM), Phone-banking, Tele-banking, PC-banking and most recently internet banking. E-banking is the term used for new age banking system. E-banking is also called online banking and it is an outgrowth of PC banking. E-banking uses the internet as the delivery channel by which to conduct banking activity, for example, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments and certificates of deposits .It is difficult to infer whether the internet tool has been applied for convenience of bankers or for the customers' convenience. But ultimately it contributes in increasing the efficiency of the banking operation as well providing more convenience to customers. Without even interacting with the bankers, customers transact from one corner of the country to another corner (Elisha, 2010).

E-banking is a term which is explained as customer enjoyment of banking services electronically, without the having physical appearance to the bank's branch. It is also sometimes regarded with internet banking, home banking, virtual banking, online banking, remote electronic banking and personal computer banking. E-banking provides a wide range of financial services, namely, ATM services, fund transfer, utility bill payment and online payments. Generally, E-banking is a remote facility to perform banking services using the internet (Muhammad, 2015).

2.1.1 Mobile Web

Mobile web allows users to access web sites from their handsets and it is a channel for the delivery of web contents through the mobile handset. As result of the advancement in mobile handset devices in terms having web browsing feature as well as wider screen with high resolution coupled with availability of mobile internet services with higher quality (broadband) and affordable services relative to what was before, use of mobile web for various services is growing across the various segments of consumers. Among those services use of mobile web for mobile banking is becoming popular in the banking business. Like SMS channel mobile web has its own advantages and disadvantages some of which are described below.

Advantage

- ✓ User experience of browsing the internet from mobile device is familiar and offers a rich experience,
- ✓ Allows users to access corporate applications
- ✓ Secure connections can be established on most of the mobile browsers

Disadvantages

- ✓ Many nonstandard variables including handsets, browsers, and operating systems
- ✓ Inconsistent user experience due to varying connection speeds and handset limitations

- ✓ Users need to have data plan which may be a barrier to adoption among price sensitive demographics
- ✓ No off line (out of the coverage) capability

2.1.2 Mobile Client Applications

Mobile client applications are a rapidly developing segment of the global mobile market. Mobile client applications are common on most mobile phones today and are key to providing user interfaces for basic telephony and messaging services as well as for more advanced and entertaining experiences. It has evolved to give a user access to services that require richer, faster and not necessarily connected user experiences. In this respect mobile applications are distinctly different from browsing the mobile web. The combination of a client application on the handset and server component enables many benefits including access to all banking functionalities strong authentication and encryption of sensitive data and the ability for customization and branding. From the financial services and applications point of view, mobile client applications have variety of advantages and disadvantages. In terms of advantages, it offers organizations more control over the user experience with a rich user interface capability, enhance the ability to work even when there is no connection to the wireless network, provides secured access with applications, supports for access to corporate customs applications, and provides the ability to provide remote wipe-out of information when device is lost or stolen (CBE, 2016/17).

2.1.3 M- Banking Business Models

A wide spectrum of Mobile/branchless banking models is evolving. However, no matter what business model, if mobile banking is being used to attract low-income populations in often rural locations, the business model will depend on banking agents, i.e. retail or postal outlets that process financial transactions on behalf telecoms or banks. The banking agent is an important part of the mobile banking business model since customer care, service quality, and cash management will depend on them. Many telecoms will work through their local airtime resellers. However, banks in Colombia, Brazil, Peru, and other markets use pharmacies, bakeries, etc. These models differ primarily on the question that who will establish the

relationship (account opening, deposit taking, lending etc.) to the end customer, the Bank or the Non-Bank/ telecom Company (Worku, 2015).

1. Bank-focused Model

The bank-focused model emerges when a traditional bank uses non-traditional low-cost delivery channels to provide banking services to its existing customers. Examples range from use of automatic teller machines (ATMs) to internet banking or mobile phone banking to provide certain limited banking services to banks' customers. This model is additive in nature and may be seen as a modest extension of conventional branch-based banking.

2. Bank- Led Model

The bank-led model offers a distinct alternative to conventional branch-based banking in that customer conducts financial transactions at a whole range of retail agents (or through mobile phone) instead of at bank branches or through bank employees. This model promises the potential to substantially increase the financial services outreach by using a different delivery channel (retailers/ mobile phones), a different trade partner (telecom operators / chain store) having experience and target market distinct from traditional banks, and may be significantly cheaper than the bank-based alternatives. The bank-led model may be implemented by either using correspondent arrangements or by creating a JV between Bank and Telco/non-bank. In this model customer relationship rests with the banks non bank led model.

3. Non – Bank Led Model

The non-bank-led model is where a bank does not come into the picture (except possibly as a safe-keeper of surplus funds) and the non-bank (e.g. telecom operators) performs all the functions.

2.1.4 M-banking Technology Adoption models

Adoption: is defined as the act or process of beginning to use something new or different (M. Webster). Technology adoption is thus the process of beginning to use new technology or different technology by customers, organizations etc. As result of the dynamism of the

information and communications technology innovative technological products are released. And the growth of nations, organizations and individuals is highly dependent on how best they adopt the technology in their operations. In order to understand how people can accept or adopt technology various models are developed and used.

In the following paragraphs some technology acceptance models are briefly discussed which include: (1) The Theory of Reasoned Action (TRA), (2) Theory of planned Behavior (TPB), (3) Innovations Diffusion Theory, and (4) Technology Acceptance Model (TAM).

Theory of Reasoned Action (TRA)

As a part of social psychology, TRA is one of the most fundamental and influential theories of human behavior. Theory of Reasoned Action is a psychological theory that tries to explain an individual's action that is determined by his/ her behavioral intention to perform it. Ajzen and Fishbein (1975). It has been used to predict a wide range of behaviors According to their theory, behavioral intention (use technology), is explained by people's attitudes toward that behavior and subjective norms. People's attitude toward a behavior includes behavioral beliefs; assess the consequences of behavior, subjective norms, normative beliefs and motivations that must be answered (Riivari, 2005; Puschel et al, 2010). This theory, as long as the behavior is voluntarily controlled by the individual, can accurately explain the factors influencing technology adoption (Laukkanen and Cruz, 2009). Thus, TRA is a useful model that will be used to investigate factors affecting adoption of mobile banking.

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is proposed as an extension of the Theory of Reasoned Action (which was related to voluntary behavior), because of the limitations of TRA in dealing with behaviors over which people have incomplete Volitional/autonomous control. The TPB introduced a third independent determinant of intention, perceived behavior control (PBC). For this reason, TPB was introduced by Ajzen in 1985 (Ajzen 1985) The theory was called the theory of planned behavior (TPB) since it evolved from the Theory of Reasoned Action, with an additional construct (PBC). According to Ajzen (1991), TPB incorporates an additional construct in order to account for situations where an individual lacks

the control or resources necessary for carrying out the targeted behavior freely. TPB is a theory that predicts deliberate behavior, because behavior can be deliberative and planned, and TPB is considered to be more general than TRA because of PBC (Chau & Hu 2002).

Technology adoption models

The adoption of a new technology takes a considerable amount of time. The economic literature have mainly focus in the inter and intra-firm adoption of generic technologies, such as ICT, in which empirical studies, as well as literature, indicate that a new technology is adopted slowly at first but at an increasing rate over time until a point of inflexion is reached, after which, the rate of growth declines. Several economic models have tried to explain how the diffusion of technology takes place and why firms adopt the technology at different stages These models roughly consist of the so-called “equilibrium” models (Battisti & Stoneman, 2003; David, 1991; Karshenas & Stoneman, 1993), the “epidemic” models (Mansfield, 1961, 1968) and the adoption models with “network externalities” (David, 1985; Farrell & Saloner, 1985; Katz & Shapiro, 1986)³. On the other hand, several models have focused on the demand side, or the consumer technology diffusion process (Battisti, 2008). This literature takes into consideration the spreading of consumer technology within and across households (Mahajan, Muller, & Bass, 1990; Zettelmeyer & Stoneman, 1993). However, as Battisti (2008) states consumers’ choice could be modeled following either the epidemic or the equilibrium approach.

1) Equilibrium Models: The equilibrium models are based on at least two of the tenets of mainstream neoclassical theory: such as equilibrium, infinite rationality and full information (Battisti & Stoneman, 2003; David, 1991; Karshenas & Stoneman, 1993 cited in Fall 2014). This theory considers that the decision to adopt is the result of a cost-benefit calculation by potential adopters (firms or individuals) who anticipate the net benefits from adopting and using these technologies. These models are based on the hypothesis that information about the technology is known and shared and that the differences in the adoption levels between agents result from their heterogeneity. The most notorious of these models is the Probit approach, where the expected benefits from the technology will depend on the agent’s “rank effects”, “stock effects” (Karshenas & Stoneman, 1993; Reinganum, 1981) and “order effects” (Fudenberg & Tirole, 1985).⁴ Rank effects (David, 1991; Karshenas & Stoneman,

1993) suggest that firms/individuals differ in their own internal characteristics such as size, access to financial resources, governance structure, market power, etc. They also differ in their “absorption capacity” (Cohen & Levinthal, 1990), which includes both “learning” and “switching” costs. The term “rank” is used because, in these models, the net benefits can be classified according to the type of firm. The firms positioned in the higher ranks will be the first to adopt the technology. Depending on these effects, some firms will generate higher net benefits than others from the adoption of the technologies. The assumption is made that these benefits from adoption are independent of the number of other users of the new technology. As Battisti (2008) pointed out, the difference between firms and households is that the factors affecting the adoption of the latter are changes in preferences, information, prices, income, product performance lending and borrowing decision, among others.

2) Epidemic models: The second group of technology adoption models is the “epidemic” models (Mansfield, 1961, 1968 Cited in Fall 2014.), which emphasize the influence of information spillover effects on the diffusion of technologies. The process of technological diffusion is considered similar to the spread of disease by infection. A greater number of adopters indicate a greater amount of information that is available about the technologies and a higher diffusion rate of the information. The basic hypothesis is that it takes time for information about a new technology to reach all potential users (Geroski, 2000). A potential user becomes a user through contact with an existing adopter; a greater number of adopters lead to a higher probability that a non-adopter will be in contact with an adopter and a higher probability that the non-adopter will be “contaminated”. The assumption is that a new technology requires both the existence of a common source of information and a transmission process via “word of mouth”. An implicit hypothesis underlying these epidemic models, which is also one of their major shortcomings, is that once individuals know of the technology, they will adopt it.

3) Networks externalities: An additional set of models has been developed in order to explain the diffusion of technologies. Technology adoption models with “network externalities” have been well studied in the literature, especially for the adoption of competing technologies (David, 1985; Farrell & Saloner, 1985; Katz & Shapiro, 1986 cited in Fall 2014). Technology is characterized by network externalities that occur when the benefit an agent obtains from his adhesion to a network is positively correlated to the number of members connected to this

network. In these types of models, users are heterogeneous, with different preferences for innovation and simultaneously decide whether to adopt or switch to a new technology or stick with their current own. In the same matter, it may be optimal for a firm to adopt a technology, simply because others have already done so, regardless of the information they have on the efficiency of such technology (Arthur, 1989). Katz and Shapiro (1986) suggest three possible sources of network externalities: i) the direct physical effect of the number of adopters on the quality of a particular technology. For instance, mobile phones are useful depending on the number of other users that have joined the mobile network; ii) there may be indirect effects such as the number of complementary goods available for a particular technology. By having a mobile subscription, then the user will have the access to a large range of services, such as m-banking, iii) the amount and quality of “post-purchase” services for the good (or technology) will depend on the size of the service network, and the number of units of the good that have been sold.

The Unified Theory of Acceptance and Use of Technology (UTAUT) Model

Venkatesh et al. (2003) proposed and tested a unified information technology acceptance and use research model, called the Unified Theory of Acceptance and Use of Technology (UTAUT). The model integrates significant elements across eight prominent user acceptance models and formulates a unique measure with core determinants of user behavioral intention and usage. In this model the original UTAUT aims to explain user intentions to use an IS and subsequent usage behavior. Furthermore UTAUT model suggests that there are a set of factors that influence the intention of the individual user acceptance (Mohammad, 2012). Venkatesh (2003), in their research article theorized that, four constructs play a significant role as direct determinants of user acceptance and usage behavior: (i) performance expectancy, (ii) effort expectancy, (iii) social influence, and (iv) facilitating conditions. Gender, age, experience, and voluntariness of use are also explained to mediate the impact of the four key constructs on usage intention and behavior (Venkatesh et al., 2003).

(i) Performance Expectancy (PE): Performance expectancy (PE) is defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance (Venkatesh et al., 2003). PE Is the strongest predictor of intention and remains

significant at all points of measurement in both voluntary and mandatory settings however from a theoretical point of view, there is reason to expect that the relationship between performance expectancy and intention will be moderated by gender and age. Perceived usefulness, relative advantage, outcome expectation, job fit, and extrinsic motivation are the constructs of performance expectancy (PE) from different models TAM, Innovation Diffusion Theory (IDT), Social Cognitive Theory (SCT), Model of PC Utilization (MPCU), and Motivational Model (MM) respectively. Researchers have demonstrated a positive relationship between performance expectancy and behavioral intention (Ibid, 2003). Hence, adapting performance expectancy to the context of mobile learning suggests that individuals will find mobile learning useful due to convenient access to information without the restriction on physical locations and time.

(ii) Effort Expectancy: The concept of Effort expectancy is developed from perceived ease of use, complexity, and ease of use from existing models which are TAM, MPCU, and IDT respectively. Effort expectancy found to be significant in the early time periods, but became insignificant over time (Venkatesh et al., 2003). As individuals became more familiar with the technology, the effort needed to use the technology declined. Previous research supported that the effort necessary to learn and use a new technology affected its acceptance and use (Gefen & Straud, 2000). In other word the easier a system is to use, the more likely it will be accepted and used (Sungwoo, 2009). To the extent that promoted effort expectancy leads to improved performance, previous studies indicated that effort expectancy had a direct effect on performance expectancy and intention to use mobile learning (Carlsson et al., 2006).

(iii) Social Influence: Social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system. Social influence has an impact on individual behavior through three mechanisms: compliance, internalization, and identification (Venkatesh and Davis, 2000). Previous models showed that gender moderated this relationship as the effect was stronger for females than males (Sungwoo, 2009). However, current results showed that gender failed to moderate this relationship when testing the proposed model. Experience also was not a significant moderator of this

relationship, which fails to support the UTAUT findings in which non-users showed a stronger effect than users (Venkatesh et al., 2003).

(iv)Facilitating Conditions: Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh et al., 2003). This definition captures concepts embodied by three different constructs: perceived behavioral control from (TAM), facilitating conditions from (MPCU), and compatibility from (IDT).

Innovation diffusion theory (IDT)

Another theory pertaining to the adoption of new technology is the Innovation Diffusion Theory by Rogers (1983). According to Rogers (2003), there are five perceived characteristics of innovation that can be used to form a favorable or unfavorable attitude towards an innovation, namely: relative advantage, compatibility, complexity, trial ability, and observability.

- Relative advantage: which refers to the degree to which an innovation is perceived as being better than the idea it supersedes is said to be a significant factor influencing positive or negative attitude towards an innovation.
- Compatibility: the extent of an innovation appearing as constant with previous instances of possible adopters, existing needs and values.
- Complexity: the extent of innovation being perceived as complex to utilize.
- Observability: the extent in which the result of an innovation concept can be observed by others.
- Trialability: the extent to which an innovation may be tried and tested with before

2.1.5 The Main Players of Mobile Banking

In order to analyze mobile banking we have to define the different players who participate in mobile banking. These players' actions and practice are important in developing mobile banking industry. Mobile banking is a collective participation of four parties that is:

1. Banking sector represented by operating banking institutions: The banking sector is composed of various financial institutions like Commercial bank of Ethiopia, Dashen bank, United bank and other banks operating in the Ethiopian economy. These banks provide a network for accessing mobile banking services. The banking institutions have realized that there is need to increase financial inclusion by providing a network that helps the unbanked people to access financial services even without bank accounts.

2. Mobile network providers operating in the country: Network providers are the diverse companies that provide mobile banking services which include banks and telecommunication companies. An example of a Mobile Network provider is Ethiopian Telecommunication Corporation the Ethiopian people to send and receive money with or without an account or mobile phone. These network providers charge a fee for using their financial services and hence, the reason for being in business.

3. Beneficiaries, businesses and private consumers: Beneficiaries of the mobile banking services are the local Ethiopian citizens or other people in Ethiopia using the mobile banking services and business people who intend to make their payments using mobile money. Businesses and private consumers always use mobile money services to send or receive money from different kinds of people who are either family members or business partners. Mobile banking improves these players' standards of living.

4. Regulating authorities (Country's Central bank): The regulating authority is the Central Bank of Ethiopia which is the country's top most authority in banking matters. Central Bank of Ethiopia regulates fiscal and monetary activities that take place in the country. To operate in the country, the financial service providers have to follow all the regulations and terms set by the regulatory authorities.

The most vital factors are considered to make M-Banking successful are policy and regulations. Any profit making business usually takes into account the performance of all parties involved in the line of business (Abdulatif, 2015).

2.1.6 Information technology and the Global Market

The globe has more or less become a village; this is as a result of the internet and in fact the World Wide Web (www) whose impact has been felt by all sectors as well as all aspects of human endeavors. The ripple effect of globalization an offshoot of the internet and World Wide Web has breathed a new life into the way individuals and businesses communicate .It has also amalgamated various cultures as well as brought high level but stiff economic competition among various players in the global business arena. The banks and other financial institutions has leveraged the explosive powers of this super-high way and most banks now use it as the main vehicle of marketing, selling as well purchasing. The era of brick-and-mortar and high costs attached to its establishment are now gradually giving way to simple and lower cost form of business transactions simply over the internet and the worldwide-web mostly in the developed countries, and now creeping into the developing countries (Edwin, 2015).

2.1.7. Technologies Employed to Provide Mobile Banking Services

Mobile banking services could be used through more than one channel such as short messaging service/messaging and application download (client-based) (Cudjoe et.al, 2015).

1. SMS-Short Messaging Service

This is where the customers communicate with the bank through their mobile devices by sending an SMS (short messaging service) to the bank. The short messaging service (SMS) works in two ways, and it can be either a pull mode or a push mode. In the push mode, the mobile customer send a text message to the bank which contains a service command with a predefined request code to the bank's specific number. The bank also reply with SMS containing the specific information requested from the bank while the pull mode is when the banks sends a text message to the subscriber (customer) to inform the customer about certain transaction that have just taken place over the account. The message could be in the form of an MMS (multimedia message service) or SMS (short message service) they both work similarly even though the use of SMS is more popular.

2) Client-Based

This method requires the customers to use software installation, and this will serve as a user interface that can allow customers to use the mobile device while offline to access some basic transactions before going online. Typing details before connecting to the internet could reduce cost. This client based application is particularly useful because it allows customers to stay offline and while preparing transaction such as entry of account details and afterwards the transmission is made by sending out the data, this banking process conducted offline reduces online connection time and cost.

3) Browser-Based

Browser-based customer needs to be connected to the internet to use this service. The interface is generated from the server which is transported to mobile device, and this allows the content to be displayed through the browser. This method is extremely fast depending on the server that the customer is connected to but one its disadvantages is that, it requires the subscriber (customer) to stay online all through the transaction process and could lead to higher cost for the customers.

2.1.8 Overview of factors influencing mobile banking

User adoption of mobile commerce applications has been determined by many factors such as:

1) Risk and security: security and trustworthiness of a service was identified as one of the most important factors within every target customer segment when deciding on the use of a banking service delivery channel. Using mobile phone in banking is trustworthy. Fain and Roberts (1997) defined “risk is a perception of consumer, not a characteristics of a product”. It was found that the security factor could influence consumers’ attitudes towards online banking .Furthermore, it was considered to be one of the greatest concerns in adoption of mobile banking services, as individuals may worry about security issues during mobile banking service transactions such as data input and output mechanisms loss of connection risk and personal performance mistakes. As a result, many people may decide not to use this service and ignore the extra benefits of using mobile banking (Yu, 2009).

2) Service characteristics: The account balance service is one of the most promising mobile banking services, and is designed to help customers check their account balance and latest transactions immediately anytime/anywhere. Location free access created convenience in requesting account balances. Furthermore, accessibility and portability are classified as dimensions of convenience in the consumer behavior. Consequently the spatial and temporal distance between need recognition and need satisfaction can be considered important for doing banking via mobile phone. The ability to allow consumers to have more control over their financial situation is one attraction of mobile banking services, as the consumer prefers to act for himself/herself when dealing with his /her own monetary transactions through the mobile device. The flexibility of being able to use the service wherever and whenever the users want enables immediate completion of banking tasks (transferring money or paying a bill). This would save time and be perceived as convenient and efficient. The bank provides several services through mobile media, information based, transaction-based and personal services. The SMS service is the easiest way to check account balances and latest transactions via mobile phone. Speed of data transmission and the user interface impaired the added value of mobile services. Therefore, the characteristics of the service as perceived by the user and provided by the banking intuition and service provider are important factors influencing the usage of mobile banking (Yu, 2009).

3) Trust: In business studies, trust has been found to be important for building and maintaining long-term relationships .Electronic exchanges are believed to present numerous risks to customers while trust appears to be especially important for creating loyalty when the perceived level of risk is high. This has been identified as key to customer loyalty especially in the area of e-commerce, because it is crucial wherever risk, uncertainty and interdependence exist. The banking sector is strongly associated with high levels of trust related to security and privacy issues in the physical environment. Therefore, trust is an important consideration in the development and fostering of e-commerce relations in the context of knowledge-based economy. Lowering perceived risks associated with online transactions as well as maintaining transaction trust is vital keys to attracting and retaining customers (Benjamin, 2015).

4) Service Quality: Service quality refers to reliability, content quality, personalization. Daft and Lengel (1986) suggested that accuracy, reliability, and quality of information exchanged across a medium were critical to the effectiveness. In the context of mobile, the content refers to information, features, or functions that are offered via mobile banking services. Such content should be constructed logically to help user find information and incorporate features such as accuracy, timeliness, relevance, and flexible presentation (Huizingh, 2000). A reliable mobile system should ensure the effectiveness of mobile banking.

5) Perceived cost: The degree to which an individual views that utilizing mobile banking will incur costs as perceived cost (Luarb & Lin 2005). These costs could typically include the cost of the mobile device, network charges, and transaction charges for bank costs as well as costs for data sent via the network infrastructure. The factor that had the least impact on mobile banking adoption in comparison to the other variables which includes perceived usefulness, perceived risk and compatibility, was perceived cost (wu and wang, 2005).

6) Behavioral intention

Consistent to all models drawing from psychological theories, which argue that individual behavior is predictable and influenced by individual intention, UTAUT contended and proved behavioral intention to have significant influence on technology usage [Venkatesh et al. 2003]. Given that the ultimate goal of businesses (i.e. commercial banks) is to attract consumers to adopt their services.

2.2 Empirical review

Building on the above literature review, empirical mobile banking and related studies were summarized below. The original UTAUT model proposed by Venkatesh et al. uses four moderators as determinants of intention and behavior with four core determinants, the moderators are sex, age, experience, and voluntariness of use.

A. Sex

Previous research showed that sex differences have shown to exist in technology acceptance (Venkatesh & Davis, 2000; Wolin & Korganmkar, 2003; Gefen & Straudb, 1997). Wolin and Korganmkar (2003) found that males and females differ significantly in several dimensions with 28 males exhibiting more positive beliefs and attitudes about E-commerce than females. In the UTAUT model, Venketash et al. (2003) proposed that gender would moderate the relationship between performance expectancy, effort expectancy, and social influence on intention to utilize the technology males exhibiting more positive beliefs and attitudes about E-commerce than females. They suggested that such differences stem from gender roles and socialization processes. Effort expectancy on intention was also moderated by gender.

Previous studies have found a stronger proportion of perceived usefulness of mobile services among men than among women (Nysveen et al. 2005).

B. Age

Numerous studies have discussed the effects of demographics on new technology adoption. However, compared to traditional innovation diffusion studies (Rogers 2003) that reveal earlier adopters of technological innovations as typically younger in age, having higher incomes, better educated, and having higher social status and occupation, research findings in the context of electronic banking are not consistent. Similar to gender, age is theorized to play a moderating role in the UTAUT model. In looking at gender and age effects, it is interesting to note that gender differences can be misleading without reference to age, Levy (1988). Venketash et al. (2003) proposed that the influence of performance expectancy will be moderated by both gender and age. Furthermore Age is confirmed as integral features of UTAUT.

C. Experience

Several studies showed that prior similar experience, such as computer or internet use, strongly influence intention to use and usage behavior of a specific system (Venkatesh et al, 2003; Wu et al., 2007). Venkatehs et al. (2003) suggested that an increase in experience would decrease the influence of effort expectancy and social influence on behavior intention to use.

Kim and Malhotra (2005) confirmed that when user experience increase, effort expectance and social influence decrease. People who have more experience using similar system are more relying on instrumental basis rather than social basis because experience users of mobile devices or wireless internet are more skillful and easy to use M-commerce (Wang and Yang, 2005).

D. Voluntariness of use

Voluntariness is the level to which an individual can choose to use a system; image is the extent to which individuals believe the use of a system will increase their social status within a group or how well others perceive them (Venkatesh and Davis, 2000). Yu (2012) on his study factors affecting to adopt mobile banking empirical evidence from the UTAT model, found that social influence, perceived financial cost, performance expectancy, and perceived credibility, significantly affect intentions toward mobile banking. The model employed for the study was Unified Theory of Acceptance and Use of Technology (UTAUT), distributing 441 respondents. This study discovered that gender significantly moderated the effects of performance expectancy and perceived financial cost on behavioral intention, and the age considerably moderated the effects of facilitating conditions and perceived self-efficacy on actual adoption behavior. On the same study, the determinants of the adoption and use of m- banking in Senegal. It was based on technology diffusion theories, particularly applied to households, existing within a general framework of technology leapfrogging by developing countries. They distinguish between the possessions (partial adoption) from the actual use (total adoption) of m-banking. The study was based on a sample of 1052 households in the suburbs of Dakar. The main results are that the two decisions (adoption and use) are not independent from each other. Household's characteristics such as education and possession of a bank account are determinants of the adoption while age, gender and being a member of a tontine are determinants of the use. In addition, the main sources of information leading to the adoption of M-banking are formal such as promotions from mobile operators and informal such as friends and family networks. The study examined by Cudjoe et.al (2015) on the determinant of mobile banking adoption among bank customers in Ghana applied theoretical frameworks which have been developed from existing literatures on innovation and revealed that, awareness, usefulness, simplicity, compatibility, self efficacy and creditability of mobile banking service significantly affected consumer's intention to adopt and use mobile banking services provided by Access Bank. Additionally the study unveiled that,

perceived credibility and perceived financial cost were the major setback with regards to customers adoption of mobile banking services provided by Access Bank, and as a result of this, Ghanaians have formed a negative behavioral pattern towards mobile banking. In addition, the findings showed that, perceived credibility and perceived financial cost have a stronger effect on consumer intention to adopt and use mobile banking service than perceived usefulness and perceived ease of use.

Ndumba et.al (2014) assessed the factors affecting the adoption of mobile banking in Kenya's commercial bank. This study employed a descriptive research design. The sample size for the research comprised of, data were collected from 67 customers through use of questionnaires.

The research results indicated that the adoption rate of mobile banking in Kenyan commercial bank is below target. The main reasons behind the low adoption of mobile banking service were risk of loss and fear of system failure. Customers' perceived risk was found to negatively affect adoption of M-Banking service. On the other hand, perceived convenience, trust, the reliability of M-Banking services was found to positively affect adoption of these services. In the same topic Yu (2009) studied factors influencing the use of Mobile Banking in the case of SMS-based Mobile Banking in New Zealand. The research adopted the basic concepts of the Technology Acceptance Model (TAM), as well as some constructs derived through a focus group discussion a survey questionnaire was developed and employed to collect data sample of 250 university students in New Zealand the results of the data analysis factors such as service quality and service awareness are influencing user perceptions about the usefulness of SMS mobile banking which in turn affect intention to use and adoption of mobile banking.

Laekemaryam (2015) examined factors affecting the adoption of mobile banking in commercial bank of Ethiopia based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model to identify the causal relationships between adoption of mobile banking and Performance expectancy, perceived risk, perceived cost, effort expectancy, trust, mobile banking service quality and behavioral intention items. The data were analyzed using AMOS version 23 and SPSS version 20. And the data was analyzed through descriptive statistics such as frequency, correlation and ANOVA. Each variable is measured using five point likert

scale using primary data collection method, questionnaire were distributed to target respondents of customers of commercial bank of Ethiopia for mobile banking users. The findings of this study revealed that performance expectancy, perceived risk, perceived cost, effort expectancy and trust, were the factors affecting users having intention to adopt mobile banking. Meanwhile, the Mobile banking service quality was found to be insignificant in that study. Furthermore, the study also manages to present demographic variables effects toward behavioral intention to adopt mobile banking, and found that gender is non-significant factor for mobile banking adoption. Age and occupation is found as significant factor for adoption of mobile banking but educational qualification was not a significant factor for adoption of mobile banking in Ethiopian mobile banking user context.

Worku (2015), also studied the factors affecting adoption of mobile banking the case of commercial bank of Ethiopia in Addis Ababa city using the technology acceptance model and analyzed the data gathered using descriptive statistics such as frequency, percentage, mean, mode, median and standard deviation. Besides binary logistic regression analysis is conducted to understand the relationship of mobile banking adoption and perceived usefulness, perceived ease of use and perceived risk. The study found out that perceived usefulness and perceived ease of use have positive relationship with the adoption of mobile banking whereas perceived risk has negative relationship with the adoption of mobile banking.

Ayana (2012) examined the barriers and drivers of the adoption of electronic banking system in Ethiopia. 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 research framework developed based on technology-organization-environment framework and Technology acceptance model guided the study. The result of the study indicated that 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 as the major determinants of adoption of electronic banking system in Ethiopia. The study also identified perceived ease of use and perceived usefulness as a driver of adopting E-banking system.

Muhammad et.al (2015) studied the determinants of e-banking adoption in Pakistan by

adopting the TAM model and the framework of structural equation modeling (SEM). For that purpose, they have used Analysis of Moment Structures (AMOS) to test the hypothesized model. Overall, the empirical outcome suggests that the enjoyment had a greater total effect on perceived usefulness (PU) and perceived ease of use (PEOU) while, subjective norm shows greater total effect on the intention to use the e-banking service. And also Kwame et al (2014) studied on Applying Logistic Regression to E-Banking Usage in Ghana to meet the objective the researchers was used 241 customers of three state-owned retail banks from Kumasi in Ghana, were used as sample for the survey. Responses gathered from the customers were mainly analyzed using a binary logistic regression and find that internet banking; ATM, and mobile phone banking were the commonly identified e-banking services offered by the banks. Among such services, ATM was the most frequently patronized service whereas internet banking recorded very low patronage. From the chi-squared test of association, customer's operational bank and occupational status were found to have significantly informed the decision to use e-banking. With respect to the logit analysis, customer's operational bank, occupational status and monthly income were significant socioeconomic classification variables that informed customer's decision to use e-banking. And also (Edwin, 2015) examined the Empirical determinants of consumers' uptake of electronic banking in selected states of Nigeria. The research uses the consumer decision making process to identify factors that consumers use when deciding between electronic banking and non-electronic banking services. Factors include service quality dimensions, service product characteristics, perceived risk factors, user skill factors, and price factors. And the demographic variables include age, gender, marital status, ethnic background, educational qualification, employment, and income.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 The research approach

In this study will be qualitative in nature which involves the use of primary and secondary data in order to answer the research questions and achieve its research objective. And this research is about the determinant adoption of mobile banking service in commercial bank of Ethiopia in the case of south Addis Ababa district. CBE is the largest commercial bank in the country as well as the pioneer in the m-banking service delivery in the country. The research adopted mainly descriptive type of research design.

3.2 Data source and data collection method

The study is employ secondary and primary source of data to examine the determinant of mobile banking adoption in commercial banks. Secondary data is used mainly to have data about mobile banking customers and total bank customers, as a result secondary data will draw from CBE (Commercial bank of Ethiopia) itself national bank of Ethiopia and other publications while primary source of data will be draw commercial bank of Ethiopia customers from selected branches. In order to address the research objectives properly and effectively the researcher gathered primary data based on the questionnaire as an instrument. Data types for the research are personal profile of sample customers, their perception about mobile bank usefulness, ease of use and risk associated with the use of mobile banking.

3.3. Sample Design Population and sample size

In order to get qualified information It is necessary to determine how large the population, the sample size and the sample must be a real representative of the whole population. By taking these in to consideration 400 employees of CBE were taken from the head office for mobile banking users were the target population and the sample size is determined as according to Yamane's formula to determine the sample size in random sampling techniques the formula used with the population size.

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

Where N= the total population=the required sample size

e=Margin of error of 5%=0.05 (C=95%)

$$n = \frac{400}{1+400(0.05)^2}$$

$$= 200$$

$$= 200$$

Therefore, the final sample size is 200.

CHAPTERFOUR

4. RESULT AND DISCUSSION

4.1. Introduction

This chapter provides an over view of the performed analyses on the observed survey data. The basic variables that were intended to measure customers' perception on mobile banking adoption were organized in to five constructs. The proposed hypotheses were tested and its statistical outcomes discussed .In order to test the hypothesis ,the significance level is set at 95% confidence interval, since sample size was already specified for this level of precision in the methodology section. The fundamental analyses were performed by using Statistical Soft ware Package SPSS 20.

The observed survey data were analyzed and presented in meaningful form that can be easily understandable .First, sample respondents demographic characteristics were discussed using frequency distribution table ,bar charts .Respondent' perception regarding to the respective dimensions/constructs/ were also discussed.

Discussion

Mobile Banking refers to the use of a mobile device to carry out transactions. Banks are vital role in borrowing & lending money. It is financial institution take customer deposits in return for paying customers an annual interest payment. The majority uses of banks deposits to lend to other customers for a variety of loans. (Al-Smadi& Al-Wabel,2011).

TAM model is applicable on Zambian & usefulness for the case of use & trust significantly positive effect to E-banking (Ndungu & Njeru, 2014). Its appearance helps many banks to develop marketing and information technology.

However, customers' attitude and perception to the use of electronic banking are a challenge. CBE Bank, among others, accepted this technology as a new delivery channel for performing various bank transactions. These Electronic Banking services give the customer the opportunity to conduct banking transactions with great peace of mind and at his/ her convenience. It also saves times that other interests can be taken in to consideration.

Mobile banking allows customers to access banking services from anywhere & save time for business owners. Banking through mobile application increases access of the customers' activity by checking account balances, transfers & deposit checks.

The role of mobile banking for consumers to transfer money, time efficient & the possibility to manage funds & for check if balances & deposits.

4.2. Analysis and Data Presentation

The sample sizes of 200 questionnaires were prepared to potential respondents to fill the structured questions. In the end, from 200 respondents answered 200 responded the entire survey. Among the survey respondent, the respondents reported that they registered to use Mobile banking.

From 200 sample size 180 respondent are accepted but the rest is rejected through different cases.

Where N = the total population = the required sample size

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

$$e = \text{Margin of error of } 5\% = 0.05 \quad (C=95\%) \quad n = \underline{400}$$

$$1 + 400(0.05)^2$$

$$= 200$$

Therefore, the final sample size is 200.

From 200 sample size 180 respondent are accepted but the rest is rejected through different cases.

Table 1 Frequency of Age Category

Age	Frequency	Percentage
20 – 30	40	22.22%
31 – 40	90	50%
41- 50	46	25.55%
>51	4	2.22%
Total	180	100%

The average respondent was 31 to 40 years old, which is; about 50 %. Moreover about 22.22% of the respondent was from 20 years old to 30 years old and 25.55% of the respondents were from 41 to 50 years old. The rest which is about 2.22% were greater than 50 years old.

Table 2 Frequency of Gender

GENDER	Frequency	Percentage
MALE	120	66.66%
FEMALE	60	33.33%
Total	180	100.0%

Out of the total 180 respondent, 66.66% of them are males and that of 33.33% are females.

Table 3 Frequency of Education Qualification

Educational Qualifications	Frequency	Percentage
Under DIPLOMA	55	30.55%
DIPLOMA	25	13.88%
DEGREE	75	41.66%
Above DEGREE	25	13.88%
Total	180	100%

The degree and diploma holder of the respondent are 41.66% and 13.88% respectively. And also 30.55% of the respondent is under diploma qualification. As well out of the respondent 13.88% is having a qualification above degree.

Table 4 Frequency of Income

Income	Frequency	Percentage
Less than 2000	40	22.22%
2000-5999	30	16.66%
6000-10,000	40	22.22%
Greater than 10,000	70	38.88%
Total	180	100.0%

Most of the respondent, that is 38.88%, have greater than 10,000 income level but the least percentage in income level is in the category of 2,000-5,999, which is 16.66%. The respondent categories of less than 2,000 and 6,000-10,000 have a frequency of 22.22% and 22.22% respectively.

Table 5 Frequency of Customer Experience

Experience	Frequency	Percentage
1-3 years	100	55.55%
4-6 years	35	19.44%
7-10 years	30	16.66%
Greater than 10 years	15	8.33%
Total	180	100.0%

More experienced customers, which have greater than 10 years, are 8.33% and from 7-10 years of experience of the respondent are 16.66%. That of having 4-6 years and 1-3 years of experience with CBE is 19.44% and 55.55% respectively.

4.3. Awareness

The respondents 180 (90%) are aware and have enough information about mobile banking services of CBE. The respondents (90%) have enough information about mobile banking services of CBE. The result further indicates that the respondents are fully aware of mobile banking services; while majority of the respondents are only aware of the conventional and traditional banking service. From this result, it can be understood that banks are only concerned with the provision of mobile banking service and they give less emphasis on encouraging customers to use mobile banking services. From this, it can also be understood that they are not considering the complaints of the customers which bring negative feeling for the customers.

4.4. Security & Safety

A total of 90% respondent uses mobile banking concerning security and safety but 10% of them do not use. The high ratios of respondents are very concerned about the security policy and want their information to be kept confidential. Therefore fear of risk is one of the factors that hinder the practice of mobile banking system in the country. The result shown revealed that the lack of confidence with the security issue is considered as barrier for the practice of E-banking system.

4.5. Perceived Usefulness

According to Dawd (2009), E-banking services help banks save a lot of costs. In the long run a bank can save money by not paying for tellers or for managing branches. This way of cutting transaction cost results in higher profit margin for the banks. and also noted that, the combination of higher technology and higher skills have posted a higher turnover for banks as they have been able to provide better customer support and have managed their assets well.

Second, customers can get banking service at lower costs compared with traditional banking service, because, it is cheaper to make transaction over Electronic fund transfer. Majority of the respondents found time saving and cost minimization as important factors of the benefits of electronic banking. It is indicated that the sampled respondents agreed with the idea that perceived usefulness of mobile banking is important in terms of using more banking services, time saving and cost minimization. 90% of the respondent relate with the above listed factors.

4.6. Perceived Ease of Use

All sampled respondents agreed that mobile banking service is more accessible to users than visiting a bank branch. In this regard, as per the results of the survey, mobile banking is more accessible and convenient than travelling more distances to reach to a bank branch. By using mobile banking users can simply check their balance and transfer funds 24 hours a day and 7 days a week without the need to go to a bank branch.

From this most of the respondent said that the mobile banking process is difficult to use. The other respondent said that by confusion of language they found Mobile Banking System hard to use. A few respondents said that by lack of awareness about Mobile Banking They could not use the system. The rest of the respondents agreed that Mobile Banking Service has Interface Problems.

4.7. Trust

The majority of respondents (10%) do not have full confidence and trust on the mobile banking services provided by banks. The result further indicates that only 90% of the respondents have trust and full confidence on electronic banking services; while majority of the respondents have high fear of risks associated with using mobile banking services. It means that people have doubt and great suspicion to use mobile banking services especially because of fear of hackers from accessing their account, making fraudulent transactions and loss of their money.

Lack of trust on the use of technological facility provided by bank is another factor that can hinder practice of mobile banking by Ethiopian banking industries. Trust is one basic factor in the practice of E-banking system. This result confirms the finding of Sathye (1999) which suggests; the basic challenge among the electronic banking sector is winning the trust of customers in the issue of security or perceived security risk as a key inhibitor in the practice of E-banking.

4.8. Infrastructure

Moreover, the result of the respondent presented reveals that 10% of the respondents are unhappy with the slow internet connection provided by Ethio-Telecom. From this, it can be understood that using mobile banking is getting difficult due to low speed of connection and low internet access in the country. In general, using of E-banking services internet banking ,mobile banking and other is not expensive when compared with traditional banking system. On the other hand lack of social awareness/lack of familiarity with different technology and lack of sufficient skills to use and implement E-banking system were considered as barriers to adopt E-banking system in Ethiopia.

Despite the recent improvements made by Ethiopian govern mention the national infrastructure, the overall ICT infrastructure in Ethiopia remains inadequate. There fore,one of the major obstacle factor identified in this study is lack of ICT infrastructure, to use E-banking service, such as internet banking, mobile banking, ATM and others. Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvement sine- commerce in Ethiopia. Most rural areas of the country, where the majority of small and medium businesses are concentrated, have no Internet facilities and thus are unable to engage in e-commerce activities.

High rate of illiteracy affect the practice of E-banking. Likewise, low level of internet penetration and poorly developed infrastructure affect the smooth practice of mobile banking. This implies that ICT infrastructure in Ethiopia for internet access is not sufficient to use mobile banking service. Therefore, one of the major obstacle factor identified in this study is lack of ICT infrastructure, to use mobile banking service, such as internet banking, mobile banking, ATM and others. Low literacy rate is a serious impediment for the adoption of mobile Banking in Ethiopia as it hinders the accessibility of banking services. For citizens to fully enjoy the benefits of mobile Banking, they should not only know how to read and write but also possess basic ICT literacy.

4.9. Culture

Since most of the societies in Ethiopia are cash based society, they do not give value for electronic money to make different transactions like paper orco in money. On the bases of this concept the respondents were asked whether such culture affect the customers to use E banking practice easily. The result of the finding attested that the largest numbers of the respondents were not agreed that the culture of the society affects the practice of mobile banking.

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions and recommendations. The purpose of the chapter is to review the whole thesis and highlight future research directions. Accordingly, section one presents overview of the thesis and its major findings while the second section presents the recommendations with future research directions.

5.1. Conclusions

The research paper uses descriptive statistics and qualitative research design.

From the study find out from the sample sizes most of them received or used mobile banking platform and respond it but the rest one failed not respond to me through special cases by the shortage of knowledge and miss understand.

This paper concludes that the mobile banking users grew from 3 million to 17 million users and to minimize the problem of why not used mobile banking most peoples and to give own solution. And Ethiopians telecom expects that number to grow to 40 million in the next 3 years.

And attempted to explore the influencing factors which play a role in users adoption of mobile banking. E-banking system, such as ATM, mobile banking, internet banking and others were not well adopted by Ethiopian banking industry. This is due to low level of ICT infrastructure and low adaption level. In addition to this Result of the study also shows that security risk and lack of trust on the use of technological adoption are other major barriers for the system. The study also indicated that, the basic benefits of E-banking available in the world also work for the case of Ethiopia. The benefits of E-banking for customer are convenience, accessibility, ease of use, low-cost of using banking activity, providing real time information and getting quality service.

Based on the findings of the study the following conclusions are made.

The main objectives of this research are to understand the assessment of mobile banking services in commercial bank of Ethiopia.

The first specific objective of this research work is to examine the effect of demographic factors on the adoption of mobile banking technology by bank customers.

The second objective of this research is to examine the effect of customers experience on technology and voluntarism to use, on the adoption of mobile banking in commercial bank of Ethiopia. The finding of the research shows that customers experience on technology and voluntarism to use has a positive relationship with mobile banking adoption and the most significant factor; customers has an experience on technology and have voluntarism to use the technology then based on empirical evidences about the research potential customer are ready to adopt the technology.

5.2. Recommendations

A recommendation is a suggestion or proposal for something that should be done , as derived from the findings or fill the problem.

Based on the findings of this study, the researcher came up with the following recommendations to enhance the assessment mobile banking services to customer.

Based on the above summery and conclusion, the researcher recommends the following points.

- Hence, policy makers of commercial bank of Ethiopia should concern on regulation about security issues, the manner in which mobile banking are implemented, identifying users, protecting users and how much money can be transacted, should be a major area the regulation should address.
- Ethio telecom as mobile network service provider shall give special attention to mobile banking technology from its side to provide reliable network to commercial banks specifically Commercial Bank of Ethiopia as the customers perceive the mobile network is not risky to adopt mobile banking.
- The banks have to initially target, the high income customers and male users to promote services such as mobile banking, so that the probability of adoption is more. Later on they can target other potential segments.
- Commercial bank of Ethiopia shall produce user guide for mobile banking services using various means such as booklets, flyers, and in electronic means such as website based electronic documents to make users more experienced and knowledgeable about mobile banking so that the probability of adoption is more.
- Commercial bank of Ethiopia shall broaden the service portfolio under mobile banking technology to make the service more useful and as well to be perceived useful in the minds of its customers.
- Commercial Bank of Ethiopia in general and its south Addis Ababa districts in particular shall

promote mobile banking services to its customers using various promotional tools appropriate to the target market so that it can increase the awareness and voluntarism to use the service and these increases the adoption level of the mobile banking technology.

Reference

- Ayana G.,(2012). Adoption of Electronic banking system in Ethiopian Banking industry: Barriers and Drivers, Addis Ababa University, Ethiopia.
- Azam khurshid, Muhammad Rizwan and Erum Tasneem (2014). Factors contributing towards adoption of E-banking in Pakistan, *International Journal of Accounting and Financial Reporting*,.
- Badru, A. (2015). An Analysis of Adopting Mobile Banking in Kenya, Eastern Mediterranean University.
- Benjamin B., B., Quansah, F. and Okoe, A.F. (2015). Determinants of Online Banking Adoption among Ghanaian University Students. *Journal of Service Science and Management*,.
- Bucevska,J.(2011). A logit model of electronic banking adoption: The case of Komercijalna Banka AD Skopje, Int. Statistical Inst.: Proc. 58th World Statistical Congress, 2011, Dublin (Session CPS001).
- Davis (1985) Technology acceptance model for empirically testing new end user information Systems: Thoery and Results Massachusetts Institute of technology USA.
- Davis, F. D. (1989) "Perceived Usefulness, Perceived Ease of Use, AND User Acceptance OF Information Technology," *Mis Quarterly* (13:3),
- Daniel Domeher, Joseph M. Frimpong and Thomas Appiah(2014). Adoption of financial innovation in the Ghanaian banking industry. *African Review of Economics and Finance*
- Davis, F. D., Bagozzi, R. P., AND Warshaw, P. R. (1989) "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Management Science* (35:8), ,
- Edwin M. (2015). Empirical determinants of consumer"s uptake of electronic banking in selected states of Nigeria, Covenant University, Ogun State, Nigeria.

- Elisha Menson (2010).electronic banking in developing economy: empirical evidence from Nigeria, University of Abuja, Nigeria.
- Francois F.et.al (2014). Adoption and use of mobile banking by low income households in Senegal, cres university, Senegal.
- Francois,Seck fall, yaya ousmane Birba (2015). Analyzing the Mobile-Banking Adoption Process among Low-Income Populations: A Sequential Logit Model. *Economics Bulletin*
- Jaruwachirathanakul,B.(2003). Determinants of internet banking adoption in Thailand, Edith Cowan University, Thailand.
- Jayawardhena, C. and Foley, P. (2000). „Changes in the banking sector – the case of Internet banking in the UK“, *Internet Research: Electronic Network Applications and Policy*,
- Koshy,M.(2009).Adoption of technology enabled banking self-services :antecedents and consequences, cochin university .
- Kwame Annin,Maurice omane, and Sonita Sarpong (2014). Applying Logistic Regression to E-Banking Usage in Kumasi Metropolis, Ghana, *International Journal of Marketing Studies*;
- Haile, L.(2016),factors affection the adoption of mobile banking in commercial bank of Ethiopia, st.marry"s university, Addis Ababa Ethiopia.
- Kinfe, M. (2016). Challenges and Prospect of E-Banking in Ethiopia, Addis Ababa University, Ethiopia.
- Ali, M. (2015). Determinants of electronic banking adoption: A non-users perspective in Pakistan, IQRA University, Pakistan.
- NBE (2009) Annual Report 2009/2010, published by National Bank of Ethiopia 2010, Addis Ababa, Ethiopia.

- Nysveen, H., Pedersen, P.E., & Thorbjornsen, H.(2005). Explaining Intention to use mobile chat services: moderating effects of gender. *Journal of Consumer Marketing*
- Oluma Sabo, Abdullahi Dauda Madu Ikeefuna (2016). Economic Implications of Electronic Banking on Selected Businesses in Nasarwa State Nigeria,
- Shi Yu (2009). Factors influencing the use of Mobile Banking: The case of SMS-based Mobile Banking, Auckland University.
- Venkatesh, V., & Davis, F. D.(2000). A Theoretical Extension of the Technology Acceptance Model: four longitudinal field studies management Science
- Venkatesh,V.and Davis F.,(2003). User acceptance of information technology: Toward a unified view, *MIS Quarterly*,
- Worku.M. (2015).factors affecting the adoption of mobile banking: the case of commercial bank of Ethiopia Addis Ababa city customers, Addis Ababa University, Ethiopia.
- Yu. (2012).factors affecting individuals to adopt mobile banking: empirical evidence from the UTAUT model, *Information Technology and Management*,

Appendix I

Questionnaire

Dear Respondents,

Saint Mary's University Department of MBA In Accounting and Finance

The aim of this questionnaire is to identify the Factors Influencing the Usage of Mobile Banking in Addis Ababa, Ethiopia. The results of the study are expected to supply to the understanding on the influencing factors of mobile banking usage in commercial banks found in Addis Ababa, Ethiopia. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award.

Thank you for your participation

Best Regards. Hareya Tsadik

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Section A: Demographic Factors:

1. Gender

a) Female

b) Male

2. Age

a)18– 25

b)26 – 35

c)36 – 45

d)46 – 55

e)56– 59

3. Marital status

a)Single

b)Married

c)Divorced

d) Widowed

e)Separated

4. Education level

1)Under Diploma

2)Diploma

3)Degree

4)Above degree

5. Your Annual Income

1) Lessthan2,0

2) 2,000-5,9993) 6,000-10,000

4)

Greaterthan10,000

6. Your experience

1) 1-3years

2) 4-6 years3)7-10years

4)above 10 years

7. Do you have enough information about mobile banking services?

1)Yes

2)No

8. What is your opinion concerning mobile banking security and safety

1)Secure

2)Not

9. Do you have full confidence and trust on the mobile banking?

1) Yes 2)No

10. Do you think mobile banking in terms of fusing more banking services, time saving and cost minimization is useful?

1) Yes 2)No

11. Do you happy with the internet connection provided by Ethio-Telecom

1) Yes 2)No

12. Do you agreed that the culture of the society affects the practice of mobile banking

1) Yes 2)No