ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF MANAGEMENT

FACTORS AFFECTING THE ADOPTION OF MOBILE BANKING IN SELECTED COMMERCIAL BANKS IN ETHIOPIA

By: Yetnayet Assegid

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Declaration

I, Yetnayet Assegid hereby declare that the thesis work entitled "Factors affecting the adoption of Mobile Banking in selected commercial banks in Ethiopia" submitted by me for the award of the degree of Master of Science in Management of Addis Ababa University, is original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

Name: Yetnayet Assegid Advisors Name: Dr. Jemal Mohammed

Signature:……. Signature:…….

Certification

Addis Ababa University

College of Business & Economics

This is to certify that the thesis prepared by Yetnayet Assegid, entitled: "Factors Affecting the Adoption of Mobile Banking in selected commercial banks in Ethiopia" and submitted in partial fulfillment of the requirements for the Degree of Masters of Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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External Examiner _____ Signature _____Date _____

Internal Examiner _____ Signature _____ Date_____

Advisor Dr. Jemal Mohammed Signature _____ Date_____

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Acronyms

ANOVA:	Analysis of variance
CBE:	Commercial Banks of Ethiopia
CLRM:	Classical Linear Regression Model
ICT:	Information Communication Technology
TRA:	Theory of Reasoned Action
IDT:	Innovation Diffusion Theory
NBE:	National bank of Ethiopia
OLS:	Ordinary least square
R^2:	Coefficient of determination
SPSS:	Statistical package for social sciences
TAM:	Technology Acceptance Model
TPB:	Theory of Planned Behavior
VIF:	variance inflation factor

Abstract

The aim of this study is to examine the factors affecting the adoption of Mobile banking in selected commercial banks in Ethiopia, namely Commercial bank of Ethiopia, Awash Bank, Dashen Bank, and Abyssinia Bank. To attain the objective of the study, primary data were collected through questionnaire from a sample of 267 bank customers who use mobile banking service. The respondents were selected using purposive sampling technique. The data was analyzed using statistical methods such as mean, correlation, and regression analyses via STATA software. The study investigated Perceived usefulness, Perceived ease of use, Attitude, Awareness, Security and privacy and technological self-efficacy as factors that affect the adoption of Mobile banking. The results indicate that, Perceived usefulness, Perceived ease of use, Attitude, Security and Privacy have positive and significant effect on adopting Mobile banking while technological self –efficacy and Awareness have no significant effect in adoption of Mobile banking. These factors together explain 59.3% of the variations on Mobile banking adoption and the rest 40.7 of the variation was explained by other factors that are not included in the model. Based on the findings, the study forwards some recommendations as the bank should give a high priority in boosting the trust and confidence of the customer; the bank should pay attention in terms of the user friendliness and informative content of the mobile banking system and the bank have to change the attitude of the customers by educating the benefit of Mobile banking service.

Key words: Commercial Banks, Mobile banking adoption, Technology Acceptance Model

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

The tremendous development in electronic technology has brought in a paradigm shift in business and development of banking operations. This development is pronounced in the Banking sector where Mobile facilities are used to bring better banking services. The emergence of Mobile banking has stimulated many Banks all over the world to emphasize on Information Communication Technology (ICT) strategies in order to stay competitive. By understanding this, adoption of Mobile banking as a platform for offering Banking services is rise globally and now becomes a favored distribution channel by the Banking industry (Tobbin, 2012).

Mobile banking is defined as a channel whereby a customer interacts with a bank via a mobile phone (Yiu, Grant and Edgar, 2007). Barnes and Corbitt (2001), also define Mobile banking is a subset of banking, it allows everyone easy access to their banking operations via mobile phone. Mobile banking has mutual benefit for banks and customers; it benefits the banks in many facets, it has competitive advantage over those banks which are not providing this service, reaching additional segments of individual/corporate customers utilizing the mobile innovation expansion, and reduces cost of staffs, communication, and paperwork (Tobbin, 2012).

Mobile banking is also useful for the customers in many aspects, for instance, transactions like checking account balances and transferring money from one account to another could be done without the need of going physically to the bank premises, this could eliminate the limitations of the space and time, because customers merely can get the service sitting in the comfort of their homes and offices. By understanding this, many companies in the financial services sector have been quick to implement Mobile capabilities, and electronic service was becoming a viable option for interaction between financial service providers and their customers (Rotchanakitumnuai, S and Speece, M 2004).

Mobile banking development in African countries like Kenya has reached higher level. In Kenya M-Pesa (mobile money) is a mobile phone-based money transfer financing launched in 2007 by

Vodafone for Safaricom and Vodacom, the largest mobile operators in Kenya and Tanzania. According to the Safaricom's results for 2013/14, M-PESA had 18.2 million active customers (KARIUKI N. 2014). In Ethiopia, despite growth of Mobile and electronic banking platforms, still many Banks conduct most of their Banking transactions using traditional teller based methods or branch-based approach (Zeleke & Yitbarek, 2013).

Using electronic Banking as a deliver channel for banking service operation in Ethiopia is still underdeveloped due to low level of infrastructural development, lack of suitable legal and regulatory framework, high rates of illiteracy, frequent power interruption and security issues (Gardachew, 2010). Furthermore, even though electronic Banking has been widely used in developed countries and is rapidly expanding in developing countries, in Ethiopia cash is still the most dominant medium of exchange, and electronic payment systems using Mobile are at an infant stage (Gardachew, 2010).

Due to widely acknowledged the importance of Information Technology (IT) adoption led to many attempts made by scholars, aiming at discovering the factors that affect adopting of electronic banking. This effort resulted in the development of models and theories such as the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and Unfiled theory of acceptance and use of technology (UTAUT).T AM is a theoretical model that is commonly used to evaluate the factors that influence the acceptance of technology by customers. TAM use “Perceived ease of use” and “Perceived usefulness” as factors that explain how a customer accept or decline technology (Davis 1986). Innovation Diffusion Theory (IDT) identifies five constructs that have contributing factors for diffusion rate of technology. These factors are Relative advantages, Compatibility, Complexity, Observability and Trialability (Rogers, 1983). Theory of Planned Behavior (TPB) proposes three determinants for adopting of new technology namely attitude towards behavior, subjective norm and perceived behavioral control (Ajzen, 2011). UTAUT theory considered that, performance expectancy; effort expectancy, social influence, and facilitating conditions are the four key constructs determine mobile banking adoption.

A clear understanding of the factors that influence mobile banking adoption will enable mobile banking service providers to develop suitable marketing strategies, business models and awareness programs. Beside, to grow consumer’s Mobile banking adoption level, Banks must make key improvements that address customer’s concerns related to mobile banking adoption.

This study, therefore, will provide useful picture of the current situation of adopting of Mobile banking and also examine the factors that affect the adoption of Mobile banking in selected commercial banks.

1.2. Statement of the Problem

The emergence of Mobile banking has stimulated many banks in developed and in developing countries emphasizes on information technology strategies in order to stay competitive. Mobile banking created value for the Banks in terms of reducing cost, enhances customer service, and increase long-term profit. In Ethiopia, Mobile banking service is a new industry, consumer's acceptance and use of mobile banking is still infant stage and traditional branch-based banking service remains the most widespread method for conducting banking transactions. For instance, number of Mobile subscriber at national level was reached 40.4 million in 2017/18 while the number of customers who uses the Mobile banking services on selected commercial banks[1]on aggregate level reached 2.2 Million (NBE 2017/18 and respective annual report 2017/18). This figure is far behind the national Mobile subscriber customers, which account 5.66 percent of the total Mobile subscriber. In addition, the number of customers who use mobile banking service is also insignificant compared to the total number of customers (i.e The total numbers[2] of customers in selected commercial Banks reached 23.83 million in 2017/18), which account 9.5 percent(Annual report of respective commercial banks in 2017/18). These figures also clearly indicate that, despite all their efforts aimed at developing better and easier Mobile banking systems by banks, the system remains largely unnoticed by the majority customers of the commercial Banks. Therefore, there is a need to identify major factors influencing mobile banking adoption in order to enhance low usage rate.

There is limited understanding of factors influencing the Ethiopia banks customers to adopt mobile banking service. A lot of studies have been conducted in developed and developing economies to examine the factors affecting the adoption of Mobile banking (Davis, 1989, Ajzen, 2011, Al-Smadi, 2012, Kesharwani and Singh, 2012, Tarhini, El-Masri, Ali, and Serrano (2016).

1 The total number of customers who use mobile banking service on selected commercial banks in 2017/18: Commercial banks of Ethiopia (1.8 Million), Awash Bank (192.9 Thousands), DashenBank (45 Thousands) and Bank of Abyssinia (213.9 Thousands).

2 The total number of customers on selected commercial banks in 2017/18: Commercial banks of Ethiopia (19 Million), Awash Bank (1.96 Million), Dashen Bank (1.86 Million) and Bank of Abyssinia (1.01 Million).

However, many of these studies have limiting generalizability for Ethiopia banks case, because of differences in culture, level of education, access to Mobile and Banking services (Miller and Bamberger, 2016). Beside, in Ethiopia, for example, few studies have been done so far and these studies assesses the factors that influence the adoption of Mobile banking from Service quality side and also selected either private or government commercial Banks. This study, however fill the gap by including individual factors as well as service quality factors. Moreover, the study selects both private and government banks to holistic view with regard to the factor that affects the adoption of mobile banking on commercial banks.

1.3. Objectives of the study

The main objective of the study is to assess the factors that affect the adoption of Mobile banking on selected Commercial Banks operating in Ethiopia.

1.3.1. Specifically the Study Assesses the Effect of:

- Perceived usefulness on mobile banking adoption;
- Perceived easy of use on mobile banking adoption;
- Privacy and Security on mobile banking adoption;
- Attitude on mobile banking adoption;
- Awareness on mobile banking adoption;
- Technological self-efficacy on mobile banking adoption;

1.4. Research question

This study attempted to address a general research question: 'What are the key factors affecting in the adoption of Mobile banking on selected commercial Banks?" Specifically, the study attempted to address the following research questions on how does:

- Perceived usefulness affect mobile banking adoption?
- Perceived ease of use affect mobile banking adoption?
- Privacy and Security affect mobile banking adoption?
- Attitude affect mobile banking adoption?
- Awareness affect mobile banking adoption?
- Technological self-efficacy affect mobile banking adoption?

1.5. Significance of the Study

The study can provide a better understanding of Commercial Banks on the factors affecting the adoption of mobile banking. The study would help in providing better insights into the behaviors of the customers in the implementation of Mobile banking. This can help the bank management come up with policies to remedy existing policies and plans for better Mobile banking adoption. Finally, the study will contribute to future researchers, scholars, and academicians interested in bank customer behaviors in terms of technology adoption.

1.6. Scope of the Study

The populations of the study are customers who use mobile banking service from the selected commercial banks operating in Ethiopia, namely, Commercial bank of Ethiopia, Awash Bank, Dashen Bank and Abyssinia Bank.

1.7. Organization of the Study

This research study was organized into five chapters. The first chapter provides an introduction to the study. Chapter two states the theoretical and empirical literature review about the adoption of mobile banking services. The third chapter focuses on the methodology of the study. The fourth chapter was provided with results and discussion. The final chapter includes the conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical Literature Review

2.1.1. Definition of Mobile Banking

Mobile Banking refers to the provision of bank-related financial services with the help of mobile telecommunication devices. Mobile banking is an application of Mobile commerce that enables customers to access bank accounts through mobile devices to conduct and complete bank-related transactions such as checking account statuses, bill payments, and funds transfer (Kim et al, 2009; Tiwari and Buse, 2007). Luo et al (2010) also defined mobile banking as an innovative method for accessing banking services via mobile phones. Mobile banking values to consumers through convenience and flexibility by enabling time and place independence. Luo et al (2010), defined mobile banking as an innovative method for accessing banking services via a channel whereby the customer interacts with a bank using a mobile device (e.g. mobile phone or personal digital assistant (PDA)).

2.1.2. The Benefit of Mobile Banking

Mobile banking offers many benefits to the banks and their customers; hence this section tries to look into the customers and the bank benefits that can be derived from Mobile banking.

I. Benefit for the Banks

Mobile banking has a lot of benefits to the banking industry, the main benefits that it has to the banks are related to cost savings, cost-cutting, reaching new markets, offering service efficiency, improvement of bank image and brand and customer satisfaction (Sheshunoff, 2000). Most Banks that offer Mobile banking services have better brand image and enjoy the benefits of good services. The banks that offer Mobile banking are considered to be leaders in innovation and technological implementation. Therefore, this is not the only benefit that come with the use of Mobile banking, other benefits can't be measured in monetary terms. According to Robinson (2000), the cost of doing banking transactions electronically is noticeably cheaper as compared to the normal queuing on the bank branches.

Sheshunoff (2000) indicated that the most significant strength in implementing Mobile banking is to generate situations that will prevent customers from leaving the bank to join other competing banks. Sheshunoff (2000) felt that customers will stay put in one bank when they get the best services and at a lower cost. He further argued that once a customer gets the best Mobile banking service, the possibility of the customer leaving to join other banks is considerably low. He further suggested that the bank will have a competitive advantage when their customer uses Mobile banking as compared with banks that don't offer it. The reasons for this conclusion can be related to the consumer behavior theory which implies that customers do not like switching from one product to another because it requires much time and effort from the customer.

II. Benefit for the Customers

The customers benefit from Mobile banking through time-saving, cost-cutting, convenience and comfort in term of where to access the services, quick and continuous access to transactions information can be made any time twenty-four hours a day without the customer go to the physical branches to interact with the bank staff (Tan & Teo, 2000). In the study on Mobile banking drivers, Aladwani (2001) found, that providing faster, easier and more reliable services to customers was amongst the top drivers of Mobile banking development.

2.1.3. Mobile Banking in Ethiopia

The electronic banking service was used in 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. 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 other private banks in Ethiopia.

The Ethiopian banking industry faces numerous challenges in adopting electronic banking system (Gardachew, 2010). The Key Challenges stated as follows:

I. Low level of Internet penetration and poorly developed telecommunication infrastructure: Lack of infrastructure for telecommunications, Internet and online payments impede smooth development and improvements in e-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.

II. Lack of suitable legal and regulatory framework for e-commerce and e-payment: The existing commercial laws of the country do not properly and clearly address electronic contracts and signatures. Gardachew added that Ethiopia has not yet enacted legislation that deals with e-commerce concerns including the enforceability of the validity of electronic contracts, digital signatures and intellectual copyright and restricts the use of encryption technologies.

III. High rates of illiteracy: 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.

IV. High cost of Internet: The cost of Internet access relative to per capita income is a critical factor. Compared to the developed countries, there are higher costs of entry into the e-commerce market in Ethiopia. These include high start-up investment costs, high costs of computers and telecommunication and licensing requirements.

2.1.4. Factors affecting Mobile Banking Adoption

During the past few decades, the widely acknowledged the importance of information technology (IT) adoption led to many attempts made by researchers and practitioners, aiming at discovering its determinants. This effort resulted in the development of models and theories such as the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and Diffusion of Innovations Theory (DIT).

A. Technology Acceptance Model (TAM)

TAM was developed by Davis (1986) to explain computer-usage behavior. According to the model, in explaining the adoption of any information technology, perceived ease of use (PEOU) and perceived usefulness (PU) are the two most important determinants.

Perceived usefulness: - refers to the degree to which a person that using a particular system would enhance or improve his or her job performance (Davis1 986).

Perceived ease of use: - refers to the degree to which a person that using a particular system would be free from effort (Davis 1986). According to Masrom and Hussein (2008), the adoption of whether to use an information system for a particular individual is very much dependent on the perceived usefulness and perceived ease of use of the information system. 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 (2005) extended the existing TAM model by adding four new constructs to understand mobile banking adoption in Taiwan. These are Perceived credibility, Perceived self-efficacy, perceived cost, and perceived risk.

Perceived Credibility: In mobile banking context perceived credibility is defined as one's judgment on the privacy and security issues of mobile banking (Ba & Pavlou, 2002). Perceived credibility relies on information and reputation as defined by others.

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, 2005). Self-efficacy could include the knowledge, ability, and skills needed to use the new Information Technology. Venkatesh & Davis, 2000, also define as the user's perception of his or her ability to use a computer to accomplish a specific task. In general, when individuals are confident with their technology ability, they are more likely to accept new technologies. This linkage has been widely reported in the literature. For example, Tan and Teo (2000) and Lee and Kozar (2008) found that self-efficacy was significantly related to a user's intention of using Mobile banking. and anti-spyware software, respectively.

Perceived Cost: The degree to which an individual views that utilizing mobile banking will incur cost is defined as perceived cost (Lurann & 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.

Perceived risk: Perceived risk is viewed as a hesitation regarding the result (good or bad) regarding using a product/service. It is defined as a combination of uncertainty plus seriousness of outcome involved and the expectation of losses associated with purchase acts as an inhibitor to purchase behavior.

B. Innovation Diffusion Theory (IDT)

According to Rogers (1983), there are five established constructs that have reliably shown to be contributing factors of the diffusion rate of technology. These are Relative advantages, Compatibility, Complexity, Observability, and Trialability.

Relative advantage: describes the degree to which an innovation is perceived as being better than its precursor (Rogers, 1983). According to Kotler (2000) when individuals pass through the innovation-decision process, they are motivated to seek information in order to decrease uncertainty about the relative advantage of an innovation. Potential adopters want to know the degree to which a new idea is better than an existing practice. 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, 1983). 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.

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. The compatibility of an innovation, as perceived by members of a social system, is positively related to its rate of adoption (Rogers, 1983). The term compatibility refers to the fact that an innovation is more likely to be adopted when it is compatible with an individual's job responsibilities and value system.

Complexity: is defined as the degree to which an innovation is perceived to be easy to understand and use. Adoption will be less likely if the innovation is perceived as being complex or difficult to use (Rogers, 1983). Complexity can be considered as the exact opposite of ease of use in the Technology Acceptance Model, which has been found to directly impact the adoption of the Mobile banking. Consumers 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.

Observability: is the degree to which the results of an innovation are visible and tangible to others. Liu and Li (2009) assert that the more it is easy to describe and observe an innovation the more positive impact it will have on people which will eventually encourage usage of the

innovation. Cruz et al. (2010) affirm that probability of adopting an innovation increases when the benefits and usage of innovation can be easily observed.

Trialability: is defined as the degree to which an innovation can be tried on a limited basis (Rogers 1995). As per Rogers, there is faster adoption of new ideas when these can be tried before their full implementation whilst adoption tend to be slower where the prior trial is not possible. Therefore, repeating the evaluation and assistance in the use of mobile banking during the trial period can reduce the uncertainty about mobile banking, eventually creating positive customer attitudes in using mobile banking. Trialability can also be viewed as the degree to which an innovation may be experimented with on a limited basis.

C. The Theory of Reasoned Action (TRA)

According to TRA, attitude toward behavior (ATB) and subjective norm (SN) associated with individual behavior and these two constructs are the most important in explaining the adoption of any information technology (Ajzen, 1991). Attitude Towards behavior (ATB) is the previous attitude of a person toward performing that behavior. It suggests that people think about their decisions and the possible outcomes of their actions before making any decision to be involved or not involved in a given behavior. This theory views the intention of an individual whether to perform a given behavior or not as the immediate determinant of action, and attitude is determined by the person's beliefs and evaluation of behavioral outcomes. So an individual, who strongly believes that positive outcomes will result from performing a particular behavior, will have positive attitudes towards that behavior. On the other hand, if a person strongly believes that a particular behavior will have a negative outcome, then there will be negative attitudes towards that behavior. Subjective norm (SN) is the social pressure exerted on the person or the decision maker to perform the behavior. SN refers to an individual's perception about what other people think of his or her behavior in question (Ajzen, 2002). What other individuals or groups will think, agree or disagree about the decision of a person to perform a given behavior and how important those other individuals or groups to the decision maker play a vital role.

D. The Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is proposed as an extension of the Theory of Reasoned Action (TRA), 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). 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).

2.2. Empirical Literature Review

Many research works had been conducted to investigate the factors influencing the adoption and use of Mobile Banking (MB). Geogre and Gerald (2015) examined the determinants of mobile banking adoption among bank customers in Ghana with specific emphasis on Access bank. The result from the study revealed that, Awareness, usefulness, simplicity, compatibility and self-efficacy have also an influence on the adoption and usage of mobile banking service. Other studies conducted by Jeong and Yoon (2013) found that, perceived usefulness, perceived ease of use, perceived credibility, perceived self-efficacy, and perceived financial cost have significant influence while perceived financial cost has insignificant influence mobile banking adoption.

Li, Liu, and Ji (2014) in their study found perceived ease of use and perceived usefulness have insignificant effect in influencing the adoption of mobile financial services in China. On the other hand, subjective norms, compatibility, individual innovation, system security, and perceived behavioral control have a significant influences in the adoption of mobile banking. Tobbin and Kuwornu (2011) investigated the adoption of mobile financial services in Ghana and found that relative advantage, ease of use, usefulness, trialability, risk, and trust have significant influence in the adoption of mobile financial services. Lule (2008) in his study of mobile banking adoption in Kenya included perceived credibility, perceived self-efficacy, finance costs and perceived normative pressure in the original TAM model. The study also found that all variables except self-efficacy had a strong influence on mobile banking adoption. Karma, Ibrahim, and Ali, (2014) aimed to identify the main factors that influence the adoption of Mobile Banking services in Sudan. The results revealed that perceived trust, perceived ease of use and perceived risk have significant effect adoption of mobile banking while Perceived usefulness was found insignificant effect in adoption of mobile banking in Sudan.

Nebiyu Yusuf, 2017 examined the factors affecting the adoption of mobile banking technology in Addis Ababa. The study was tuned to five constructs, such that, perceived usefulness,

perceived ease of use, perceived trust, perceived risk and awareness in determining their effect on the intention to adopt mobile banking. The result revealed that Perceived Ease of use, Awareness, Trust had a positive impact on mobile banking adoption while the perceived risk was found to have a negative impact. Moreover, Perceived Usefulness found no effect on the intention to adopt mobile banking.

Tesfaye Matiwos, 2018, Identify factors affecting the adoption of mobile banking in Addis Ababa, Ethiopia. The research finding indicated that effort expectancy, perceived usefulness, perceived ease of use; perceived cost and mobile phone experience are major factors affecting mobile banking adoption whereas performance expectancy, perceived risk, and perceived trust have an insignificant effect on mobile banking adoption.

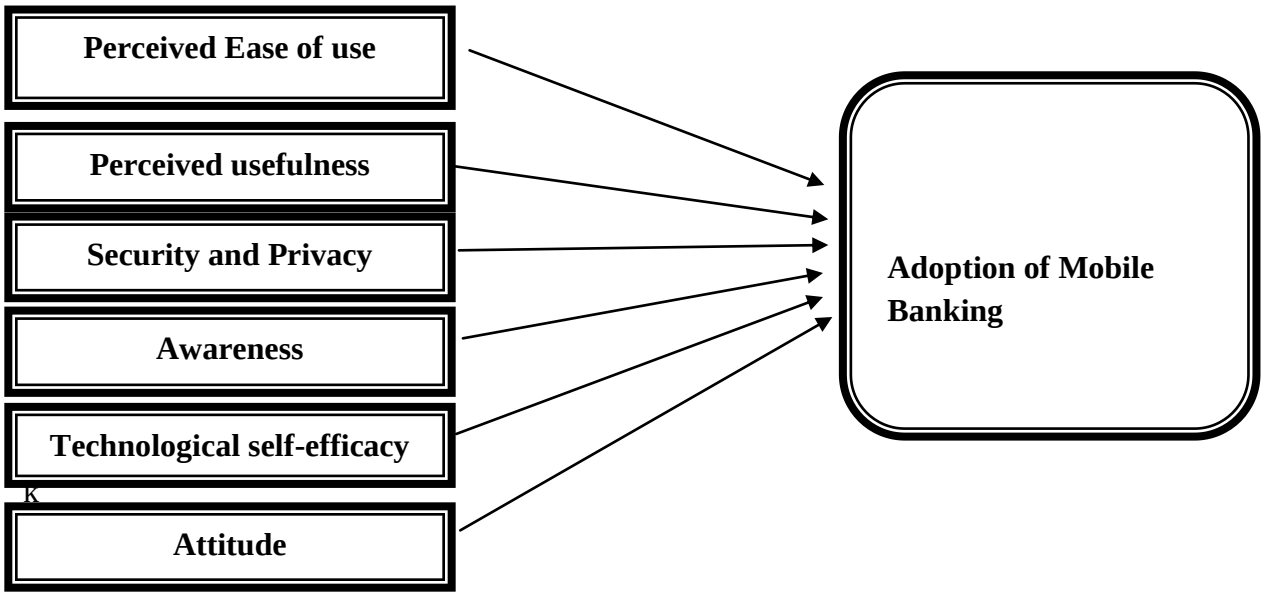
Laekemariam Haile, 2015, examines the factors affecting the adoption of mobile banking in the commercial bank of Ethiopia. The findings revealed that Performance expectancy, Perceived risk, perceived cost, Effort expectancy, and Trust were the factors affecting users for the intention to adopt mobile banking while Mobile banking service quality was found to be insignificant in this study.

Garedachew (2010) conducted research on the opportunities and challenges of E-Banking in Ethiopia and found that lack of suitable legal and regulatory frameworks for E-commerce and E-Payment, political stability in neighboring countries, high rates of illiteracy and absence of financial networks that link different banks are the major challenges of E-Banking in Ethiopia.

2.3. Conceptual Framework of the study

A conceptual framework is a logically developed, described and elaborated network of interrelationships among variables. It explains the theory underlying relationships and describes the nature and direction of these relationships. By assessing the previous studies on the Mobile banking adoption model and theories (i.e Technology Acceptance Model, Innovation Diffusion Theory and The Theory of Reasoned Action), this study contract the following conceptual framework. The conceptual framework was specified as follows.

Figure 1: Conceptual Framework of the Study



Source: Compiled by the researcher

2.4. Research hypothesis

The study hypothesizes the following, which is derived from the specific objectives and will be tested in this study;

1. Perceived ease of use

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 ease of use has been extensively studied and has been found a positive influence on the adoption of mobile banking (Yu 2012; Cheney 2008; Dass and Pal 2011). Based on these empirical studies the following hypothesis is proposed:

H1: Perceived ease of use has a positive effect on mobile banking adoption.

2. Perceived Usefulness

Perceived usefulness is the degree to which a person believes that using a particular system would enhance his or her job performance. (Davis, 1989; Liu and Li, 2010). Several studies have found that perceived usefulness had a significant influence on mobile financial service adoption (Aboelmaged and Gebba 2013; Chitungo and Munongo 2013; Davis 1989; Li 2010; Sayid et al. 2012). Based on these studies the following hypothesis is proposed:

H2: Perceived usefulness has a positive effect on mobile banking adoption.

3. Perceived Self-efficacy:

Self-efficacy defined as individual knowledge, ability, and skills to use new information technology (Bandura, 1982). The relationship between self-efficacy and mobile banking adoption has been evidenced positive relationship in prior studies (e.g., Ali et al., 2015; Hong et al., 2002). Therefore the following hypothesis is formulated.

H3: Perceived self-efficacy has a positive effect on mobile banking adoption.

4. Awareness

The level of information customers have on mobile banking is one of the major factors impacting the adoption of mobile banking (Sathye 1999 and Pikkarainen et al., 2004). The research further states that the adoption rate of innovation could be determined by the level of awareness of the customers.

H4: Awareness has a positive effect on mobile banking adoption.

5. Security and Privacy

Perceived security and privacy have a strong positive relationship with behavioral intention. This means risk and security issues such as theft and hacking could discourage the acceptance of mobile banking. The trust in new technology can also be a determinant of the usage. Previous studies from Mallat et al. (2007) and Luarn and Lin (2005) claim that security and privacy is one of the most critical factors when developing a new mobile banking service. Therefore the following hypothesis is formulated.

H5: Security and Privacy have a positive effect on mobile banking adoption.

6. Attitude

Customer's attitudes towards the acceptance of a new information system have a critical impact on successful mobile banking adoption. Attitude toward user acceptance of technology is defined as an individual's overall affective reaction (liking, enjoyment, joy, and pleasure) to use a technology (Tan and Teo, 2000). Additionally, Howcroft et al. (2002) describe that users attitude towards e-banking is the reflection of a number of factors such as technology, security, convenience, new technology experience, prior personal banking experience, etc. Therefore the following hypothesis is formulated.

H6: Attitude has a positive effect on mobile banking adoption.

CHAPTER THREE

RESEARCH METHODOLOGY

Designing an appropriate research methodology is a prerequisite in order to conduct good research work. Accordingly, this chapter discussed the methodology used in the study. Thus, research design, sampling design, source of data, method of data collection and instrument, and method of data analysis were discussed in detail.

3.1. Research Design

A research design is simply the framework or blueprint of the study. The study used a sample to collect pertinent data in an efficient way because collecting data from the entire target group consumes more time and cost. The study also employed an explanatory type of research design to answer the objectives.

3.2. Population and Sampling Techniques

3.2.1. Target Population

The target population is a total set of elements, which are subjected to investigation. In this regard, the target populations of the study were the customers of selected commercial banks who already used mobile banking services. In view of these points, as per the data set from commercial Banks in 2017/2018, the total target population of the study was 23.83 million customers.

3.2.2. Sampling Frame

According to Cooper and Schindler (2014) sampling frame is a series of each and every one the clusters from where the sample range was collected from and it is suspiciously connected to the total population. From the sample frame, the researcher can be able to get the number of subjects, respondents, elements, and firms to select from in order to make a sample. This makes it very important to ensure that the sample frame is unbiased and accurate (Saunders, Lewis &Thornhill, 2012). In this study, the sampling frame constitutes selected commercial Bank customers of the Mobile banking service users in Addis Ababa city branches.

3.2.3. Sampling Technique

The sampling technique is one of the most important factors which determine the accuracy of your research result. If anything goes wrong with your sample then it will be directly reflected in the final result. There are a lots of techniques that help us to gather samples depending upon the need and situation. Broadly, sampling techniques are divided into two categories as Probability and Non- Probability techniques. Probability samplings require that every member of the population has an equal chance of participating in the study. Probability sampling includes random sampling, stratified, systematic, multistage, and cluster sampling methods. Probability sampling is preferred as it applies random selection in all population so as to have equal probability or likelihood of being selected, it also reduces sampling bias. On the other hand, the non-probability sampling technique, the sampling group members are selected on a non-random base; therefore, the members do not have an equal chance of participating in the research study. Non-probability sampling methods include purposive, quota, convenience and snowball sampling methods (Saunders, Lewis &Thornhill, 2012). Purposive sampling was used in this study to ensure more focus on people who are banked, and likely to use the Mobile for banking. A purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. It is a sampling technique in which researcher relies on his or her own judgment when choosing members of population to participate in the study. Purposive sampling method may prove to be effective when only limited numbers of respondents can serve as primary data sources due to the nature of research design aims and objectives.

3.2.4. Sample Size and its determination

The sample size is an element of the target population that the researcher selected so as to be able to carry out the analysis (Schindler & Cooper, 2014). The degree of confidence related to and associated with the sample data size. The larger the sample size, the greater the degree of precision about the population (Schindler and Cooper (2014). In order to determine sample size; the study will use the following formula and get a sample of 267.

$$\text{Sample size} = \frac{\frac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Where: Z^2 is the critical value of normal distribution at α/2 (i.e. for a confidence level of 95%, α is 0.05 and the critical value of 1.96, n is the sample size (267), N is the population size (23.83 million customers) and e is sampling error (6%). After determining a sample size of 267, the samples from every four banks were taken in proportion to their mobile banking subscribers as of June 2017/2018. Accordingly, the following table1 shows the proportional distribution of questionnaires to each bank.

Table 1: shows the proportional distribution of the questionnaire

S.No	Name of Banks	Total mobile banking subscriber	Percentage proportional	No of questionnaire
1	Commercial Bank of Ethiopia	1,809,908	1,809,908/2,262,849*267	214
2	Awash Bank	192,984	192,984/2,262,849*267	23
3	Dashen Bank	45,984	45,984/2,262,849*267	5
4	Abyssinian Bank	213,973	213,973/2,262,849*267	25
	Total	2,262,849		267

Source: Annual Reports of respective Banks (June 2017/18)

3.3. Types of Data and Tools of Data Collection

3.3.1. Source of data

For the proper achievement of the objectives of the study; the researcher used primary data sources from customers of selected commercial banks.

3.3.2. Data Collection Instrument

Structured questionnaires were used by the research to collect data; these questions were structured in a way that enabled the researcher to collect information as possible in relation to the research objective. The researcher used closed-ended questions on the questionnaires and the questionnaires were administered purposively to customers of Banks who used Mobile banking services. The main research variables were measured using five-point Likert scales where 1- representing strongly agree, 2- representing agree,3- representing neutral,4- representing disagree and 5- representing strongly disagree(Schindler & Cooper, 2014).

3.4. Validity and Reliability of the Research Instruments

Validity measures whether the question or item really measures what it is supposed to measure or it refers to how well a test measures what it is purported to measure. This study addressed validity through the view of literature and adapting instruments used in previous research as indicated by the different researchers and also the researcher validated the instrument by discussing with expert at E-banking department with respective banks.

Reliability is a measure of reliability obtained by administering the same test twice over a period of time to a group of individuals. The research instrument is seen as being reliable when it can be used by a number of different researchers under stable conditions, with consistent results and the results not varying. Reliability has differed from validity in that it refers to the degree to which scale produces consistent results when repeated measurements are made, but validity implies the extent to which the research instrument measures, what it is intended to measure. To test the reliability of the instruments, most researchers uses Cronbach's alpha value of 0.6 as a cutoff point to measure the internal consistency of the instruments (Moskal and Leydens, 2000).

3.5. Method of Data Analysis

The data collected was analyzed STATA Version 14. The descriptive statistics were used to quantitatively describe the important features of the variables using frequencies, percent, mean and standard deviations. Furthermore, the study used correlation and multiple regression models.

3.5.1. Descriptive statistics

Descriptive statistics involves summarizing and organizing the data so they can be easily understood. Descriptive statistics are broken down into measures of central tendency and measures of variability (spread). Measures of central tendency include the mean, median, and mode, while measures of variability include the standard deviation, variance, the minimum, and maximum variables, and the kurtosis and skewness. Descriptive statistics, unlike inferential statistics, seeks to describe the data, but do not attempt to make inferences from the sample to the whole population.

3.5.2. Multiple Regression Model

Multiple linear regression was used to explain the relationship between the dependent variable and two or more independent variables. In other words, it is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we were using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressor variables). To achieve a given research objective, which is to assess the factors affecting Mobile banking service adoption on selected commercial banks, multiple linear regression model will be used. Accordingly, the following model will be used.

$$\mathbf{Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + B6X6}$$

Where Y is the dependent variable (Adoption of Mobile Banking), Perceived Ease of use(X1), Perceived usefulness (X2), Perceived Privacy and Security (X3), Awareness(X4), Attitude(X5) and Technology self-efficacy (X6) are the explanatory variables, β0 and β1, β2, β4, β3, β4 ,β5 and β6 refer to the coefficient of their respective independent variables.

3.6. Regression Model Diagnostic Test

Before analyzing the factors affecting the adoption of mobile banking service on selected banks customers, it is necessary to test regression assumptions due to the fact that violation of these assumptions may lead to inaccurate results. If these Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS (Ordinary least square) will have a number of desirable properties, and are known as Best Linear Unbiased Estimators. Therefore, these diagnostic tests are performed to ensure whether the assumptions of the CLRM are violated or not in the model (Guajarati, 2009 and Wooldridge, 2015).

A. Normality Test

One of the assumptions in panel regression analysis is whether variables in the model are obtained from normally distributed population or not. If the disturbances are normal allows exact inference about the estimate and standard error of estimated coefficients. The study employed the relevant normality tests.

B. Test for Multicollinearity

Multicollinearity refers to the situation where two or more of the predictors in a regression model are highly correlated. It implies that one can be linearly predicted from the others with a substantial degree of accuracy. In presence of multicollinearity, the coefficient estimates of the multiple regressions may change erratically in response to small changes in the model or the data. If there is multicollinearity in the model, the estimated coefficients possess large standard error, which means the coefficients cannot be estimated with great precision or accuracy (Gujarati, 2009). To alleviate this problem one or more of the correlated variables must be dropped from the model. Therefore, the study checks for the presence of Multicollinearity in the model.

C. Heteroscedasticity test

The test for heteroscedasticity investigates whether the variance of the error in the model are constant or not. In a presence of heteroscedasticity, the estimators are no longer of minimum variance or efficient. As a result, the tests based under the standard assumptions may not be reliable, resulting in erroneous conclusions regarding the statistical significance of the estimated regression coefficients. Assuming homoscedastic disturbances when heteroscedasticity is present still results in inconsistent estimates of the regression coefficients, but these estimates will not be efficient. The loss of efficiency leads to biased standard error and hence the inferences from this estimate become invalid. Under this test the null hypothesis is the error term is homoscedastic while the alternative is heteroscedasticity of the error term (Wooldridge, 2015).

D. Test for Autocorrelation

Autocorrelation normally occur while employing in long panel data. This problem occurs when two or more consecutive error terms are correlated. If there is autocorrelation problem in the model, the estimator no longer efficient. In consequence, the tests may not be valid. When the covariance between two or more consecutive error terms is correlated the error term is subject to autocorrelation. If there is autocorrelation in the data the estimates become inefficient and standard errors estimated are invalid.

CHAPTER FOUR

RESULT AND DISCUSSION

4.1. Demographic information of the respondents

Demographics information of the respondents was presented by Sex, Income, Age, and Educational level. As presented in Table2, the result revealed that, the majority of the respondents were male respondents, which account 68.9% while female account 31.3%. This implies, male customers are more included in the study than female. With respect to the age distribution of the respondents, 73% of the respondents were the age of between 26-35 years old, 13.9 % were for age of 18 to 25 years old, 9.4% were for age of 36 to 45 years old and only 3.7% the respondents were for age greater than 46 years old. This indicates, the younger customers were more likely adopt mobile banking than elderly young customers.

Table2: Demographic information of the respondents

Demographic variables	Categories	Frequency	Percentage (%)
Gender	Female	83	31.1
	Male	184	68.9
Age	18-25	37	13.9
	26-35	195	73.0
	36-45	25	9.4
	>46	10	3.7
Educational Level	Below college level	10	3.7
	Degree	194	72.7
	Master	63	23.6
Income Level	1000-4000	12	4.5
	4001-6000	45	16.9
	6001-10000	73	27.3
	>10000	137	51.3

Survey output, 2019

In relation to educational level, 72.7% of the respondents have degree holders, master degrees holder (23.6%) and below collage level (3.7%). With respect of income level, the majority of the respondents fall with income level of greater than 10000 Birr, which account 51.3% and followed by Birr 6001-Birr 10000 Birr (27.3%), Birr 4001-Birr 6000 Birr (16.9%) and Birr

1000-4000 Birr (4.5%). This infers, high income earner were more likely to adopt mobile banking.

4.2. Descriptive statistics of Variables

Before analyzing the factors affecting the decision to adoption of mobile banking transaction, a descriptive analysis of variables provide information about the behavior of the respondents to adopt mobile banking. Descriptive statistics is used to examine customer's perception regarding the factors that affect to adoption of mobile banking. As indicated in Tables 3-7, Perceived ease of use was the highest mean score of 4.26, followed by Perceived usefulness (Mean = 4.25), Attitude (Mean = 4.08), Technological self-efficacy (Mean = 3.91), Awareness (Mean=3.71) and Security and privacy (Mean = 3.31). This indicates that, the customers generally believes that Perceived usefulness, Perceived ease of use, Security and Privacy, Attitude, Awareness and Technological self-efficacy were more towards "agree" and above opinions regarding to the factors to adopt mobile banking.

1. Descriptive statistics of Perceived Ease of Use

The descriptive statistics attempted to see the perception of the customers towards the perceived ease of use effect on Mobile banking service. As indicated in Table3, out of 267 respondents, 44.94% respondents of the sample agreed with the idea that perceived ease of use has an effect in terms of adoption of the mobile banking service, 41.32% of respondents were strongly agree with ease usage of mobile banking, 7.37% of respondents were uncertain while only 6.39% of the respondents disagree or strongly disagree about the perceived ease of use of mobile banking. This implies, most of the respondents agreed that mobile banking is easily usable, not complicated and easily understandable.

Table3: Descriptive statistics for Perceived ease of use

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Perceived Ease of Use	Strongly disagree	4	1.37	4.26	0.74
	Disagree	13	4.99		
	Neutral	20	7.37		
	Agree	120	44.94		
	Strongly agree	110	41.32		
	Total	267	100		

Survey output, 2019

2. Perceived usefulness

The respondents were asked the perception level towards the effect of perceived usefulness on adoption of mobile banking. As indicated in Table4, Out of 267 respondents, 46.16% of the respondents strongly agree with the idea that usefulness has an effect in terms of enhancing adoption of mobile banking, 36.89% agreed with the usefulness of mobile banking, while 10.49% of respondents were uncertain about it and only 6.46% disagreed or strongly disagree with the statements. This suggests, the majority of the respondents agree with usefulness has effect to adopt mobile banking. In other word, the respondents believes that mobile banking will enable them to accomplish the banking task and save the time and cost of banking.

Table4: Descriptive statistics for Perceived usefulness

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Perceived Usefulness	Strongly disagree	6	2.25	4.25	0.78
	Disagree	11	4.21		
	Neutral	28	10.49		
	Agree	99	36.89		
	Strongly agree	123	46.16		
	Total	267	100		

Survey output, 2019

3. Attitude

Similarly, the study tried to know the attitude of the respondents on adopting of mobile banking. As indicated in Table5, Out of 267 respondents, 51.33% of respondents agreed that attitude towards using of mobile banking is favorable and good idea, 31.59 strongly agree with attitude has influence the adoption level of mobile banking, 11.11% of the respondents were uncertain about the statement, while 5.99% disagreed or strongly disagree with the statements. This indicates that, the majority of the respondent believes that attitude level of the customers influence whether to adopt or not adopt mobile banking service.

Table5: Descriptive statistics for Attitude

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Attitude	Strongly disagree	3	1.00	4.08	0.86
	Disagree	13	4.99		
	Neutral	30	11.11		
	Agree	137	51.31		
	Strongly agree	84	31.59		
	Total	267	100		

Survey output, 2019

4. Security and Privacy

Likewise, the respondents were asked about the effect of security and privacy on the adoption of mobile banking. As shown in Table6, Out of 267 respondents, 35.11% and 8.71% of the respondents agree and strongly agree respectively with security and privacy have an effect to adopt Mobile banking. This indicates, the respondents agree that using Mobile banking is financially secure. While 21.16 % of the respondents disagreed or strongly disagree about the banks offering mobile banking service was secure to protect their bank customers information and while 35.02% of the respondents' uncertain about the privacy and security of mobile banking. Therefore, it can be observed that almost half of the respondents believe that Mobile banking is secure to protect their bank customer's information.

Table6: Descriptive statistics for Security and Privacy

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Security and Privacy	Strongly disagree	18	6.65	3.31	0.83
	Disagree	39	14.51		
	Neutral	94	35.02		
	Agree	94	35.11		
	Strongly agree	22	8.71		
	Total	267	100		

Survey output, 2019

5. Awareness

Correspondingly, the study attempted to assess the effect of the awareness level of respondents towards using mobile banking. As revealed in table7, Out of 267 respondents, 24.22% of the respondents agree in the awareness of the availability of mobile banking, 21.79% strongly agree with statements. This indicates that, the respondents are aware of the availability of mobile banking and they think that, the banks are doing well to make people know about mobile banking. On other hand, 26.22% of disagree or strongly disagree about the banks are not doing well in the availability of mobile banking and also the banks should work people to know about mobile banking and 27.59% of the respondents were uncertain about it.

Table7: Descriptive statistics for Awareness

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Awareness	Strongly disagree	19	6.99	3.71	1.02
	Disagree	51	19.23		
	Neutral	74	27.59		
	Agree	65	24.22		
	Strongly agree	59	21.79		
	Total	267	100		

Survey output, 2019

6. Technological Self-efficacy

By the same token, the study assessed to examine the effect of the user's perception of his or her ability to accomplish the mobile banking task. As depicted in Table8, Out of 267 respondents, 41.95% of the respondents agree to complete mobile banking transaction by self-efficiency ability, 30.59% strongly agreed with the statement while 14.86% of the respondents uncertain about it and only 12.6% of the respondents disagree or strongly disagree about how could complete the bank transaction using mobile banking by self-efficiency ability. This indicates that the majority of the respondents are confident with their technology ability to handle mobile banking transaction by themself if there was someone tell what to do, if they see manual or online help and if someone showed how to do it first.

Table8: Descriptive statistics for Technological Self-efficacy

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Technological Self-efficiency	Strongly disagree	12	4.49	3.91	0.97
	Disagree	22	8.11		
	Neutral	40	14.86		
	Agree	112	41.95		
	Strongly agree	82	30.59		
	Total	267	100		

Survey output, 2019

7. Mobile banking adoption

As indicated in the Table9, Out of 267 respondents, 43.5% of the respondents strongly agree to adopt mobile banking, 40.07% of them were agree to adopt mobile banking, 10.39% of respondents were uncertain about it, while only 6.18% indicated that they were not intended to adopt mobile banking. This indicates that the majority of the respondents agree to adopt mobile banking service in the near future and recommend to others to use it.

Table9: Descriptive statistics for intention to adopt Mobile banking

	Agreement Level	Frequency	Percentage	Mean	Std. Deviation
Adopt of Mobile Banking Service	Strongly disagree	6	2.25	4.22	0.83
	Disagree	11	3.93		
	Neutral	28	10.39		
	Agree	107	40.07		
	Strongly agree	116	43.35		
	Total	267	100		

Survey output, 2019

4.3. Reliability and Validity

Prior to data analysis, the research instrument was assessed for its reliability as well as the validity. These tests are the most important and fundamental features in the evaluation of any measurement instrument or tool for good research.

4.3.1. Reliability

Reliability analysis was carried out to test the internal consistency of the research variables. If the items of the factors fail to show reliability, it questions the validity of the study result (Anderson et al., 2010). Cronbach's Alpha was used for measuring the internal consistency items for each factor. The Cronbach's alpha value above 0.6 is considered as an acceptable level of reliability (Hair et al 1998; Nunnally, 2000 and George & Mallery, 2003). As depicted in table10, all variables above the minimum threshold value of 0.6; this indicates the variables are reliable to undertake the analysis.

Table10: Reliability tests of the variables

Factors	Number of Items	Cronbach's Alpha
Perceived ease of use	3	0.77
Perceived usefulness	4	0.78
Awareness	3	0.63
Security and privacy	4	0.82
Self-efficacy	3	0.64
Attitude	3	0.87
Adoption of MB	4	0.87
Over model	24	0.76

Survey output, 2019

4.3.2. Validity

Validity measures whether the question or item really measures what it is supposed to measure or it refers to how well a test measures what it is purported to measure (Cozby, 2001). To check the validity of the instruments, experts in the field e-banking department at the head office of each respective bank were consulted about the content of the instrument, ambiguity of questions, items and their relevance in order to ensure content and face validity (Tabachnick et al., 2001).

4.4. Correlation Analysis

The correlation coefficient describes the strength of the correlation between the variables. If the null hypothesis can be rejected, the correlation coefficient observed between the two variables is statistically significant. If the null hypothesis will be accepted, there is not enough evidence that a significant relationship exists. Testing the hypotheses, the P-value was compared with the level of significance (α=0.01). If the P-value is less than the level of significance, the hypothesis can be rejected. If the p-value is greater than the level of significance, the hypothesis will be accepted. The values of the correlation of coefficient range between -1 and +1, indicating either a strong positive or negative correlation between the variables. Correlation coefficients between 0.0 to 0.4 are seen as weak correlations, between 0.5 to 0.8 is a moderate correlation and above 0.8 a strong correlation (Anderson et al., 2010). The significance of the correlation can be tested through the following hypotheses: H0: δ=0 Vs. H1: $\delta \neq 0$.

1. The correlation between Perceived Ease of use and Adoption

As depicted in table11, the correlation coefficient between Ease of use and adoption is 0.618, indicating a positive correlation. The p-value can be observed as 0.000. Since the p-value less than the level of significance (α=0.01), the hypothesis can be rejected. Therefore, we can say that there is a significant positive relationship between Mobile banking adoption and Ease of use.

2. The correlation between Perceived usefulness and adoption

As indicated in table11, the correlation between perceived usefulness and adoption of mobile banking was tested. The correlation coefficient between the variables is 0.606, indicating a positive correlation. The p-value can be observed as 0.000. Since the p-value less than the level of significance (α=0.01), the hypothesis can be rejected. Hence, we can say that there is a significant positive relationship between perceived usefulness and adoption of mobile banking.

3. The correlation between Awareness and adoption

As depicted in table11, the correlation between awareness and adoption of mobile banking. The correlation coefficient between these two variables is detected as 0.356. This value implies a positive correlation between variables. The hypothesis can be rejected since the p-value is 0.00, which is less than the level of significance (α=0.01). Thus, there is a significant positive relationship between awareness and adoption of mobile banking.

4. The correlation between Security and privacy and adoption

As shown in table11, we can see the correlation between security and privacy and mobile banking adoption. The correlation coefficient is observed at 0.404, which indicates a positive correlation between these two variables. The p-value is 0.000, which is less than the level of significance (α=0.01). Therefore, the hypothesis can be rejected. This implies that there is a significant positive relationship between security and privacy and the adoption of mobile banking.

5. The correlation between Attitude and Adoption

As revealed in table11, the correlation between attitude and adoption of Mobile banking. The correlation coefficient is 0.606, which implies a positive correlation between the variables. Since the P-value is 0.00, which is less than the level of significance, the hypothesis can be rejected. Therefore, it can be said that there is a significant positive relationship between attitude and adoption of mobile banking.

6. The correlation between Technological Self-efficacy and Adoption

The correlation between technological self-efficiency and adoption of mobile banking is presented in Table11. We can observe the correlation coefficient between these two variables is 0.406, which indicates a positive correlation. Due to a p-value of 0.00, which is less than the level of significance (α=0.01), the hypothesis can be rejected. Therefore, we can say that there is a significant positive relationship between self-efficiency and the adoption of mobile banking.

Table11: Correlation matrix between Mobile banking adoption and its factors

Factors	Adoption	Usefulness	Ease of use	Awareness	Security and Privacy	Attitude	Self-efficacy
Adoption	1						
Usefulness	0.606	1					
Ease of use	0.618	0.544	1				
Awareness	0.356	0.470	0.348	1			
Security and Privacy	0.404	0.289	0.134	0.209	1		
Attitude	0.606	0.597	0.597	0.242	0.151	1	
Self-efficacy	0.406	0.346	0.390	0.135	0.168	0.548	1

Survey output, 2019. Note: P-value =0.00 and α=0.01

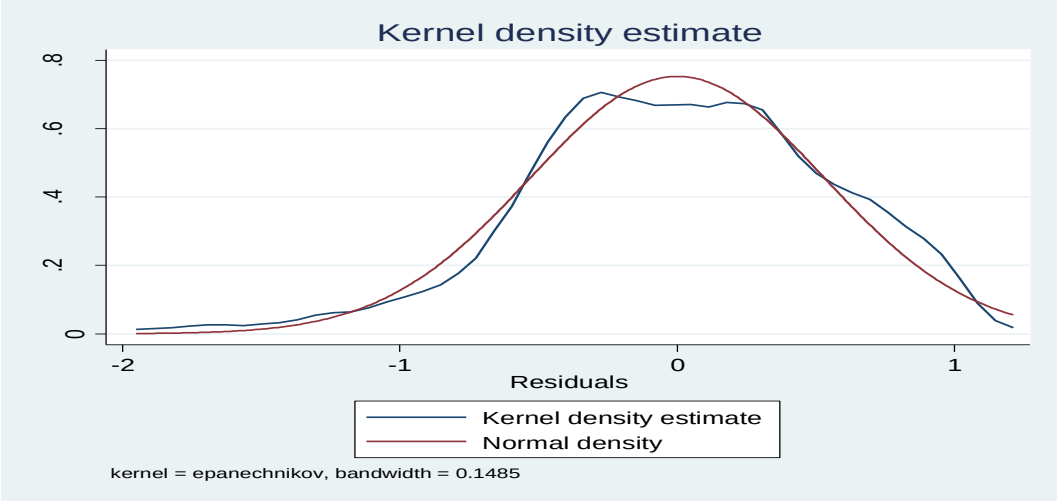
4.5. Model Diagnostic Test of the Regression Model

Before assessing the factors that affect the adoption of Internet banking, it is necessary to test regression assumptions, due to the fact that violation of these assumptions may lead to inaccurate results. The Classical Linear Regression Model (CLRM) assumptions hold, then the estimators determined by OLS will have a number of desirable properties and are known as Best Linear Unbiased Estimators. Therefore, these diagnostic tests are performed to ensure whether the assumptions of the CLRM are violated or not in the model (Guajarati, 2009).

I. Normality Test

There are several methods available for assessing whether data are normally distributed or not .i.e. graphical and statistical. In this study, however, normality of the residual was performed with the aid of graphical methods using Kernel density estimate. As shown in figure2, the test result indicates, the residual is close to normal distribution.

Figure 2: Normality test



Source: Stata Output, 2019

II. Multicollinearity Test

Multicollinearity refers to the situation where two or more of the predictors in a regression model are highly correlated. As indicated in figure3, the variance inflation factor (VIF) shows a mean VIF of less than 1.6 for the whole variables. The larger the value of VIF, the more troublesome or collinear the variables and as a rule of thumb a VIF greater than 10 is unacceptable. Therefore, since the VIF value for each variable is less than 10, thus, there was no multicollinearity problem in the data.

Figure 3: Multicollinearity Test

Variable	VIF	1/VIF
Attitude	2.01	0.497986
Usefulness	1.85	0.541061
Ease_use	1.82	0.550116
self_effic~y	1.46	0.683417
Awareness	1.33	0.754687
Security_P~y	1.11	0.899866
Mean VIF	1.60	

Source: Stata Output, 2019

III. Heteroskedasticity Test

Breusch-Pagan test for heteroskedasticity was used for testing whether the error variances are constant or not. Based on the test statistics resulted presented in figure4, the null hypothesis which stated as 'error variance in the model is homoskedastic' was rejected at a 5% level of significance. The result shows that the error variances are heteroskedasticity (not constant variance). As a result, the estimator was measured using cluster robust standard error for avoiding the heteroscedastic problem (Gujerati, 2013).

Figure 4: Heteroskedastcity test

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of Adoption

         chi2(1)      =     9.86
         Prob > chi2  =   0.0017
```

Source: Stata Output, 2019

IV. Autocorrelation Test

Durbin-Watson test was used test for residual serial correlation up to some specified lag order. To test for the existence of autocorrelation or not, the Durbin-Watson test was employed. As shown in figure 5, its null hypothesis (no first-order autocorrelation) was accepted because the Durbin Waston test statistics is close to 2, which is 1.78. Therefore, there is no auto autocorrelation problem in the data.

Figure5: Autocorrelation

```
Durbin-Watson d-statistic(  7,   267) =  1.786759
```

Source: Stata Output, 2019

4.6. Multiple Regression Analysis

In order to examine the relationship between the dependent variable (Mobile banking adoption) and independent variables (Perceived ease of use, perceived usefulness, Attitude, Awareness, Security and privacy and Self –efficacy) and specify the best predictors of the dependent variable, a multiple regression model was applied. Multiple regression analysis was used to analyze the relationship between a single dependent variable and several independent variables.

As depicted in table12, the R- Square of the regression result was 59.32%, which indicates the variation of the dependent variable is explained by six predictors and the rest 40.7% of the variation of Mobile banking adoption was affected by other factors which are not included in the study. Besides, Since the P-value (F-sig) of ANOVA is less than the level of significance (α=0.05), overall the model is a statistically significant effect in predicting the adoption of mobile banking adoption.

Table12: Multiple Regression Model

Factors	Beta	Robust Std. Error	T-Value	P-Value
Perceived Usefulness	0.231	0.060	3.83	0.000
Perceived Ease of use	0.319	0.083	3.82	0.000
Awareness	0.028	0.035	0.79	0.429
Security and Privacy	0.250	0.047	5.3	0.000
Attitude	0.253	0.062	4.07	0.000
Self-Efficacy	0.024	0.042	0.58	0.562
(Constant)	-0.178			
R-Square	59.3%			
F-Sig	0.000			

Survey output, 2019.

When looking at the effect of each independent variable on the dependent variable. Perceived ease to use, Perceived usefulness, Attitude, Security and privacy have a positive and statistically significant effect on the adoption of mobile banking while Self–efficiency and Awareness did not affect the adoption of mobile banking at 5% of the level of significance.

As indicated in table12, the coefficient of the beta estimate of Perceived usefulness is positive (β=0.231) and statistically significant effect on mobile banking adoption at 5% of significance level (p-value =0.000). The result is consistent with the following studies such as George and Gerald (2015), Jeong and Yoon (2013), Tobbin and Kuwornu (2011), Nebiyu Yusuf, 2017 and Tesfaye Matiwos, 2018.

Similarly, the coefficient of the beta estimate of perceived ease of use is positive (β=0.319) and statistically significant effect on mobile banking adoption at a 5% significance level (p-value =0.000). This implies, those who found the mobile banking easy to use would most likely adopt mobile banking. This is important for banks to take note that make the Mobile banking service

user-friendly. This result is consistent with studies conducted by Tesfaye Matiwos (2018), Nebiyu Yusuf (2017), Karma, Ibrahim, and Ali (2014) and Li, Liu, and Ji (2014).

Correspondingly, Security and privacy have confirmed a positively and significantly relationship with Mobile banking adoption with a βeta of 0.250 and the P-value of 0.00. This implies that Security and privacy concerns appeared to be the main hindering factors to adopt mobile banking adoption. In other words, Security and privacy issues were one of the reasons for the customers not to adopt mobile banking in Ethiopia. Therefore, banks should continue to improve their security and privacy issue. This result was consistent with studies such as Li, Liu, and Ji (2014) and Karma, Ibrahim and Ali, (2014).

By the same token, the Attitude of the customers has also a positive and statistically significant effect on mobile banking adoption with a p-value of 0.000 at a 5% level of significance with an estimated beta coefficient of 0.253. This implies, the customers attitude is vital to ensure the successful adoption of mobile banking. This result is consistent with the finding of the previous research done by Li, Liu, and Ji (2014).

Likewise, the coefficient of the beta estimate of awareness is positive (β=0.028) but statistically insignificant effect on mobile banking adoption at a 5% significance level (p-value =0.429).

The adoption rate of mobile banking could be determined by level of awareness of the customers. In this study, however, unexpected result observed. This indicates having more or less awareness about mobile banking has no significant effect on adopting of mobile banking. In addition, the descriptive statistics of awareness of mobile banking services is close to neutral point, which is 3.7. This mean value is not high relative to other factors, which suggests that awareness efforts may not be very effective in reaching customers. This observation is also again in line with the studies by Al-Somali et al, 2009 and Sathye, 1999, who argue that a high level of mobile banking adoption cannot be expected if customers do not realize the opportunities that mobile banking offers. This research finding also contradicts with many former research findings such as Laforet and Li, 2005 and Brikty, 2017 while the finding is also in line with the finding obtained by Gizachew, 2016 and Gezahegn, 2018.

Likewise, the coefficient of the beta estimate of computer self–efficacy is positive (β=0.024) and statistically insignificant effect on mobile banking adoption at a 5% significance level (p-value =0.562). The positive correlation revels that, when customers feel confident in their computer

ability, the perceptions of the use of mobile banking become more positive, and as a result will promote positive attitudes towards adopting Mobile banking. To encourage their customers to adopt mobile banking, the bank should increase the computer self-efficacy of their customers by offering training courses on various web-based business applications to increase the customers' familiarity with mobile banking applications.

CHAPTER FIVE

Conclusions and Recommendations

5.1. Conclusions

The study was to examine the factors affecting the adoption of mobile banking service in selected commercial banks in Ethiopia. The study was conducted using a questionnaire distributed to 267 sample respondents randomly selected from branches of the selected commercial banks, namely Commercial Bank of Ethiopia, Awash Bank, Dashen Bank and Abyssinia Banks. To do so, the study investigated perceived usefulness, perceived ease to use, Attitude, Awareness, security and privacy, and technological self-efficiency as factors that affect to the adoption of Mobile banking.

The collected primary data were analyzed using descriptive and inferential statistics. As depicted in descriptive statistics, Perceived ease of use was the highest mean score of 4.26 and followed by Perceived usefulness (Mean = 4.25), Attitude (Mean = 4.08), Technological self-efficacy (Mean = 3.91), Awareness (Mean=3.71) and Security and privacy (Mean = 3.31). Furthermore, the correlation matrix result reveals that, there was a positive and significant correlation between adoption of Mobile banking and perceived usefulness, perceived ease of use, Attitude, Awareness, security and privacy and self –efficacy.

The overall regression model is significant and the value of R^2 is 0.593 which implies that 59.3% of the variation of Mobile banking adoption is expressed in the variation of perceived usefulness, perceived ease of use, Attitude, Awareness, security and privacy, and self –efficacy. The coefficient results show that, perceived ease of use (β= 0.319), Perceived usefulness (β= 0.231), Awareness (β=0.028) and security and privacy (β=0.250) have positive and statistical significant effect on adoption of Mobile banking adoption while self–efficacy (β=0.024) and Awareness (β=0.028) have no significant effect on adoption of Mobile banking.

5.2. Recommendations

Based on the above findings, to improve the adoption of mobile banking service in Ethiopia, for banks, which already adopt the technology or looks for the mobile banking adoption, the study recommends the following.

- Perceived usefulness is significantly influencing mobile banking adoption. Hence, in order to reap the fruits of mobile banking, banks has to educate the different benefits and advantages that mobile banking services offer to the customers.
- Perceived easy of use has influence on using mobile banking adoption, therefore, the banks should do a lot in making their mobile application in such a way that does not require much effort. Moreover, enabling greater use of mobile banking technology across various regions in the country, the banks should simplify the instructions how to use mobile banking different local languages.
- Privacy and Security were found to be significant determining factors to adopt mobile banking service by customers. The banks should give a high priority in boosting the trust and confidence of the customers. Besides, the banks give assurances to customers that mobile transactions are secured and private. Moreover, the bank carries the full responsibility for any financial losses that might happen during the transaction of mobile banking.
- The last but not least, the banks should change the attitude of the customers by educating the customers and how to communicate their customers about mobile banking service reliability, its simplicity and user friendly. This might help customers to reduce the resistance not to adopt mobile banking service.

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

QUESTIONNAIRE

Dear respondent,

Thank you very much for your time and patience in completing this questionnaire. This questionnaire design for master thesis's on Management at Addis Ababa University in title with "Assessing the factors affecting the adoption of Mobile Banking services" in case of selected Commercial Banks in Ethiopia (i.e Commercial Bank of Ethiopia, Awash Bank, Dashen Bank and Abyssinia Bank). I kindly ask you genuine response on the questions to meet the intended objective. I assure you that the information is strictly confidential and used for intended objective only. If you need any information concerning the questionnaire please contact me: Yetnayet Assegid (+251-911072654)

Thanks!!

Part I – Demographic Information of The Respondents

1. Gender : Male ☐ Female ☐

2. Age: …….

3. Education Level:

Below college level ☐ College Diploma or Certificate ☐

BA/BSc Degree ☐ MA/MSc Degree ☐

Others ----------

4. Income Level ……..

Part II – Factors affecting Mobile Banking Adoption

Please indicate the level of agreement on the following factors that affect the decision to adopt the Mobile banking services? Use (5= Strongly Agree 4= Agree, 3=Neutral, 2=Disagree and 1= strongly disagree).

	Factors affecting Mobile banking Adoption	Scales				
		1	2	3	4	5
1.	Perceived Usefulness					
1.1	Mobile banking will enable me to accomplish my banking task more quickly.					
1.2	Mobile banking will make it easier for me to do my banking.					
1.3	Using Mobile banking will decrease my cost of banking.					
1.4	Mobile banking saves time compared to traditional banking.					
2.	Perceived Ease of Use					
2.1	Mobile banking is easy of use					
2.2	Mobile banking is not complicated to use.					
2.3	I can use Mobile banking without anyone helping me.					
3.	Awareness					
3.1.	Are you aware of the availability of Mobile Banking?					
3.2.	Are you aware of benefits of Mobile banking?					
3.3.	Do you think the Banks are doing enough to make people know about Mobile banking?					
4.	Security and Privacy					
4.1.	Using Mobile Banking is financial secure					

	Factors affecting Mobile banking Adoption	Scales				
		1	2	3	4	5
4.2.	I trust in the ability of Mobile Banking to protect my privacy					
4.3.	I trust in Mobile Banking as Banks					
4.4.	I am not worried about the security of a Mobile Banking					
5.	Attitude					
5.1	In my opinion, it is desirable to use Mobile Banking.					
5.2	I think it is good for me to use Mobile Banking.					
5.3	Overall, my attitude towards Mobile Banking is favorable.					
6.	Technological Self-efficacy					
6.1.	I could complete my bank transaction using Mobile banking if there was no one around to tell me what to do.					
6.2.	I could complete my bank transaction using Mobile banking if I had only the manuals or online help for reference.					
6.3	I could complete my bank transaction using Mobile banking if someone showed me how to do it first.					

III. Intention to adopt Mobile Banking

Please indicate the level of agreement the intention to adopt mobile banking services? Use (5= Strongly Agree 4= Agree, 3=Neutral, 2=Disagree and 1= strongly disagree).

	Intention to adopt Mobile Banking					
7.1	I will adopt Mobile banking as soon as possible					
7.2	I intend to use Mobile Banking in the future					
7.3	I will regularly use Mobile banking in the future					
7.4	I will strongly recommend others to use Mobile banking					

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Annexes

Annex1: Descriptive statistics of the variables

Annex A: Perceived usefulness

1. Mobile banking will enable me to accomplish my banking task more quickly.

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly disgaree	3	1.1	1.1	1.1
2.00 Disgaree	14	5.2	5.2	6.4
3.00 Netural	31	11.6	11.6	18.0
4.00 Agree	106	39.7	39.7	57.7
5.00 Strogly agree	113	42.3	42.3	100.0
Total	267	100.0	100.0	

2. Mobile banking will make it easier for me to do my banking.

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	6	2.2	2.2	2.2
2.00 Disagree	6	2.2	2.2	4.5
3.00 Neutral	33	12.4	12.4	16.9
4.00 Agree	102	38.2	38.2	55.1
5.00 Strongly Agree	120	44.9	44.9	100.0
Total	267	100.0	100.0	

3. Using Mobile banking will decrease my cost of banking.

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly disagree	9	3.4	3.4	3.4
2.00 Disagree	23	8.6	8.6	12.0
3.00 Neutral	41	15.4	15.4	27.3
4.00 Agree	95	35.6	35.6	62.9
5.00 Strongly Agree	99	37.1	37.1	100.0
Total	267	100.0	100.0	

4. Mobile banking saves time compared to traditional banking.

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	6	2.2	2.2	2.2
2.00 Disagree	2	.7	.7	3.0
3.00 Neutral	7	2.6	2.6	5.6
4.00 Agree	91	34.1	34.1	39.7
5.00 Strongly agree	161	60.3	60.3	100.0
Total	267	100.0	100.0	

AnnexB: Perceived ease of use

1. Mobile banking is easy to use

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	7	2.6	2.6	2.6
2.00 Disagree	15	5.6	5.6	8.2
3.00 Neutral	22	8.2	8.2	16.5
4.00 Agree	109	40.8	40.8	57.3
5.00 Strongly Agree	114	42.7	42.7	100.0
Total	267	100.0	100.0	

2. Mobile banking is not complicated to use.

	Frequency	Percent	Valid Percent	Cumulative Percent
2.00 Disagree	14	5.2	5.2	5.2
3.00 Neutral	22	8.2	8.2	13.5
4.00 Agree	134	50.2	50.2	63.7
5.00 Strongly Agree	97	36.3	36.3	100.0
Total	267	100.0	100.0	

3. I can use Mobile banking without anyone helping me

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	4	1.5	1.5	1.5
2.00 Disagree	11	4.1	4.1	5.6
3.00 Neutral	15	5.6	5.6	11.2
4.00 Agree	117	43.8	43.8	55.1
5.00 Strongly Agree	120	44.9	44.9	100.0
Total	267	100.0	100.0	

AnnexC: Awareness

1. Are you aware of the availability of Mobile Banking?

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	4	1.5	1.5	1.5
2.00 disagree	27	10.1	10.1	11.6
3.00 Neutral	70	26.2	26.2	37.8
4.00 Agree	83	31.1	31.1	68.9
5.00 Strongly agree	83	31.1	31.1	100.0
Total	267	100.0	100.0	

2. Are you aware of benefits of Mobile banking?

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	4	1.5	1.5	1.5
2.00 Disagree	28	10.5	10.5	12.0
3.00 Neutral	68	25.5	25.5	37.5
4.00 Agree	89	33.3	33.3	70.8
5.00 Strongly agree	78	29.2	29.2	100.0
Total	267	100.0	100.0	

3. Do you think the Banks are doing enough to make people know about Mobile banking?

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	48	18.0	18.0	18.0
2.00 Disagree	99	37.1	37.1	55.1
3.00 Neutral	83	31.1	31.1	86.1
4.00 Agree	22	8.2	8.2	94.4
5.00 Strongly Agree	15	5.6	5.6	100.0
Total	267	100.0	100.0	

Annex: Security and Privacy

1. Using Mobile Banking is financial secure

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	11	4.1	4.1	4.1
2.00 Disagree	41	15.4	15.4	19.5
3.00 Neutral	71	26.6	26.6	46.1
4.00 Agree	125	46.8	46.8	92.9
5.00 Strongly agree	19	7.1	7.1	100.0
Total	267	100.0	100.0	

2. I trust in the ability of Mobile Banking to protect my privacy?

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	3	1.1	1.1	1.1
2.00 Disagree	32	12.0	12.0	13.1
3.00 Neutral	99	37.1	37.1	50.2
4.00 Agree	109	40.8	40.8	91.0
5.00 Strongly Agree	24	9.0	9.0	100.0
Total	267	100.0	100.0	

3. I trust in Mobile Banking as a Banks

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	14	5.2	5.2	5.2
2.00 Disagree	32	12.0	12.0	17.2
3.00 Neutral	99	37.1	37.1	54.3
4.00 Agree	86	32.2	32.2	86.5
5.00 Strongly Agree	36	13.5	13.5	100.0
Total	267	100.0	100.0	

4. I am not worried about the security of Mobile Banking

		Frequency	Percent	Valid Percent	Cumulative Percent
	1.00 Strongly Disagree	43	16.1	16.1	16.1
	2.00 Disagree	50	18.7	18.7	34.8
	3.00 Neutral	105	39.3	39.3	74.2
	4.00 Agree	55	20.6	20.6	94.8
	5.00 Strongly Agree	14	5.2	5.2	100.0
	Total	267	100.0	100.0	

AnnexE: Attitude

1. In my opinion, it is desirable to use Mobile Banking.

		Frequency	Percent	Valid Percent	Cumulative Percent
	2.00 Disagree	18	6.7	6.7	6.7
	3.00 Neutral	38	14.2	14.2	21.0
Valid	4.00 Agree	144	53.9	53.9	74.9
	5.00 Strongly Agree	67	25.1	25.1	100.0
	Total	267	100.0	100.0	

2. I think it is good for me to use Mobile Banking

		Frequency	Percent	Valid Percent	Cumulative Percent
	1.00 Strongly Disagree	4	1.5	1.5	1.5
	2.00 Disagree	17	6.4	6.4	7.9
	3.00 Neutral	21	7.9	7.9	15.7
Valid	4.00 Agree	126	47.2	47.2	62.9
	5.00 Strongly Agree	99	37.1	37.1	100.0
	Total	267	100.0	100.0	

3. Overall, my attitude towards Mobile Banking is favorable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 Strongly Disagree	4	1.5	1.5	1.5
	2.00 Disagree	5	1.9	1.9	3.4
	3.00 Neutral	30	11.2	11.2	14.6
	4.00 Agree	141	52.8	52.8	67.4
	5.00 Strongly agree	87	32.6	32.6	100.0
	Total	267	100.0	100.0	

Annex F: Technology self –efficiency

1. I could complete my bank transaction using the Mobile banking, if there was no one around to tell me what to do

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 Strongly Disagree	3	1.1	1.1	1.1
	2.00 Disagree	17	6.4	6.4	7.5
	3.00 Neutral	47	17.6	17.6	25.1
	4.00 Agree	103	38.6	38.6	63.7
	5.00 Strongly agree	97	36.3	36.3	100.0
	Total	267	100.0	100.0	

2. I could complete my bank transaction using the Mobile banking, if I had only the manuals or online help for reference.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00 Strongly Disagree	12	4.5	4.5	4.5
	2.00 Disagree	26	9.7	9.7	14.2
	3.00 Neutral	41	15.4	15.4	29.6
	4.00 Agree	113	42.3	42.3	71.9
	5.00 Strongly agree	75	28.1	28.1	100.0
	Total	267	100.0	100.0	

3. I could complete my bank transaction using the Mobile banking, if someone showed me how to do it first.

		Frequency	Percent	Valid Percent	Cumulative Percent
	1.00 Strongly Disagree	17	6.4	6.5	6.5
	2.00 Disagree	22	8.2	8.4	14.8
	3.00 Neutral	31	11.6	11.8	26.6
	4.00 Agree	120	44.9	45.6	72.2
	5.00 Strongly agree	73	27.3	27.8	100.0
	Total	263	98.5	100.0	
Missing	System	4	1.5		
Total		267	100.0		

Annex G: Mobile banking adoption

1. I will adopt mobile banking as soon as possible

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	4	1.5	1.5	1.5
2.00 Disagree	19	7.1	7.1	8.6
3.00 Neutral	26	9.7	9.7	18.4
4.00 Agree	112	41.9	41.9	60.3
5.00 Strongly agree	106	39.7	39.7	100.0
Total	267	100.0	100.0	

2. I intend to use mobile banking in the future

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	2	.7	.7	.7
2.00 Disagree	8	3.0	3.0	3.7
3.00 Neutral	25	9.4	9.4	13.1
4.00 Agree	115	43.1	43.1	56.2
5.00 Strongly agree	117	43.8	43.8	100.0
Total	267	100.0	100.0	

3. I will regularly use mobile banking in the future

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	9	3.4	3.4	3.4
2.00 Disagree	3	1.1	1.1	4.5
3.00 Neutral	26	9.7	9.7	14.2
4.00 Agree	115	43.1	43.1	57.3
5.00 Strongly agree	114	42.7	42.7	100.0
Total	267	100.0	100.0	

4. I will strongly recommend others to use Mobile banking

	Frequency	Percent	Valid Percent	Cumulative Percent
1.00 Strongly Disagree	9	3.4	3.4	3.4
2.00 Disagree	12	4.5	4.5	7.9
3.00 Neutral	34	12.7	12.7	20.6
4.00 Agree	86	32.2	32.2	52.8
5.00 Strongly agree	126	47.2	47.2	100.0
Total	267	100.0	100.0	

Annex H: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Usefulness	267	1.50	5.00	4.2584	.78201
Ease to use	267	2.00	5.00	4.2622	.74503
Awareness	267	1.00	5.00	3.7041	1.02529
Security and Privacy	267	1.00	5.00	3.3052	.83367
Attitude	267	1.00	5.00	4.0861	.86062
Adoption	267	1.00	5.00	4.2247	.83061
self_efficency	267	1.00	5.00	3.9101	.97302
Valid N (listwise)	267				

Annex2: Correlation Matrix

		Adoption	Usefulness	Ease use	Awareness	Security and Privacy	Attitude	Self-efficiency
Adoption	Pearson Correlation	1	.606**	.618**	.356**	.404**	.607**	.407**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	267	267	267	267	267	267	267
Usefulness	Pearson Correlation	.606**	1	.545**	.471**	.289**	.511**	.347**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	267	267	267	267	267	267	267
Ease to use	Pearson Correlation	.618**	.545**	1	.348**	.134*	.598**	.390**
	Sig. (2-tailed)	.000	.000		.000	.029	.000	.000
	N	267	267	267	267	267	267	267
Awareness	Pearson Correlation	.356**	.471**	.348**	1	.209**	.242**	.135*
	Sig. (2-tailed)	.000	.000	.000		.001	.000	.027
	N	267	267	267	267	267	267	267
Security and Privacy	Pearson Correlation	.404**	.289**	.134*	.209**	1	.152*	.168**
	Sig. (2-tailed)	.000	.000	.029	.001		.013	.006
	N	267	267	267	267	267	267	267
Attitude	Pearson Correlation	.607**	.511**	.598**	.242**	.152*	1	.548**
	Sig. (2-tailed)	.000	.000	.000	.000	.013		.000
	N	267	267	267	267	267	267	267
Self efficency	Pearson Correlation	.407**	.347**	.390**	.135*	.168**	.548**	1
	Sig. (2-tailed)	.000	.000	.000	.027	.006	.000	
	N	267	267	267	267	267	267	267

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

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

Annex3: Regression Model

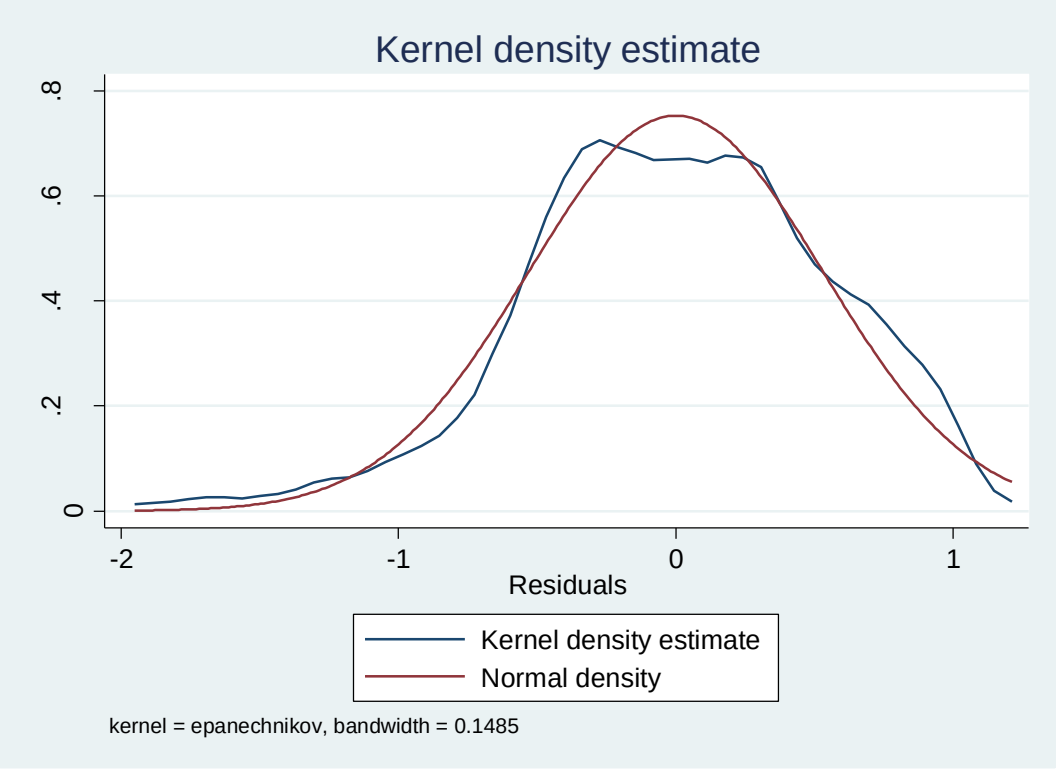
Linear regression

Number of obs	= 267
F(6, 260)	= 78.03
Prob > F	= 0.0000
R-squared	= 0.5932
Root MSE	= .53588

Adoption	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Usefulness	.2309218	.0603619	3.83	0.000	.1120613	.3497823
Ease_use	.3192408	.0835882	3.82	0.000	.1546446	.4838369
Awareness	.0280566	.0353857	0.79	0.429	-.0416226	.0977357
Security_Privacy	.2500396	.0471805	5.30	0.000	.157135	.3429442
self_efficency	.0246543	.0425107	0.58	0.562	-.0590547	.1083634
Attitude	.2527014	.062059	4.07	0.000	.1304991	.3749037
_cons	-.1786452	.2947866	-0.61	0.545	-.7591184	.4018279

Annex4: Regression Assumption

1. Normality Test:



2. Multicollarity

Variable	VIF	1/VIF
Attitude	2.01	0.497986
Usefulness	1.85	0.541061
Ease_use	1.82	0.550116
self_effic~y	1.46	0.683417
Awareness	1.33	0.754687
Security_P~y	1.11	0.899866
Mean VIF	1.60	

3. Hetreroskeasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of Adoption

         chi2(1)      =     9.86
         Prob > chi2  =   0.0017
```

4. Auto correlation

```
Durbin-Watson d-statistic(  7,   267) =  1.786759
```