

**DETERMINANTS OF MOBILE AND AGENT BANKING SERVICE ADOPTION:
EVIDENCE FROM SELECTED COMMERCIAL BANKS IN ETHIOPIA**

**A RESEARCH PAPER SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF
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Declaration

This is to certify that Tilahun Gemechu has carried out his research on the topic entitled *“Determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia”*. The work is original in nature and is suitable for the submission for the reward of masters of **Science** (Msc.) in banking and finance.

Certificate

This is to certify that the research paper entitled “*Determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia*” submitted to Jimma university for the award of the degree of masters of Science in banking and finance and is a record of confide research paper work under our guidance and supervision.

Therefore, I hereby declare that no part of this research paper has been submitted to any other university or institutions for the award of masters.

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Abstract

The main purpose of the study was to examine determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia. The study specifically examined the effect of perceived trust on Agency banking adoption on Equity bank customers in Ethiopia, assessed the effect of perceived usefulness on Agency banking adoption on commercial banks customers in Ethiopia, and examined the effect of perceived ease of use on Agency banking adoption on commercial banks customers in Ethiopia. The study adopted the Technology Acceptance Model (TAM) to conceptualize the variables as used in the study. In the study, a case study research design was adopted; convenience sampling technique was used to select a sample of 81 customers from a population of the respondents. Quantitative and qualitative approaches were used to collect data from commercial banks customers with the help of questionnaires. In the study, analysis was done at different levels first with descriptive statistics, followed by correlation and later regression analysis. The findings of the study revealed that perceived trust was the strongest predictor of Agency banking adoption among commercial banks customers (Beta=0.368, p=.000), this was followed by perceived usefulness (Beta=0.272, p=0.004) and lastly perceived ease of use (Beta=0.261, p=0.007). The study recommended that efforts should be done to enhance perceived trust, perceived usefulness, perceived ease of use in a bid to increase agency banking adoption.

Key words: Perceived trust, perceived usefulness, perceived ease of use, agency banking adoption.

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CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Mobile banking service is new development in Ethiopian Banking industry. Recently, mobile banking services are being used with increasing frequency in Ethiopia. The adoption of mobile banking (M-banking) began to occur quite extensively as a channel of distribution for financial services due to rapid advances in the banking market. Mobile banking offers numerous benefits to both banks and customers (Allen et al, 2001). Mobile banking dates back to the end of the 1990s when the German company Pay box, in collaboration with DeutscheBank, launched the first service. Among developing countries, Kenya was the first to introduce a text-based m-banking service, M-Pesa, in 2007. By 2012, there were more than seven million registered M-Pesa users in Kenya.

Mobile banking today is most often performed via SMS or the mobile internet but can also use special program that clients download to their mobile devices. The services offered by mobile banking include getting account information, transferring funds, sending check books request, managing deposits, checking transaction and so on. Mobile banking is likely to have significant effects on the market (Safeena et al., 2012). Despite such benefits, the use of mobile phones or tablets to conduct banking transactions or access financial information is not as widespread as might be expected (e.g., Dineshwar and Steven, 2013; Luarn and Lin, 2005; Shih et al., 2010).

The spread of mobile technology across the globe is one of the most remarkable achievements in the last decades. Mobile phones have increasingly become tools that consumers use for banking, payments, budgeting, and shopping. Advances in mobile technology have revolutionized almost every facet of society, from information to education, granting enhanced access to an overgrowing number of people.

Agent banking is a service outlet contracted by financial institution or mobile network operator to process client's transactions rather than a bank teller. It is the owner or an employee of the retail outlet who conducts the transaction and lets its client deposit, withdraw and transfer funds,

pay their bills, inquire about an account balance, or a direct deposit from their employer, or receive government benefits. Banking agents can be pharmacies, super markets, conveniences stores, lottery outlets, post offices etc. (Ivatury& Layman, 2006)

Agent banking is the provision of financial services to customers by a third party (agent) on behalf of a licensed deposit taking financial institution and/or mobile money operator (principal). (Central Bank of Nigeria, 2013)

Agent banking, which leverages heavily on ICT, is a component of branchless banking that allows financial institutions to offer financial services outside the traditional brick and mortar bank premises (Mas, 2008; Mas and Siedek, 2008).Agent banking improves the bank's geographical coverage and competitiveness, So that, existing and potential customers can benefit from a greater level of convenience in accessing banking services.

Banking services and operations have undergone a paradigm shift especially in the past decade. The changes have been catalyzed by technology advancements, global commerce, competitiveness and customer demands can be stated as the important factors. As a result, banking services have quickly developed to adopt new delivery means which adapt to the changing commercial landscape. In order to meet customer expectations banks vie with each other to have new and innovative services to ensure a competitive edge (Shi & Lee 2008). The evolutionary changes have significantly impacted on the corresponding strategies that the banks have adopted as a consequence.

The agency banking system has been adopted by the different states with varying success rate (Tindi & Bogonko, 2017).

Brazil was the global pioneer to adopt agency banking in 2000 where it developed a network of bank agents covering over 99% of its municipalities (Mckay, 2011). By 2010, the country had approximately 151,958 bank agents functioning (The national treasury, 2012). Later in 2003, the Central Bank of Brazil expanded the system to allow all financial institutions and other authorized institutions to provide agent banking services, including investment banks, finance companies and savings and loans associations (Life, n.d.).

Other countries in Latin America which followed suit in adopting agency banking system were, Peru in 2005, Colombia in 2006, Ecuador in 2008, Mexico and Venezuela in 2009 (Mckay,

2011). In Colombia, the original agent banking regulation was passed in 2006 and specified that any commercial bank, commercial finance company, or regulated savings and credit cooperative could use the agent banking model (The national treasury, 2012).

Over 22.3 million payment transactions were performed by banking agents in 2010, representing 77% of all transactions performed by agents (Mandrile, n.d.). In Colombia, 11 financial institutions were using agent banks to increase their physical presence in the country, including commercial banks (The national treasury, 2012).

With rapid advance of Internet technologies and diffusion of mobile phones, mobile banking has gained attention as a viable option in delivering financial services. Recent innovations in telecommunications have enabled the launch of mobile banking as a new access method for banking services; whereby a customer interacts with a bank via mobile phone (Barnes & Corbitt 2003).

Mobile banking is a term used for performing balance checks, account transactions, payments etc via a mobile device such as a mobile phone. Mobile banking today is most often performed via SMS or the mobile internet but can also use special programs that clients download to their mobile device. It can also be understood as availing banking and financial services with the help of mobile telecommunications devices. The services offered by mobile banking included getting account information, transferring funds, sending checkbook request, managing deposits, checking transactions and so on. Commercial banks are exploring this avenue to make their services more convenient for their customers. The growing number of mobile subscribers in the country forms the most valuable support base for the growth and success of mobile banking.

Developments in the banking sector as indicated in increased competition on account of technological developments coupled with the process of globalization have produced new challenges for banks.

Some of the significant reasons that compel financial firms to provide mobile banking services are; appealing to trendy customers, reducing costs per transactions, gaining revenue from service fees, enabling new service channels, and supporting future customers (Huili and Chunfang 2011). Mobile banking services provide time independence, convenience and promptness to customers,

along with cost savings. Mobile banking presents an opportunity for banks to expand market penetration through mobile services (Lee, Lee & Kim 2007).

Despite these advantages and the conveniences, the use of mobile banking services is much lower than expected in both the developed and developing economies (Agwu 2012). He also stated that mobile phones and its applications are still highly under-utilized. Akturan and Tezcan (2012) stressed that the market of mobile banking still remains very small when compared to other electronic banking counterparts such as ATM; internet banking, etc. Furthermore, it is noted that the widespread adoption and large usage of mobile telephones did not reflect on the adoption and usage of mobile banking.

Puschel, et al. (2010) indicated that adoption and usage of mobile banking will largely depend upon customer's perception of its ease of use and usefulness. However, the understanding of the underlying problems of the reasons for the low rate of mobile banking usage could assist financial managers to find ways to adjust their marketing techniques and come up with the right solution to improve their mobile banking service as well as to increase the rate of mobile banking customer's usage. Therefore, the study was to identify determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia.

1.2 Statement of the Problem

In 2017, Equity Bank Uganda introduced agency banking with an intention to bring banking services closer to the customers. Prior to its inception, the bank registered over 2000 agents countrywide (Equity Bank Group Annual Report, 2018).

A number of initiatives have been done so as to increase the rate of adoption of the agency banking system for example, customer sensitizations programs, educational advertisements on various media platforms to mention but a few (Equity Bank Group Annual Report, 2018).

Nonetheless, the rate of adoption of the agency banking system is still below the targets. This is evidenced in the Equity Bank Group Annual Report (2018) where the actual number of transactions registered using the agency banking system was 1.3 million transactions which was below the target of 6.7 million transactions to be made.

Ethiopia lags significantly behind the other Sub-Saharan African countries in all measures of financial access, including number of bank branches and ATMs per 100,000 adults as well as depositors and creditors per 1000 adults were 1.3; 0.241; 136.13; and 2.09 respectively, in 2012 (IMF, 2014). While the data on all these indicators of Sub-Saharan Africa were above all these indicators of Ethiopia.

Digitizing payments can play an important part. Shifting payments such as wages or government transfers from cash into accounts can increase the number of adults with an account. And digitizing payments such as those for school fees or utility bills allows people who already have an account to benefit more fully from financial inclusion by enabling them to make the payments in a way that is easier, more affordable, and more secure.

Agent banking represents a significant opportunity to reduce transaction costs such as travel for clients by bringing financial services to hard-to-reach and geographically dispersed areas. This is especially true in Africa where some areas are sparsely populated leaving long distances between the customer and the bank. Obviously, the set-up of agent banking is less costly and more flexible than for traditional bank branches since it reduces the need to invest in staff and physical infrastructure (Barasa D. and Dr. Mwirigi F, 2013).

As per the researcher's observation on Agent banking services, review of literatures on the issue and preliminary discussions made with staff of E-banking Service Department at different banks that already commence the service, some of the challenges faced in providing the agent banking are poor internet and mobile network connectivity, lack of skilled man power, absence of suitable legal and regulatory framework are challenges to provide and enhance the service. Moreover, the cost that involved in servicing low-value accounts, availing physical infrastructure to remote rural areas and cost (in money and time) incurred by customers in remote areas to reach bank branches are among the major concerns (Ndungu, 2014). The challenges enumerated above and other challenges are serious to pose further scientific investigations to give appropriate fix by the concerned. In different parts of the world various research studies have been conducted on agent banking services. However, none of these studies focused on determinants of mobile and agent banking service adoption in Ethiopian banking context. Different frameworks and theories are also used in different studies like Diffusion of Innovation theory (DOI) by (Ndungu, 2014I), (Gichuki E., 2013). Different research have also been

conducted in the area of E-Banking, Mobile Banking and Internet Banking in Ethiopian Banking, like that of (Ayana, 2012), (Wondwossen and Tsegai,2005), (Gardachew,2010) this research study, however, shed light on determinants of mobile and agent banking service adoption in Ethiopia to fill the research gap in this regard. This study is, therefore, intending to fill the gap, which is the adoption of agent and mobile banking services in relation with financial inclusion, digitalization of banking activities and creating cash less society, by describing the challenges and benefits of Ethiopian commercial banks in adopting mobile and agent banking services.

Therefore, this study is designed to assess determinants of mobile and agent banking Service Adoption with special emphasis to commercial banks that already commenced the service; Wegagen Bank S.C., Abay Bank S.C., Lion International Bank S.C. and Cooperative Bank of Oromia S.C. The agent banking as a strategy to increase revenue from additional investments, to increase customer base and market share, to improve indirect branch productivity by reducing congestion in the branches and to offer low cost solutions in areas with potentially less volume and number of transactions. It is further intended to enhance easy financial accessibility both for the unbanked and the banked population (Ivatury and Mars, 2008). It is said that low income earners often feel more comfortable in banking at their neighbors than walking into bank branches. Hence, the above knowledge gap was to identify determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia

1.3. Research Questions

The study was guided by the following basic research questions:

1. What is the effect of perceived trust on Agency banking adoption among on commercial banks customers in Ethiopia?
2. What is the effect of perceived usefulness on Agency banking adoption among on commercial banks customers in Ethiopia?
3. What is the effect of perceived ease of use on Agency banking adoption among on commercial banks customers in Ethiopia?

1.4. Objectives of the Study

1.4.1 General Objective

The main objective of the study was to investigate the determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia.

1.4.2 Specific Objectives

The specific objective was:-

- To examine the effect of perceived trust on Agency banking adoption among on commercial banks customers in Ethiopia.
- To assess the effect of perceived usefulness on Agency banking adoption among on commercial banks customers in Ethiopia.
- To analyze the effect perceived ease of use on Agency banking adoption among on commercial banks customers in Ethiopia.

1.5 Significance of the Study

The findings of the study assist the stakeholders in the banking sector, economic planners and policy makers in the public sector to understand the determinants factors which influence mobile and agent banking service and its impact on people's lives. As certain the effects of mobile and agent banking services that was help them in formulating policies and encourage technological innovations as well as adoption in commercial banks of Ethiopia.

The study was recommending new strategy that banks should adopt in using determinants of mobile and agent banking service instruments in improving their service. This study was also helping the general public by creating awareness on the benefits of mobile and agent banking. It is also hoped that the awareness that this study was create and also add to the foundation of knowledge being laid for research in mobile banking technologies.

1.6 Scope of the Study

The scope of the study is restricted to the determinants of mobile and agent banking service adoption of commercial banks of Ethiopia. As a result, it include the largest governments owned commercial banks/ CBE/. The scope of the study also includes the six leading industrial banks in the country in terms of both branch network and market share especially namely, AIB, DB, CBO, WB, UB and NIB.

1.7. Limitation of the Study

When conducting the study, the student research supporter lacked consistency in regards to the interpretation of the questions when administering the questionnaires to the respondents. In order reduce to this problem; the student research supporters were oriented about the data collection

procedures. More so, not all the questionnaires were fully filled and returned since some respondents were not willing to participate in the study.

1.8. Organization of the Study

The study is organized in to five chapters. The first chapter deals with background of the study, statements of the problem, objective of the study, and scope and significant of study, and organization of the research. The second chapter presents previous related literature review. The third chapter explains types and source of data that would be used for the study, research approach, research design, collection procedures, sampling techniques used to determine the sample size, method of statistical data analysis tools and collection. The fourth chapter presents the analysis and result of the study that has been arrived using descriptive tools. The last chapter had present summary of findings, conclusions, and recommendations of the study.

CHAPTER TWO

2. RELATED LITERATURE REVIEW

2.1 Theoretical Review

Relying on the works by Ajzen and Fishbein (2012) who formulated the theory of reasoned action and other related research studies. Davis (1989a) suggested that user's motivation can be explained by three factors by three factors: Perceived ease of use, perceived usefulness and attitude towards using the system. Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his/her job performance" Davis (1989b).

He further defined perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort"(Davis, 1989a). Consumers will adopt the agency banking system if they believe the system offers more value in regards to assessing banking services than the conventional banking system. The continued usage of the agency banking system will depend on the perceived benefits and success stories of customers who have adopted the system hence increasing the adoption rate and usage of the system (Zigale, 2018).

However, since perceived ease of use and perceived usefulness might not conclusively explain the user's intention and attitude towards the adoption of agency banking systems, additional variables such perceived trust will be embedded in the model (Davis, 1989b).

The relevance of this theory in this study is the fact that agency banking is a new innovation for which the customers have to prove its relative advantage (perceived usefulness) as well as ease in operation (perceived ease of use) when compared to other already existing banking alternatives. However, when the perceived benefits of using the system outweigh the ease in use, customers will still adopt the system thus perceived usefulness being the strongest predictor for the intention to use the agency banking system.

According to Al-Fahim (2013), number of studies have utilized the technology acceptance model (TAM) to understand the users' attitudes and beliefs in regards to the adoption of agency banking which include; Irura and Munjiru (2013) ; Mungai (2016) ; Mamwa (2014) ; Kariuki and Namusonge (2016) ; Zigale (2018).

Irura and Munjiru (2013) examined the effect of technology adoption on the banking agency in rural Kenya. A sample of 80 SMEs and 20 agency banks was selected from Likuyani and Karatina districts in western Kenya using stratified sampling. In their study, the technology acceptance model was adopted to expound on the adoption of agency banking. The findings of

the study revealed that perceived usefulness and perceived ease of use as used in the technology acceptance model were statistically significant in relation to adoption of agency banking in Likuyani and Karatina districts of western Kenya.

This is in line with Mungai (2016) who conducted a study on the factors influencing adoption of agency banking by commercial banks in Kenya. In her study, the technology acceptance model was also adopted to explain the effect of technology factors on the adoption of agency banking in 11 commercial banks in Kenya. A sample of 33 employees was selected from the population. The findings of the study indicated that perceived usefulness, perceived ease of use were the strong predictor of agency banking adoption among 11 commercial banks of Kenya.

Similarly, Mamwa (2014) also conducted a study on the consumer attitude towards agency banking in commercial banks of Kenya by customers of commercial banks offering agency banking in Machakos Township in Kenya where the technology acceptance model was also adopted to investigate the consumer attitudes towards the agency banking system. The findings of the study indicated a statistically significant positive relationship between the consumer's attitudes towards agency banking with a mean of 3.79. The study concluded that perceived usefulness and perceived ease of use attributed to the consumer attitudes towards the adoption of the agency banking system.

In addition, Kariuki and Namusonge (2016) also conducted a study on the factors influencing the growth of agency banking of commercial banks in Trans Nzoia County in Kenya. In their study, the technology acceptance model was utilized to expound on the factors influencing the adoption and growth of agency banking in Kenya. Constructs of perceived usefulness (agent distance and security) as well as perceived ease of use (Technology infrastructure) were used. The findings of the study revealed that; there was a significant negative relationship between technology infrastructure and growth of agency banking in Trans Nzoia County at 1% level of significance. There was a significant positive relationship between agents to bank distance and growth of agency banking of commercial banks in Trans Nzoia County at 1% level of significance. There was a significant positive relationship between security and growth of agency banking of commercial banks in Trans Nzoia County at 1% level of significance.

In conjunction with the above, a study conducted by Zigale (2018) on the challenges and prospects for agency banking in Ethiopia, the technology acceptance model was also utilized to

explain the challenges and opportunities regarding adoption of agency banking in Ethiopia. In this study, perceived economic factor, perceived usefulness, perceived ease of use, perceived trust and perceived risk were used. The findings of the study indicated that perceived usefulness, perceived trust had a significantly positive relationship with the actual usage of agency banking whereas, perceived ease of use, perceived risk and perceived economic factor had a significantly negative relationship with the actual usage of agency banking in Ethiopia. In relation to the above, the study will adopt perceived usefulness, perceived ease of use and perceived trust since they constitute the extended technology acceptance model to investigate the antecedents for adoption of agency banking in Uganda's banking sector.

2.1.1 Benefits of Mobile Banking

Mobile banking is one of developing mobile technique used in the commercial domain. It has combined information technology and commerce applications together. Since mobile banking was introduced, consumers have been able to use it to obtain special services 24 hours a day without having to visit the traditional bank branch for personal transactions. Short message service (SMS) is used to support mobile banking service as the main medium. Reasons for mobile and SMS usage are largely saving time, varying location and convenience (Venkatesh et al, 2003).

Mobile banking enables banks to reduce cost of courier, communication, paper works, etc and also it reduces costs in setting up a branch and the resources to process transactions (Sunil and Durga 2013). Also banks providing mobile banking services can have competitive advantage over those banks, which are not providing this service. Goswami and Raghavendran (2009) point out, mobile banking services will enable banks to not only increase fee-based income but also enable significant cost savings, improve service quality and provide cross-selling opportunities. Convenience, Ubiquitous access and mobility are the main benefits that mobile banking confers to customer (Laforet and Li 2005). Customers don't need to stand at the bank counter for various enquiries about their account. Customers can save their valuable time and travelling cost in reaching the bank for their financial transactions (Sunil and Durga 2013). Customers can pay their utility bills on time and save themselves from paying penalties, since alerts are received from the bank.

With respect to Mobile banking and economic development, an analysis should focus on the means by which Mobile banking can transform, or at a minimum enhance economic growth. The hope is that cell phone banking can contribute greatly to economic development through its ability to create income generation, enabling more people to access needed financial services in a cost efficient and relevant way. Over all the rise of cell phone banking is expected to result in substantial macroeconomic benefit resulting from a five to twenty percent reduction of financial exclusion by 2020 across several developing economies (Techcentral, 2012)

2.1.2 Mobile Banking service Models

There are a number of mobile banking models which are evolving and are being adopted by the mobile banking service providers. These models are differentiated based on various issues such as who will establish the customer relationship or who is legally responsible for the deposit, the bank or the non-bank/telecommunications company that is in terms of account opening, handling deposits and lending; whose brand is most exposed to the public; where can the cash be accessed; who carries the payment instructions in terms of whether the service is tied to a particular network or is network independent and basically the nature of agent agreement between the bank and the non-bank agent. However, no matter what business model, if mobile banking is being used to attract low income populations in often rural locations, the business model will depend on the banking agent, that is the retail outlet that will process the financial transaction on behalf of the bank (Porteous, 2006).

Porteous (2006) has defined mobile banking using models which are categorized as Bank-focused (pure bank-driven), Joint Venture (bank-led), Non-Bank-led and Non-bank driven.

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

In the Joint Venture model the customer conducts financial transactions through a mobile phone instead of at the bank's branches. This model promises the potential to substantially increase the financial services outreach by using a different delivery channel (retailers/ mobile

phones), a different trade partner having experience and target market distinct from traditional banks, and may be significantly cheaper than the bank-based alternatives. The model may be implemented by using correspondent arrangements between the bank and a non-bank agent. In this model customer account relationship rests with the bank

The non-bank-led model is where a bank has a limited role in the day-to-day account management and sometimes may not even come into the picture, and the non-bank agent performs all the transactions. Typically the role of the bank in this model is limited to safe-keeping of surplus funds. Account management functions are conducted by a nonbank agent who has direct contact with individual customers

The Non-bank driven model is where the non-bank agent effectively becomes the depository entity through the issuance of e-money. Account ownership and transactions management is done purely by the telecommunication companies.

2.1.3 Application security in Mobile banking

The main purpose of mobile banking application is to provide customers with access to their bank accounts through their cellular phones. In order to comply with acceptable industry standards for access in to bank account, the first item to consider is the successful authentication of the customer. Once authentication is done, the information that is transported between the bank and the customer's cellular phone needs to be encrypted to eliminate interception by non-authenticated parties. The security approach in cell phone banking application is crucial, because the customer will use the cell phone to access his bank account remotely by utilizing the network reach of his mobile network operator.

The cell phone banking application will allow the customer to view balances in accounts and transfer money from his account to any other bank account, it is of the utmost importance that the cell phone banking application enforce that each transaction can only be executed by the owner of the bank account. Application security in a cell phone banking application must assure none-repudiation of transactions (Laforet and Li, 2005). This implies that there must always be proof that the originator of the transaction was uniquely authenticated before the transaction was processed on the bank account. To assist with proper authentication it is recommended that the approved technology always uses a two-factor authentication mechanism of "something you

have”(your cell phone) and “something you know”(your cell phone banking personal identification number)(Manson,2002).

To comply with the first factor of authentication which is “something you have “, it is recommended that the application is designed to ensure that the mobile handset or unique SIM card is always linked to the customer profile during the registration process in the cell phone banking platform. This approach will limit the customer to only access the call phone banking application from his own handset and it will eliminate fraudulent transaction attempts from any available handset and it will eliminate fraudulent transaction attempts from any available handset making it more difficult for fraudsters to compromise the security of the application.

The second portion of the two factor authentication mechanism is a unique PIN that is selected by the customer during the registration process. PIN selection is important to assure that the customer’s identity is not comprised. It is recommended that customers select unique cell phone banking PIN codes, while the application must be designed to not allow weak PIN combinations that follow patterns like 1111, 1234, or 9876. According to security audit best practices regarding a PIN code, the customer must be forced to change his cell phone banking PIN on a regular basis. This is embraced from a security perspective but experience has shown that people tend to have One PIN for multiple applications. For example customers select the same PIN for their bank card as well as for the cell phone banking PIN.

Users experience in various country have indicated that if you continuously force customers to select a new PIN after a certain period of time has elapsed ,customers will become resistant and negative about the product and could even stop using both the card cell phone banking product (Constantinides, 2004). To assure security even further, it is recommended that all transactions with a financial impact is notified to the customer through an alert service. The advantage of a cell phone banking application is the fact that the bank will always have the mobile station integrated services Digital Network or cell phone number(MSISDN) of the customer and it allows the sending of transaction notifications immediately to the customers at the time of transaction through an SMS alert service (Young, 2000)

To support the security of a cell phone banking solution, it is good practice to introduce associated daily limits for the transaction types that will be delivered by the solution. The

introduction of daily limits combined with transaction notifications that will notify the customer of fraudulent activity will make cell phone banking less vulnerable for attacks and mitigate the potential fraud risk. It is in the discretion of the bank to determine the value of these limits but the rule of thumb is that it needs to be small enough amounts that discourage fraudsters in attempting to bridge the security of the solution.

2.1.4 Factors affecting Mobile and agent Banking Adoption

Many researchers have been used different theoretical frame works in the study of adopting new technological innovation. Among frameworks that have been developed based on the past studies includes, Technology Acceptance Model(TAM) (Davis, 1989), which posit the two sets of beliefs, i.e., perceived ease of use (PEOU) and perceived usefulness (PU) to determine individual's acceptance of a technology. Theory of Reasoned Action(TRA) (Fishbein&Ajzen 1975), Theory of Planned Behavior (TPB) (Ajzen 1991), which deals with the intention of adopting and the factors affect the use technology such as attitude, subjective norms and perceived behavioral control. The Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkateshet al 2003) Diffusion of Innovations Theory (DIT) developed by Rogers (1995) to explain how the diffusion of innovations takes place in the social service.

2.1.4.1 Technology Acceptance model (TAM)

TAM was developed by Davis (1986) to explain the computer-usage behavior. According to the model, in explaining the adoption of any information system, 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.

As noted by Davis (1989), future research of Information system (System consisting of the network of all communication channels used within an organization) usage has to address the

other variables which affect usefulness, ease of use and user acceptance. Consequently these two determinants may not fully explain the factors which predict the acceptance of a technology application such as mobile banking. Prior studies have extended the original TAM with added constructs such as perceived playfulness (Moon & Kim, 2001), perceived enjoyment (Koufaris, 2002) and perceived credibility (Wang et al., 2003).

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 trust

Perceived trust can be defined as the confidence the user has in the mobile device being used to conduct the online transaction (Leonard, Jones, & Jones, 2013). This is in line with Al-Jabri (2018) who defined perceived trust as the user's relative confidence in the agency banking service itself. This relates to an individual's perceived security of the transactions conducted on the internet or on mobile devices.

According to Roca, García, José, & Vega (2016) perceived trust is a critical factor in an online transaction where the consumer does not have direct control over the actions of the vendor. An information system which lacks trust in terms of privacy, security affects the rate at which customers adopt it. The increasing concern regarding security, privacy and the intended uses of personal information has made customers feel reluctant to provide their personal information in a system (Roca et al., 2016).

2.1.4.2. The Theory of reasoned action (TRA)

The original framework of this model was developed by Fishbein and Ajzen (1975). TRA explained that the actual behavior follows from behavioral intention and that behavioral intention is formed by one's attitude towards behavior and subjective norm (Masrom and Hussein, 2008). Fishbein and Ajzen (1975) defined attitude towards behavior as the individual's feelings about performing behavior. On the other hand, subjective norm was explained as an individual's perception of whether the behavior should be performed. This would be driven by the motivation

that an individual has to comply with opinions from people who are important to the individual (Fishbein&Ajzen 1975).

Behavioral intentions were assumed to indicate how hard people would be willing to try, and how much of an effort they would be planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in behavior, the more likely should be its performance (Sheppard et al. 1988). Subsequent to the original TRA theory, Ajzen (1991) extended the TRA theory establishing theory of planned behavior (TPB).

2.1.4.3. Theory of planned behavior (TPB)

The Theory of Planned Behavior is derived from the Theory of Reasoned Action (TRA).TPB added a perceived behavioral control construct to the TRA. Ajzen (1991) argued that behavioral intention can find expression in behavior only if the behavior in question is under volitional control, (e.g. if the person can decide at will to perform or not to perform the behavior). In many instances behavior would be influenced by non-motivational factors such as availability of resources (Ajzen 1991).

In TPB (Ajzen 1985) a third factor called perceived behavioral control is added. It suggests that the actual behavior of a person is influenced by behavioral intention, and it is influenced by either attitude, subjective norms or perceived behavioral control, or all the factors mentioned above. Attitude refers to the degree to which the person has a favorable or unfavorable evaluation of the behavior in the study, subjective norm refers to the perceived social pressure to perform or not to perform the behavior while perceived behavioral control refers to the individual's belief in the ease to execute behavior (Ajzen 1985).

2.1.4.4. Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed through consolidation of eight models that previous research had employed to explain IS usage behavior. To develop the theory, Venkatesh et al. (2003) firstly reviewed user acceptance literature. This review included the previously discussed theories, TRA, and TAM as well as the motivational model, theory of planned behavior (TPB).

This analysis illustrated that seven constructs appeared to be significant direct determinants of intention or usage (performance expectancy, effort expectancy, and social influence, facilitating conditions, attitude toward using technology, self-efficacy, and anxiety). Of these, Venkatesh et al. (2003) found that the first four constructs played a significant role as direct determinants of user acceptance and usage behavior. Afterwards, a unified model UTAUT was formulated by integrating different elements across the eight models. Using the original data from the aforementioned theories, the UTAUT model outperformed the eight individual models. A subsequent empirical validation using data gathered from two additional organizations confirmed the theory (Venkatesh, et al. 2003).

2.1.4.5. Diffusion of Innovations Theory (DIT)

Diffusion of Innovations Theory (DIT) was developed by Rogers (1983) to explain how the diffusion of innovations takes place in the social system. Mobile banking adoption can be examined using the Technology Adoption Life Cycle (TALC) which describes how new ideas and technologies spread in different cultures. According to TALC the stages by which a person adopts an innovation includes awareness of the need for an innovation, decision to adopt or reject the innovation, initial use of the innovation to test it and continued use of the innovation. Through these stages diffusion is accomplished. There are five different categories of adopters namely innovators, early adopters, early majority, late majority and laggards. Innovators are those people, who want to be the first to try the innovation, are interested in new ideas and are willing to take risks. Early adopters are people who represent opinion leaders; they enjoy leadership roles, embrace change opportunities and do not need convincing for them to change. Early majority adopt new ideas before the average person but they typically need to see the innovation work before they are willing to adopt it. Late majority are people who are skeptical of change and will only adopt an innovation after it has been tried by the majority. Laggards are bound by tradition and are very conservative; hence they fear innovation (Rogers, 1983).

Rogers (1983) identifies three characteristics of innovations: relative advantage, compatibility, and complexity. Adopters have invariably been found to have different perceptions about these characteristics in comparison with non-adopters. According to Kotler (2000), the characteristics of an innovation affect its rate of adoption. Some products catch on immediately, whereas others

take a long time to gain acceptance. If the innovation is perceived to be better than the existing system (a measure of its relative advantage), is consistent with the needs of the potential adopter (a measure of its compatibility), and is easy to understand and use (a measure of its complexity), it is more likely that a favorable attitude towards the innovation will be formed (Ching and Ellis, 2004).

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. Hence relative advantage is often the content of network messages with regard to an innovation.

Relative advantage, in one sense, indicates the strength of the reward or punishment resulting from the adoption of an innovation. There are a number of sub-dimensions of relative advantage such as the degree of economic profitability; decrease in discomfort; time saving; and effort (Rogers, 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; with previously introduced ideas; or with client needs for innovations (Rogers, 1983). 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 (Agarwal and Prasad, 1998).

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 Internet (Leaderer, et al., 1999). 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.

Several researches on mobile banking adoption have combined Technology Acceptance Model and Diffusion of Innovation theory (Riquelme & Rios 2010).

In their investigation on mobile banking, Puschel et al. (2010) have integrated elements of the Technology acceptance model (TAM) of Davis with Roger's innovation diffusion theory. Wessels and Drennan (2010) extended TAM by adding compatibility and perceived risk as constructs for their investigation on customer's acceptance of mobile banking. Akturan and Tezcan (2012) have integrated TAM, perceived benefits and perceived risks to investigate mobile banking adoption. Chong et al. (2010) affirm that, it is better to use TAM as a base model and extend it by including additional variables based on the study that is being carried out.

This study therefore combines extended TAM model (Luarn and Lin, 2005) along with Relative advantage to investigate factors influencing mobile banking adoption in commercial bank of Ethiopia. As a result for this study the factors influencing mobile banking adoption are perceived usefulness, perceived ease of use, perceived credibility, Perceived self-efficacy, perceived risk, perceived cost and relative advantage.

2.1.5 Legal Framework on Agency Banking in Ethiopia

In late 2012, National Bank of Ethiopia has issued a directive cited as "Regulation of Mobile and Agent Banking Services under Directives No. FIS/01/2012" with effective date of January 1, 2013. This directive has clarified and framed the business modality of the agent and mobile banking services in Ethiopia. Only financial institutions that are licensed by the National Bank of Ethiopia are allowed to engage in the mobile banking services as we follow a bank led model in the financial services. Mobile and agency banking service shall be carried out only within Ethiopian geographic boundary and only with Ethiopian Birr. Banks can deliver mobile banking through their agents as specified in the directives. As per same directive, the following are permissible activities of an agent; an agent, on behalf of the principal financial institutions as agreed between it and the financial institution and as may be specifically perform customer due

diligence and Know Your Customer (KYC) requirement of natural persons and make registration: shall open regular saving account of natural persons, open mobile account of natural persons, perform cash-in and cash-out services, transfer funds between different parties, perform various payment services. But notwithstanding the provision stated above, agents shall not undertake banking transaction that involves the use of check and other check related instruments and any other operation related with provision of credit. The directive also clearly stipulates that where financial institutions carryout mobile banking services through agents;

- the financial institution/principal shall be fully responsible and liable for all actions and omissions of its agents and this responsibility shall extend to actions of the agents,
- all transactions involving deposit, payment, withdrawal or transfer of cash from or to an account shall be made in a real time basis and financial institutions shall ensure that agents are able to carry out same,
- agents shall not under any circumstance accept funds from customers in excess of their prepaid balance with banks,
- financial institutions shall automatically debit or credit the agents' or customers' account upon conduct of any transaction that necessitates reduction or increase of the account balance of the agent or customer and
- A bank shall have a mechanism to uniquely identify each of its agents.

2.2 Empirical Studies

There is a growing body of academic research examining the determinants of mobile banking acceptance and its utilization (Crabbe, Standing, Standing and Karjaluoto, 2009; Donner and Tellez, 2008; Gu, Lee and Suh, 2009; Luarn and Lin, 2005; Mattila, 2003; Riquelme and Rios, 2010).

Studies have been conducted in various countries to better understand customer's attitudes toward this emerging mobile technology. For example, Mattila (2003) focused on the drivers and inhibitors of mobile banking services. The author found that complexity, compatibility, relative advantage, observability, and triability are the significant factors influencing customer decision-making in mobile banking adoption. Also, security and confidentiality of information are fundamental pre-requisites for any mobile banking services to be successful.

Laforet and Li (2005) carried out a research to examine the online/mobile banking in China. Purposive sampling technique was adapted to a sample of five hundred (500) customers who transact their banking business online. Analysis was done quantitatively through a regression model. Based on this research it was established that lack of understanding and awareness of mobile banking benefits are the main factors hindering the adoption of mobile banking usage in China though perceived risk, culture and technological skills are also barriers to online banking in China.

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

Cruz et al. (2010) studied the factors inhibiting the adoption of mobile banking among internet users in Brazil. Based on their finding they concluded that most users never use mobile banking services. They identified risk, cost, complexity, and lack of understanding about the relative advantages of these services as the main barriers of using mobile banking services.

Laukkanen and Kiviniemi (2010) tested the factors affecting the adoption of mobile banking in their study. They intended to find barriers of adoption of mobile banking. These factors included use, value, risk, tradition, and image. The findings of this study indicated that providing information and guidance on the part of the bank have significant effect on reducing the barriers of use, image, value, and risk in mobile banking, but do not reduce the barriers of tradition.

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

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

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

Dineshwar and Steven (2013), the researchers investigated the complex factors that prevent customers from adopting and using mobile banking services in Mauritius. The researchers used a quantitative approach, they also combined the TAM and IDT together with perceived risk and cost construct to investigate perception of mobile banking in Mauritius. The study revealed that age, gender and salary had no influence on adoption but rather, Convenience, compatibility and banking needs influenced banking adoption. On the other hand, Perceived security risk and reliability were found to be the only obstacles to mobile banking usage but also that mobile banking usage is not associated with age, gender and salary.

Mohammad RokibulKabir (2013) the researchers investigated on the factors that influence the use of mobile banking in Bangladesh. The approach for this study was quantitative. During the course of the research a self-administrated questionnaire was given to the clients of two full-fledged mobile banking service providers of Bangladesh called Brace Bank Limited and Dutch Bangla Bank Limited. 100 questionnaires were distributed but only 64 useable questionnaires were returned giving a response rate of 64 percent. The data was analyzed using multiple regressions and the outcome of the research was that, Variables such as ability, integrity, benevolence, perceived usefulness, perceived ease of use relative cost and time advantages were found to influence the adoption of mobile banking.

Kazi and Muhammad (2013) Pakistan inspected those factors that affect Pakistan customers from adopting mobile banking services. Data collection was done by surveying 372 respondents from the two largest cities (Karachi and Hyderabad) of the province Sindh by use of judgment sampling method. The researcher used a correlation research design and the analysis was done using multiple regressions in order to come up with the findings. TAM model played a big role in this research, variables such as social influence, perceived risk, perceived usefulness, and perceived ease of use to study whether they affected the adoption of mobile banking in Pakistan.

Kazemi, S.A., et al (2013) this research investigated those factors that affect Isfahan an Mobile Banking Adoption in Iran Based on the Decomposed Theory of Planned Behavior. The result of this study suggested that there were only two important factors which are Attitude and perceived behavioral control under which factors such as perceived usefulness, perceived ease of use, compatibility and trust have an influence on behavioral attitude to adopt mobile banking.

Koenig et al (2010) they investigated on the barriers towards Mobile Banking System adoption among young people in Germany. This study was based on the Technology acceptance model (TAM) model. They received 155 responses from all the questionnaires that were sent, they also used a structure equation modeling (SEM) approach to tests the hypothesis. The results of the study indicated that compatibility, perceived usefulness, and risk are significant indicators for the adoption of Mobile banking systems in Germany.

Chitungo, S. K., & Munongo, S. (2013) Zimbabwe, the study was about an analysis of the factors that influence mobile banking adoption in the rural Zimbabwe through extending the technology acceptance model. The researcher adopted use of stratified random sampling and the results of the study suggested that factors such as perceived usefulness, PEOU, relative advantage, personal innovativeness and social norms influenced the intention to accept and use mobile banking.

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

The other descriptive case study analysis conducted by Khalfan et al (2006) on „Factors influencing the adoption of internet banking in Oman, aimed to identify the main potential factors or impediments that are currently inhibiting the incorporation or adoption of E-commerce applications in the Omani Banking sector. Data, used in their study were collected using semi structured interviews and survey questionnaire as well as reviewing some bank documents. The results of their study provide a Pragmatic picture about the adoption of E-Commerce applications in the core financial sector domain of Oman. One of the main findings is that security and data confidentiality issues have been a major barrier. The banking sector was reluctant to use E-commerce applications as they felt that transactions conducted electronically were open to hackers and viruses, which are beyond their control. Lack of top management support is the other inhibiting factor in the adoption of electronic commerce applications as per their finding.

2.3 Conceptual Frameworks

The knowledge gap of the adoption of mobile banking has been gradually increasing with the rapid increase in the use of mobile or wireless handsets in the recent past. Studies conducted in the early 2000 showed that European countries including Scandinavian countries, France, UK, Ireland and Germany, alongside Canada and Japan were among the leaders in mobile banking. In some Asian countries (Singapore and Malaysia) mobile banking penetration was on the increase whereas Australia and New Zealand were among the slow adopters. There was no reference to Africa considering it is a developing continent and mobile banking was still very new in the technology world. However, other studies conducted in mid 2000s showed that mobile banking had grown faster in Sub-Saharan Africa than in most other parts of the world within a relatively short time, and was expected to continue increasing (International Telecommunications Union, 2005).

Studies were conducted in different countries .Some of these studies includes Yang (2005), carried out a study “Exploring factors affecting the adoption of mobile banking in Singapore” Laforet& Li (2005), “Consumers attitudes towards online and mobile banking in china”, Gut al, (2009) conducted a study on determinants of behavioral intension to mobile banking, Esther (2013) conducted a research on Mobile banking adoption in the banking industry in Kenya and an empirical study that was conducted on the factors that affect the Malaysian customers from adopting mobile banking services by Cheah et al (2011). In the context of Ethiopia, however, to

the knowledge of the researcher, there appears to be limited evidence on factors affecting adopting of mobile banking but some of related studies are: The opportunities and challenges of e-banking in Ethiopia (Garedachew, 2010), the challenges and opportunities of electronic banking in Ethiopia in the case of Dashen and Nib International Banks,(Michael ,2013) , factors affecting adoption of e-banking system in Ethiopian Banking industry(Ayana ,2012). However as far as the researcher knowledge is concerned one study, factors influencing usage of mobile banking in Addis Ababa by (kalkidan 2016) has been conducted but the study covered only Addis Ababa city and did not include users’ perception of other regional areas in addition perceived self-efficacy and perceived cost which are major factors of mobile banking adoption were not studied.

The study is going to be carried out using the conceptual framework presented below, which is drawn from the theoretical and empirical literature reviews discussed above.

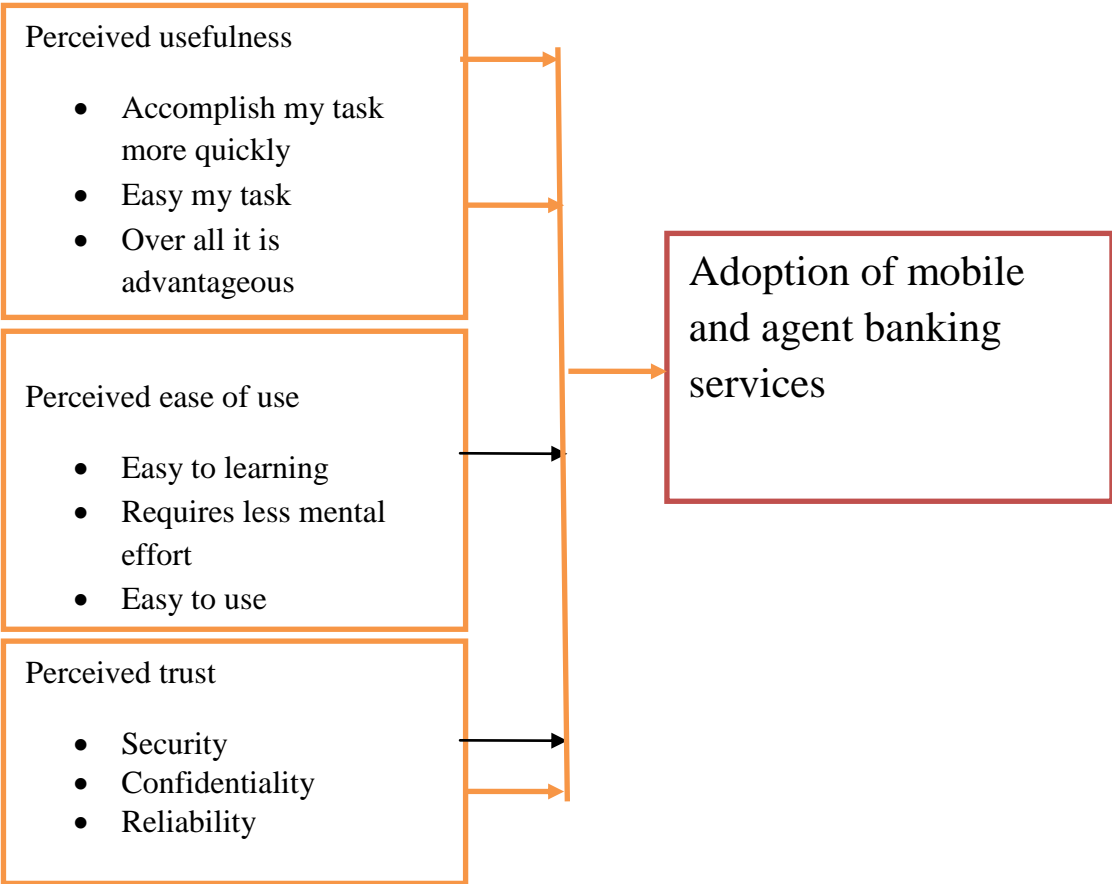


Figure1: Source, the researcher own development

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Research Design and Approach

According to Kerlinger (1978), research designs are invented to enable answering the research questions as validly, objectively, accurately and as economically as possible.

Descriptive research design enables to describe characteristics of objects, people, groups, organizations, or environments and explains the conditions of the present by using questionnaires to describe the phenomenon (Gabriel et al, 2015). Survey design is a quantitative procedure in which researchers administer a survey to a portion sample or entire population of the respondents in order to describe opinion, attitudes, characteristics or behavior of the population (Kumar, 2011).

The study was to identify determinants of mobile and agent banking service adoption. The researcher was use quantitative data in respect with research variables of mobile and agent banking services. Since it tries to describe the problem and attempts to explain the phenomenon with quantitative research approach. The student researcher was used both qualitative and quantitative data in respect with research variables of mobile and agent banking service adoption. As noted by Kothari (2004), explanatory research design examines the cause and effect relationships between dependent and independent variables. Therefore, since this study was examine the cause and effect relationships between dependent and independent variables. It is an explanatory research design whereas quantitative explanations are quantitative research approach.

3.2 Source of Data and Method of Data Collection

Accordingly, the study was using both primary and secondary sources of data. Primary data of the study was collect through structured questionnaire, closed-ended and open ended questionnaire for commercial banks customer in Ethiopia. Secondary data is either being published or unpublished data (Kothari, 2004). According to this, both methods of data collection permit the researcher to gather information within a minimum of time, at the low expense of money and effort, minimize interviewer bias and possible problems on the parts of the respondents which is

important to obtain the needed information from the respondent. Secondary sources that were consider include: books, annual reports, manuals and published and unpublished document and other related materials.

3.3 Sample Size and Sampling Technique

Sampling is the process of choosing from a much large population, a group about which the researcher wishes to make generalized statements so that the selected part represents the total group (Leedy, 1989). Sample Design must result in a truly representative sample with reasonable confident level and small sampling error (Kothari, 2004).

The study was employed a convenience sampling technique when selecting the customers in the banking halls. This was utilized to obtain information from banking customers who were found readily available in the banking halls (Saunders et al., 2015). An optimal sample size is important to draw meaningful deductions in a study. A large sample size can become administratively unwieldy to handle while a small one could give inaccurate results. It is therefore vital to select a sample size that determines a statistically significant outcome. It is also important to ensure that the sample selected an unbiased opinion. Basing on the Krejcie& Morgan (1970) table for sample size determination, a sample of 132 respondents was selected from 200 customers of respondents. Out of the 132 questionnaires which were given to the respondents, only 81 questionnaires were fully filled and returned constituting a response rate of 61.4 %. Therefore, 81 customers of the six banks AIB, DB, CBO, WB, UB and NIB was select using the Krejcie& Morgan (1970) table.

3.4 Validity and Reliability

The questionnaire was being subject to face validity and content validity by the assistance of experts in the research method. Thus the pre-test was doing before actual entrance of data collection. In deed necessary modification was making on the items and unclear questions were modified or remove from index. The reliability was measure so as to find out the degree to which the measuring items gave similar results over a number of repeated trials. A test – retest method was use to estimate the degree to which the same results can be obtaining with a repeated measure of accuracy of the same concept in order to determine the reliability of the instrument.

3.5. Regression Model Specification

Based on the theoretical review and empirical considerations the following model was developing by using binomial logistic regression model. Binomial logistic regression model analysis was the statistical technique used to analyze the influence among variables (i.e. single dependent variable and single independent variable) with the objective of using the independent variables whose values were known to predict the single dependent variable. The mathematical (functional) expression of the model is given as follows:

$$\text{Logit}(p_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_n X_{ni}$$

Where P_i is the probability of the presence of characteristic of interest.

The functional form of the regression model estimating the factors that affect the service of mobile and agent banking in the commercial banks of Ethiopia was present as follows:

$$Y = f(X_1, X_2, X_3, \dots, e)$$

Where:

Y = Use of mobile and agent banking; 1 if the respondent is mobile banking user; 0 otherwise

β_0 = Constant

$\beta_1, \beta_2, \dots, \beta_6$ = Coefficients of the independent variables showing how they influence Y

X_1 = Perceived trust; 1 if respondent perceives commercial Banks as secure, 0 otherwise.

X_2 = Perceived usefulness (relative advantage); 1 if respondents perceive mobile banking is useful, 0 otherwise.

X_3 = Perceived ease to use); 1 if respondents perceive mobile banking is easy to use, 0 otherwise.

e = error term

3.6. Data Presentation and Analysis Technique

The data was collect from different sources is coded, checked and entered to make the data ready for analysis, then the stated objective of the study was achieve, the collect data was analyze using descriptive statistics, correlation matrix and multiple linear regression analysis. The descriptive

statistics (Mean values and standard deviations) was used to analyzed the general data from the sample of customers was select since they are senior and are expected to have more experience on the leading activities. The statistical package for social science (SPSS, version 20.0) was use and the data was summarized in frequency tables and figures. The descriptive statistical results were presented by tables, frequency distributions and percentages to give a condensed picture of the data. This was achieve through summary statistics, which includes the means, standard deviations values which was computed for each variable in this study. In this study Pearson's correlation coefficient was use to determine the relationships among dependent and independent variables.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter comprises of presentation, analysis, and interpretation of the study findings. This chapter demonstrates the descriptive statistics of the study as well as inferential statistics of the variables under study.

4.1 Demographic characteristics of the respondents

Under this section, the demographic characteristics of the respondents who participated in the study are being discussed in terms of frequencies and the corresponding percentages for each category.

Table 4.1: Demographic characteristics of the respondents

Characteristics	Category	Frequency	Percentage %
Gender of respondents	Female	41	50.6
	Male	40	49.4
	Total	81	100
Age of respondents	18-30years	44	54.3
	31-45years	22	27.2
	Above 45years	15	18.5
	Total	81	100
Level of education	Certificate	14	17.3
	Diploma	12	14.8
	Bachelors	47	58.0
	Masters	8	9.9
	Total	81	100
Duration of operating a bank account	Less than a year	11	13.6
	2-5 years	36	44.4

	5years and above	34	42.0
	Total	81	100
Source of information about agent banking	Television and radio	33	40.7
	Newspapers	17	11.1
	Bank	31	38.3
	Total	81	100
Whether one has used agent banking	Yes	33	40.7
	No	48	59.3
	Total	81	100

Source: Primary data 2020

As evidenced in the above table, the gender of the respondents was evenly distributed with the female customers constituting 50.6% of the total respondents and the males 49.4%. In relation to the age of the respondents, customers falling in the age bracket of 18 to 30years constituted the highest percentage of 54.3%, followed by 31 to 45 years with 27.2% and lastly those above 45years of age with 18.5%. Other demographic characteristics included in the study were the level of education with 17.3% certificates, 14.8% diplomas, 58% undergraduates, 9.9 master's degrees.

The responses given by the respondents about the duration one has been operating a bank account, 13.6% of the respondents had been banking for less than a year, 44.4% for a period between 2 to 5 years, while 42% corresponded to those who had banked for 5 years and above. When customers were asked about how they came to know about mobile and agent banking service, 40.7% got to know about the service from television and radio advertisements, 11.1% from reading newspapers, 38.3% obtained the information when making transactions in the mobile and agent banking service halls, whereas 9.9% got it from social media networks.

Lastly, when the customers were asked whether they had ever used the mobile and agent banking service, only 40.7% had ever used the service but on a monthly basis while 59.3% had never used the service to make transactions. This is an indication that majority of the bank customers had never used the agent banking service.

4.2: Descriptive statistics

This section consists of the descriptive statistics of the variables under study. The variables of the study whose descriptive statistics were computed included; Perceived trust, perceived usefulness, perceived ease of use and adoption of mobile and agent banking.

4.2.1: Perceived trust

In the study, perceived trust was measured in terms of security, confidentiality and credibility of the mobile and agent banking service. Descriptive statistics relating to perceived trust that's to say, mean and standard deviation were computed and the findings are displayed in the table below.

Table 4.2: Descriptive statistics corresponding to perceived trust

Statement	Mean	Std. Deviation
My account information would be kept safe when I make transactions using the mobile and agent banking service.	2.90	1.102
Agents are well equipped with machines to enable them detect fake money in a mobile and agent banking service transaction.	2.83	1.170
My money would be in safe custody when I make deposits using the mobile and agent banking service.	3.01	1.078
The mobile and agent banking service is reliable.	3.30	1.078
The mobile and agent banking service is credible.	3.59	1.058
Mean average=3.13		

Source: Primary data 2020

As evidenced in table 4.2, the findings of the study revealed that customers generally perceived all the items corresponding to perceived trust to be equivalent to the average. However, notable variations were observed in relation to the different dimensions used to conceptualize perceived trust, that is to say, the extent to which the customers perceive the service to be reliable had the highest mean of 3.59 and a standard deviation of 1.058, this was followed by the extent to which the customers perceive the mobile and agent banking service being credible with a mean of 3.30

and a standard deviation of 1.078. This implies that these two particular items were accorded more relative importance in explaining perceived trust by the respondents.

The extent to which customers believed their money would be in safe custody came third with a mean of 3.01 and a standard deviation of 1.078, followed by the extent to which the customers believed that their account information would be kept safe when they make transactions using the mobile and agent banking service with a mean of 2.90 and a standard deviation of 1.102. Lastly, the extent to which customers believe that agents are given machines to detect fake money got the least score (mean=2.83, SD= 1.170). These particular items were below the grand mean of 3.13 implying that the respondents didn't attach much importance to them in regards to measuring perceived trust. The information obtained from interviews with the bank agents indicated that commercial banks customers were worried of the credibility, confidentiality, security of the mobile and agent banking service to the extent of the bank placing some of its agents to transact within the banking halls so as to instill confidence in the customers about the credibility of the service.

4.2.2: Perceived usefulness

In the study, perceived usefulness was conceptualized in terms of; service efficiency, actual benefits and accessibility of the mobile and agent banking service. Descriptive statistics relating to perceived usefulness that's to say, mean and standard deviation were computed and the findings are displayed in the table below.

Table 4. 3: Descriptive statistics corresponding to perceived usefulness

Statement	Mean	Std. Deviation
The cost of accessing financial services using the mobile and agent banking service would be affordable as compared to other banking options.	3.35	1.296
Withdrawing money from my account would be easier when using the mobile and agent banking service.	3.81	1.062
It would be easier depositing money on my account when using the mobile and agent banking service.	3.69	1.080

I would save more time when I use the mobile and agent banking service to make transactions.	3.89	1.084
It would be easier paying bills using the mobile and agent banking service as compared to traditional banking service.	3.38	1.347
Transacting using the mobile and agent banking service is something I would enjoy doing.	3.42	1.139
The mobile and agent banking service would be faster in processing transactions than the traditional banking service.	3.59	1.138
Mean average=3.62		

Source: Primary data 2020

As indicated in table 4.3, in relation to perceived usefulness, the banking customers who participated in the study revealed that they preferred the mobile and agent banking service to other banking options because they could save a lot of time when making transactions with a mean of 3.89 and a standard deviation of 1.084. This was followed by the extent to which customers believed withdrawing money from their account would be much easier while using the mobile and agent banking service with a mean of 3.81 and a standard deviation of 1.062, and the extent to which customers believed depositing money to their accounts would be much easier when using the mobile and agent banking service (Mean=3.69, SD=1.080). These particular items were above the grand mean of 3.62 implying that the respondents agreed that the items were measuring perceived usefulness.

Other dimensions included; the extent to which customers believed the service would be much faster when processing transactions (Mean=3.59, SD=1.138), the extent to which customers perceived transacting using the mobile and agent banking service being enjoyable (Mean=3.42, SD=1.139), extent to which customers believed paying bills when using the mobile and agent banking service would be much easier when compared to other payment options with a mean of 3.38 and a standard deviation of 1.347. Lastly, the extent to which customers believed that the cost of accessing banking services when using the mobile and agent banking service would be much affordable with the least mean score of 3.35 and a standard deviation of 1.296. All these items were below the grand mean of 3.62 which implies that the respondents didn't much importance to the items measuring perceived usefulness. The findings from the follow up

interviews indicated that the customers mostly prefer the agent banking service to other banking options because it's more convenient and accessible, faster when processing transactions than banking halls.

4.2.3: Perceived ease of use

In the study, perceived ease of use was measured in terms of; ease to learn, ease to operate and service effectiveness of the mobile and agent banking service. Descriptive statistics relating to perceived usefulness, that's to say, mean and standard deviation were computed and the findings are displayed in the table 4.4.

Table 4. 4: Descriptive statistics corresponding to perceived ease of use

Statement	Mean	Std. Deviation
It would be much easier tracking my account information when I use the mobile and agent banking service than when using the traditional banking service.	2.89	1.095
The network on the mobile and agent banking service would be more reliable when making transactions as compared to ATMS and banking halls.	2.95	1.106
The mobile and agent banking service would be compatible with my banking needs.	3.04	1.066
The agents have enough cash to enable me withdraw large sums of money.	2.30	1.156
Agents are skilled enough to enable me make transactions using the mobile and agent banking service.	2.96	1.167
Mean average=3.04		

Source: Primary data 2020

As shown in table 4.4, the findings revealed that on average, customers perceived all the issues relating to ease of use of the mobile and agent banking service being slightly below average. The extent to which customers believe the service to be compatible with their banking needs scored the highest mean of 3.04 and a standard deviation of 1.066, followed by the extent to which the customers believed the agents being skilled enough to process transactions using the mobile and

agent banking service (mean=2.96 ,SD=1.167), the extent to which the customers believed the network on the mobile and agent banking service being more reliable as compared to other banking options (mean=2.95, SD=1.106), the extent to which customers believed that it would be easier for them to track information about their account information with a mean of 2.89 and a standard deviation of 1.095. Lastly, the extent to which customers believed that the agents had enough cash to enable customers make withdrawals of large sums of money had the least mean of 2.30 and a standard deviation of 1.156. These particular items were below the grand mean of 3.04 implying that the respondents didn't attach much relative importance to the items used to measure perceived ease of use.

Table 4.5: Descriptive statistics corresponding to frequency of use and rate of adoption of the agent banking

Statement	Mean	Std. Deviation
I frequently use the mobile and agent banking service to make transactions.	2.23	1.306
I'm very likely to use the mobile and agent banking service	3.49	1.142
I intend to use the mobile and agent banking service in the near future.	3.70	1.030
I will increase my use of the mobile and agent banking service to make transactions.	3.21	1.301
With my job complexity, I have to use the mobile and agent banking service.	2.95	1.431
Mean average=3.171		

Source: Primary data 2020

The customers' intention to use the mobile and agent banking service in the near future scored the highest mean of 3.70 and a standard deviation of 1.030. This was followed by extent to which customers were likely to use the service (Mean= 3.49 and SD=1.142) and the extent to which customers were in agreement to increase their use of the mobile and agent banking service to make transactions (Mean=3.21, SD=1.301). These particular items were above the grand mean of 3.17 implying that the respondents agreed that the items were measuring adoption of mobile and agent banking service.

In relation to the extent to which customers believed that they had to use the service to make transactions due to their job complexity with mean of 2.95 and a standard deviation of 1.431 while adoption of mobile and service, majority of the customers included in the study were in disagreement in regards to the extent to which they frequently used the mobile and agent banking service to make transactions with the least mean score of 2.23 and a standard deviation of 1.306. These particular items were below the grand mean of 3.171 implying that the respondents didn't attach much relative importance to the items used to measure adoption of mobile and agent banking service.

4.3: Regression Analysis

This section presents the findings of linear regression analysis in terms of model summary and the coefficients of determination table.

Regression analysis was carried out to determine the predictability potential of the independent variables on the dependent variable that's to say, to examine the effect of perceived trust, perceived usefulness and perceived ease of use on adoption of the mobile and agent banking service. All the assumptions for regression analysis to be conducted were satisfied (normality and multi-co linearity tests) to ensure valid results.

Table 4. 6: Model summary of regression analysis

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.751a	.564	.547	.61305	.564	33.138	3	77	.000

a. Predictors: (Constant), Ease, Usefulness, Trust

The results of the model summary in table 4.6 above indicate that the regression model was statistically significant with F value of 33.138 and P value of 0.000 which implies that the model was fit for the data. The three variables explain 54.7% variance in the adoption rate and frequency of usage of the mobile and agent banking service by commercial banks customers in Ethiopia (adjusted R-square =.547, $p < .05$).

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.288	.353		-.815	.417
	Trust	.443	.122	.368	3.642	.000
	Usefulness	.301	.102	.272	2.947	.004
	Ease	.337	.122	.261	2.771	.007

a. Dependent Variable: Adoption

As indicated in table 4.6, the findings of the study revealed that perceived trust, perceived usefulness and perceived ease of use were strong predictors of adoption of mobile and agent banking among commercial banks customers in Ethiopia with $P < .05$.

Perceived trust emerged to be the strongest predictor of adoption of mobile and agent banking among commercial banks customers (Beta =0.368, P value =0.001). This means that any exertions made by the management of commercial banks towards enhancing security, confidentiality and the credibility will result into 36.8% increase in the adoption rate and frequency of use of the agent mobile and banking service. This was followed by perceived usefulness (Beta=0.272, P value= 0.004). This means that any strategies made by the management of commercial banks bank to enhance perceived usefulness results into 27.2% increase in the adoption rate and frequency of use of the mobile and agent banking service.

Lastly, perceived ease of use emerged to be the least predictor of adoption of mobile and agent banking among commercial banks customers with Beta = 0.261 and P =0.007. This means that any efforts made by the commercial banks to make the use of the mobile and agent banking

service simple will result into 26.1% increase in the adoption rate and frequency of use of the mobile and agent banking service. The p-value for this coefficient is statistically significant ($p>0.05$), meaning that perceived trust, perceived usefulness and perceived ease of use is a significant predictor of adoption of mobile and agent banking

CHAPTER FIVE

5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1. Summary of Findings

The findings of the study revealed that perceived trust was the strongest predictor of adoption of mobile and agent banking among commercial banks customers in Ethiopia with (Beta=0.368, $P<.05$). This meant that customers will adopt the mobile and agent banking service if it is secure, reliable and credible enough to when making transactions as regards to the customer's account information, money deposited on the account as well as the credibility of entire mobile and agent banking service. There will be a low rate of adoption of the mobile and agent banking service when customers discover that it lacks trust in terms of privacy and security of the customers' information as well as finances.

This implies that customers would prefer other banking options like using ATMs, mobile banking and banking halls to make transactions even when they are sure that they can do the same transactions using the mobile and agent banking service. In addition, the information obtained from interviews with the bank agents indicated that commercial banks customers were worried of the credibility, confidentiality, security of the mobile and agent banking service to the extent of the bank placing some of its agents to transact within the banking halls so as to instill confidence in the customers about the credibility of the service.

The findings of the study also revealed that perceived usefulness was another strong predictor of adoption of mobile and agent banking among commercial banks customers in Ethiopia with (Beta=0.272, $P<05$). This meant that customers will adopt the mobile and agent banking service when they perceive it being more advantageous in terms of usefulness, efficiency, cost effectiveness, accessibility as well as being speedy. This implies that the rate of adoption and the frequency of usage of the mobile and agent banking service will increase when the customers

perceive the mobile and agent banking service as being more useful in terms of speed, cost, convenience and efficiency when compared to other banking options in regards to making transactions such as depositing money, withdrawing money and paying bills. The findings from the follow up interviews indicated that the customers mostly prefer the mobile and agent banking service to other banking options because it's more convenient and accessible, faster when processing transactions than banking halls.

The findings of the study also revealed that perceived ease of use was a strong predictor of adoption of mobile and agent banking in among commercial banks customers in Ethiopia with (Beta=0.261, $P < 0.05$). This meant that the more customers perceive the mobile and agent banking service being easy to use, the more they will adopt it. On the other hand, when the customers who perceive the mobile and agent banking service being complex to use, the lower the rate of adopting it. The information obtained from follow up interviews with the agents indicated that the mobile and agent banking service doesn't require the customers a lot of mental effort to use it since most of the work is done by the agents who are also well trained by the bank to make transactions.

5.2 Conclusions

The study sought to examine the effect of perceived trust on adoption of agent banking; to assess the effect of perceived usefulness on adoption of mobile and agent banking and to analyze the effect of perceived ease of use on adoption of mobile and agent banking at commercial banks in Kampala. In the study analysis was done at different levels first with descriptive statistics, followed by regression analysis. The findings of the study indicated that perceived trust was the strongest predictor of adoption of mobile and agent banking among commercial banks customers; this was followed by perceived usefulness and lastly perceived ease of use. In addition, the findings of the study also indicated that perceived trust, perceived usefulness and perceived ease of use had a positive correlation with adoption of agent banking.

5.3 Recommendations

The study found out that perceived trust, perceived usefulness and perceived ease of use were significant predictors of mobile and agent banking adoption. Owing to this, the study recommends the following;

The management of commercial banks should ensure that perceived trust is given utmost importance in a bid to improve adoption of agent banking. This can be done through ensuring safety and confidentiality of customer's finances as well as their personal account information. This is because customers will opt for other banking options when they feel that their money as well as their account information will be insecure when they use the mobile and agent banking service to make transactions.

Current efforts of boosting perceived usefulness and perceived ease of use should be continued for example, registering more agents to increase accessibility to the mobile and agent banking service; more training sessions should be conducted to increase agents' efficiency and effectiveness when providing banking services using the mobile and agent banking service.

REFERENCES

- Ajzen, I., & Fishbein, M. (2012). The reasoned action approach. *Annals of the American Academy of Political and Social Science*. <https://doi.org/10.1177/0002716211423363>
- Al-Fahim, N. H. (2013). An Exploratory Study of Factors Affecting the Internet Banking Adoption: A Qualitative Study among Postgraduate Students. *Global Journal of Management and Business Research Finance*, 13(8).
- Agwu, E., 2012, 'Generations X and Y Adoption of Internet and Internet Banking in Nigeria: a qualitative study', *International Journal of Online Marketing*, October December, (2), 4, 68-81.
- Gichuki E., (2013), an investigation of the factors affecting the adoption of agency banking in Kenya. A research project submitted to Kenyatta University
- International Monetary Fund Annual Report 2013: (IMF, 2013:20)
- Ajzen, I., & Fishbein, M. (2012). The reasoned action approach. *Annals of the American Academy of Political and Social Science*. <https://doi.org/10.1177/0002716211423363>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*. <https://doi.org/10.1177/001316447003000308>
- Ajzen, I (1991). "The Theory OF Planned Behavior," *Organizational Behavior AND Human Decision Processes* (50:2), PP. 179-211.
- Ayana G., (2012). Adoption of Electronic banking system in Ethiopian Banking industry: Barriers and Drivers, Addis Ababa University, Ethiopia.
- Agarwal, R. and Prasad, J. 1998. "A conceptual and operational definition of personal Innovativeness in the domain of information technology" *Information systems research* Vol.9. Pp. 204-224.
- Ching and Ellis, 2004, "Marketing in Cyberspace: what factors drive e-commerce adoption?" *Journal of Marketing Management*, Vol.20 pp 409-429.

Kazi and Muhammad (2013), factors *that affect Pakistan customers from adopting mobile banking services*

Kothari (2004). *Research Methodology: Methods and Techniques*. India: New Age.

Laukkanen (2007) *Internet vs., mobile banking: Comparing customer value perceptions Business process management journal*, 13, 6, pp788-797

Venkatesh et al (2003). *Understanding usability in mobile commerce, communications of the ACM*, Vol 46, No.12, 53-56

Yang (2005) *Exploring factors affecting the adoption of mobile commerce in Singapore. Telematics and informatics*, 22, pp. 257-277

Davis, F. D. (1989b). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*. <https://doi.org/10.2307/249008> *Equity Bank Group Annual Report*. (2018).

Irura, N. S., & Munjiru, M. M. (2013). Technology Adoption and the Banking Agency in Rural Kenya. *Journal of Sociological Research*, 4(1), 249–266. <https://doi.org/10.5296/jsr.v4i1.3584>

Life, T. O. (n.d.). *MEMBER SERIES : FINANCIAL INCLUSION JOURNEY BRAZIL : FINANCIAL CITIZENSHIP JOURNEY IN BRAZIL*.

Mamwa, C. (2014). Consumer Attitude toward Agency Banking by Customers of Commercial Banks that Offer Agency Banking in Machakos Township, Kenya. *Journal of Economics and International Business Research*, 2(2), 100–107.

Mandriale, M. (n.d.). A NEW AGENT MODEL FOR By Daniel Mauricio Alarcón Lozano Counsel , General Directorate of Financial Regulation Ministry of Finance and Public Credit , Colombia. *International Development Law Organization*. Mas, I. (2009). *Itgg.2009.4.2.57*. 57–75.

Mckay, C. (2011). Ghana, aiming for interoperability in branchless banknig. *Ghana, Aiming for Interoperability in Branchless Banknig*, (June).

Mosoti, Z. M., & Mwaura, R. W. (2014). An Investigation on Slow Adoption of Agent Banking Services in Kenya as Strategic Response by Commercial Banks: A Case Study of Roysambu Constituency. *Quest Journals Journal of Research in Business and Management*, 2(3), 2347–3002. Retrieved from www.questjournals.org

Mungai, E. H. M. (2017). Challenges associated with Adoption of Agency Banking and Bank Performance: A Case of Selected Commercial Banks in Kenya. *IOSR Journal of Business and Management*, 19(04), 70–76. <https://doi.org/10.9790/487x-1904027076>

Mungai, K. M. (2016). *Assessment of factors determining the performance of bank-led agent bank businesses in Kenya : case of Kiambu County*. pp.18-63.

The national treasury. (2012). *The 2012 AFI global policy forum Report making financial inclusion real contents*. 1–25.

Tindi, P. O., & Bogonko, J. B. (2017). Effects of agency banking on customer satisfaction in the banking industry in Kenya. *International Academic Journal of Economics and Finance*, 2(3), pp.141-160.

Waiyego Kariuki, N., & Namusonge, G. S. (2016). Factors Influencing the Growth of Agency Banking of Commercial Banks in Trans Nzoia County in Kenya. *Available International Journal of Management and Commerce Innovations*, 4(2), 477–487. Retrieved from www.researchpublish.com

Zigale., Y. (2018). *Challenge & prospects of mobile and agent banking Adoption in Ethiopia banking industry 2018*.

APPENDIX

JIMMA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

COLLAGE OF BUSINESS AND ECONOMICS

Dear participant,

My name is Tilahun Gemechu and I am a student undertaking a master of degree of Science in banking and finance at the University of Jimma, Ethiopia. To fulfill the completion of this course, I am carrying out a study on the determinants of mobile and agent banking service adoption: evidence from selected commercial banks in Ethiopia. Since the matter affects the whole community, I am inviting you to participate in this research paper study by completing the attached questionnaire.

If you choose to participate in this research paper, please answer all questions as honestly as possible.

Participation is strictly voluntary and you may decline to participate at any time. In order to ensure that all the information was remain confidential, you do not have to include your name.

The data collected was being for academic purposes only.

Thank you.

Research Questionnaire

SECTION ONE: Background Information

1. Gender of respondents

1. Female 2. Male

2. How old are you?

1. 18 -30 years 2. 31 - 45 years 3. Above 45 years

3. What is your level of education?

1. Certificate 3. Undergraduate

2. Diploma 4. Masters

If others, please specify.....

4. For how long have you been banking with us?

1. Less than a year.

2. 2-5years

3. 5years and above.

5. How did you come to know about the mobile and agent banking service?

1. Television advertisements

2. Newspapers

3. Friends

4. Social media

6. Have you ever used mobile and agent banking service?

1. Yes

2. No

SECTION TWO: Perceived Trust

❖ **Below are lists of statements pertaining to adoption of AgentBanking. Please indicate whether you agree or disagree with each statement by ticking (√) on the**

spaces that specify your choice from the options that range from "strongly agree" to "strongly disagree".

Note: SA- Strongly Agree = 5, A- Agree = 4, N- Neutral = 3, DA- Disagree = 2, SD- Strongly Disagree = 1

No	Statement	1	2	3	4	5
1	My account information would be kept safe when I make transactions using the mobile and agent banking service.					
2	Mobile and agent banking service are well equipped with machines to enable them detect fake money in the transaction.					
3	My money would be in safe custody when I make deposits using the mobile and agent banking service.					
4	Mobile and agent banking service are well equipped with money counting machines to ensure I get the right amount of money when I make deposits or withdraws using the mobile and agent banking service.					
5	Mobile and agent banking service are fully registered and have the authority to act on behalf of my bank.					
6	My transactions would be reflected on my account when I make transactions using mobile and agent banking service.					
7	The mobile and agent banking service are trust worthy.					
8	The mobile and agent banking service is reliable.					
9	The mobile and agent banking service is credible.					
10	My account information would be kept confidential when I make transactions using the mobile and agent banking service.					

SECTION THREE: Perceived Usefulness

No	Statement	1	2	3	4	5
11	The cost of accessing financial services using the mobile and agent					

	banking service would be more affordable as compared to other banking options.					
12	Withdrawing money from my account would be easier when I use mobile and agent banking service.					
13	It would be easier depositing money on my account when using the mobile and agent banking service.					
14	I would save more time when I use the mobile and agent banking service to make transactions.					
15	It would be easier paying bills using the mobile and agent banking service as compared to traditional banking service.					
16	It would be easier for me to transfer money from one account to another using the mobile and agent banking service.					
17	Transacting using the mobile and agent banking service is something I would enjoy doing.					
18	The mobile and agent banking service would be faster in processing transactions than the traditional banking service.					
19	The mobile and agent banking service would be more accessible and convenient than banking halls.					
20	The mobile and agent banking service would enable me accomplish my tasks more efficiently and effectively.					

SECTION FOUR: Perceived Ease of Use

No	Statement	1	2	3	4	5
21	Interacting with the mobile and agent banking service would not require me a lot of mental efforts.					
22	It would be much easier tracking my account information when I use the mobile and agent banking service than when using the traditional banking service.					
23	It would be easier making transactions when using the mobile and					

	agent banking service.					
24	The network on the mobile and agent banking service would be more reliable when making transactions as compared to ATMs and banking halls.					
25	The mobile and agent banking service would be compatible with my banking needs.					
26	The mobile and agent banking service would have enough cash to enable me withdraw large sums of money.					
27	The mobile and agent banking service are skilled enough to enable me make transaction using the mobile and agent banking service.					

SECTION FIVE: Adoption of Agent banking service

No	Statement	1	2	3	4	5
28	I frequently use the mobile and agent banking service to make transactions.					
29	I'm very likely to use the mobile and agent banking service.					
30	I intend to use the mobile and agent banking service in the near future.					
31	I will increase my use of mobile and agent banking service to make transactions.					
32	With my job complexity, I have to use the mobile and agent banking service.					

Thank You for Your Cooperation