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**ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS & ECONOMICS
DEPARTMENT OF MANAGEMENT (GRADUATE PROGRAM)**

***Determinants of Mobile and Agent Banking Service Adoption:
Evidence from Selected Commercial Banks in Ethiopia***

**A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS
ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION**

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April, 2019

ADDIS ABABA, ETHIOPIA

Declaration

I declare that this thesis entitled “*Determinants of Mobile and Agent Banking Service Adoption: Evidence From selected commercial banks in Ethiopia*” is my original work, has not been presented for degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

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Evidence from Selected Commercial Banks in Ethiopia***

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List of Acronyms

ATM –Automatic Teller Machine.

CBE – Commercial Bank of Ethiopia.

CBO- Cooperative Bank of Oromyia

CRM – Customer Relationship Management.

EF- Environmental Factors

ICR- Internal consistency reliability.

ICT –Information Communication Technology.

IDT –Innovation Diffusion Theory.

ITU - International Telecommunication Union.

LIB-Lion International Bank

MFIs –Microfinance Institutions.

NBE -National Bank of Ethiopia.

OF-Organizational Factors

PEOU –Perceived Ease of Use.

PR –Percived Risk

PU –Perceived Usefulness.

SMS –Short Message Service.

SPSS –Statistical Package for Social Sciences.

TAM –Technology Acceptance Model.

TOE –Technology Organization Environment.

TPB –Theory of Planned Behavior.

Acknowledgement

First, I would like to express my deepest and heartfelt gratitude to My Lord, Jesus Christ. Next, I would like to express my gratitude to my research advisor Dr. LAKEW ALEMU (PhD), who tirelessly provided me all the necessary advice, guidance and comments throughout this study.

Additionally, I'm deeply grateful to all the staffs of Lion International Bank, Abay Bank, Wegagen Bank and Cooperative bank of Oromiya, (especially YemisirachTaye, Associate E-banking Administrator of CBO); which I have contacted and allowed me to do this study in their institution.

I am greatly indebted to my family and relatives who supported and encouraged me to succeed in my academic endeavor. Last but not least, my warmest appreciation and thanks goes to all my friends for their support and encouragement while doing this paper.

Thank you, all!

Abstract

This study aims at describing factors which can be Determinants of Mobile and Agent Banking Service Adoption: Evidence From selected commercial banks in Ethiopia. To achieve the objectives of the study and answer the research questions, the researcher used mixed research approach which encompasses both qualitative and quantitative research methods.

This descriptive study was conducted based on the data gathered from the following four banks in Ethiopia; Abay Bank, Wgagen Bank, Lion International Bank and Cooperative Bank of Oromia. The data collected was analyzed using exploratory statistics and regression analysis. A research framework developed based on the Technology - Organization - Environment (TOE) framework and Technology Acceptance Model (TAM) was used to guide the study.

The study revealed the following major driving factors in adopting agency banking among commercial banks in Ethiopia; Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of the technology. The barriers identified in this study came from the external environments like; lack of legal framework, under developed ICT infrastructure including poor network connectivity, lack of competition among banks and lack of sufficient government support, and perceived risk (PR).

The study recommended banks to consider technology based competition focusing on customer base expansion, cost reduction, awareness creation, credibility, security, ease of use, and availability to exploit the benefit of agency banking while the government should support banking sector by facilitating sufficient ICT infrastructure development and issue workable legal frameworks to ease the adoption of agency banking system.

Keywords: Banking industry, Agency banking, Mobile Banking, Adoption of Agency Banking by Ethiopian Banks, Branchless banking

Chapter One: INTRODUCTION

1.1 Background of the Study

The dynamic progress of information technology is pushing financial institutions like banks, insurance, micro finances, and others to create society which doesn't rely on paper money (cash less society), rather than electronic one, by providing digital financial services like ATM, POS, internet banking, mobile banking and agency banking. (Central Bank of Nigeria, 2013)

In this regard, information technology plays a key role in promoting financial inclusion as it is a way to reduce operational and human resource costs significantly and to reach the masses which can't come to financial service providers to access the services. But all technologies are not suitable for financial inclusion due to affordability, accessibility, security and privacy issues. In the last decade, mobile phone technology has emerged as the most potential and well suited channel for financial inclusion, in which digital services are provided. Use of mobile phone for inclusive finance is very popular in countries where most of the population is unbanked or under-banked (Sumanjeet, 2010).

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. This convenience is offered through agents of the bank and when combined with new services can expand the bank's target beyond the traditional markets. Agent and Mobile banking services include; checking account balances, list of latest transactions, electronic bill payments, deposit, withdraw, air time top up, utility payments and fund transfers between customers.

Mobile and agent banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch to deposit, withdraw and to check current balance transactions. Transactions involving cash are not handled using mobile banking and a customer needs to visit an agent, ATM or bank teller for cash withdrawals or deposits.

Currently, the Ethiopian financial sector consists of 2 public banks, 16 private banks, 14 private insurance companies, 1 public insurance company, 31 microfinance institutions and over 8,200 Saving and Credit Cooperatives (SACCOs) in both rural and urban areas, (National Bank of Ethiopia annual report, 2017/2018). The government-owned Commercial Bank of Ethiopia (CBE) is the dominant commercial bank and accounts for 70% of total assets of banks as of May 2013 (IMF, 2013:20). The balance, 30%, is accounted for by the other 16 banks. Unlike many government-owned commercial banks, CBE is relatively well run and profitable. Despite these developments, commercial banks are characterized by several problems in relation to access to and cost of finance. IMF staff report for the 2013 (IMF 2013:20-21) stated that ‘only 7.1 million have deposit accounts, i.e., less than 8% of Ethiopians have a bank account. World Bank has also identified bottlenecks for financial inclusion in the country. In its two times surveys, identified that access to finance is a major constraint for formal and informal sectors in the country. (Zewdu, 2014) Since then financial services to the unbanked have become a major area of interest for policy actors. The government takes financial inclusion as a policy objective and has been trying to build inclusive financial systems not only to address the previously excluded ones but also to mainstream financial institutions to reach out to the unbanked. These credentials towards financial inclusion reveal the fact that the result achieved so far is quite low despite all the efforts made by the Government. However, cognizant of the actual reality and armed with the understanding that “The use of technology and innovative financial service delivery channels such as mobile devices and agents have significant contribution in deepening financial service accessibility to the wider section of the population at an affordable price” (NBE Directive, 2012), the National Bank of Ethiopia (NBE) issued a directive on “Regulation of Mobile and Agent Banking Services”, Directive No. FIS/01/2012 which allows financial institutions to conduct the Mobile and Agent Banking Services.

With the underlying theme of witnessing the Mobile and Agent Banking service as a successful propagator for financial inclusion in Ethiopia, this research work under the title

“The Determinants of Mobile and Agent Banking Service Adoption, therefore, made an in depth exploration on its potential challenges and prospects in the provision of Mobile and Agent Banking business in Ethiopia. This study is important to the concerned financial organ (NBE), that it will shed light on areas to be improved in an effort to provide financial inclusion to the unbanked low income and rural population. It will also benefit commercial banks by bringing factors that they deem to be critical to the acquisition of customers to their attention and have a clear understanding of factors that would be important in embracing and adopting agency banking as a product. Students and researchers may also use the research findings as a reference in their subsequent effort to search for answers to their queries, thus it will add to the existing body of knowledge.

1.2 Statement of the Problem

According to the national bank of Ethiopia annual report (2016/2017) there are 18 banks in Ethiopia out of which 16 are private banks and two of them are state owned banks. During the same year, 956 new branches were opened raising the total branch network in the country to 4,257 from 3,301 last year. Major branch expansion was undertaken by Commercial Bank of Ethiopia (160 branches), followed by Cooperative Bank of Oromia (103 branches), Awash International Bank (94 branches), Berhan International Bank (89 branches), Dashen Bank (83 branches) and Abyssinia Bank (77 branches). As a result, bank branch to population ratio declined from 1:27,932 people to 1:22,164 in 2016/17. However, in spite of such growth recently in the banking sector, the financial service accessibility in Ethiopia is still very limited. For instance the country has one bank branch per every 22,164 during 2016/17, according to the National Bank of Ethiopia Annual report (2016/17). An indicator for this is there is large gap in financial inclusion. The share of adults of age greater than 15 years who have an account at financial institution or mobile money account is 22.79 percent and almost 0 percent respectively, in 2014 (World Bank, 2014a). In average in the Sub-Saharan Africa countries, these numbers are 28.9 percent and 11.5 percent respectively, in 2014. In low income countries the number are 22.3 percent and 10 percent respectively, in 2014 (World Bank, 2014a). 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 Agency 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 agency 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 agency 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 agency 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 agency 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.

1.3 Research Questions

The major questions which are answered by the research are

1. What are the major determinants of the adoption of agent and mobile banking?
2. How does adoption of agent and mobile banking help in digitalizing financial services?
3. How does Agent and agent banking facilitate for financial inclusion in Ethiopia?
4. What are the challenges for adopting Mobile and Agent Banking service?
5. What are the opportunities of adopting Mobile and Agent Banking service?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of the study is to identify the determinants of the adoption of Mobile and Agent Banking service in Ethiopia.

1.4.2 Specific Objectives

The specific objectives of this research are:

1. To identify major determinants of the adoption of agent and mobile banking services.
2. To explore if agent and mobile banking service can be an opportunity in facilitating financial inclusion in the country, digitalization of banking services, so that customers can easily deposit, withdraw, transfer money and pay their bills digitally.
3. To sort out challenges which have hindered the banks in the country from adopting agent and mobile banking service in wider bases.
4. To assess the determinants in light of the Political, Economic, Social and Technological environments in respect of implementing the Mobile and Agent Banking business in Ethiopia.
5. To investigate the pros and cons of the regulatory framework and adopted model by government towards the provision of Mobile and Agent Banking business in Ethiopia.
6. To recommend appropriate actions to be taken to promote agency banking in Ethiopia.
7. Filling the gap in shortage of literatures in the area determinants of the adoption of agent and mobile banking in Ethiopia.

1.5 Significance of the Study

This study is important to the concerned financial organs, that it will shed light on areas to be improved in an effort to bringing factors that they deem to be critical to the acquisition of customers to their attention and have a clear understanding of factors that would be important in embracing and adopting agency banking as a product.

In addition, the output of the study also can be one of tributaries to policy makers to make some adjustment to the indispensable technological progresses occur in different sectors of the country. Finally, the result of the study become the foundation for the researchers those want to conduct a study related to the subject matter as it is the pioneer to our country context. Because, researches related to mobile banking are sparse in literature, especially in developing countries.

1.6 Organization of the Paper

The paper is structured into five chapters, which in turn divided into sections and sub-sections. The first chapter is an introductory section that describes background of the study, statement of research problem, research objectives, research questions, research methodology including sources of data, scope of the research, significance of the study, and organization of the study.

Chapter two of the paper deals with review of related literature. The reviewed materials are classified and the contributions of previous works towards this study were addressed. An empirical review of thesis is also included in this chapter.

Chapter three deals with research methodology research approach, qualitative and quantitative approaches, methods of data collection and research design were developed. The statistical tools and techniques for analysis are determined, the questioner needed for supporting the methodology was designed and the statistical population and sample selection were presented.

Chapter four summarizes results and discussion/data presentation, analysis & interpretation of the study; interpret and discuss the findings.

Chapter five presents summaries, conclusion and recommendation of the main findings of the research are summarized and recommendations will be discussed.

1.7 Definition of Terms

1.7.1 Introduction to E-banking

E-banking has a variety of definitions all refer to the same meaning, the following section show some of these definitions. E-banking is a form of banking service where funds are transferred through an exchange of electronic signal between financial institutions, rather than exchange of cash, checks, or other negotiable instruments (Kamrul, 2009). E-banking, also known as electronic funds transfer (EFT), is simply the use of electronic means to transfer funds directly from one account to another, rather than by check or cash (Malak, 2007).

The term of E-banking often refers to online banking/Internet banking which is the use of the internet as a remote delivery channel for banking services (Furst&Nolle 2002, p.5). With the

help of the internet, banking is no longer bound to time or geography. Consumers all over the world have relatively easy access to their accounts 24 hours per day, seven days a week. Another definition of E-banking is that. ``E-banking is the use of a computer to retrieve and Process banking data (statements, transaction details, etc.) and to initiate transactions (payments, transfers requests for services, etc.) directly with a bank or with other financial service provider remotely via a telecommunications network'' (Yang 1997, p.2). It should be noted that electronic Banking is a bigger platform than just not banking via the internet. E-banking can be also defined as a variety of platforms such as internet banking or (online banking), TV-based banking, mobile phone banking, and PC (personal computer) banking (or offline banking) whereby customers access these services using an intelligent electronic device, like PC, personal digital assistant (PDA), automated teller machine (ATM), point of sale (POS), kiosk, or touch tone telephone (Alagheband 2006, p.11). According to Singh &Malhotra (2004), E-banking can be defined as the deployment of banking services and products over electronic and communication networks directly to customers. These electronic and communication networks include Automated Teller Machines (ATMs), direct dialup connections, private and public networks, the Internet, televisions, mobile devices and telephones. Among these technologies, the increasing penetration of personal computers, relatively easier access to the internet and particularly the wider diffusion of mobile phones has drawn the attention of most banks to e-banking.

Most of the definitions mentioned above have some common concepts that e-banking is a way of delivering technology based banking services which includes, but not limited to, deposit, fund transfer, withdraw, balance inquiry and bill payments. In addition, it can reduce operational cost of opening bank branches and increase the reachability of the bank irrespective of geographical limit. In the context of this study E-banking were not considered as only transferring of service by using internet connection rather it considered as multi-channel service provided through ATM, internet banking, Mobile banking, and point sale terminal.

Different forms of E-banking system are discussed as follows.

1. Automated Teller Machines (ATM) - It is an electronic terminal which gives consumers the opportunity to get banking service at almost any time. To withdraw cash, make deposits or

transfer funds between accounts, a consumer needs an ATM card and a personal identification number (PIN) (Malak, 2007).

2. Point-of-Sale Transfer Terminals (POS) - The system allows consumers to pay for retail purchase with a check card, a new name for debit card. This card looks like a credit card but with a significant difference. The money for the purchase is transferred immediately from account of debit card holder to the store's account (Malak, 2007).

3. Internet / extranet banking- It is an electronic home banking system using web technology. In which Bank customers are able to conduct their business transactions with the bank through personal computers (Esayas, 2016). Banks offer Internet banking in two main ways. An existing bank with physical offices can establish a Web site and offer Internet banking to its customers in addition to its traditional delivery channels. A second alternative is to establish virtual branchless or Internet-only, Bank almost without physical offices. Virtual banks may offer their customers the ability to make deposits and withdraw funds via ATMs or other remote delivery channels owned by other institutions (Furst&Nolle 2002, p.5).

4. Mobile banking- Mobile banking is a service that enables customers to conduct some banking services such as account inquiry and funds transfer, by using of short text message (SMS). (Ivatury& Layman, 2006)

5. Agency Banking-Agency 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)

Chapter Two: Review of Related Literature

2.1. Empirical Literature Review

Some related studies are conducted by different researchers in different parts of the world. However, there are limited numbers of studies conducted in Ethiopia on the adoption of technological innovation. Specifically, Gardachew (2010) conducted research on the opportunities and challenges of E-banking in Ethiopia. The aim of his study was focused on analyzing the status of electronic banking in Ethiopia and investigates the main challenges and opportunities of implementing E-banking system. The author conducted a survey on the existing operating style of banks and identifies some challenges of using E-banking system, such as, lack of suitable legal and regulatory frame works for E-commerce and E- payments, political instability in neighboring countries, high rates of illiteracy and absence of financial networks that links different banks. According to Gardachew (2010), Opportunities offered by ICT through e-learning programs and Commitment of the governments on development of ICT infrastructures is considered as drivers of using E-commerce and E-payment systems.

Wondwossen and Tsegai (2005) also studied on the challenges and opportunities of Epayments in Ethiopia; their objective was studying of E-payment practices in developing countries, Africa and Ethiopia. The authors employs interview and on site observation to investigate challenges to E-payment in Ethiopia and found that, the main obstacles to the development of E-payments are, lack of customers trust in the initiatives, Unavailability of payment laws and regulations particularly for E-payment, Lack of skilled manpower and Frequent power disruption. According to Wondwossen and Tsegai (2005), an adequate legal structure and security framework could foster the use of E-payments, which is contradicting with the finding of the previous study.

Ayana (2014) conducted research to identify factors that affect adoption of E-banking in Ethiopian banking industry. the Author conducted a Survey, interviews and document analysis in order to identify factors that affect adoption of E-Banking and found that, security risk, lack of trust, lack of legal and regulatory frame work, Lack of ICT infrastructure and absence of competition between local and foreign banks as major barrier that face Ethiopian Banking industry in adoption of E-Banking and suggest that Establishing a clear set of legal framework on the use of technology in banking industry, supporting banking industry by investing on ICT

infrastructure and banks needs to be focused on technological innovation competition rather than traditional bases of retail bank competition as a series of measures which could be taken by the banking industry and by government to address various challenge.

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. Similarly the study of Ghazi and Khalid (2012), found that, the most important barriers for E-business growth are technological issues, such as, security risk, quality of internet and cost of implementation to be the most prominent.

2.2 Models of Agency Banking

2.2.1 Bank-led Model

In the basic version of the bank-led model, a licensed financial institution (typically a bank) delivers financial services through a retail agent. The financial products and services are developed by banks but distributed through retail agents (Lyman, Ivatury and Staschen, 2006). The bank led model composed of three main entities; the bank, the retail agents, and the customer. In this model, the bank must carry out an audit of its agents to ensure that the agents operate within the generally accepted rules and regulations in order to safeguard the interests of the bank, agents and the customers (Sunguti, 2013).

2.2.2 Nonbank-led Model

The non-bank-led model is a model where a bank does not come into the picture (except possibly as a safe-keeper of surplus funds) and the non-bank performs all the functions. In this model, therefore, customers neither deal with the bank nor maintain a bank account. Instead customers deal with a non-bank firm, either a mobile network operator or prepaid card issuer and retail agents serve as point of customer contact (Sunguti, 2013). For example MPesa is a mobile money service based in Kenya. M is for Mobile while Pesa is a Swahili word for Money. It was established in 2007 as a micro financing system, but later redesigned to become a mobile money system. The Vodafone service is run by Safaricom and Vodacom which are mobile network operators.

It is available to people with ID Cards or passports, and it can be used to send and withdraw money through a mobile device. It's also used to pay bills, buy airtime and save money, all through a mobile device.

2.3 Drivers of Mobile and Agent Banking

Mobile and Agent Banking business increased income through commission; **bank agents** are usually awarded commissions whenever they perform transactions on behalf of the bank.

Increased customer traffic brings additional benefits to the agent; the increased traffic brought about by customers performing banking activities also translates to more people getting to know your business hence more sales, the question comes at the initial stage there might not be sufficient number of customer who frequently visit the agent premises (*Chiteli, 2013*).

Customers are also one of the drivers of Mobile and Agent Banking business. Most financial institution closes their doors early, but with agents, for as long as the business premise remains open, you can do your transactions, and this gives flexible hours. This has proven to be very convenient especially for people who are busy during the day. The other benefits to customer are financial institution agents have proven to be cost-effective especially to people who live in rural areas that are far away from banks (*Veniard, 2010*).

Financial institutions have recorded an increase in their profits and Agent Banking is one of the main attributes to such huge profits. Banks are finding it cheaper to set up agents as opposed to opening a branch where they will incur extra costs of staffing, rent, electricity etc. With Agent

Banking, the agent incurs almost all the costs. Agent banking has made it possible for bank products and services to penetrate areas that at first seemed impossible.

With Agent Banking banks have reached even the smallest of villages. With regards to wide customer base Bank agents are paid commissions when they sign up new customers and this has led to an increase in the number of customers for banks. Banks are finding it effective to increase their customer numbers in this manner as opposed to using sales people (*Lehman,2010*). When financial institution do not have branches that are close to the customer, the customer is less likely to use and transact with their service. However, the emergence of new delivery models as a way to bank has played a key role to drastically change the economics of banking by the poor. By using retail points as agents, banking providers can offer banking services in a commercially viable way since they are able to reduce fixed costs and encourage entrepreneurs to use the service more often and in the process provide access to additional revenue sources (Kumar et al, 2006).

At the end, it can be conclude that agent banking is an efficient tool, which can be used to facilitate financial transactions, payment transactions as well as crediting transactions. In order to enable a wide use of agent banking it has to be of easy usage and applicable to all types of mobile phones. And of course, it has to be cheap for all mobile subscribers. In this way, agent banking can have a large acceptance. However, challenges have to be considered, such as technological acceptance, trust, traditional ways of conducting financial transactions and the massive use of cash in developing countries. Nevertheless, agent banking is able to enhance economic development by facilitating financial transactions. However, it has to be noted that agent banking will not replace classic banking, but is only able to fulfill a niche, i.e. offering banking service to groups, who traditionally do not use a bank account. (Kumar et al, 2006).

The agent offers front-line customer service including physical space and operation of the POS device. The agent intermediates bank transactions through its balance sheet,transforming cash in the-till into money-in-the-bank, and vice versa. This is actually not so different from the normal business of a store: transforming inventory into cash (or receivables) and back (i.e., store stocks goods, which ties up its working capital until the goods are sold). In the agent mechanism described, the store also ties up working capital, but in the form of cash-in the- till and balance-in-its-account rather than in the form of physical inventory. The agent needs to go to the bank

from time to time to rebalance its cash in the till versus its money in the bank account. (Lyman, 2006)

The agent absorbs/provides excess liquidity from/to the community of bank customers and deposits that into/withdraws from the bank on their behalf. In effect, the community delegates the bothersome business of going to the bank to the agent. This delegation introduces economic efficiencies. By netting the community's overall net cash position (offsetting withdrawals against deposits), the total amount of cash that needs to be transported to/from the bank is reduced. And by pooling the cash requirements of all customers, the required number of trips to the bank is reduced (Laurent, 2011).

According to (Berger, 1998), agent banking offers similar services as a real bank. This ranges from cash deposits and withdrawals, disbursement and repayment of loans, payment of salaries, pension, transfer of funds, and issuance of mini-bank statements, among others.

Berger further argues that, the agent also facilitates new account opening, credit and debit card application, cheque book request, hence eliminating the need for the financial institutions to have branches all over. This is being replicated across the country, especially in rural areas.

The Government will be highly beneficial through the high rate of financial inclusion so that the government can benefit from effective utilization of resources. It enhances saving and growth in the economy thereby serves as a way out to combat poverty reduction. (*mFino,2013*) The Kenyan situation remains an important case study in this regard. In Kenya, the Central Bank has already licensed four banks to carry out agent banking business and approved 8,809 agents. Many others are expected to be licensed in due course. This is expected to deeply boost penetration of low cost banking services in the country.(Barasa, et al, 2013)

The MNO(the Mobile Network Operator) or Network Service Provider will be beneficial from different angles such as enabling the Operator to provide financial services for all subscriber segments (in the case of MNO Model), serves as a means for the creation of new services around its core distribution system, enhances the subscriber retention and serves as a new revenue stream as more and more subscribers join the service provider in need of the specific Mobile and Agent Banking Services.

2.4 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.

2.5 Conceptual Framework

Researchers have been using different frameworks in the study of adopting new technological innovation. Among frameworks that have been developed in different studies, Technology-Organization-Environment framework (TOE) and Technology Acceptance Model (TAM) are the major ones (PC Lai, 2017). This study is also intending to use TOE and TAM to describe the Determinants of Mobile and Agent Banking Service Adoption in Ethiopian banking industry.

2.5.1 Technology-Organization-Environment (TOE) Framework

TOE framework is designed to study the likelihood of success to the adoption of technological innovations. TOE is a comprehensive and well acknowledged framework in the context of innovation adoption by different organizations and has been used in many studies (Salwani et al, & Ellis, 2009; Chang et al, 2007, Zhu & Kraemer, 2006). According to Tornatzky and Fleischer (1990) technology adoption within an organization is influenced by factors pertaining to the technological, organizational and external environment context. The *technological factor* refers to adopter's perception of Agent banking attributes. Typical characteristics of technology considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers 2003) that include relative advantages (perceived benefits), and relative disadvantages (perceived risks). While the *organizational factor* refers to the organization's characteristics that influence its ability to adopt and use of agent banking system. The *environmental factor* refers to the external environment in which an organization operates and its condition for supporting the development of e-banking services. Various factors have been identified from the literature for each context with reference to the frameworks developed by Tornatzky and Fleischer (1990) but only those factors that are considered relevant for agent banking adoption will be included in the following framework.

2.5.1.1 Technological Factors

Different researchers described technological factors differently Hart O. et al, (2012) for example explained that adoption depends on the pool of technologies both inside and outside the firm as well as the application's perceived relative advantage (gains), complexity (learning curve),

compatibility (both technical and organizational), observability (visibility/imagination), trialability (pilot test/experimentation). Salwani (2009) also explained technology competence covering the existing technology infrastructure and skills that enables to utilize the technology. Tornatzky and Fliescher (1990) considered characteristics of technologies and availability while Kvin Z. et al. (2004) described technological context as both external and internal technologies relevant to a firm, which includes existing technologies inside the firm as well as in the market. Perceived benefits and perceived risks are considered suitable from the technological factors as presented by Ayana (2012) for this study to avoid overlap between organizational and technology contexts.

Perceived Benefits: - It covers both the direct and indirect benefits for the banking industry as well as for the consumers; where direct benefits include savings on operational cost, improved organizational functionality, improved efficiency, increased profitability and productivity gain. Indirect benefits, on the other hand, include the opportunity or intangible benefits such as improved customers' satisfaction through improved services, improved banking experience and fulfillment of their changing needs and lifestyle (Iacovou 1995, Kuan&Chau 2001 and Lu *et al.* 2005).

Perceived Risks: - One of risk faced by bank institutions in offering e-banking services is the customers' resistance to use the services that significantly hinder the growth of e-banking (Laforet 2005 and Zhao *et al.* 2008). Issue related to security is also a concern when dealing with technologies related to online transactions such as agent banking (Chang 2007 & Rogers 2003). Therefore, the perception of the risks regarding the agent banking is expected to influence its adoption (Ayana, 2012).

2.5.1.2 Organizational Factors

Organizational factor captures firm's business scope, organizational culture, top management support, complexity of organizational structure measured in terms of centralization, vertical differentiation, and formalization, the quality of human resource, and size related issues such as specialization and internal slack resources (Jeyaraj A. Et al, 2006). Iacovou (1995) and Grover (1993) also argued that organizations influenced by a number of factors, like firm size, top management support and financial and human resources in their preference to adopt

technological innovation. As per Kvin Z. et al. (2004) and Tornatzky and Fleisher (1990) it is defined in terms of several descriptive measures: firm size and scope; the formalization, centralization and complexity of its managerial structure; the quality of its human resources and the amount of internally available slack resources. Accordingly, the study will consider the financial and human resources as the organizational factor in the framework for the study as discussed below.

Financial and Human Resources: -Financial resources are important factors in facilitating innovation adoption for any organization and they are often correlated with the firm size (Iacovou 1995 and Kuan 2001). The availability of financial resources and costs related with adoption of innovations has paramount importance and deserves consideration. Human resources that enable banks to obtain the required technical and managerial skills and expertise to adopt and implement technological innovations like that of agency banking system are also found important to consider as factors without disregarding the customer sides.

2.5.1.3 Environmental factors.

Environmental factors mainly relates to different facilitating and inhibiting factors in areas of operations (Al-Qirim, 2006). The arena in which a firm conduct its business in adopting technological innovations; its industry, competitors, access to resources supplied by other externals and dealings with government are claimed to be covered under environmental contexts (Kvin Z. et al. 2004). Legal frameworks, the National ICT infrastructure, Competitive pressure and Government supports are amongst significant factors to be considered in the study (Ayana, 2012) as described here under.

Legal Frameworks: - The existence and maturity of legal frameworks on the e-commerce within a country to influence the diffusion of online transactions including agent banking as indicated in various studies (Tan & Wu, 2002 and Martinson, 2001).

National ICT Infrastructure: - National ICT infrastructure is a major factor that supports the adoption of agent banking system as the case for other initiatives. Without an adequate development and quality of a national ICT infrastructure, agent banking adoption and use cannot do well (Scupola 2003).

Competitive pressure: - Competitive pressure can strongly influence any bank to develop and adopt agent banking initiatives and it may affect the bank's perception towards innovation (Quaddus&Hofmeyer 2007). Intense competition stimulates the adoption of innovation (Mansfield et al. 1977).

Government Support:-Government can either directly or indirectly affect the adoption of agent banking in terms of creating a favorable environment and momentum for banking institutions and their customers so that the services can be diffused with the community (Kuan 2001 &Iacovou 1995)

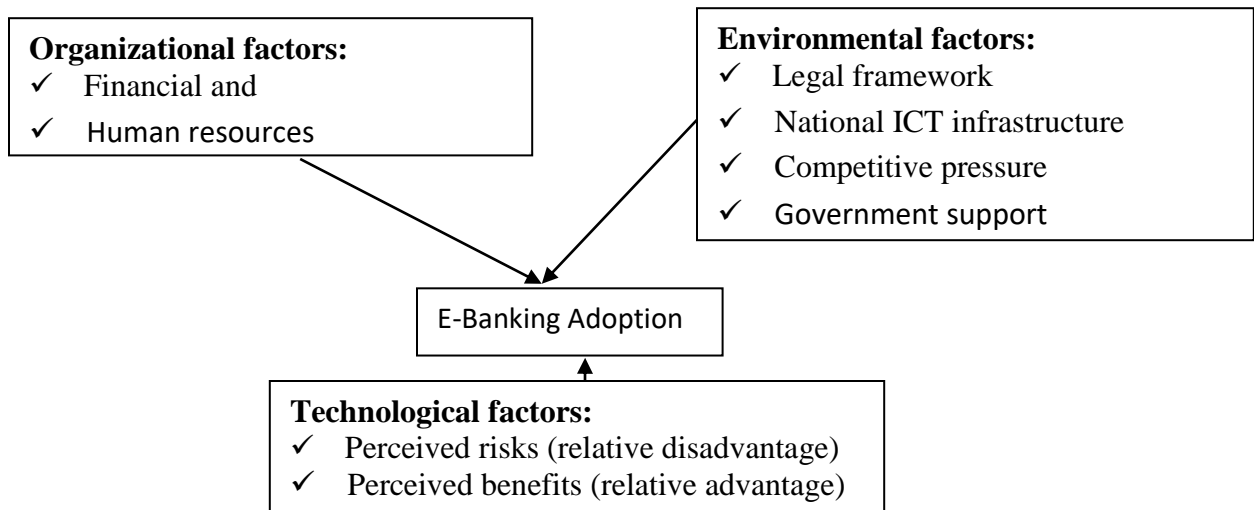


Figure 1Technology-Organization-Environment (TOE) framework, Source: Ayana (2012)

2.5.2 Technology Acceptance Model (TAM)

According to Davis (1989) TAM assume two sets of beliefs, i.e. Perceived Ease of Use (PEoU) and Perceived Usefulness (PU) to look at individual's technology acceptance. TAM proposes perceived usefulness (PU) and perceived ease of use (PEOU) as fundamental determinants of technological adoption where an individual's intention to use an application is predicted and explained by once perception of the technological usefulness and its simplicity (Hart O. et al, 2012).

Perceived Ease of Use (PEoU) refers to the level of degree where an individual believes that using a particular system would be free of physical and mental effort. It measures the prospective user's assessment of the mental efforts required of the use of the target applications (Davis, 1993). Opiya (2008) claimed that innovations with perceived complexities of user interface and steep learning curve, which thought risky to adopt. Empirical findings confirm the positive relationships between attitude towards use and ease of use (Venkatesh & Davis, 2000) and show that PEOU is a proven key determinant of users' intention to accept IT (Venkatesh, 2000). Thus, ease of use is a powerful determinant of intention to accept innovation(s) (Hart O. et al, 2012).

Perceived Usefulness (PU) on the other hand, is related to users' perception of the degree to which using a system will be beneficial (Alsabbagh & Molla, 2004). It provides diagnostic lenses into how actual use and intention to use or attitude towards using are influenced. The near-term results are synonymous with postulates of PU; and the long-term consequences refer to consequential results in one's career or social image, which reflects Rogers' (1995) important motivation for adoption of innovation. The attainment of perceived near-term usefulness paves way for long-term usefulness (Hart O. et al, 2012). It relates with the cost and time saving and it is considered from the perspective of improving service delivery and creating more access to users. Decomposing PU as (Triandis, 1980) and (Chau, 1996) did explicitly provide more specific lenses into understanding user perception of IT's usefulness.

Attitude (ATT) explains a person's favorable or unfavorable assessment regarding the behavior in question.

Intention (INT) is a measure of the strength of a person's willingness to use effort while performing a certain behavior.

2.5.3 Integration of TAM and TOE Frameworks

The Technology Acceptance Model (TAM) of (Davis, 1989), is adapted from the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1975) where the TAM states that a user's adoption of innovation is determined by that user's intention to use the system, which in turn is affected by the user's beliefs about the system. This study will employ the TAM theory by investigating how customers perceived adoption of agency banking. However, in this research the

researcher integrated two frame works to see the issue in different viewpoint. Hence there is a need to adopt other theories that include other factors. The perceived ease of use and perceived usefulness may not fully explain behavioral intentions towards the use of agency banking; necessitate a search for supplementary factors that can better predict the adoption of agency banking (Hanna & Muturi, 2014) As per the explanation of Hart O. et al, (2012) upgrading constructs of original TAM and T-O-E models to a more comprehensive level promote and facilitate improved explanatory and predictive lenses of IT adoptions.

Thus, the researcher considered the TOE framework to summarize possible key factors affecting agency banking adoption as shown in Figure above.

- The technological factor refers to the adopter's perception of agency banking attributes. Typical characteristics considered in technology adoption studies are based on the assumption of Roger's diffusion of innovation (Rogers, 2003), which include relative advantages (perceived benefits), and relative disadvantages (perceived risks).
- The organizational factor refers to the organization's characteristics that influence its ability to adopt and use of agency banking innovation.
- The environmental factor refers to the external environment in which an organization operates and conditions that support the development of the agency banking services.

TAM was developed to explain and predict particular IT system usages and it has been used by many researchers to study the adoption and diffusion of various IT technologies (Ayana, 2012). For this study, the researcher used two basic factors of TAM, i.e. perceived ease of use and perceived usefulness to describe the perception of users in adoption of agency banking in Ethiopia. Various factors have been identified from literatures but only those considered relevant to the agency banking adoption are included in the context of each framework like time saving, cost saving and other benefits in connection with the PEU and some other lists of items in connection with minimizing effort to adopt Agency banking system. Thus, the researcher opted to use the integrated frameworks.

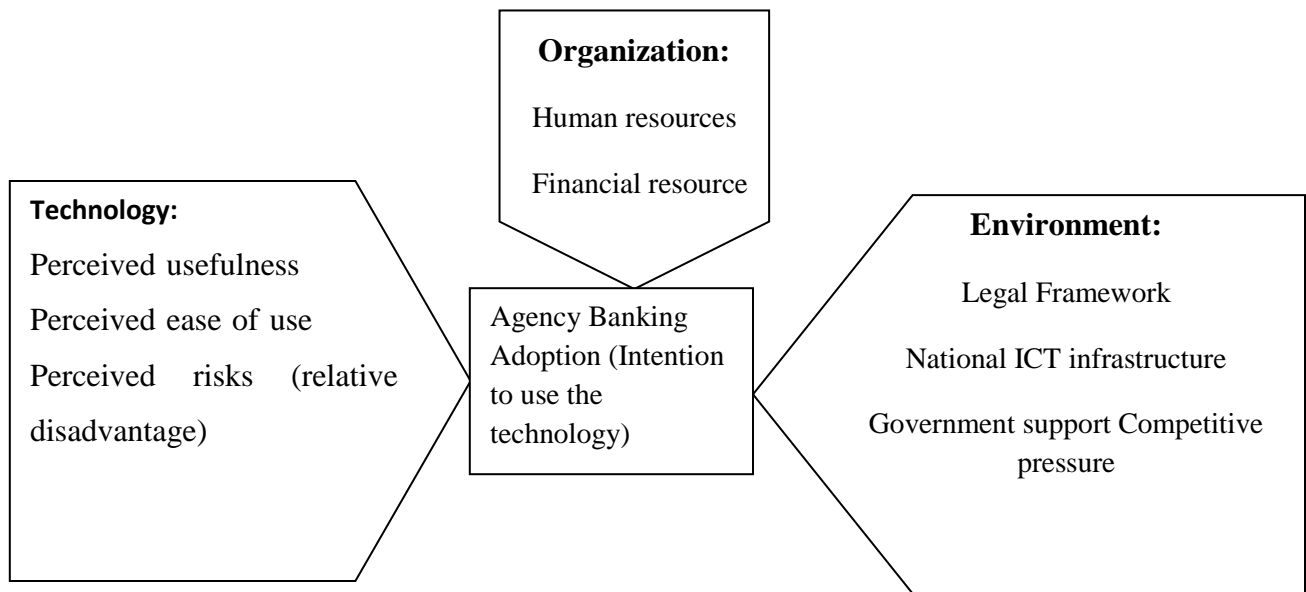


Figure 2 Integrated TAM and TOE Framework Source (Ayana 2012)

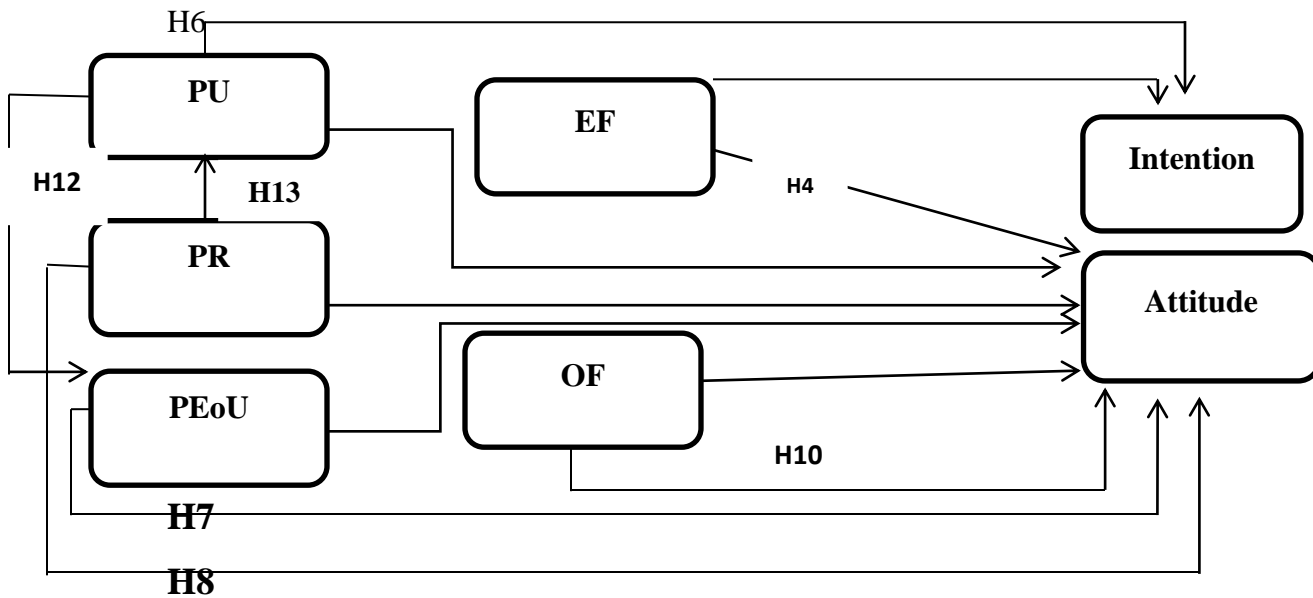


Figure 3 Research Framework With Hypothesis

2.6. Hypothesis

Empirical findings confirm the positive relationships between attitude towards technology adoption, perceived usefulness and ease of use (Venkatesh& Davis, 2000) and show that PEOU is a proven key determinant of users' intention to accept IT (Venkatesh, 2000). Thus, the following hypotheses are derived.

H1: There is a significant positive relation between perceived usefulness (PU) and attitude (A) to use agent banking.

H2: There is a significant negative relation between perceived risk (PR) and attitude (A) to use agent banking.

H3: There is a significant positive relation between perceived ease of use (PEoU) and attitude (A) to use agent banking.

H4: There is a significant positive relation between Environmental factors and attitude (A) to use agent banking.

H5: There is a significant positive relation between Organizational factors (OF) and attitude (A) to use agent banking.

As per (Worku, 2015; Karma, 2014; and R.A. Oluoch, 2012) perceived risk has negative relationship with adoption of a technology. Based on these logical grounds the following hypotheses were derived.

H6: There is a significant positive relation between perceived usefulness (PU) and intention (I) to use agent banking.

H7: There is a significant positive relation between perceived ease of use (PEoU) and intention (I) to use agent banking.

H8: There is a significant negative relation between perceived risk (PR) and intention (I) to use agent banking.

Environmental factors mainly relates to different facilitating and inhibiting factors in areas of operations (Al-Qirim, 2006). The arena in which a firm conduct its business in adopting technological innovations; its industry, competitors, access to resources supplied by other externals and dealings with government are claimed to be covered under environmental contexts (Kvin Z. et al. 2004). Legal frameworks, the National ICT infrastructure, Competitive pressure

and Government supports are amongst significant factors to be considered in the study (Ayana, 2012) as described here under. Therefore the following hypothesis can be generated.

H9: There is a significant negative relation between environmental factors (EF) and intention (I) to adopt agent banking

H10: There is a significant positive relation between organizational factors (OF) and intention (I) to adopt agent banking

H11: There is a significant positive relation between attitude (A) and intention (I) to use agent banking.

Perceived usefulness and perceived ease are the two components of Technology Acceptance Model (TAM). According to (Davis, 1989), they are very important factors affecting the adoption of new innovation. There exist a positive relationship between Perceived usefulness and perceived ease of use and they are very important factors on the use of electronic banking (Poon, 2008). Therefore, an innovation perceived to be useful to customers which is equally easy to use is more likely to be better accepted by customers. These can be applied into agent banking. Thus,

H12: There is a significant positive relation between perceived ease of use (PEoU) and perceived usefulness (PU).

H13: There a significant negative relation between perceived risk (PR) and perceived usefulness (PU).

Chapter Three: RESEARCH METHODOLOGY

3. Introduction

This chapter describes the approaches, procedures and techniques that the researcher used to gather the data needed to achieve the research objectives. According to Saunders, Lewis and Thornhill (2007), research is carried out with the intent to find out things in a systematic or methodical manner, thus increasing knowledge. Hence, research is grounded on logical relationships and not just beliefs (Ghauri&Gronhaug, 2005). This chapter considers the research design, sources of data, target population, sample size, sampling procedure, data collection instrument, and data analysis.

3.1 Research Design

Kanaan(2009) defines research design as “the plan and structure of the investigation that allows the researcher to obtain answers to research questions”. According to Jahoda, Deutsch and Cook (1965), research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy of procedure. The decision of whether to carry out a quantitative or qualitative approach lies in the researcher’s assumption (Kanaan, 2009). In order to achieve the objectives of this study, the research method to be followed will be both quantitative and qualitative, mixed research approach.

According to Johnson et al (2007), mixed research method is a research practice and recognized as the third major research approach or research paradigm along with qualitative research and quantitative research methods.

Data analysis is the application of reasoning to understand the data that have been gathered. In its simplest form, analysis may involve determining consistent patterns and summarizing the relevant details revealed in the investigation (Zimund, Babin, and Carr, 2009, pp.70). Data analysis consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial proposition of a study.

For this study, the researcher analyzed the data collected through questionnaires concerning the factors influencing adoption of agent banking, with descriptive statistics and regression analysis to

provide numerical measurement and analysis of the adoption dynamics. The qualitative research was used to help in triangulation of the results generated from quantitative approach.

The rationale of using such a mixed approach is to gather data that could not be obtained by adopting a single method and for triangulation (Creswell 2003). The quantitative research method involves gathering information and data which is evaluated through a statistical analysis. Quantitative research method gives clear presentation of finding and the result could be used for a larger population if it's well carried out. So to have a better understanding and detailed information about the research, quantitative approach was mainly used as it provides respondents to answer or explain their feelings and their opinions without being fear of their responses. Additionally qualitative approaches were also used.

3.2 Source of Data

The study used both primary and secondary data. Sekaran (2006) defined primary data as data that are collected for research from the actual site that the events took place. Secondary data refers to data that was collected by someone other than the user. Common sources of secondary data for social science include censuses, information collected by government departments, organizational records and data that was originally collected for other research purposes. Primary data was collected through structured, closed-ended questionnaire and through interview with E-banking managers of the organizations. Secondary data was used from annual reports, literatures and online sources. The use of the secondary data is needed for a triangulation purpose.

3.3 Target Population

According to Kumeckpor (2002), the population of a study may be considered as the number of all units of the phenomenon to be investigated that exists in the area of investigation. The populations of this study were allemployees working on agency banking at Cooperative Bank of Oromiya, Lion International Bank, Wegagen Bank, and AbayBank S.C. But, the target population was employees who reside in Addis Ababa. The researcher selected employees of the

organizations aiming at getting full information both from the organizations' and customers' point of view, this is because employees are also using the service as customers.

3.4 Sampling Procedure and Sample Size

Sekaran (2000) defines a sample as a subset of the population in question and comprises a selection of members from the specific population. The sampling design which was applied for the research had two level sampling. Initially, Purposive sampling was used to select bank branches based on the size of the branches and their level of business activities. The reason behind such sampling design is to get higher number of customers in a single place within short period of time, since the type of customers across all banks are assumed to be homogenous (no segmentation geographically or at branch level). Accordingly;

Table 1 Number of bank branches from which data was collected

S.No	Banks	Number of bank branches from which data will be collected
1	Wegagen Bank	9
2	Lion International Bank	9
3	Cooperative Bank of Oromia	9
4	Abay Bank	9

The bank branches are selected using purposive sampling and from each bank the researcher selected 9 branches to give equal chance. Then convenience sampling was used to select sample respondents from selected branches by way of distributing the questionnaire to 10 staffs at a particular branch.

The study computed the sample size for the study by using Slovin's Formula. Slovin's Formula is developed by Robert Slovin (1967). It is used to determine the appropriate number of participants/sample in a survey. This determination of sample size is based on the availability of

the number of populations. Without the actual value of a population, Slovin's formula is not appropriate. Which is written as $n = N / (1 + Ne^2)$.

Where n = Number of samples, N = Total population and e = Error tolerance (level). Therefore with 95% significant level the sample size will be

$$\text{Total Number employees of the four banks} / (1 + \text{Total Number of employees of the four banks} * 0.05^2)$$

Table 2 Number employees

Bank	Number employees
Abay Bank	1,249
Cooperative Bank of Oromia	3,300
Lion International Bank	1,518
Wegagen Bank	3,656
Total	9,723

Therefore,

$$= 9723 / (1 + 9723 * 0.05^2)$$

= **384.19**; therefore 384 samples were selected.

5.5 Data Analysis

The researcher analyzed the data collected through questionnaires concerning the factors influencing adoption of agent banking, with descriptive statistics and regression analysis to provide numerical measurement and analysis of the adoption dynamics. The interview conducted was used to help in triangulation of the results generated from quantitative approach. The statistical tools employed in this study were descriptive statistics like simple frequency distribution, reliability and validity tests. SPSS version 20.0 and STATA V13.1 were used to perform statistical analysis. The reliability of the questionnaire data was carried out by using Cronbach's Alpha value.

5.6. Unit of Analysis

The researcher was intended to describe opportunities and challenges in adopting agent banking innovation among commercial banks in Ethiopia through questionnaires filled by sample employees working on agent banking in the selected four banks (Wegagen S.C, Abay Bank S.C, Lion International Bank and Cooperative Bank of Oromia) that commence Agency Banking Services and interview questions to NBE and Belcash technology solutions PLC.

This study also intend to use Technology-Organization-Environment (TOE) and Technology Acceptance Model (TAM), which are described in the conceptual framework of the study, to describe the determinants of mobile and agent banking service adoption in Ethiopian banking industry. Based on these concepts, the following variables were analyzed.

Technological factors, Organizational factors, and Environmental factors from “Technology-Organization-Environment (TOM) model” and *Perceived Ease of Use, Perceived Usefulness, Attitude toward the technology* and *intention to use technology* from “Technology acceptance model (TAM)” were assessed to determine if the factors are challenges or opportunity in adopting agent banking in Ethiopia.

3.7 Data Collection Instrument

The study incorporated primary data. The primary data is collected through questionnaires with open and close ended questions. The close ended questions are used Likert rating scale of 1 to 5 where; Strongly Agree (SA) = 5, Agree (A) = 4, Neutral (N) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. The use of Likert scale is to make easier for respondents to answer question in a simple way. Section 1 of the questionnaire consists of general information about the banks and the respondents, while Section 2 covered factors influencing the adoption of agency banking that further divided into two parts; factors related with Opportunities and Challenges.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION RESULTS

4.1. Introduction

This data analysis and discussion section presents a description of the results of the statistical analyses that were revealed on the demographic profile of survey results, test results of the scale of hypotheses and provides aggregate information about the survey responses. Since the objective of the study was identifying and investigating the determinants of mobile and agent banking service adoption in the country, the study analyzed data obtained from bank officers. In addition, the finding outline of the study was also discussed in accordance with the questionnaires, interview, hypotheses and literature. Thus, the analysis of this data was divided into following sections:

- Reliability and Validity Analysis:
- Response Rate and Statistical Tools Used
- Respondents Profile:
- Hypotheses testing: using linear regression analysis:

4.2 Reliability and Validity

Reliability is one of the characteristics and /or quality of measure of constructs. As of Bhattacharjee (2012), reliability is the degree to which the measure of a construct is consistent or dependable. EDURS (2016) also defined reliability as the consistency of measure and test is considered reliable if the tester gets the same on repeated trails. There are many types of reliability: internal consistency reliability, test retest reliability, internal reliability (Cronbach's alpha), parallel form reliability and inter rater reliability. For this study the researcher used internal reliability (Cronbach's alpha) to justify reliability and internal consistency of the questionnaire.

4.3 Reliability of questionnaire items

Table 3 Reliability of questionnaire items

Cronbach's Alpha	N of Items
0.9275	43

As we can see from this table, the Cronbach's alpha (internal consistency) of the questionnaire displayed for all 43 items of the questionnaire was 0.9275, which indicates high internal reliability of items of the questionnaire. A rule of thumb that has been advocated in the literature (Nunnally, 1998) is to require Cronbach alpha (α) to equal 0.70 or exceed it before the items are considered internally consistent. So, this result indicates there is strong internal consistency among all items of the constructs (because, Cronbach's alpha result 0.9275 is greater than 0.7). This means that respondents who tended to select high scores for one item also tended to select high scores for the others; similarly, respondents who selected low scores for one item tended to select low scores for the other items.

Additionally, validity according to Bhattacharjee (2012) refers to the extent to which a measure adequately represents the underlying construct that it is supposed to measure. Hence, to make measurement approach or instrument robust thorough analysis of both theoretical and empirical literatures were performed and consequently the study variables were developed. Validity also can be defined as the extent to which data collection methods or methods accurately measure what they were intended to measure.

4.4 Reliability of the model factors

Table 4 Reliability of the model factors

Factors	Cronbach's Alpha
Perceived risk	0.7346
Perceived usefulness	0.9080
perceived ease of use	0.7469
Organizational Factor	0.8569
Environmental Factor	0.7571
Intention	0.9136
Attitude	0.7621

4.5 Response Rate and Statistical Tools Used

A total of 390 questionnaires were prepared and distributed to the respondents. Of these, thirty (30) responses had been discarded due to invalid or incomplete data entries and a total of 350 responses were qualified. Thus the sample comprising of a total of 350 respondents' feedback was used for analysis. This means the qualified data comprises 90% of sample size. From the received questionnaire feedbacks, many meaningful results were found and documented.

The statistical tools employed in this study were descriptive statistics like simple frequency distribution, reliability and validity tests. SPSS version 20.0 and STATA V13.1 were used to perform statistical analysis. The reliability of the questionnaire data was carried out by using Cronbach's Alpha value.

4.6 Demographic Characteristics

This section outlines the findings on the demographic characteristics of the sample, which includes gender, age, educational level, and income level of the respondent (bank officers).

Table 5Demographic Characteristics of the respondent

Variables	Classification of Variables	Frequency	Percentage
Gender	Male	182	52.00
	Female	168	48.0
	Total	350	100
Age	20-30	170	48.57
	31-40	157	44.86
	41-50	19	5.43
	>50	4	1.14
	Total	350	100
Education	High school	-	-
	College Diploma	-	-
	First Degree Holder	327	93.43
	Master's Degree	23	6.57
	Total	350	100
Income	800-1400	-	-
	1401-2000	-	-
	2001-4000	-	-
	4001-6000	33	9.43
	>6000	317	90.57
	Total	350	100

(Source: SPSS data)

Table above shows 182 (52%) of the respondents were male and 168 (48%) were female. This means the majority of the respondents are male

Similarly, it indicates the highest percentage age of respondents were adults, between the age group of 20 to 30 years 170 (48.57%), followed by age group between 31 to 40 years 157 (44.86%), the third largest age group was between 41 to 50 years 19 (5.43%) while the fourth age group was above 50 and only includes 4 (1.14%) of the respondents.

The other variable in the table was educational level and the majority of the respondents were bachelor of degree holders 327 (93.43%), the second is Masters / above 23(6.75).

Based on income the respondents have a salary of more than 6000, which encompasses 317(90.57%) of the respondents. The remaining respondents, 33(9.43%) have a salary of 4001 to 6000.

4.7 ANOVA Analysis

In the process of examining the relationship between variables, researchers can use ttest or ANOVA to compare the means of two groups on the dependent variable (Green & Salkind, 2012). The main difference between t-test and ANOVA is that ttest can only be used to compare two groups while ANOVA can be used to compare two or more groups. In the process of selecting the data analysis technique for this study, the researcher considered both ANOVA and t-test. The advantage ANOVA has over t-test is that the post-hoc tests of ANOVA allow to better controlling type 1 error (Hopkins, 2000). Therefore, in order to control type 1 error, the researcher chose ANOVA as data analysis technique for this study.

The table below presents the ANOVA report on the general significance of the model. As p is less than 0.05, the model is significant. Thus, the combination of the variables significantly predicts the dependent variable ($F=315.31$; $p < 0.05$).

Table 6 ANOVA Analysis

R-squared = 0.9029

Adj R-squared = 0.9001

Source	Partial SS	df	MS	F	Prob> F
Model	305.611505	10	30.5611505	315.31	0.0000
Residual	32.8570665	339	.0969235		
Total	338.468571	349	.969823987		

(Source STATA data)

4.8 Correlations between Predictors and the Dependent Variable

Table 7 Correlations between Predictors and the Dependent Variable

. pwcorr intention pr of ef peou pu, sig

	intention	pr	of	ef	peou	pu
intention	1.0000					
pr	-0.4523 0.0000	1.0000				
of	0.2146 0.0001	0.1408 0.0084	1.0000			
ef	-0.1765 0.0009	0.2666 0.0000	0.3941 0.0000	1.0000		
peou	0.2777 0.0000	0.1078 0.0439	-0.1343 0.0119	0.2158 0.0000	1.0000	
pu	0.6296 0.0000	-0.0342 0.5241	0.3006 0.0000	0.1374 0.0100	0.5279 0.0000	1.0000

(Source STATA data)

As shown in the correlation matrix intention to adopt agent banking service is negatively related to perceived risk ($r = -0.4523$, $P < 0.01$) and Environmental factors ($r = -0.1765$, $P < 0.01$). There is also a positive relationship between, organizational factors ($r = 0.214$, $P < 0.01$), perceived ease of use ($r = 0.2777$, $P < 0.01$), and perceived usefulness ($r = 0.6296$, $P < 0.01$) with intention to adopt agent banking services.

4.9 Empirical Model

As discussed in the related literature review part of this study, a conceptual framework was developed based on the technology acceptance model (TAM) and Technology-Environment-Organization framework. Based on the conceptual framework of the study, the following empirical model is developed. Thus, parameters for the following functional relationships were estimated using the empirical model.

$$INT = \beta_0 + \beta_1 PU + \beta_2 PEOU - \beta_3 EF + \beta_4 OF - \beta_5 PR + \varepsilon$$

Where:

INT = customers' intention to accept e-banking, PU = perceived usefulness, PEOU = perceived ease of use, EF = Environmental Factors, OF = Organizational Factors, PR = perceived risk and ε = is the error term for any missing variable in behavior of human account, assumed to distribute normally with zero mean and σ standard deviation and is independent of the error terms associated with all other Observations. β_0 = the intercept value of the regression surface.

4.10 Hypotheses testing: using linear regression analysis

In this research, hypothesis testing was performed on the basis of linear regression analyses. Linear regression is a method to find a relationship between one dependent variable and an independent variables (J. F. Hair.et al, 1992).The independent variables and the dependent variable are integrated and tabulated in STATA for hypothesis testing. Hypothesis testing is based and relies on the standardized coefficient significant (P value) and also the standardized coefficient (Beta value). To support the hypothesis, the significant of the standardized coefficient should be below the 0.05 level (the minimum probability to reject or accept the hypothesis) and the standardization coefficient should be greater than 0.1 which is the accepted rate. In order to calculate standardized coefficient (Beta value) and the significant of the standardized coefficient (P value) the following steps were followed:

1. Independent variables: Perceived risk, Perceived usefulness,perceived ease of use, Environmental Factor, and Organizational Factor are regressed against the dependent Attitude toward agency banking adoption. (Hypotheses H1, H2, H3, H4, H5).
2. Independent variables: perceived ease of use is individually regressed against the dependent variable Attitude toward agency banking adoption (Hypotheses H3).
3. Independent variables: Perceived usefulness, Perceived ease of use, Perceived Risk,Environmental Factor, and Organizational Factor are individually regressed against the dependent variable Intention to Agent Banking (Hypotheses H6, H7, H8, H9, and H10).
4. Independent variables: Attitude is individually regressed against the dependent variable Intention (Hypotheses H11).

5. Independent variables: Perceived ease of use and Perceived Risk are individually regressed against the dependent variable Perceived Usefulness. (Hypotheses H12 and H13).

Accordingly, the following results were obtained:

Table 8.Summary of the regression analysis

Dependent variable Attitude (A)					
Independent Variables	β	t	P> t 	Std. Err	R²
Perceived Usefulness	.875	20.70	0.000	.0423085	0.7948
Perceived ease of use	-.0528497	-0.91	0.363	.0580061	
Perceived Risk	-.552111	-8.58	0.000	.0643617	
Environmental Factors	-.4731137	-7.50	0.000	.0630484	
Organizational Factors	.7237484	13.14	0.000	.0550963	
Dependent variable Intention (I)					
Perceived Usefulness	.5347116	11.38	0.000	.0469923	0.6430
Perceived ease of use	.2191883	3.40	0.001	.0644278	
Perceived Risk	-.8748091	-12.24	0.000	.0714871	
Environmental Factors	-.4859382	-6.94	0.000	.0700284	
Organizational Factors	.3651865	5.97	0.000	.0611959	
Dependent variable Intention (I)					
Attitude	.6930699	27.02	0.000	.0256475	0.6773
Dependent variable Perceived Usefulness (PU)					
Perceived ease of use	.7335759	11.80	0.000	.0621783	0.2871
Perceived Risk	-.180571	-2.02	0.044	.0893358	

Source STATA data

Dependent Variable; Attitude

H1: There is a significant positive relation between perceived usefulness (PU) and attitude (A) to use agent banking that is **accepted** because standardization coefficient that equals to 0.97, which is greater than the accepted rate 0.1 and the significant is 0.000, which is lower than the accepted rate.

H2: There is a significant negative relation between perceived risk (PR) and attitude (A) to use agent banking. From the table it can be inferred that this hypothesis is **accepted** because the standardization coefficient (beta) is -0.55 and the significance level is 0.000, which is lower than the accepted rate.

H3: There is a significant positive relation between perceived ease of use (PEoU) and attitude (A) to use agent banking. This hypothesis is **not accepted**, because its standardization coefficient (β) is -0.0528 and the significant level $P=0.363$, which is greater than the acceptable level $P>0.1$.

H4: There is a significant positive relation between Environmental Factors (EF) and attitude (A) to use agent banking. With a β of -0.473 and significant level P of 0.000, this hypothesis is **accepted**.

H5: There is a significant positive relation between Organizational factors (OF) and attitude (A) to use agent banking. This hypothesis is **accepted** because the standardization coefficient (β) is 0.723 and the significance level is 0.000, which is lower than the accepted rate.

Dependent Variable; Intention:

H6- There is a significant positive relation between perceived usefulness (PU) and intention (I) to use agent banking. Hypothesis six is **accepted** with a standardization coefficient (beta) of 0.534 which is greater than 0.1 and a significance level of 0.000 which is less than the acceptable level 0.05.

H7- There is a significant positive relation between perceived ease of use (PEoU) and intention (I) to use agent banking. As shown in the table, this hypothesis is **accepted** with a standardization coefficient (beta) of 0.219 and with a significance level of 0.001 which is less than the acceptable level 0.05.

H8: There is a significant negative relation between perceived risk (PR) and intention (I) to use agent banking. This hypothesis is **accepted** and from the table it can be inferred that perceived risk has negative relationship with intention to adopt Agency Banking which ($\beta = - 0.874$, $p = 0.000$). This indicates that perceived risk influence intention to adopt agent banking negatively.

H9: There is a significant negative relation between environmental factors (EF) and intention (I) to adopt agent banking. As it can be seen from the table, Environmental Factor has a negative relation with Intention to adopt agency baking with a standardized coefficient (β) of -0.485 and a significance level of 0.000 . Therefore, the hypothesis is **accepted**.

H10: There is a significant positive relation between organizational factors (OF) and intention (I) to adopt agent banking. As shown in the table, this hypothesis is **accepted** with a standardization coefficient (β) of 0.365 and with a significance level of 0.000 which is less than the acceptable level.

Attitude against dependent variable Intention

H11. There is a significant positive relation between attitude (A) and intention (I) to use agent banking. This hypothesis is **accepted** and from the table it can be inferred that attitude has a strong positive relationship with intention to adopt Agency Banking which ($\beta = 0.977$, $p < 0.05$).

Dependent variable; Perceived Usefulness

H12 There is a significant positive relation between perceived ease of use (PEoU) and perceived usefulness (PU). As it can be seen from the table hypothesis 12 is **accepted** that PEoU and PU have a significant positive relationship with ($\beta = 0.733$, $p < 0.05$).

H13: There a significant negative relation between perceived risk (PR) and perceived usefulness (PU). **Accepted**, PR and PU have a significant negative relation as indicated in the table below with $\beta = -0.180$ and $p < 0.05$.

Demographic characteristics as controlling variable

Table 9 Demographic characteristics as controlling variable

Dependent variable Intention (I)					
Independent Variables	β	t	P> t	Std. Err	R ²
Perceived Usefulness	.5347116	11.38	0.000	.0469923	0.6478
Perceived ease of use	.2191883	3.40	0.001	.0644278	
Perceived Risk	-.8849764	-12.24	0.000	.0714871	
Environmental Factors	-.4901648	-6.94	0.000	.0700284	
Organizational Factors	.3658207	5.97	0.000	.0611959	
Gender	-.0287171	-0.45	0.654	.0640025	
Age	.0900295	1.82	0.069	.0493707	
Educational level	-.0617305	-0.48	0.634	.1293699	
Income	.1163772	1.07	0.287	.1090466	

(Source Stata data)

As it can be seen from the table above, the significance level of the independent variables remains the same, but the beta coefficients (β) of the predictors have slightly increased due to the inclusion of the controlling variable, Demographic characteristics of the respondents, which includes Gender, Age, Educational level and Income. The magnitude of PR(-.8748091), OF(.3651865), EF(-.4859382), PEoU(.2191883), and PU(.5347116) in the previous regression analysis have increased to (-.8849764), (.3658207), (-.4901648), (.2157491), and (.5369575) respectively. Although the beta of the independent variables increased, most of the controlling variables are not significant except “Age” with a significant level of 0.069.

4.11. Summaries of the hypothesis tests

Table 10 Acceptance/rejection of the hypothesis

Hypothesis	Standardization coefficient	Significant	Acceptance/rejection of the hypothesis
H1	0.97	0.000	Accepted
H2	-0.55	0.000	Accepted
H3	-0.0528	0.363	Rejected
H4	-0.473	0.000	Accepted
H5	0.723	0.000	Accepted
H6	0.534	0.000	Accepted
H7	0.219	0.001	Accepted
H8	0.874	0.000	Accepted
H9	-0.485	0.000	Accepted
H10	0.365	0.000	Accepted
H11	0.977	0.000	Accepted
H12	0.733	0.000	Accepted
H13	-0.180	0.044	Accepted

4.12. Qualitative Data Analysis

Qualitative data (interview) was used in this study to more clarify data obtained from the quantitative data. The interview was conducted by the researcher after relevant questions to the objective of the study were prepared. Cooperative bank of Oromiya implemented mobile banking system since June 2015 that was centrally administered from the head quarter of the bank in Addis Ababa. In order to get appropriate data, the researcher interviewed mobile and agent banking officers of the bank. The schedule and place of the interview was arranged by officers in their offices. The topics or idea of the interview was about the adoption and challenges of mobile banking and some complains of the users.

According to E-banking service officer, (E-banking is where mobile banking /SMS banking, ATM and Internet banking are administered), *‘CBO have begun implementation of mobile*

banking in 2015 and currently have more than half million subscribers'. The main objective of its implementation were two; accessibility and financial inclusion. Accessibility is providing alternative banking system for the customers those have bank account in the bank or other banks. This is especially for urban dwellers (customers) those have many options whereas the later (financial inclusion) was for unbanked populations of rural. Along with this, mobile banking is cost effective and efficient than branching, so it was highly accepted in rural areas than urban area.

According to interview feedback, challenges of mobile banking can be grouped into internal (management and cost issues) and external factors. The external factors are; lack of clear and flexible policy directives or guidelines that could be upgraded as new technology emerges, criteria of agent registrations like forensic; the need of finger prints, clearance from crime and business license that is only given at Addis Ababa. So the bank agents must have to come to Addis Ababa and fulfill these requirements from very distant areas of the country. Financial intelligence rule, fear of money laundering and terrorism fighting rules were also other factors. As GBAF (2013) stated, banks are some of the most complex, heavily regulated organisations in the world, and security is paramount, especially with sensitive data being sent over the internet. Similarly, rules and regulations of Ethiopian banking industries are firm. The government officers of NBE always want black and white guideline to give decisions and accept new technology, but the existing rules or policy directives were prepared once and not amended (upgraded) very easily, so they could not give immediate solutions for sudden technological innovations brought into the industry.

In addition to these, the maximum transaction limit which is 6,000ETB to withdraw and 25,000ETB to deposit per day was also another factor, that the customers always raise as complain especially merchants, businessmen, etc.

Awareness about the product among the customers, and infrastructures like electricity and telecommunications in the country are also other external barriers to the adoption of mobile banking.

Interview respondents' also responded on the system and customer's security of mobile banking as it has no link with Internet banking, awareness is given on customer's vague perception of crowd funding and MB during registration and after through SMS. Additionally customers get

anytime information through IVR (interactive voice recording) that is given in five languages (English, Amharic, Afan Oromo, Tigrigna and Somali) through dialing 8140.

According to the respondents' on mobile commerce as a paying bill services, saying there is still no legal framework for it, but risk mitigation mechanisms depending on the crimes and system related features. The actual cash (paper money) transfer conducted at branches or agents that are managed by nearest branches. Until this data is collected the bank provides Debit card and POS cards only.

The respondents also argued about the political instability (domestically and internationally) impacts. Since the awareness about mobile banking and cyber security system in the country is less, the impact of political instability is on the perception of the customers, degrading their trust. In addition, the nature of the product itself is also susceptible to problems of trust and reliability. The interview respondents also indicated that mobile banking is more important in developing countries than developed countries, because it needs less infrastructure (electricity and telecommunication), do not need sophisticated (application) technology, it is user friendly (especially for less educated) and no much opportunities of banking in developing than developed countries.

During the interview about adoption of mobile banking, another point raised was competitive pressure of the industry. They agreed as it has positive and negative impacts; positive impact is companies modify features as innovation happen in one of the competitor, while negative impact was it reduces market share they have.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This research was conducted on challenges and opportunities of the adoption of agent banking services in Ethiopia by using mixed research approach and employing technology acceptance model and technological, organizational and environmental model.

Factors affecting agency banking adoption identified in this study were analyzed after grouping in to seven factors such as perceived risk, perceived ease of use, perceived usefulness, organizational factors, Environmental Factors, intention and attitude toward the adoption of the technology.

Similarly, perceived ease of use was identified as it positively influences the intention of agent banking adoption ($\beta=0.219$, $p=0.000$). Simplicity of remembering agent banking PIN, USSD and login numbers, as well as easiness to navigate, understand and customize agent banking menu, alternative languages and also simplicity to make payment, money transfer and checking their balance have found as positive influence on customers to adopt agent banking. Agent banking platform application and menu provided for the service is easy and the processes to be followed for banking transaction facilitates the users to adopt agent banking. This simplicity was caused primarily by alternative languages the customer could prefer during and after his/her agent banking subscribing time. The finding has got similarity with (Adesinesi, 2012) that suggested perceived ease of use is important for their decision to adopt agency banking service in Nigeria.

In addition to these, perceived usefulness positively influences intention to adoption of agent banking ($\beta=0.534$, $p=0.000$). The finding also shown that using agent banking made customers do banking activities easier, using agent improved their performance of banking activities, increased the quality and output of banking transaction, and customers found that using agency banking is useful for their banking activities. This is comfortability and compatibility of agent banking system with users' values and interests to be adopted by them. It also implies its enabling the users manage their financial system and interact with the bank than the conventional banking system. This result is similar with the findings of (Beatty et al. (2001) who indicated perceived

usefulness has a positive influence on the company agent banking adoption and user attitude and intention was influenced by relative advantage to adopt the service. This research output also have got conformity with Masinge (2010) and Ayana (2012) who suggested E-banking should reduce the need to visit bank branches to get services.

The study also indicated that perceived risks (like security risk, performance risk, time risk, social risk and financial risk) have negative effect on intention to adoption of agent banking in Ethiopia with ($\beta=-0.874$, $p=0.000$). And this shows that there have to be further awareness (information) about security risk (privacy protection) of the system to be confident. This finding is in line with Ayana (2012), suggested that one of the barriers in the adoption of e-banking is fear of security risks.

Organizational factors have a positive relationship with intention to adopt agent banking ($\beta=0.365$, $p=0.000$). This shows the capability the banks have, as far as human resource, policies and procedures are concerned, will have a direct relationship with the intention to adopt agent banking services.

Finally, the study show that Environmental factors have an indirect relationship with intention to adopt agent banking services ($\beta=-0.485$, $p=0.000$). This shows that if the environmental factors like lack of ICT infrastructure, network problem, the insufficiency of government support are decreased to a certain level the intention of adopting of agency banking will increase.

5.3 Recommendations

This research work has shown that agent banking adoption in our country was low and too late to be implemented as compared to some developing and developed countries of the world. The concept of agent banking system is new to the bank and customer and it is not showing the expected progress. Still the number of customers those frequently visit bank branches and ATM queues are not much reduced. To overcome the existing challenges of agent banking adoption, the researcher recommends the following points.

1. Banks should give proper consideration to the technology by supporting financially, training the experts, agents and individuals involving in the agent banking implementation system.
2. Policy and directives regarding registration of agents (bank representatives) that perform cash payment, transfer, deposit and give any support for the customers where branches were not

available should be feasible like the need or requirements of forensic evidences from them that is only given at Addis Ababa; like giving this at regional level or related cities, etc.

3. Government supports like providing clear and comprehensive laws on criteria of registration should be available. For example youths those are around 14 to 17 years engage in different job activities get money but cannot save and perform transactions through either bank or agent banking because the law do not allow them without their parents' consent.

4. The distribution and performance of infrastructures like ICT, telecommunications and electricity that are priority to agent banking especially around the rural areas also needs immediate solution.

5. The maximum limit of withdrawal (6,000 ETB) and deposit (25,000 ETB) was a challenging amount especially among agents, merchants, business men/women, etc. So this should be given due consideration.

6. The bank should give necessary awareness on the agent banking for the customer through its officers, agents, SMS, etc for further clarity of the product.

7. The bank is also responsible to give immediate support for the customers in solving their difficulties of using agent banking as required via SMS, IVR, direct calling, etc.

9. Since agent banking is widely accepted around rural populations, where branches are at far, they need agents those give immediate services like assisting in mobile payments, transfers and cash withdrawal (paper money). But majority of them were businessmen/women and they are sometimes absent to customers hence customer is needed to go and search the second nearest agent. So this needs solution.

10. The Bank should ensure safety measures such as firewalls, intrusion detection and other security related devices which are properly developed and incorporated in the agent banking systems to eliminate the perceived risk of customers.

11. Even though agent banking is most importantly applicable for the population of unbanked areas for financial inclusions, agent banking system in our country follows the direction and patterns of branches. So agent banking like retail shops, pharmacies and other business centers should be given proper considerations rather than simply following branches.

5.4 Limitations of the Study and Future Work

This research finding will be able to contribute to the existing literature on determinants of mobile and agent banking service adoption. The study's framework can be useful to advance knowledge about and determinants of mobile and agent banking service adoption in general. However the study has some limitations.

The first is the population size. The geographical coverage was limited to Addis Ababa and the number of institutions selected for the study was also limited. Thus, the findings of this study may not give a real reflection of the Ethiopian scenario in respect of the adoption of Agent banking services. For future studies larger population size could be considered in order to have a more generalized view and also the research could be expended to reach more regions in the country, nevertheless this research is still valid having analyzed the available sample size with questionnaires, observation and interview.

Secondly, this study suggested seven constructs to analyze banks' determinants of mobile and agent banking service adoption. However, these constructs can be integrated with other concepts to provide a more comprehensive understanding of agent banking adoption. There is a need, therefore, to explore additional constructs that can predict determinants of mobile and agent banking service adoption. For a suggestion, new measures such as, demographic variables, attitude, and prior computing experience can be applied in the model for future research.

Thirdly, the study used Cross sectional research method. As defined by Kendra Cherry (2018), Cross-sectional studies are observational in nature and are known as descriptive research, not causal or relational, meaning that we can't use them to determine the cause of something. Therefore further studies should use other research methods to fully understand the relationships among different variables affecting the adoption of agent banking.

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Appendices

Appendix 1: Questionnaire

ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS & ECONOMICS DEPARTMENT OF MANAGEMENT

Dear respondent,

REQUEST FOR RESEARCH DATA ON AGENT BANKING; *Determinants of Mobile and Agent Banking Service Adoption From selected commercial banks in Ethiopia*

I am a post graduate student at Addis Ababa University. I am undertaking a research on the **determinants of mobile and agent banking service adoption in Ethiopia Evidence From selected commercial banks in Ethiopia**, in partial fulfillment to the requirement for the award of a Master of Business Administration (MBA) degree.

I, therefore, request for your kind assistance in completing the attached questionnaire to the best of your knowledge. The information you give will be treated with strict confidentiality and is solely for academic purposes. Even where a name is given, it will not under any circumstances appear in the final report. A copy of the final report will be availed to you upon request.

Your assistance and co-operation will be highly appreciated.

Thank you.

Section I: Demographic profile of respondents

Please indicate the following by ticking (√) on the spaces in front of the response options:

1. Gender: Male Female
2. Age: 20-30 31-40 41-50 >51
3. Educational level: High School Diploma holder First Degree
Masters Degree
4. Monthly income (in Eth. Birr): 800-1400 1401-2000 2001-4000
4001-6000 >6000

Section II: Below are lists of statements pertaining to adoption of Agency Banking. 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

Part one:

Factors		SA	A	N	D	SD
I. Technological factors (Perceived risk)		5	4	3	2	1
1	Fear of risk to use Agency Banking may hinder people to use it.	()	()	()	()	()
2	Lack of confidence with the security aspects considered as barrier for the adoption of Agency Banking	()	()	()	()	()
3	In the case of using Agency Banking, security risk affect users decision to use the system	()	()	()	()	()

4	It is difficult to trust the technology provided by the banks	()	()	()	()	()
5	Lack of trust is considered as barriers for the adoption of Agency Banking in Ethiopia.	()	()	()	()	()
II. Organizational factors						
6	Using Agency Banking increases cost to do banking task	()	()	()	()	()
7	The bank provides guidelines on the use of Agent banking facility	()	()	()	()	()
8	Relatively using Mobile to get banking service is expensive for customers	()	()	()	()	()
9	Customers of our bank were not familiar with the Agency Banking service provided using mobile phone	()	()	()	()	()
10	Lack of technical and managerial skills to use the system.	()	()	()	()	()
11	Lack of skills to implement Agency Banking	()	()	()	()	()
III. Environmental factors						
12	Using Agency Banking with mobile is difficult due to low network access in Ethiopia	()	()	()	()	()
13	Lack of sufficient government support will affect customers willingness to use technological innovation	()	()	()	()	()
14	Lack of available ICT infrastructure will affect the effectiveness of agency banking services	()	()	()	()	()
15	Agent banking services may not perform well because of network problems	()	()	()	()	()
16	Lack of legal frameworks that enforce banking industries to adopt technological innovation may affect the adoption of agency banking by banks.	()	()	()	()	()
17	Cross-country legal and regulatory differences will have impact on the adoption of new technological innovation in the banking sector like Agency Banking.	()	()	()	()	()

18	Lack of competition among local and foreign banks may be considered as an opportunity.	()	()	()	()	()
19	Customers may not be willing to accept Agency Banking service	()	()	()	()	()

Please specify any other barriers, if any?

Part two:

Factors		SA	A	N	D	SD
IV. Perceived Ease of Use		5	4	3	2	1
20	Agency Banking makes it easier to do banking activities	()	()	()	()	()
21	In Agency Banking, customers can simply use banking services by using cell phones	()	()	()	()	()
22	From the bank perspective it is easy to use Agency Banking to accomplish banking tasks	()	()	()	()	()
23	Using Agency Banking simplify the activity of workers to deliver service to customers.	()	()	()	()	()
24	The management of the bank provide training courses for its staff when introducing Agency Banking services.	()	()	()	()	()
25	Agency Banking services helps to perform banking task in a simple way	()	()	()	()	()
V. Perceived Usefulness						
26	Agency Banking services enables users to complete banking activities more quickly and easily	()	()	()	()	()
27	Agency Banking service is convenient in terms of time saving	()	()	()	()	()
28	Agency Banking service is convenient, in terms of 7 days	()	()	()	()	()

	and 24 hour services					
29	Agency Banking service is more accessible to users than visiting a bank	()	()	()	()	()
30	The transactions in Agency Banking are at a lower price, or at no cost for customers	()	()	()	()	()
31	Agency Banking service improve customer service	()	()	()	()	()
32	Agency Banking service improve speed and efficiency	()	()	()	()	()
33	Agency Banking reduce number of customers coming to the banking hall	()	()	()	()	()
34	Agency Banking service increase productivity of the bank	()	()	()	()	()
35	Agency Banking increase reliability and accessibility	()	()	()	()	()
36	Agency Banking service create better relationship among banks and clients	()	()	()	()	()
37	Agency Banking service used as better information control tools	()	()	()	()	()
38	No time limit to access bank account and information	()	()	()	()	()
VII	Intention to use agent banking					
39	I intend to use agent banking	()	()	()	()	()
40	I prefer to Use Agent Banking to ease my life.	()	()	()	()	()
41	I choose to use Agent banking than the traditional banking system.	()	()	()	()	()
VIII	Attitude toward agent banking					
42	I think agent banking is a good way of getting bank services	()	()	()	()	()
43	Going to agents of a bank is easier than going to bank branches in order to get services	()	()	()	()	()

Please specify any other benefits?

Appendix 2: Semi Structured Interview

1. What are legal framework and main objectives of agency banking?
2. How does the bank create awareness about the product?
3. What is your view about the current adoption of agency banking services of customers?
4. What are the challenges been faced by the bank(s) about agency banking in Ethiopia?
5. What are the major challenges frequently raised by the customers in regards to agency banking facilities?
6. What are the government (especially NBE) roles and supports in this agency banking system?
7. What are impacts of strength of network signal, competitive pressure, transaction limits and perception of customer on agency banking security?
8. What are risks and how do you protect it that could occur at any time?

Appendix.3. Regression analysis results

Table 11 Regression analysis 1

. reg intention pu peou pr ef of

Source	SS	df	MS			
Model	217.645246	5	43.5290492	Number of obs = 350		
Residual	120.823325	344	.351230597	F(5, 344) = 123.93		
Total	338.468571	349	.969823987	Prob > F = 0.0000		
				R-squared = 0.6430		
				Adj R-squared = 0.6378		
				Root MSE = .59265		

intention	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
pu	.5347116	.0469923	11.38	0.000	.4422831	.6271401
peou	.2191883	.0644278	3.40	0.001	.0924664	.3459103
pr	-.8748091	.0714871	-12.24	0.000	-1.015416	-.7342023
ef	-.4859382	.0700284	-6.94	0.000	-.623676	-.3482005
of	.3651865	.0611959	5.97	0.000	.2448211	.4855518
_cons	4.110332	.3531911	11.64	0.000	3.415646	4.805018

(Source Stata data)

Dependent variable-Intention

Predictors- Perceived usefulness, perceived ease of use, perceived risk, environmental factors, and organizational factors.

Table 12 Regression Analysis 2

. reg intention attitude

Source	SS	df	MS			
Model	229.227919	1	229.227919	Number of obs = 350		
Residual	109.240653	348	.313909921	F(1, 348) = 730.23		
Total	338.468571	349	.969823987	Prob > F = 0.0000		
				R-squared = 0.6773		
				Adj R-squared = 0.6763		
				Root MSE = .56028		

intention	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
attitude	.6930699	.0256475	27.02	0.000	.6426262	.7435136
_cons	.6801676	.0953257	7.14	0.000	.4926806	.8676546

(Source Stata data)

Dependent variable-Intention

Predictor- Attitude

Table 13 Regression Analysis 3

. reg attitude pu peou ef of pr

Source	SS	df	MS			
Model	379.276285	5	75.8552571	Number of obs =	350	
Residual	97.9380002	344	.284703489	F(5, 344) =	266.44	
				Prob > F =	0.0000	
				R-squared =	0.7948	
				Adj R-squared =	0.7918	
Total	477.214286	349	1.36737618	Root MSE =	.53358	

attitude	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
pu	.8759759	.0423085	20.70	0.000	.79276	.9591917
peou	-.0528497	.0580061	-0.91	0.363	-.1669409	.0612415
ef	-.4731137	.0630484	-7.50	0.000	-.5971227	-.3491047
of	.7237484	.0550963	13.14	0.000	.6153803	.8321165
pr	-.552111	.0643617	-8.58	0.000	-.6787031	-.425519
_cons	1.941145	.3179874	6.10	0.000	1.315701	2.566589

(Source Stata data)

Dependent variable-Attitude

Predictors- Perceived usefulness, perceived ease of use, perceived risk, environmental factors, and organizational factors.

Table 14 Regression Analysis 4

. reg pu peou pr

Source	SS	df	MS			
Model	84.3556717	2	42.1778359	Number of obs =	350	
Residual	209.441471	347	.603577727	F(2, 347) =	69.88	
				Prob > F =	0.0000	
				R-squared =	0.2871	
				Adj R-squared =	0.2830	
Total	293.797143	349	.841825624	Root MSE =	.7769	

pu	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
peou	.7335759	.0621783	11.80	0.000	.611282	.8558697
pr	-.180571	.0893358	-2.02	0.044	-.3562788	-.0048632
_cons	1.030412	.3967784	2.60	0.010	.2500188	1.810805

(Source Stata data)

Dependent variable-Perceived Usefulness

Predictors- perceived ease of use, and perceived risk