

## Determinants of Mobile Banking Service Adoption among Commercial Bank of Ethiopia in Jima District

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### Abstract:

The principal objective of this study was to investigate the determinants of adoption of mobile banking among Commercial Bank of Ethiopia Jima District. Descriptive research design was used to answer the research questions. In addition, this study employed both quantitative and qualitative research methods mainly quantitative. The participants of the study were 400 CBE mobile banking clients and 20 branch managers were selected through simple random sampling and purposive sampling method respectively. Besides, data collection was made through questionnaire, interview and document analysis. Most CBE have implemented Mobile banking technology. However; there is a challenge that their effort may not bring much result as it was expected. Due to the fact that the number of mobile banking users are still lagged behind. In line with this, the study was tuned to seven constructs, these are, clients' age, awareness, income level, perceived relative advantage, perceived trust, perceived risk and service quality in determining their effect on mobile banking service adoption. Binary logistic analysis was employed to examine the magnitude of effect size of each determinant factors. Consequently, this study revealed that perceived relative advantage, awareness, income, trust and service quality had a positive and significant impact on mobile banking service adoption while age and perceived risk was found to have a negative and significant impact. The study recommended banks to emphasize in awareness creation, to project higher security when providing mobile banking services and advance infrastructures (network and electric power supply) in order to yield higher customers' acceptance.

**Key words:** Commercial banks, Mobile banking, service adoption, determinants.

### Introduction

#### Background of the Study

History tells us that the financial sectors were the epicenter of the growth and development countries all over the globe. A bank is one of the components of financial sectors play a significant role in promoting economic growth and development of a particular country through transfer money from excess to deficit areas. Likewise, the bank helps to mobilize and distribute the idle resources to productive sectors, aiming to raise the level of economic development. The bank is accept deposit from business organizations and individuals and shifts it to investment and consumer lending. Suppose the banking industry does not perform well. In that case, the effect to the economy could be vast and broad, because, banks are the critical element of the financial system, play a pivotal role in contributing to a country's economic development. For the aim of this, the banks on this planet changing their system frequently. At present, the banks adopted Electronic banking (E-Banking) system ,including Mobile Banking; Automated Teller Machine; Internet Banking; Debit Card; SMS Electronic Alert; Fund Transfer Services; Point of Sales Banking and Phone Banking Service (Mari, 2003; Saleem and Rashid, 2011 and Yu, 2012). Among these Mobile banking (M-banking) is an

innovation perpetuated by the widespread of mobile communication technology (Cracknell, 2012). Mobile banking offer a support system that allow customers to interact and access banking services from their comfort zone; through the connection between mobile phone device, individual and bank account (Cracknell, 2012; Doline and Solomon, 2014 and Porteous, 2006).

Moreover, banking service and operation have undergone a paradigm shift due to the advancement of technology, widespread of ICT, global commerce, competitiveness and customer demand. Accordingly, banking services have quickly adopted new delivery means to changing commercial landscape. Further, to meet need of customers and compete in financial industry, the banks are using new and innovative based financial inclusion strategy (Shi and Lee, 2008). This condition significantly influences the strategy that the banks have adopted and their market share. However, the adoption of E-Banking model primarily Mobile Banking is the current phenomenon in developing countries including Ethiopia. On the other hand, in these countries the number of more mobile phone users is greater than bank account owner, which, in return, most effective way of reaching out to unbanked population (Nandhi, 2012 and Tobbin, 2012). The mobile phone technology have acknowledged as a rampant and useful tool in the financial industry especially in mobile banking innovations (Cruz, Neto, et al., 2010 and Sangoro, 2013). As compared to other African Countries (such as, Kenya and Tanzania) the level of adoption E-banking in Ethiopia is at infancy. For instance, Commercial Bank of Ethiopia the pioneer of adoption of mobile banking has very low users (CBE, 2015). Ethiopia, Uganda and Tanzania for instance, each have less than one bank branch per every 100,000 people compared to 100 in Spain. This ratio showed a high disparity across the continent, with Namibia having more than four, Zimbabwe more than three and Botswana nearly four bank branches per 100,000 people.

In order to encourage further mobile banking adoption in developing countries, a better understanding of the barriers and drivers impacting M-banking adoption is critical (Zhao et al., 2008). By gaining an in-depth understanding of the factors and conditions that influence developing country's ability to fully adopt and realize its benefits, strategic implications can be generated for the researchers and practitioners regarding how to promote the growth of M-banking in the developing countries. However, despite the importance of these adoption studies in developing countries, limited studies are currently available, especially in Ethiopia.

The mobile banking development in Ethiopia is not full-fledged in terms of exhaustively utilizing all the mobile services one can get. Currently, of all the types of mobile banking services, most customers of the bank use notification or alarm inquiry (NBE, 2015). Therefore, more studies are still required to understand the relevance of Mobile banking in Ethiopia to identify areas in which the country lags behind that inhibit their Mobile-banking adoption and diffusion. Mobile banking services, including fund transfer, payment, bill payment and balance enquiry made to enable the customers to transact 24 hours per day. However, the information from the people indicated that the extent of implementation of mobile banking and its practice are inadequate in Ethiopia in general and Jima district in particular.

Empirical evidence indicated that the degree of financial inclusion and financial service accessibility in the country little in Ethiopia. Regarding this, National Bank of Ethiopia's quarter magazine for the year 2016/17 justified a country has one branch per every 27,255. To overcome this type of problem, the new banking platform such as M-Banking will be mutually beneficial for all stakeholders. Therefore, this study was examined the factors affect the implementation of mobile banking system regarding Commercial Bank of Ethiopia in general and Jima district in particular.

### **Statement of Problem**

Mobile banking has been in use since early 2000s in many parts of the world. Indeed, European

banks started using the service in 1999 upon the launch of smart phones (Tiwari, R., and Buse, S., 2007). Mobile banking serves users' to access proper formal financial services (Porteous, 2006; Tobbin, 2012). Despite the simplicity and popularity of using the cell phone (Sachombe, 2017), users are adamant to adopt this technology which is deemed more convenient possibly even cheaper than carrying out banking transactions (Tobbin, 2012).

Unlike mobile money transfer services operated by mobile network operators, mobile banking promises a lot more to the users, including credit history, access to loans and interest on funds saved. Furthermore, customers perceive mobile banking to have a relative advantage when compared to traditional banking possibly influencing them to adopt mobile banking services. This is contrary to what is happening where the majority of banks customers are reluctant in adopting the mobile banking technology in transacting (Cruz, Neto, et al., 2010; Porteous, 2006; Tobbin, 2012). This raises questions as to why adoption of mobile banking services is much lower than is anticipated (Cruz, Neto, et al., 2010; Doline & Solomon, 2014; Donner & Tellez, 2008).

Various studies (such as Doline and Solomon, 2014; Rupa, 2015) revealed that there could be visible challenges that limit adoption and use of mobile. A study conducted in Africa on determinants of mobile banking adoption revealed that, perceived usefulness, perceived ease of use, perceived risk and trust as factor of mobile banking usage (Mutua, 2010 and Haonga, 2015).

Despite few in number researches were conducted in Ethiopia to identify factors that affect mobile banking adoption at commercial bank of Ethiopia, for instance, Mulualem (2015) studied in specified CBE customers in Addis Ababa found out that perceived usefulness and perceived ease of use have positive relationship with the adoption of mobile banking. On the other hand, perceived risk has negative relationship with the adoption of mobile banking. Another study conducted by Gizachew (2016), found out that the relative advantage, compatibility, perceived trust, perceived usefulness, and perceived risk were major influencing factors for mobile banking adoption. Whereas, to the contrary of the previous research, perceived ease of use were found to have insignificant effect on mobile banking usage for CBE and United bank customers located in Addis Ababa, Ethiopia.

Even though few attempts were made to identify and examine factors that affect mobile banking adoption in commercial banks in limited districts of Ethiopia, no study was conducted in the study area. Thus, this research will fill the knowledge gap regarding what determines mobile banking service adoption of customers' by considering age, gender, perceived risk (security), trust and awareness of users as a determinant factor among CBE branches of Jima district.

## **Objective of the Study**

### **General objective**

The overall objective of this study is to examine the determinants of mobile banking Service adoption among Commercial Bank of Ethiopia (CBE) in Jima District.

### **Specific Objectives**

The specific objectives of the study were:

1. To identify the level of M-banking service adoption by clients of CBE in the study area.
2. To examine the effect of customers' age on the adoption of mobile banking services among CBE branches in the study area.
3. To investigate the effect of customers awareness on the implementation of mobile banking services among CBE branches in the study environment.

4. To examine the effect of customers income level on the adoption of mobile banking services among CBE branches in the study ecosystem.
5. To examine the influence of customers trust on the implementation of mobile banking service among CBE branches in the study area.
6. To identify the extent to which perceived risk influences mobile banking adoption among CBE branches in the study area.
7. To identify the extent of service quality influences mobile banking adoption among CBE branches in the study area.
8. To examine the impact of perceived relative advantage and customers mobile banking services adoption among CBE branches in the study atmosphere.

### Hypothesis of the Study

Ho1: Age of customers have no significant effect on mobile banking (MB) service adoption.

Ho2: Awareness has no a significant positive effect on MB service adoption.

Ho3: Customers' income level has no significant effect on MB service adoption

Ho4: Perceived trust has no positive and significant effect on MB service adoption.

Ho5: Perceived risk has no negative and significant effect on MB service adoption.

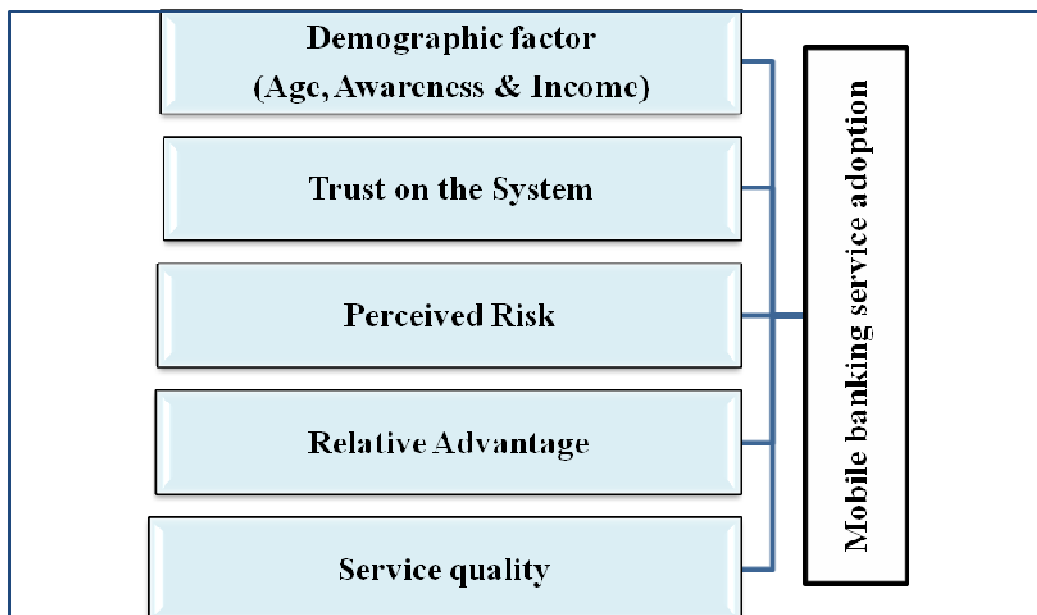
Ho6: Relative advantage has no positive and significant effect on MB service adoption.

Ho7: Service quality has no positive and significant effect on MB service adoption.

### Conceptual Framework of the Study

The conceptual framework displayed the effect of predictors particularly age level (AGE), income level (INC), awareness (AWR), perceived trust (TR), perceived risk (RSK) and relative advantage (RAD) and service quality (SQ) on the adoption of mobile banking technology in the study environment.

**Figure 1: Conceptual framework of the study**



Source: Compiled by researchers

## RESEARCH DESIGN AND METHODOLOGY

This chapter indicated the research design, research method, population of the study, sample size and selection, source of data, data collection instruments, data analysis techniques and ethical considerations.

### Research Design

For the purpose of this study, descriptive research design was employed. The descriptive design was selected based on the following reasons: The first reason was non-experimental researches that describe the characteristics of a particular individual and or of a group; the second rationalization was the fact that it deals with the relationship between variables and development of generalization and use of theories that have universal validity; thirdly, it has involves events that have already taken place and related to present conditions; the fourth reason was that the research identified the determinants of mobile banking service adoption among Commercial Bank of Ethiopia in Jima district and fifth, reason was that it allows for an in-depth analysis and understanding of a particular phenomenon as it exists in the present condition. Moreover, in descriptive research design, objectives are predetermined following relevant and sufficient data collection (Kothari, 2004).

Evermore, the researcher used both quantitative and qualitative methods. Though the study employed both quantitative and qualitative approach, quantitative approach was essentially emphasized. This is because, it was better to quantitatively determinedeterminants of mobile banking service adoption among CBE customers in the study area. Qualitative approach was also used to achieve the in-depth understandings of study subject and enables the researcher to validate quantitative data (Gay, 2012).

### Sources of Data

In this study, both primary and secondary data sources were used. A combination of primary and secondary data sources did support the researcher to triangulate the outcomes and ensure reliability.

#### Primary Sources of Data

To achieve the ultimate goal of the study firsthand information were gathered from customers and branch managers in the study environment. The rational for the selection of these participants was related with their familiarity of the issue being studied. In connection with this, data were gathered from selected CBE mobile banking service users found under the study area.

#### Secondary Data Source

The secondary data of this study incorporated documents about customer's mobile adoption performance report; customer suggestion note; mobile banking procedures and guidelines. Further the study used published and unpublished research works on the topic of the study.

#### Population, Sample Size and Sampling Techniques

Since the total number of customers within CBE branches were not be able to identify at the time of the research, at 95% confidence level a minimum of 385 respondents is needed (Kothari, 2004) as a sample size and so the researcher determined to participate 400 respondents by keeping proportionality of branches' customer size. Then, sample respondents were selected from respective branches by way of approaching customers who visit the branch accidentally with the help of respective branches staffs. Under convenience or accidental sample selection sample was identified primarily on the basis of its relative ease of access or convenience; for example, market developments research (Irving fishers Committee, 2009).

This study also participated 20 CBE branch managers through purposive sampling method assuming

that they are knowledgeable informants regarding the current practice of mobile banking adoption service found in their respective branches. Generally, this study involved 420 (400 mobile banking users 20 CBE branch managers) respondents for the study purpose.

### **Data Gathering Tools**

According to Creswell (2003) the questionnaire was the tool for drawing out, recording, gathering sufficient information for particular research work. For that reason, the researcher have used questionnaire together with interview and document analysis.

### **Questionnaire**

Questionnaire design is relatively easy (Harrison, A., 2007). Beside to this, questionnaires are less expensive, offer greater privacy of respondents, and appropriate for collecting factual information (Kumar, 2005). For this study questionnaire was prepared by the researcher and developed under close guidance of advisor. It is organized into two parts. The first part deals with the general background of the respondents and the second part consist of both close-ended and open-ended question that was arranged into vital theme in relation with the basic questions of the study. While close-ended questions are quick to complete and straightforward to code, open-ended questions enable participants to write a free account in their own terms, to explain and qualify their responses and avoid the limitations of preset categories of response, but it is discouraging and time consuming for respondents (Oppenheim et al. in Cohen, 2007).

Cohen (2007) also recommended that, the larger the sample size, the more structured, closed and numerical the questionnaire may have to be, and the smaller the size of the sample, the less structured, more open and word-based the questionnaire may be. Since, respondents of the study were large in number it is difficult to manage the data easily and timely; therefore, the questionnaire contain more of close-ended and few number of open-ended items. These close-ended items incorporate five Likert scales; this enables to the researcher to measure opinions, attitudes and values (Johnson, R., 2007).

### **Interview**

Of different types of interview, semi-structured interview was used in this study. Semi-structured interview permits flexibility in which new questions can be forwarded during the interview session based on the responses of the interviewee, and enables to gather more information that may not be easily held by the questionnaires (Rubin and Rubin, 2005). Moreover, it is useful for exploring an individual's beliefs, values, understandings, feelings, experiences and perspectives of an issue. Therefore, in order to obtain detailed supplementary information, interview session was conducted with selected CBE branch managers.

### **Validity and Reliability Check**

Validity refers to the extent to which an instrument measures what it intends to measure (Sekaran and Bougie, 2011). It is the degree to which results obtained from the analysis of the data actually represents the phenomena under study. The researcher assured the instrument's content and construct validity with the support of advisor who assessed the instrument and find out if it answers the phenomenon under study. The researcher did remove bias in the research instrument by constructing in line with the objectives of the study. Reliability is the extent to which data collection techniques or analysis procedures yield consistent findings (Saunders et al, 2009). Accordingly, the reliability of the instrument was measured by using Cronbach alpha test. When the reliability coefficients are display between 0.70 and 0.90, they are generally found to be internally consistent (Cronbach, L. J., 1984). As shown under table 1 all variables comprised of alpha index greater than 0.7 that confirm the itemshaveinternal consistency.

**Table 1: Cronbach's alpha reliability coefficients**

	Variables	Alpha	N of Items
1.	Mobile banking service adoption	.89	2
2.	Awareness	.87	5
3.	Perceived trust	.79	5
4.	Perceived risk	.81	6
5.	Relative advantage	.77	8
6.	Service quality	.74	6
	Total	.81	32

## Model and Variable Specification

### Model Specification

Logistic regression is appropriate statistical technique when the dependent variable is a categorical (nominal or ordinal) variable and the independent variables are metric or non-metric variables. While mobile banking adoption is a dependent variable, age, awareness income level, perceived risk, trust on the system, relative advantage and service quality are considered as independent variables. In this study, the dependent variable assumes values 0 and 1, which is 1 if the client is M-banking adopter and 0 if the client is non-adopter. Therefore, M-banking is treated as dichotomous dependent variable that does not satisfy the key assumptions in the linear regression analysis.

There are several methods to analyze the data involving binary outcomes. However, for this particular study, logit model is selected. Lemeshow (2000) pointed out that the logistic distribution (logit) has got advantage over the others in the analysis of dichotomous outcome variable in that it is extremely flexible and easily used model from mathematical point of view and results in a meaningful interpretation. In statistics, logistic regression, or logit regression, or logit model is a regression model where the dependent variable is categorical/binary dependent variable (most commonly called dummy variables) - that is, where it can take only two values, "0" and "1", which represent outcomes non-adopter and adopter respectively.

Logistic regression was developed by statistician David Cox in 1958. The binary logistic model is used to estimate the probability of a binary response based on one or more predictor variables. It allows one to say that the presence of a risk factor increases the probability of a given outcome by a specific percentage. Since the dependent variable of the study have binary/dichotomous outcomes (mobile banking service adopter and non-adopter), the binomial logistic regression model was suitable for this study to find and examine the determinants of mobile banking Service adoption among CBE customers in Jima District. The binomial logistic model is one of the sophisticated binary response model that overcomes the limitations of the linear probability model. In a binary response model, interest lies primarily in the response probability:

$$P(y = 1|x) = P(y = 1|x_1, x_2, \dots, x_k) \dots \dots \dots (1)$$

Where,  $p(y = 1|x)$  is the probability that  $y=1$ (adopter) given  $x$  (independent variables),  $y$  represents mobile banking service adoption and  $x$  denote the full set of explanatory variables (age, awareness, income level, risk, trust, relative advantage and service quality). To avoid the linear probability model limitations, let us consider a class of binary response models of the form:

$$P(y = 1|x) = G(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k) = G(\beta_0 + x\beta) \dots \dots \dots (2)$$

Where,  $G$  is a function taking on values strictly between zero and one:  $0 < G(z) < 1$ , for all real numbers  $z$ . This ensures that the estimated response probabilities are strictly between zero and one.

We write  $x\beta = \beta_1 x_1 + \dots + \beta_k x_k$ . Logistic function is a nonlinear function that is used for the function G in order to make sure that the probabilities are between zero and one. In the logit model, G is the logistic function which is between zero and one for all real numbers z. This is the cumulative distribution function for a standard logistic random variable:

$$G(z) = \frac{\exp(z)}{1+\exp(z)} \dots \dots \dots (3)$$

Where,  $Z = X\beta = \beta_1 x_1 + \dots + \beta_k x_k$

The goal of logistic regression is to find the best fitting model to describe the relationship between the dichotomous characteristic of dependent variable and a set of independent variables. Logistic regression generates coefficients (standard errors and significance levels) of a formula to predict a logit transformation of the probability of presence of the characteristic of interest:

$$\text{logit}(p) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_k x_k$$

For one categorical dependent variable and several independent variables the Logit (P) can be back transformed to ‘p’ by the following formula:

$$P(Y) = \frac{e^{\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \dots + \beta_n x_n}}{1 + e^{\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 \dots + \beta_n x_n}}$$

Where, P(Y) is probability of Y occurring, e is natural logarithm base ( $e \approx 2.71828\dots$ ),  $\beta_0$  is interception at y-axis,  $\beta_n$  is regression slope coefficient of  $X_n$ , and  $X_n$  is predictor variable that predicts the probability of Y.

$$P(Y) = \frac{e^{\beta_0 + \beta_1 AGE + \beta_2 AWR + \beta_3 INC + \beta_4 RSK + \beta_5 TRU + \beta_6 ADV + \beta_7 QUL}}{1 + e^{\beta_0 + \beta_1 AGE + \beta_2 AWR + \beta_3 INC + \beta_4 RSK + \beta_5 TRU + \beta_6 ADV + \beta_7 QUL}} \dots \dots (4)$$

Since one categorical/dummy/binary dependent variable and seven independent variables are included in this study, the binomial logistic regression model of this study becomes: P(Y) denotes the probability of M-banking service adoption. Logit model limits probabilities for values of dependent variable between 0 and 1.  $X_i$  denotes the independent variables that influence customers’ mobile banking service adoption.  $\beta_0$  and  $\beta_i$ , known as the parameters of the model, are, respectively, the intercept and slope coefficients.

**DATA PRESENTATION, ANALYSIS AND INTERPRETATION**

**Response Rate**

Out of the 400 questionnaire administered, 335 were filled and returned, which represents 83.4% response rate. According to Mugenda and Mugenda (2003), a 50% response rate is adequate, and a response rate greater than 70% is very good. Hence the response rate was extremely adequate to proceed to analysis.

**Characteristics of Respondents**

**Table 2: General characteristics of respondents**

variables	Categories	Frequency	Valid Percent	Cumulative Percent
Gender	Male	205	61.2	61.2
	Female	130	38.8	100
	Total	335	100	



Age	<25	6	1.8	1.8
	26-35	106	31.6	33.43
	36-45	155	46.3	79.7
	46-55	55	16.4	96.12
	≥55	13	3.9	100
	Total	335	100	
Education level	High school or Below	125	37.3	37.3
	Diploma	128	38.2	75.52
	Degree	76	22.7	98.21
	Masters or above	6	1.8	100
	Total	335	100	
Monthly Income in ETB	<3,000	72	21.5	21.5
	3,001 - 6,000	142	42.4	63.88
	6,001 - 10,000	91	27.2	91.04
	≥10,000	30	9	100
	Total	335	100	

As it was displayed on the above table 3, from 335 respondents who completed the gender information 205 were men which comprise 61.2% of the study participants and the number of female participants accounted for 130 (38.8 %) of the total participant in the study. The output revealed that there was a wide gap between men and women CBE mobile bank customers. This is economic implication of gender inequality in the study area.

From table 3, 46.3% of respondents' ages were between 36-45 years, followed by those between 26 and 35 years which constituted 31.5% while the other age group lies between 46 to 55 years lagged behind the two age groups with 16.4 % and the rest two extreme ends below 25 and above 55 accounted for 1.8% and 3.9% respectively. The implication of the result is that most of commercial banks customers are potential work force between the age group 26-45 and these segment will be a potential target market of the mobile banking service channel.

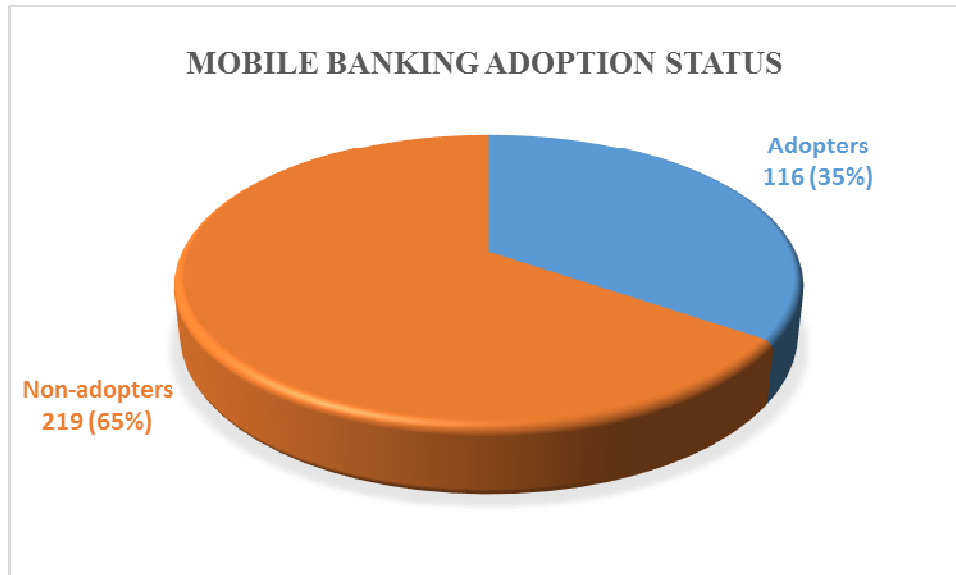
Respondents were also requested to indicate their educational level and their responses were summarized as shown in table 3 above. The finding revealed that 125 (37.3%) of the respondents indicated that they had some high School education or below, 128 (38.2%) indicated that they have diploma education, 76 (22.7%) indicated that they have Bachelor's degree education and 6 (1.8%) indicated that they have masters. Therefore, one can deduce that majority of the respondents 210 (62.7 %) were educated.

Sample respondents were requested to indicate their income levels. From the sample respondents 72 (21.5%) indicated that they have earned below 3,000 birr, 142 (42.4%) indicated that they have monthly income between 3,001 and 6,000; 91 (27.2%) replied that they have earned between 6,001

and 10,000; whereas, 9.1% indicated that they have earned above 10,000 Birr. The data revealed that the majority of saving account holders monthly income falls between 3,001 and 6,000.00 birr.

### *The Status of Mobile Banking Adoption among CBE Clients*

*Figure 1: The status of mobile bank adoption of CBE clients of the study area*



As shown on figure 1, from the total respondents 219 (65%) of them were non-adopters and the remaining 116 (35%) were adopters. The study revealed that the numbers of non-adopters were almost twice as much as the number of adopters. In order to have adequate information on mobile banking service adoption, additional investigation will required on the type service do they have frequently engaged. Unless otherwise, these may further decline the adoption behavior of mobile banking clients.

### *Determinants of Mobile Banking*

#### **Awareness level of CBE clients in Mobile Banking Adoption**

*Table 3: Respondents' opinion regarding the awareness level of CBE clients in adopting MB;*

No	Questions	Scales					Total
		SD	D	U	A	SA	
1	I know about mobile banking services.	17	176	46	70	26	335
		5.1%	52.5%	13.7%	20.9%	7.8%	100%
2	I have received enough information of how to use mobile banking services.	22	226	22	44	21	335
		6.6%	67.5%	6.6%	13.1%	6.3%	100%
3	I have received information about the security system of mobile banking services from the bank.	12	207	50	51	15	335
		3.6%	61.8%	14.9%	15.2%	4.5%	100%
4	I am aware of all the various available services on mobile banking	27	217	39	38	14	335
		8.1%	64.8%	11.6%	11.3%	4.2%	100%
5	I am informed where to inform for wrong or unsuccessful transaction;	15	195	38	63	24	335
		4.5%	58.2%	11.3%	18.8%	7.2%	100%

NB: SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree;

As observed in table 4 item 1, respondents of CBE clients of mobile banking were asked about their view how often they know about mobile banking services. Thus, the majority of the respondents 193

(57.6%) replied disagree. Whereas 96(28.7%) of respondents were responded agree about the stated issue. The result implies that, participants did not have adequate know-how that enables them to use mobile banking service.

Concerning item 2 of table 4, respondents of CBE clients of mobile banking were asked about their view how often they have received enough information of how to use mobile banking services. Accordingly, the majority of the respondents 248 (74.1%) replied disagree. On the other hand 65 (19.4%) of respondents were responded agree. This revealed that, participants were not well informed on how to use mobile banking.

Regarding item 3 of table 4, respondents of CBE clients of mobile banking were asked about their view how often they received information about the security system of mobile banking services from the bank. Consequently, 219 (65.4%) of respondents replied disagree and 66 (19.7%) of respondents were responded agree. This indicated that, the majority of respondents were not well informed about the security system of mobile banking services.

As shown in table 4 item 4, respondents of CBE clients of mobile banking were asked about their view how often they know about the various kinds of services available on mobile banking services. Thus, the majority of the respondents 244 (72.9%) replied disagree. Whereas 52(15.5%) of respondents were agreed about the stated issue. The result retrieved from the data implies that, participants did not get adequate information concerning the various available services on mobile banking.

Concerning the last item of table 4, respondents of CBE clients of mobile banking were asked about their view how and where to inform for wrong or unsuccessful transaction. Thus, 210 (62.7%) of respondents were disagreed and 87 (26%) of respondents agreed. This showed that, the majority of respondents were not well informed how and where to appeal for missed or wrong transactions made.

However, lack of knowledge about mobile technology and/or mobile banking especially information related to the applications discourage them from trying the service.

### Perceived trust on the service as a factor of mobile banking adoption

*Table 4: Opinion of respondents on Perceived trust on the service*

No	Questions	Response					Total
		SD	D	U	A	SA	
1	I believe the bank's mobile banking application will keep the commitments promises made to me.	173	123	3	14	22	335
		51.6%	36.7%	0.9%	4.2%	6.6%	100%
2	The bank's mobile banking service is totally trustworthy.	145	151	3	33	3	335
		43.3%	45.1%	0.9%	9.9%	0.9%	100%
3	Even though the bank works mobile banking system with other banks and institutions, I have no fear;	162	150	3	3	17	335
		48.4%	44.8%	0.9%	0.9%	5.1%	100%
4	I believe in the information provided by bank's mobile banking transaction.	148	117	3	22	45	335
		44.2%	34.9%	0.9%	6.6%	13.4%	100%
5	I never suspect the legal grounds behind using mobile banking;	137	147	0	34	17	335
		40.9%	43.9%	0.0%	10.1%	5.1%	100%

NB: SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree;

As shown on table 5 of item 1 respondents were asked if bank's mobile banking application will

keep the commitments promises made to them; thus, majority of respondents 296 (88.3%) replied disagree and 36 (10.8%) of the respondents were agreed. Consequently, mobile banking clients of the study area did not believe the proper application of CBE commitment promises.

Concerning item 2 of the same table, respondents were asked whether the bank's mobile banking service is totally trustworthy or not and 296 (88.3%) of them disagreed; on the other hand, 36 (10.8%) respondents were agreed on the issue. This indicates that customers are yet to embrace and fully trust the mobile banking services.

The data displayed under table 5 of item 3 respondents were asked if they did not fear while the CBE works with other banks and institutions in mobile banking serves; accordingly, majority of respondents 312 (93.2%) replied disagree and 20 (6%) of the respondents were agreed. This result revealed that, mobile banking clients did not have a full of trust while CBE agreed to work with other banks through MB services.

Regarding item 4 of table 5, respondents were asked whether respondents believe in the information provided by bank's mobile banking transaction or not and 265 (79.1%) of them responded disagree, and 67 (20%) respondents were agreed on the issue. This shows that, CBE mobile banking clients did not believe transaction report provided through mobile banking services.

As shown on table 5 of the last item, respondents if they never suspect the legal grounds behind using mobile banking and 284 (84.8%) of them responded disagree, and 51 (15.2%) respondents were agreed on the issue. This infers that, CBE mobile banking clients did suspect the legal bases while using mobile banking services. However, previous research findings of (Gu, Lee & Suh 2009; Lee et al. 2007) confirmed that, the higher levels of trust in a service provider will lead to a greater intention on the part of user to engage in mobile banking transactions.

In case of m-banking trust is found to be the extent to which an individual believes that using mobile banking is secured and has no privacy threats (Chong et., al., 2010) who mentioned that when it comes to electronic banking; trust is found to be crucial and complex as customers should trust the online transaction of the bank to complete the usage transaction. Warwick and Goode (2010) found that trust in the website is greatly influencing the purchasing intention to purchase online. Additionally, many previous researches that considered the drivers of adoption to e-banking have appointed trust to play a major role in determining the intention towards using e-banking (Juwaheer et. al., 2012, Kesharwani & Bisht, 2011, Amin, 2009).

### Perceived risk as a factor of mobile banking adoption

*Table 5: opinion of respondents on perceived Risk*

No	Questions	Response					Total
		SD	D	U	A	SA	
1	I think using mobile banking services for monetary transactions will have potential risk	22	47	17	98	151	335
		6.6%	14.0%	5.1%	29.3%	45.1%	100%
2	I think that privacy is not guaranteed when using mobile banking services.	12	22	0	145	156	335
		3.6%	6.6%	0.0%	43.3%	46.6%	100%
3	I believe it can rather easily happen that money can be stolen if mobile banking services are used.	41	45	0	20	229	335
		12.2%	13.4%	0.0%	6.0%	68.4%	100%
4	I think mobile banking services are more risky than other banking option.	3	22	19	151	140	335
		0.9%	6.6%	5.7%	45.1%	41.8%	100%
5	I'm worried about using mobile banking	33	22	3	151	126	335

	because other people may access my account	9.9%	6.6%	0.9%	45.1%	37.6%	100%
6	Mobile banking is unreliable because I afraid that my personal or transaction detail would be leaked during message passing;	23	22	3	142	145	335
		6.9%	6.6%	0.9%	42.4%	43.3%	100%

NB: SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree;

As observed in table 6 item 1, respondents of CBE clients of mobile banking were asked about their view about exposure to potential risk while using mobile banking services for monetary transactions; thus, the majority of the respondents 246 (74.4%) replied agree. Whereas 69 (20.6%) of respondents were responded disagree about the stated issue. The result implies that, participants were think about as if they were exposed to risk while using monitory transaction via mobile banking.

Concerning item 2 of table 6, respondents of CBE clients of mobile banking were asked about their view if privacy is not guaranteed when using mobile banking services. Accordingly, the majority of the respondents 301 (89.9.1%) replied agree. On the other hand 34 (10.2%) of respondents were responded disagree. This revealed that, participants were not guaranteed about their privacy while using mobile banking.

Regarding item 3 of table 6, respondents were asked about their view if it can rather easily happen that money can be stolen if mobile banking services are used. Consequently, 249 (74.4%) of respondents replied agree and 86 (25.6%) of respondents were responded disagree. This indicated that, the majority of respondents were not well informed about the security system of mobile banking services.

As shown in table 6 item 4, respondents were asked about their view if mobile banking services are more risky than other banking option. Thus, the majority of the respondents 291 (86.9%) replied agree. Whereas 25(7.5%) of respondents were disagreed about the stated issue. The result retrieved from the data implies that, participants did believe that using mobile banking service were more exposed to risk than any other options.

From table 6 of item 5, respondents were asked if they worried about using mobile banking because other people may be able to access their account. Thus, the majority of the respondents 277 (82.7%) replied agree. Whereas 55(16.5%) of respondents were disagreed about the stated issue. This implies that, participants were worried about their privacy since they suspected as some body may access their account.

Concerning the last item of table 6, respondents of CBE clients of mobile banking were asked if mobile banking is unreliable because clients afraid of their personal or transaction detail would be leaked during message passing. Thus, 287 (85.7%) of respondents were greed and 45 (13.5%) of respondents disagreed. This showed that, the majority of respondents were afraid of handling the transaction massage from their mobile.

Since risk perception is the subjective judgment people make about the severity of a risk. Conducting electronic transaction is a risk that faces consumers, as it does not have any kind of physical contact, which subsequently; affects the adoption to internet technology, (Cheng et. al., 2011).

Broekhuizen and Huizingh (2009) considered the perceived risk to be one of the determinants of the online purchase and they found that it affects the inquirers' purchase to a great extent. Moreover; enough number of literatures about electronic banking adoption in many countries employed risk as one of the key factors influencing adoption to it, (Kesharwani & Bisht, 2011, Juwaheer et., al., 2012, Nasri, 2011). Moreover; adequate amount of literature considered the risk as a basic influential in

adopting MB in different nations (Kazi Mannan, 2013 & Ghalandari, et. al., 2013).

### Relative advantage in using the service as a factor of mobile banking adoption

*Table 6: Opinion of respondents on relative advantage*

No	Questions	Scales					Total
		SD	D	U	A	SA	
1	Mobile banking makes it easier to do banking activities.	31	11	0	64	229	335
		9.3%	3.3%	0.0%	19.1%	68.4%	100%
2	Mobile banking enables one to do banking activities more quickly.	34	27	3	98	173	335
		10.1%	8.1%	0.9%	29.3%	51.6%	100%
3	I think mobile banking enables one to complete banking activities more conveniently.	6	17	0	184	128	335
		1.8%	5.1%	0.0%	54.9%	38.2%	100%
4	There is no time limit to access my bank account and information	34	25	240	25	11	335
		10.1%	7.5%	71.6%	7.5%	3.3%	100%
5	Mobile banking allows me to manage my finances better.	47	28	232	22	6	335
		14.0%	8.4%	69.3%	6.6%	1.8%	100%
6	The transactions in Mobile banking are at a lower price (no cost) for customers;	31	47	3	92	162	335
		9.3%	14.0%	0.9%	27.5%	48.4%	100%
7	M-banking saves me from not to be stolen by thief;	14	8	6	165	142	335
		4.2%	2.4%	1.8%	49.3%	42.4%	100%
8	M-banking protects me from certain diseases that comes through paper money transaction contacts;	22	20	3	142	148	335
		6.6%	6.0%	0.9%	42.4%	44.2%	100%

NB: SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree;

As shown on table 7 of item 1 respondents were asked if mobile banking makes it easier to do banking activities; thus, majority of respondents 293 (87.5%) replied agree and 42 (12.6%) of the respondents were disagreed. The result indicates that, mobile banking clients of the study area did believe in that using mobile banking makes banking services easier.

Concerning item 2 of the same table, respondents were asked whether mobile banking enables one to do banking activities more quickly or not and 271 (80.9%) of them agreed; on the other hand, 61 (18.2%) of respondents were disagreed on the issue. This indicates that customers believe in that mobile banking services are quicker than traditional ways of banking system.

The data displayed under table 7 of item 3 respondents were asked whether mobile banking enables one to complete banking activities more conveniently or not; accordingly, majority of respondents 312 (93.2%) replied agree and 23 (6.9%) of the respondents were disagreed. This result revealed that, mobile banking clients did believe in the certainty of mobile banking service.

Regarding item 4 of table 7, respondents were asked if there is no time limit to access my bank account and information and majority of respondents (240 or 71.6%) replied on undecided option. This shows that, CBE mobile banking clients did not be able to decide the time limitation of mobile banking services.

Concerning item 5 of table 7, respondents were asked if mobile banking allows them to manage their transaction better, and majority of respondents (232 or 69.3%) replied on undecided option. This shows that, CBE mobile banking clients did not be able to decide regarding their transaction management experience.

As shown on table 7 of item 6, respondents were asked whether the transactions in mobile banking are at a lower price or not; thus, majority of respondents (254 or 75.9%) agreed and 78 (23.3%) respondents disagreed on the issue. This indicates that, mobile banking clients were believed in that mobile banking service was provided relatively at no cost.

Regarding item 7 of the same table, respondents were asked if m-banking saves clients from not to be stolen by thief; thus, majority of respondents (307 or 91.7%) replied agree. This shows that, CBE mobile banking clients of the study area believe in that using mobile banking protects form being stolen by thief.

The data displayed under table 7 of the last item respondents were asked whether m-banking protects users from certain diseases that comes through paper money transaction contacts or not; accordingly, majority of respondents 290 (86.6%) replied agree and 42 (12.6%) of the respondents disagreed. This result revealed that, mobile banking clients believe that using mobile banking did have advantage of disease contingency, especially, it is better to protect diseases like COVID-19.

This was also confirmed in pervious literatures (McCloskey, 2006; Rogers 2003 and Lin 2011) that when user perceives relative advantage of a new technology over an old one, they tend to adopt. Likewise, Hoppee *et al.* (2001) suggested that relative advantage has a positive influence on the adoption of Internet Banking and it is compatible with their values to be adopted by users, and also the concept is applicable to mobile banking system.

### Service quality as a factor of mobile banking adoption

*Table 7: Respondents' opinion on the Service quality*

No	Questions	Response					Total
		SD	D	U	A	SA	
1	Balance Inquiry	131	120	9	39	36	335
		39.1%	35.8%	2.7%	11.6%	10.7%	100%
2	Own Account Transfer (Transfer between your accounts)	162	128	3	8	34	335
		48.4%	38.2%	0.9%	2.4%	10.1%	100%
3	Make a payment to beneficiary (Transfer to your beneficiaries)	138	126	6	20	45	335
		41.2%	37.6%	1.8%	6.0%	13.4%	100%
4	Payment to others (Transfer to any CBE account)	170	154	2	6	3	335
		50.7%	46.0%	0.6%	1.8%	0.9%	100%
5	Local Money Transfer (Transfer to any non CBE customer)	209	101	3	5	17	335
		62.4%	30.1%	0.9%	1.5%	5.1%	100%
6	Bank service infrastructures (power source, network & other facilities)	195	84	3	31	22	335
		58.2%	25.1%	0.9%	9.3%	6.6%	100%

NB: SD=Strongly Disagree, D=Disagree, U=Undecided, A=Agree and SA=Strongly Agree;

As observed in table 8 item 1, respondents of CBE clients of mobile banking were asked whether clients be able to inquire their balance or not; thus, the majority of the respondents 251 (74.9%) replied disagree. Whereas 75 (22.3%) of respondents agreed about the stated issue. The result implies that, participants were not capable of reviewing their account balance via mobile banking.

Concerning item 2 of table 8, respondents of CBE clients of mobile banking were asked whether clients be able to transfer to their own account or not; thus, the majority of the respondents 290 (86.6%) replied disagree. Whereas 42 (12.5%) of respondents agreed. This revealed that, participants were not capable to transfer even to their own account.

Regarding item 3 of table 8, respondents were asked about their view if they can make payment to

beneficiary of CBE clients. Consequently, 264 (78.8%) of respondents replied disagree and 65 (19.4%) of respondents were responded agree. This indicated that, the majority of respondents were not able to make payment to beneficiaries.

As shown in table 8 item 4, respondents were asked about their view if clients make payment to others account. Thus, the majority of the respondents 324 (96.7%) replied disagree. Whereas 9(2.7%) of respondents agreed about the stated issue. The result retrieved from the data implies that, mobile banking clients of the study area were unable to make payment to others account through mobile banking.

From table 8 of item 5, respondents were asked if they were able to make local money transfer. Thus, the majority of the respondents 310 (92.5%) replied disagree. On the other hand, 22 (6.6%) of respondents agreed about the stated issue. This implies that, participants were unable to transfer money to any non CBE clients.

Concerning the last item of table 8, respondents of CBE clients of mobile banking were asked whether bank service infrastructures were convenient or not. Therefore, 279 (83.3%) of respondents disagreed and 53 (15.9%) of respondents agreed. This showed that, CBE banks of the study area were not properly well-facilitated with convenient infrastructure (power source and network access).

Service quality is considered as one of the critical success factors that influence the competitiveness of an organization. A bank can differentiate itself from competitors by providing high quality service. Service quality is one of the most attractive areas for researchers over the last decade in the retail banking sector (Johnston, 1997). Despite the recognized importance of service quality, there have been methodological issues and application problems with regard to its functioning. Quality in the context of service industries has been conceptualized differently and based on different conceptualizations, alternative scales have been proposed for service quality measurement (Cronin and Taylor, 1992, 1994; Dabholkar, Shepherd and Thorpe, 2000; Parasuraman and Berry, 1985, 1988).

### ***Logistic Regression Model***

#### **Description of Statistical Parameters**

Wald statistic: Alternatively, when assessing the contribution of individual predictors or independent variables in a binomial logistic regression model, one may examine the significance of the Wald statistic. The Wald statistic, equivalent to the t-test in linear regression, is used to assess the significance of coefficients i.e., tests the effect of individual predictor while controlling other predictors. If the Wald statistic is located outside the lower and upper limit of a given confidence interval (99 percent or 95 percent or 90 percent), null hypothesis is rejected and the independent variable is significant. The reverse is true when Wald statistic is located within the interval. In this model, Wald statistic test is used to assess the significance of an individual predictor. The Wald statistic is the ratio of the square of the regression coefficient to the square of the standard error (SE) of the coefficient and is asymptotically distributed as a chi-square distribution. The Wald statistic is tends to be unbiased when the sample size is relatively larger in number.

Beta ( $\beta$ ): This is the coefficient for the constant (also called the “intercept”) and the independent variables of the model. In binomial logistic regression, the regression coefficients represent the change in the logit for each unit change in the predictor. Given that the logit is not intuitive, focus is given for a predictor's effect on the exponential function of the regression coefficient, the odds ratio.

Significance level (Sig.): This is to determine statistically significant association between independent variable and depend variable by referring the probability value (p-value). The association is statistically significant and null hypothesis is rejected when the p-value or Sig. value is



smaller than or equals to the specified significant level like .05 or .01 or 0.1.

Exponent of beta [Exp. (B)]: This is the exponentiation of the B coefficient, which is an odds ratio. This odds ratio enables to determine the likelihood strength of the associated variables.

### Assumption test for the model

Before discussing regression result the researcher confirmed the most essential assumption of logistic regression that is multi-collinearity test.

**Table 8: Multi-collinearity Coefficients**

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Awareness	0.582	1.719
	Trust	0.580	1.723
	Risk	0.697	1.434
	Relative Adv.	0.778	1.286
	Service Quality	0.654	2.210

Multi-collinearity test done to avoid habits in the decision making process regarding the partial effect on independent variables on the dependent variable. The Variance Inflation Factors (*VIF*) is a tool to measure and quantify how much the variance is inflated. The *VIF* for each explanatory variable was used in this study as suggested by Bersenson et al. (2004). If variance inflationary factor (*VIF*) in each independent variable is equal to 0, it means that the variables are uncorrelated to each other. If the variance inflationary factor (*VIF*) is less than 5, it means that the independent variables in the model are not highly correlated to each other. The requirements for employing regression analysis were fulfilled since all the *VIFs* were more than zero but less than 5.

Based on the coefficients output collinearity statistics obtained *VIF* of awareness is 1.719, the perceived trust announce of *VIF* is 1.723, the perceived risk of *VIF* is 1.434, the *VIF* of relative advantage is 1.286 and *VIF* of service quality is 2.210. All the *VIF* value obtained is between 1 to 5. It can be concluded that there is not multi-collinearity of variables.

### The goodness of the model

The measure of goodness-of-fit used in the binary choice model is the pseudo *R*<sup>2</sup>. Conventionally the computed *R*<sup>2</sup> is likely to be much lower than 1 for logistic regression models. In most practical applications the *R*<sup>2</sup> ranges from 0.2 to 0.6 (Gugarati, 2003). The relevant behavior of several pseudo-*R*<sup>2</sup> measures is analyzed in a series of misspecified binary choice models, the misspecification being omitted variables or an included irrelevant variable (Cameron and Windmeijer, 1997). As shown in table 10, pseudo *R*<sup>2</sup> of 0.521 for the Nagelkerke *R* Square and 0.368 for the Cox and Snell *R* Square. Therefore, the model was fit to attain the specific objectives of the study.

**Table 9: Model summary**

Model Summary			
Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	202.578 <sup>a</sup>	.368	.521

### Binary Regression Result

The computed logistic regression model prediction results of the seven predictor variables (Age Income, Awareness, perceived thrust, perceived risk, relative advantage and service quality) were

presented under the following table.

**Table 10: Regression Coefficients**

IV	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
AGE	-0.321	0.121	7.038	1	0.044	0.725	0.572	0.920
INC	0.241	0.102	5.583	1	0.012	1.273	1.042	1.554
AWR	0.278	0.168	2.738	1	0.039	1.32	0.95	1.835
TRU	0.326	0.153	4.54	1	0.028	1.385	1.026	1.87
RSK	-0.761	0.361	4.444	1	0.035	0.467	0.23	0.948
RAD	0.356	0.155	5.275	1	0.043	1.428	1.054	1.934
QUL	0.312	0.151	4.269	1	0.014	1.366	1.016	1.837
Constant	1.579	0.721	4.796	1	0.287	4.85	1.18	19.93

H1: Customers age has negative and significant effect on mobile banking adoption.

Binary logit output shows that age of customers shows a negative and significant ( $B=-0.321$  and  $p=0.044$ ) effect on the adoption of mobile banking at less than 0.05 significance level. This is supported by studies by Poon (2008) and Azouzi (2009). Besides, the relationship between age and m-banking service adoption by Yitbarek et al. (2013) shows a gradual but steady decline in the adoption of M-banking as the age group increases. Moreover, Margaret (2013) shows that the young generation is more familiar with computer and internet, so they are more interested in using the mobile banking system. This implies that, younger clients are more mobile banking service adopters than older clients.

H2: Awareness has a positive and significant effect on mobile banking adoption.

Binary logit output shows that awareness of clients has a positive and significant effect on the adoption of mobile banking ( $B= 0.278$  &  $P\text{-value} = 0.039 < 0.05$ ). This was also confirmed by prior research of (Laforet and Li 2005 and Sathye, M., 1999) that indicated awareness to significantly influence customer's usage of online and mobile banking. In addition rate of adoption of an innovation could be determined by level of awareness of the customers. Since, a mobile banking service is new for many customers and the banks required to create enough awareness to capture the attention of the customers.

H3: Customers' income level has positive and significant effect on M-banking adoption

The logit result indicates that, income of clients has a positive and significant effect on the adoption of mobile banking ( $B= 0.241$  and  $P\text{-value} = 0.012 < 0.05$ ). The result of this study is in line with the finding of, Ismail (2012) on their study of investigated that M-banking use is associated with clients' income.

H4: Perceived trust has significant and positive effect on clients' adoption to mobile banking.

The regression results of table 11, showed that, the coefficient beta and p value of perceived trust were 0.326 and 0.028 respectively. Thus, the hypothesis, perceived trust has positive and significant effect on adoption of mobile banking service was confirmed. The study was in line with previous study (Majharul et al., 2014; Tobbin, 2010 and Lee et al., 2007). This indicates that customers are yet to embrace and fully trust the mobile banking services and the network providers. This implies that as the level of trust in a service provider becomes higher and higher, intention on the part of user to engage in mobile banking services reach on remarkably at greater extent.

H5: Perceived risk has a negative and significant effect on mobile banking adoption.

Perceived risk was found to have significant negative impact ( $B = -0.761$ ,  $p\text{-value} = 0.035 < 0.05$ ) on the customers' intention to adopt mobile banking services in the study area, which supported the stated hypothesis. This was in line with many past studies (Al-Jabri and Sohail, 2012; Luo et al, 2010; Gu et al, 2009; and Tan and Teo, 2000). The consumers perceived higher risks and uncertainty such as loss of data and misuse of financial information would discourage them in the adoption of mobile banking services. Therefore, it is imperative for stakeholders to plan higher security in providing mobile banking services in order to get higher customer acceptance.

H6: Relative advantage has positive and significant effect on mobile banking adoption.

The results of logit, as presented in table 11, revealed that relative advantage has a positive and significant effect on intention to adopt mobile banking with ( $B=0.356$ ,  $p=0.043 < 0.05$ ). Similar results were demonstrated from previous studies (Cheah et al, 2011; Puschel et al, 2010; Khalifa and Shen, 2008; and Lurn and Lin, 2005). This implies that those customers who find mobile banking services useful, beneficial, and convenient in managing their funds efficiently and effectively would be the potential adopters. On other hand, if bank customers perceive that mobile banking has a relative advantage over branch banking in accessing accounts from any location and at any time, and provides greater control and flexibility in managing their accounts, they may adopt it and use it.

H7: Service quality has positive and significant effect on mobile banking adoption.

Provision of quality service was found to have significant negative impact ( $B = 0.312$ ,  $p\text{-value} = 0.014 < 0.05$ ) on the customers' intention to adopt mobile banking service, which supported the stated hypothesis. Scholars also supported that, quality service and satisfaction are recognized as the most important factors for bank customer retention (Habte, 2019). Moreover, quality has come to be recognized as a strategic tool for attaining operational efficiency and improved business performance (Babakus and Boller, 1992; Anderson and Zeithaml, 1984; Garvin, 1983; Phillips et al., 1983). This shows that, enhancing clients' mobile banking service is a function of banks' quality service provision.

### ***Conclusion***

The study was successfully identified and examined factors that affect customers' intention to adopt mobile banking. The study revealed that age of the client, awareness, income level, perceived risk, relative advantage, perceived trust and service quality are able to determine the level of mobile banking adoption in selected Jima CBE district. Regarding age of the clients, as one become older and older mobile banking service adoption gradually declines. On the other hand the study conclude that, as customers become more aware of the technology and thus the rate of adoption increases. This means that, for a person to adopt a technology, seeing, hearing about or in general sufficient level of information is required. In line with clients trust on the bank system, lack of trust including fear of the performance of the technology and the promises made to them are major barrier towards successful mobile banking adoption. Finally, the risk concern such as identified privacy concern, financial transactions security and unexpected mobile network connection failure are barriers for successful implementation of the service. Even though there are so many client side hindering factors to adopt in mobile banking service, poor infrastructure of banks (such as network and power supply) contributes to service quality provision.

### ***Recommendations***

Based on the findings and conclusions of the study, the following recommendations are forwarded to all concerned bodies.

- Government (Ethio-telecom) need to advance mobile network infrastructure to enhance service quality of mobile banking from its side to provide reliable network to CBE as the customers perceive the mobile network risky to adopt mobile banking.
- CBE Jima district need to work hard in line with safe guarding the technology from unauthorized act, possible of reduction in uncertainties, ambiguities, risks and frauds related to financial transactions while using the technology, this in turn will enhance the likelihood of increasing customers mobile banking adoption.
- CBE in general and its Jima district branches in particular need to promote mobile banking services to its customers using various media options to the target market so that it can enhance the awareness and build positive attitude of customers about the technology's relative advantage, trust as well as its risk.
- CBE need to broaden the service portfolio under mobile banking technology to make the service more useful and as well to be advantageous in the minds of its customers.
- CBE need to produce user guide for mobile banking services using various means such as booklets and in electronic means such as social Medias to make use of mobile banking easier for existing and potential customers.

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