

Financial Inclusion through Mobile Banking: Challenges and Prospects

Henok Arega Asfaw

Monetary and Financial Analysis Directorate, National Bank of Ethiopia, Addis Abeba, 5550, Ethiopia

ABSTRACT

Use of mobile phone for inclusive finance is very crucial for countries where most of the population is unbanked or underbanked. The study attempted to identify the major challenges and opportunities for mobile banking development in Ethiopia. An exploratory research design is utilized as the area of the study is fresh and requires a better understanding of the situation. The study reveals that hitherto there are no operational challenges that hinder the flourish of m-banking development in Ethiopia. However, lack of timely approval of new products by regulatory body, lack of interoperability system and lack of aggregators between service provider and retail agents were the major problems observed in the study. High PCI and mobile phone penetration rate were found out to be the most important potential for the development of mobile banking in Ethiopia.

Keywords : Mobile-banking, Financial Inclusion, Challenges

I. INTRODUCTION

1.1 Background of the Study

In modern economy a strong and sturdy financial system is a pillar of economic growth and development. The availability of banking facilities and unfolding banking service outreach are the major facilitators of developmental and expansionary activities. In this regard, information technology plays a key role in promoting inclusive financial system as it is the only way to reduce the cost significantly and reach the masses. But all technologies are not suitable for financial inclusion due to affordability, accessibility, security and privacy. In the last decade, mobile phone technology has emerged as the most potential and well suited channel for financial inclusion. Use of mobile phone for inclusive finance is very popular in countries where most of the population is unbanked or underbanked (Sumanjeet S., 2010).

According to Petrova K. (2002) M-banking can be defined as the ability to conduct bank transactions via a mobile device, or more broadly to conduct financial transactions via a mobile terminal. This definition is a suitable working one as it includes not only basic services such as bank account statements and funds transfer but also electronic payment options as well as

information based financial services (e.g. alerts on account limit or account balance, access to stock broking). M-banking is an invaluable and powerful tool driving development, supporting growth, promoting innovation, and enhancing competitiveness (Nath, R. et al, 2001).

The remarkable progression of mobile sector all over the world has made an exclusive chance for delivering financial as well as social services through mobile network (Kabir, 2013). Mobile Banking eliminates the time as well as space shortcomings from banking operations like, balance inquire and fund transfer from one account to another account without visiting bank branches (Mishra and Sahoo, 2013). It enhances efficiency, offers access to financial and banking services, generates new opportunities for income generation and improves governance and gives poor people a voice

The Ethiopian commercial banking system is composed of 2 state owned banks and 16 private banks. Though it is true that traditional banking has grown steadily over the years, in terms of technological based financial service/product the Ethiopian banking sector didn't fully benefit from ICT in general and M-banking in particular. Currently there are six commercial banks that



commenced M-banking service, albeit the M-banking regulation directive was issued in January 2013. Hence, the study will attempt to explore the major challenges facing M-banking outreach and identify the existing opportunities for creating inclusive financial system through m-banking.

1.2 Statement of the Problem

There are currently over 90 million Ethiopians dispersed across 1.2 million square kilometers of land, 80 percent of which are living in the rural areas. Financial institutions have not been able to reach a majority of those people as the bank branch to population ratio still at 1 to 37,861.81 as at September 30, 2014.

Even though the penetration of mobile phones among the population continues to grow in significant numbers year on year, out of 18 fully operating CBs in Ethiopia, there are, currently ², six banking institutions that commence m-banking as per the Directive No. FIS /01/2012. Moreover, the overall use of mobile phone banking technology to the rural community is not yet started in the country.

Furthermore, to the best knowledge of the researcher, a study related to challenges and prospects of mobile banking in Ethiopia has not been done until this paper is produced. Hence, the outcome of the research would help to fill the existing gap.

Moreover, the main objectives of this study are as follows:

- ✚ To examine the challenges of m-banking in Ethiopia.
- ✚ To explore Kenya's M-PESA experience.
- ✚ To identify the existing opportunities that would help to promote m-banking in Ethiopia.

1.3 Methodology

In this study exploratory research design is used. Since the development of m-banking in Ethiopia is a new phenomenon an exploratory research design helps the researcher to identify the major challenges for m-banking development through an in-depth interview with

6 Vice-Presidents of System and E-banking, which commences m-banking service³, and literature search. An interview has also been conducted with Director of Bank and Micro-Finance Supervision as issues have been raised on regulatory body.

Both primary and secondary data is collected to meet the objectives of the study. The primary data is collected from banking institutions using semi-structured interview. Secondary data is collected from NBE, Ethio-Telcom and other sources. The collected primary data is analyzed using qualitative approach.

1.4 Scope of the Study

The study is delimited to challenges and prospects of m-banking outreach in Ethiopia. Hence, any conclusion drawn from the finding merely reflects m-banking service. The study does not address the demand (customers' side) as there are limited numbers of users due to infancy of the service.

2. Literature Review

2.1 Concept of Mobile Banking

Mobile Banking refers to provision of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank transactions, to administer accounts and to access customized information (Tiwari and Buse, 2007). In the broader sense mobile banking enables the execution of financial services in the course of which - within an electronic procedure - the customer uses mobile communication techniques in conjunction with mobile devices (Pousttchi and Schurig, 2004 as cited in Singhe, 2011).

Mobile Banking can be said to consist of three inter-related concepts viz. Mobile Accounting, Mobile Brokerage and Mobile Financial Information. Mobile Accounting is sometimes characterized as transaction-based banking services that revolve around a bank account and are availed using mobile devices. Not all Mobile Accounting services are, however, necessarily

¹ Total population in 2014 is 87,952,991 (CSA Estimation)

² As of September 30, 2014

³ These are Commercial Bank of Ethiopia, United Bank, Bank of Abyssinia, Wegagen Bank, Dashen Bank and Zemen Bank.

transaction-based. A more precise definition of Mobile Accounting would therefore characterize it as “provision of account-specific banking services of non-informational nature”. Whereas Mobile Brokerage, in context of banking services, refers to intermediary services related to the bourse, e.g. selling and purchasing of stocks. Mobile Brokerage can be, thus, defined as transaction based mobile financial services of non-informational nature that revolve around a securities account. At last, Mobile Financial Information refers to non-transaction based banking and financial services of informational nature. It includes subsets from both banking and financial services and is meant to provide the customer with anytime, anywhere access to information. The information may either concern the bank and securities accounts of the customer or it may be regarding market developments with relevance for that individual customer. The information may be customized on the basis of preferences given by the customer and sent with a frequency decided by him (Tiwari and Buse 2007).

2.2 Benefits of Mobile Banking

Pallab S. and Munish M. (2013) analyzed benefits of online banking from the viewpoint of customers and banking sector in general.

A. Benefits to Customers

General banking customers have been significantly affected by the advent of internet banking revolution.

- a) A banking customer’s account is extremely accessible with an online account.
- b) Through mobile banking customer can operate his account remotely from his office or home. The need for going to bank in person for every single banking activity is dispensed with.
- c) Mobile banking lends an added advantage towards payment of utility bills. It eliminates the need to stand in long queues for the purpose of bill payment.
- d) Most, if not all, services that are usually available from the local bank can be found on a single handset.
- e) Sharp growth in credit card/debit card usage can be majorly attributed to m-banking. A customer can shop globally without any need for carrying paper currency with him.
- f) By the medium of m-banking, banks are available 24x7 and are just a finger click away.

B. Benefits to Banking Sector

In addition to banking customers, growth of E-banking infrastructure in general and mobile banking in particular has proved to be extremely beneficial to banks and overall bank organizations on account of following:

- a) The concept of mobile banking has immensely helped the banks in putting a tab over their specific overheads and operating cost.
- b) The rise of mobile banking has made the banks more competitive. It resulted in opening of better prospects and avenues for banking operations.
- c) The mobile banking has ensured transparency of transactions and facilitated towards removing the documentation requirements to a major extent, since majority of records under an e-banking set up are maintained electronically.
- d) The reach and delivery capabilities of mobile - enabled banks, proves to be significantly better than the network of physical bank branches.

2.3 Mobile Banking Challenges

Sarita B. (2012) identified five major challenges in addressing the issue of financial inclusion through mobile banking.

1. **Regulatory Challenge:** As the Internet allows services to be provided from anywhere in the world, there is a danger that banks will try to avoid regulation and supervision. What can regulators do? They can require even banks that provide their services from a remote location through the Internet to be licensed. Licensing would be particularly appropriate where supervision is weak and cooperation between a virtual bank and the home supervisor is not adequate.
2. **Legal Challenge:** Electronic banking carries sensitive legal risks for banks. Banks can potentially expand the geographical scope of their services faster through electronic banking than through traditional banks. In some cases, however, they might not be fully versed in a jurisdiction's local laws and regulations before they begin to offer services there, either with a license or without a license if one is not required.
3. **Operational Challenge:** The reliance on new technology to provide services makes security and system availability the central operational risk of electronic banking. Security threats can come from

inside or outside the system, so banking regulators and supervisors must ensure that banks have appropriate practices in place to guarantee the confidentiality of data, as well as the integrity of the system and the data.

4. **Reputational Challenge:** Breaches of security and disruptions to the system's availability can damage a bank's reputation. The more a bank relies on electronic delivery channels, the greater the potential for reputational risks.
5. **Personal Information:** Internet banks need to collect personal information in order to do business, but if they do not follow local information collection laws then there could be lawsuits and government penalties.

An empirical study done by Faisal I. (2013) in Ghana showed that the main rejection factors in using M-banking technology by customers were

- M-banking requires knowledge and learning
- M-banking attracts additional banking charges, and
- Poor telecommunication technology

Another empirical study done by Korir G. (2012) revealed that there were losses to customers of Kenya Commercial Bank (KCB), who use the M-Banking services, due to fraudulent access of customers' accounts through hacking. Since an incident like this will have a ruinous impact on the reputation of the bank there is need to employ disciplined, qualified and well remunerated ICT in the bank and at the level of mobile provider.

2.4 Kenya's M-PESA Experience

In March of 2007 a mobile money service called M-PESA was introduced into the market by Safaricom, Kenya's largest mobile operator (MO). The application facilitates a variety of financial transactions through the mobile phone. This includes account balance checks, deposits and withdrawals, bill and merchant payments, airtime purchases, and money transfers (Hughes & Lonie, 2007; Vaughan, 2007 as cited in Morawczynski, 2010).

M-PESA is designed in such a way that people without bank accounts can use it. Customers' money is held safely in a bank account run by M-PESA on behalf of

the customer. A customer does not have any contact with the bank and the bank does not have customers' details. An individual who have M-PESA account can have a balance between 0 ksh and 100,000 ksh (Kenyan Shilling).

M-PESA is driven by a secure application on Safaricom SIM cards. Registered customers have a menu on their phone giving them the ability to move money to other phone based accounts. To load money into M-PESA account a customer need to go to an M-PESA Agent and make a cash deposit which results in electronic money being transferred into customers' M-PESA account (This is confirmed by an SMS received by both the Agent and the Customer). Then, a customer can conveniently transfer money to other mobile phone users by SMS transaction.

To withdraw cash from M-PESA account or (for unregistered customers to get cash), a customer need to go to an M-PESA agent and make an electronic transfer to the agent who will exchange this for cash.

An M-PESA agents are Safaricom dealers, Selected Banks & Micro-Finance Institution, and other retailers with a substantial distribution network like petrol stations, distributors, supermarkets & registered SMEs. Wrong transfers are reversible on the M-PESA system, upon rigorous vetting of the sender & recipient and if the money has not yet been cashed or withdrawn. If a customer makes an incorrect transaction, there is a free assistance call service.

According to Morawczynski (2010) the liberalization of the telecommunications sector, among other things, plays a crucial role for the success of M-PESA. The government has taken numerous strategies to increase the penetration rates of ICTs in general and the mobile phone in particular. This includes instigating competition in the market and including universal service stipulations in license agreements. Such stipulations made it easier for M-PESA to penetrate rural areas, which are under-served by financial institutions.

In addition, the super and retail agents were aligned to facilitate the scalability of the agent network and to make it easier to move cash and e-money around the system. The main function of the retail agents is to provide cash-in & cash-out services to the customers and

provide customer support. The super-agents are responsible for balancing cash and e-money requirements of the retail agents. They did this by making deposits (purchase e-value) or withdrawals (sell e-value) into the Central Bank of Africa (CBA) where all of the M-PESA funds were stored. The agent commission structure rewards retail and super agents differently. Retail agents receive a commission (80 Ksh) for each new customer signed up. They further receive 70% of the commission for cash in/cash out transactions. The other 30% goes to the super agents who balance the cash and E-money floats.

3. Data Analysis and Interpretation

In order to identify the major challenges and prospects of addressing financial inclusion through mobile banking an explorative research design is used. An in-depth interview has been conducted with Vice-Presidents System and E-banking of six commercial banks that commence m-banking service and other three commercial banks that did not launch m-banking service.

3.1 M-Banking Development in Ethiopia

At the end 2013/14 FY, there were eighteen commercial banks operating in Ethiopia, of these sixteen are private commercial banks while the rest two are state owned banks. Despite a rapid increase in the number of financial institutions since financial liberalization, the Ethiopian banking system is still underdeveloped compared to the rest of the world.

The Ethiopian banking industry as a whole had a network of 2,323 branches as at September 30, 2014, in which the number of population being served by a single branch was around 37,861.8. Commercial bank branch (per 100,000 adults) ratio in 2012 was 2.94 which is lower than Sub-Saharan Africa, 3.71 (World Bank, 2012). With urban skewed branch network it is hard to ensure efficient flow of financial resources and optimize the contributions of the entire financial system to the development processes.

The mobile banking development in Ethiopia is at its starting stage. Currently m-banking practice in Ethiopia can be considered as accessing the core banking system within the bank. Hence, only a customer of a given bank can access some banking services via his/her mobile

phone. Moreover, there are only six commercial banks that have got license to operate mobile and agent banking services as per the Directives No. FIS /01/2012. As of December 2014 there are about 151,425 active number of mobile subscriber customers in these six banks.

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 Five⁴ Micro-Finance Institutions (MFIs) render M-Birr mobile money service in their respective regional states. M-BIRR aims to develop a mobile banking services, allowing people to conduct basic financial transactions from their mobile phone, including sending and receiving money, paying bills, receiving salaries and other government or non-governmental, and repaying loans.

3.2 M-banking Challenges

During the course of the study, the following major challenges of m-banking service are identified:

- From the data obtained via interview Ethiopian mobile banking service did not face as such significant problem in terms of operational challenge. There have not been observed any security problem while delivering m-banking services. With regard to operational risk, none of CBs hitherto have encountered severe operational risk which impedes their operation. Regarding network quality all CBs that launched m-banking service have not faced dysfunctional problem while delivering the service. Nevertheless, there is sporadic interruption of network limiting the provision of m-banking service. With the current massive expansion on improving the capacity and performance of network, particularly mobile, by Ethio-Telecom, in partnership with Ericsson Company, the problem is expected to abate at the end of country's GTP period.
- However, regarding regulatory challenge it was found out that the regulatory body face challenges

⁴ Amhara Credit and Savings Institution, Addis Credit and Savings Institution, Dedebit Credit and Savings Institution S.C, Oromia Credit and Savings and OMO Microfinance.

on timely approval of new products. The study reveals that to get license for mobile and agent banking it took about seven months for one commercial bank in our sample size. From the discussion held with Director of Banking Supervision at the NBE, the researcher was able to find out that the problem emanates from both sides. From NBE side, there is capacity problem in providing prompt response to financial institutions demands as these products are newly emerged. He also claims that there is a delay in providing necessary documents by financial institutions.

• The Ethiopian banking system lacks interoperability where the same infrastructure can be used to support multiple payment mechanisms and thereby reap the benefit derived from economies of scale. A system that is inter-operable on all levels would enable an entity deploying acceptance infrastructure for a particular payment instrument to be confident that customers with that payment instrument—irrespective of their banking/partner affiliation—would be able to use the infrastructure. This would enable the entities involved in the payment system to compete on quality of services, while collaborating in terms of creation and operation of the underlying system

• There are only two parties involved in agent banking business, viz, financial institutions and retail agents. However, the experience of M-PESA reveals that there is an aggregator between service provider and retail agents, which is often called Super-Agent. Instead of dealing with spate of retail agents, financial institutions, the likes of CBs, can deal with few super agents. This has a paramount importance in reducing cost of managing myriad of retail agents for financial institutions and create new business, and hence, job opportunity. Moreover, conceding aggregators in between financial institutions and retail agents enhances financial inclusion as aggregators go beyond the reach of financial institutions in quest of retail agents.

• According to Directive No FIS/01/2012 a persons' balance in his/her mobile account shall not exceed Birr 25,000 and daily mobile banking transaction shall not exceed Birr 6,000. As mobile money is a new phenomenon in the banking sector development, and hence fear of unknown, and the service heavily rely on ICT, which is vulnerable to hacking, such limit by NBE is considered to

minimize the risk associated with money laundering and financing terrorism. Even though such limits apply only to agent banking or mobile money (e-wallet account), the finding of the study reveals that the limit is too little for both commercial banks and MFIs. Hence, it is the researcher argument that such limit should be left to financial institutions in accordance with their risk appetite, like the case of ordinary mobile banking service.

• Regarding MFIs, poor network quality and procuring agents were found out to be important challenges during an interview with Director of MFI supervision. As these institutions are operating in remote areas of the country there is poor network quality which inhibits the full benefits derived from mobile money. Moreover, potential agents, be it supermarket or any business, refrain from being an agent as they are not registered for rendering mobile money while they secure trade license ab initio.

• Finally, illiteracy in general and financial illiteracy in particular was found out to be another challenge in mobile banking development. As most cell phone applications are designed in foreign language and the majority of unbanked societies, who have cell phone, live in rural areas, where illiteracy rate is high, there exist language barriers to execute financial transactions via mobile phones. Hence, regulatory cooperation (harmonization) should be enhanced among various stakeholders.

3.3 M-Banking Prospects

The m-banking service in Ethiopia is endowed with huge potential as the sector remains untapped. For the banked customer m-banking mostly creates convenience. However, in addressing the issue of financial inclusion mobile money (e-wallet) plays crucial role and can bring huge change in expanding access to finance. In 2013/14 there were about 28.3 million mobile phone subscribers, recording an annual growth rate of 19.2 percent. The mobile phone subscribers' penetration rate is increasing in each year. During the same period the penetration rate reached at 33.3 percent.

Such development in mobile phone subscribers implies an immense potential in reaping the benefits from m-banking service. Moreover, the continual increase in PCI of the nation can be considered as another potential for banks to reap the full benefits derived from M-banking.

II. CONCLUSION

There is no doubt that mobile banking is a great way in an effort to financially include the unbanked and semi-banked societies in countries like Ethiopia where there is low access to finance. Hence, to expedite financial inclusion via mobile banking, the researcher found out the following recommendations worthwhile to be addressed:

- As the regulatory body is expected to be proactive for all changes in the financial system, its human resource and implementation capacity has to be strengthened. Any delay on product approval upon the request of financial institutions shall not be tolerated at NBE level. Hence, all necessary measures should be taken to make timely and satisfactory response to financial institutions demand.
- In order to efficiently provide payment services, financial institutions need to be able to access the interbank infrastructure to clear and settle payments. Hence, an effort should be made to make the financial institutions payment service inter-operable. In this regard, the NBE should take the lead and facilitate its enforcement.
- The lesson taken from M-PESA experience dictates that there is an aggregator between retail agent and m-banking service provider, often called super-agent. The Ethiopian agent and mobile banking directive should entertain aggregators, the likes of super-agent, in its system so as to enhance inclusive financial system.
- Regarding the balance and daily transaction limits set on agent banking, mobile money or E-wallet should be lifted and the limit should be set by the financial institutions themselves based on their risk appetite.
- Finally, in order to mitigate language barrier in the course of executing m-banking services, financial institutions, technology providers and telecom operator should work together in an effort to envisage localized language options. Bankers' Association should also promote m-banking service, via different media channels, to create public awareness about the product as the service is at its infancy stage of development.

III. REFERENCES

- [1] Korir G., (2012), Factor Influencing Mobile Banking in Kenya: A Case of Kenya Commercial Bank in Garissa, University of Nairobi, Unpublished
- [2] Pallab S., and Munish M. (2013), Internet Banking in India – A Perspective on Benefits and Challenges Involved, *International Journal of Engineering, Business and Enter-prise Applications*, 13 -207
- [3] Petrova K., (2002), *Mobile Banking: Background, Service and Adoption*, Auckland University of Technology
- [4] Pousttchi, K., & Schurig, M., (2007), Assessment of Today's Mobile Banking Applications from the View of Customer Requirements, <http://mpr.aub.uni-muenchen.de/2913/> [accessed 13 May 2014]
- [5] Prerna S. B. and Preeti S., (2011), Issues and Challenges in Mobile Banking in India: A Customers' perspective, *Research Journal of Finance and Accounting*, Vol. 2., No., 2., ISSN (Paper) 2222-1697
- [6] Regulation of Mobile and Agent Banking Services Direc-tives No. FIS /01/2012, National Bank of Ethiopia
- [7] Sarita Bahl., (2012), E-Banking: Challenges and Policy Implication, *International Journal of Computing and Business Research*, ISSN (Online): 2229 – 6166.
- [8] Shallone K. C. and Simon M., (2013), Extending the Technology Acceptance Model to Mobile Banking Adoption in Rural Zimbabwe, *Journal of Business Administration and Education*, Vol. 3., No., 1., 51 -79
- [9] Singh S., (2014), The Impact and Adoption of Mobile banking in Delhi, *International Research Journal of Business and Management*, ISSN 2322-083X
- [10] Sumanjeet S. (2010), *Accelerating Financial Inclusion through Mobile Phone Technology: Opportunities, Challenges and Policy Options*, University of Delhi, Unpublished
- [11] Talla J. H., (2013), *An Empirical Study of E-Banking in Cameroon*, University of South Africa, Unpublished
- [12] Thullani D., Tofara C., and Langton R., (2009), Adoption and use of Internet banking in Zimbabwe: an Exploratory Study, *Journal of International Banking and Commerce.*, Vol., 14, No., 1., 1-13
- [13] Tiwari R. and Buse S. (2007), *The Mobile Commerce Prospects: A Strategic Analysis of Opportunities in the Banking Sector*, Hamburg: Hamburg University Press
- [14] Viveinne A. L., (2013), *Mobile Money, Financial Inclusion and Financial Integrity: The South African Case*, *Washington Journal of Law*, Vol. 8. No. 3.
- [15] World Bank (2012), <http://data.worldbank.org/region/sub-saharan-africa> [accessed 29 December 2014]
- [16] Wooder S., and Baker S., (2011), Extracting Key Lessons in Service innovation, *Journal of Product innovation Management*, 13-20