EFFECT OF FINANCIAL INNOVATION ON PROFITABILITY OF DEPOSIT- TAKING MICROFINANCE INSTITUTIONS IN KENYA

BY

DANSON M. KAHIGA

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION, UNIVERSITY OF NAIROBI

NOVEMBER, 2014
DECLARATION

This research project is my original work and has not been presented to any other institution or university.

Signed ___________________ Date ___________________

DANSON M. KAHIGA
D61/63273/2011

This research project has been submitted for examination with our approval as the university supervisors.

Sign____________________ Date ___________________

MARTIN ODIPO
Department of Accounting and Finance,
School of Business,
University of Nairobi.
DEDICATION

I wish to dedicate this project to my entire family.
ACKNOWLEDGEMENT

To my almighty God for seeing me through the entire MBA programme, without the help of God I would not have made it. His grace was sufficient all through, Glory and Honor to him.

Special thanks to my supervisor Martin Odipo for his advice, guidance and suggestions throughout the project.

To my family and special thanks to my Wife Damaris Mungai for constant support and encouragement throughout my MBA programme, my daughter, son, dad, mum, sisters and brother thanks for your supports, guidance and prayers.

Appreciation to my classmates for their support in one way or another toward successful completion of this project and the entire MBA project.

MAY THE ALMIGHTY GOD BLESS YOU ALL!
ABSTRACT

The purpose of the study was to determine the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya. Data was collected from 9 Deposit taking microfinance’s in Kenya. The data analysis techniques included descriptive statistics. Study results indicated that financial innovation indeed contributes to and is positively correlated to profitability in the financial sector.
# TABLE OF CONTENTS

DECLARATION.......................................................................................................................... ii  
DEDICATION............................................................................................................................ iii  
ACKNOWLEDGEMENT........................................................................................................... iv  
ABSTRACT............................................................................................................................... v  
ABBREVIATION...................................................................................................................... ix  

CHAPTER ONE ...................................................................................................................... 1  
INTRODUCTION.................................................................................................................... 1  
  1.1 Background of the Study................................................................................................. 1  
    1.1.1 Financial Innovation................................................................................................. 2  
    1.1.2 Profitability............................................................................................................. 6  
    1.1.3 Effect of Financial Innovation on Financial Performance................................. 7  
    1.1.4 Deposit-Taking microfinance institutions in Kenya............................................. 9  
  1.2 Statement of the Problem.............................................................................................. 10  
  1.3 Objectives of the Study............................................................................................... 13  
    1.3.1 Main objective........................................................................................................ 13  
    1.3.2 Specific Objectives................................................................................................. 13  
  1.4 Value of the Study........................................................................................................ 13  

CHAPTER TWO .................................................................................................................... 15  
LITERATURE REVIEW ........................................................................................................ 15  
  2.1 Introduction................................................................................................................... 15  
  2.2 Theoretical Literature Review..................................................................................... 15  
    2.2.1 The Technology Acceptance Model...................................................................... 15  
    2.2.2 Theory of Diffusion of Innovations...................................................................... 16  
  2.3 Empirical Literature Review....................................................................................... 19  
  2.4 Determinant of Profitability....................................................................................... 23  
  2.5 Summary of Literature Review.................................................................................. 27
CHAPTER THREE .................................................................................................................. 28
RESEARCH METHODOLOGY ............................................................................................ 28
3.1 Introduction .................................................................................................................. 28
3.2 Research Design .......................................................................................................... 28
3.3 Target Population ....................................................................................................... 28
3.4 Sampling Design ......................................................................................................... 29
3.5 Data Collection ........................................................................................................... 29
3.6 Data Analysis .............................................................................................................. 30

CHAPTER FOUR ................................................................................................................. 32
DATA ANALYSIS AND PRESENTATION ............................................................................ 32
4.1 Introduction .................................................................................................................. 32
4.2 General information ................................................................................................... 32
  4.2.1 Name of the MFI .................................................................................................. 32
  4.2.2 Length of Operation ............................................................................................. 33
  4.2.3 Number of employees ......................................................................................... 33
  4.2.4 Maintaining records ........................................................................................... 34
  4.2.5 Expenditures ........................................................................................................ 34
4.3 Effect of Mobile banking on profitability ................................................................. 34
  4.3.1 Usage of Mobile banking applications ................................................................. 34
  4.3.2 Effect of Mobile banking on profitability of Deposit-DTMFI .............................. 35
  4.3.3 Opinion on Mobile banking effect on Profitability .............................................. 36
4.4 Effect of Online banking on profitability ................................................................. 37
  4.4.1 Usage of Online banking ..................................................................................... 36
  4.4.2 Effect of Online banking on profitability ............................................................. 37
  4.4.3 Opinion on online banking effect on profitability ............................................... 38
4.5 Real time Gross Settlements (RTGS) on profitability ............................................. 38
  4.5.1 RTGS services offered ....................................................................................... 38
  4.5.2 Effect of Real time Gross Settlements (RTGS) on profitability ......................... 39
  4.5.3 Opinion on Real time Gross Settlements (RTGS) effect on profitability .......... 39
4.6 Automated Teller Machine (ATM) ............................................................................ 40
  4.6.1 Automated Teller Machine (ATM) service provision ........................................ 40
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.6.2 Effect of Automated Teller Machine (ATM) on profitability</td>
<td>41</td>
</tr>
<tr>
<td>4.6.3 Opinion on ATM services effect on profitability</td>
<td>42</td>
</tr>
<tr>
<td>4.7 Relationship between Financial Innovations and profitability of DTMFI</td>
<td>43</td>
</tr>
<tr>
<td>4.8 Regression Analysis</td>
<td>44</td>
</tr>
<tr>
<td>4.9 Discussion of findings</td>
<td>46</td>
</tr>
<tr>
<td>CHAPTER FIVE</td>
<td>49</td>
</tr>
<tr>
<td>SUMMARY, CONCLUSION AND RECOMMENDATIONS</td>
<td>49</td>
</tr>
<tr>
<td>5.1 Introduction</td>
<td>49</td>
</tr>
<tr>
<td>5.2 Summary of Findings</td>
<td>49</td>
</tr>
<tr>
<td>5.3 Conclusions</td>
<td>51</td>
</tr>
<tr>
<td>5.4 Recommendations for policy and practice</td>
<td>52</td>
</tr>
<tr>
<td>5.5 Limitations of the study</td>
<td>53</td>
</tr>
<tr>
<td>5.6 Suggestions for further research</td>
<td>53</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>54</td>
</tr>
<tr>
<td>APPENDIX I: LIST OF LICENCED DEPOSIT TAKING MICROFINANCE</td>
<td>60</td>
</tr>
<tr>
<td>APPENDIX 11: RESEARCH QUESTIONNAIRE</td>
<td>61</td>
</tr>
</tbody>
</table>
## ABBREVIATION

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATMs:</td>
<td>Automatic Teller Machines</td>
</tr>
<tr>
<td>CBK:</td>
<td>Central Bank of Kenya</td>
</tr>
<tr>
<td>DTM:</td>
<td>Deposit-Taking Microfinance Institutions</td>
</tr>
<tr>
<td>IB:</td>
<td>Internet Banking</td>
</tr>
<tr>
<td>ICT:</td>
<td>Information and Communication Technology</td>
</tr>
<tr>
<td>IT:</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KEPSS:</td>
<td>Kenya Electronic Payments and Settlement System</td>
</tr>
<tr>
<td>KWFT:</td>
<td>Kenya Women Finance Trust</td>
</tr>
<tr>
<td>MFIs</td>
<td>Micro Finance Institution</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>ROE:</td>
<td>Return on Equity</td>
</tr>
<tr>
<td>RTGS:</td>
<td>Real Time Gross Settlement</td>
</tr>
<tr>
<td>SMEs:</td>
<td>Small and Medium Enterprises</td>
</tr>
<tr>
<td>TAM:</td>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>TRA:</td>
<td>Telecommunications Regulatory Authority</td>
</tr>
<tr>
<td>UK:</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>US:</td>
<td>United States</td>
</tr>
</tbody>
</table>
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Innovation is clearly an important phenomenon in any sector of a modern economy. Innovation generally refers to the introduction or use of new ideas, or ways of doing things. Financial innovation consists of commercial banks developing new products or services or new production processes. Although standard microeconomic theory focuses much of its attention on the issues of static resource allocation and economic efficiency, there is nevertheless general appreciation that performance over time is driven by a variety of dynamic factors, including innovation (Merton, 1992). Accompanying the development of the capital markets is the increase in innovations in the financial sector. Banking systems both in developing and developed countries are subjected to ongoing environmental change and questions about the main drivers of such change would promptly receive the following answers: trends in financial service demand; technological innovation; deregulation and subsequent regulation, known as regulatory dialectic; mergers, acquisitions and strategic agreements; competition; globalization; supply diversification; economic volatility (Tufano, 1989).

On a related study, Cull et al. (2009) investigates how MFIs perform under the pressure of competition from formal banks. Their results show that in a country where there is larger formal bank presence, MFIs tend to deepen their outreach (i.e., extend their outreach to women and also lend in small amounts). However, the effect on other performance indicators, such as profitability appears weak. The significance of financial innovation is widely recognized. Many leading scholars, including Miller (1986) and
Merton (1992), have highlighted the importance of new products and services in the financial arena. Empirically, Tufano (1989) showed that of all public offerings in 1987, 18% (on a dollar-weighted basis) consisted of securities that had not been in existence in 1974. These innovations are not just critical for commercial banks in the financial services industry, but also impact other companies: for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise.

1.1.1 Financial Innovation

Financial innovation according to Frame and White (2004), can be defined as the emergence of new financial product or service, new organizational form, or new processes for a more developed and complete financial markets that reduce costs and risks, or provide an improved service that meets particular needs of financial system participants. Generally, innovation has generated a wide interest as a research subject in social sciences with a particular focus on the relationship between innovation and competitive advantage. In a highly turbulent environment, a successful innovation creating a unique competitive position can give the company a competitive advantage and lead to a superior performance (Silber, 1983). Generally speaking, all profit-seeking enterprises including banks are constantly seeking new and improved products, processes, and organizational structures that can reduce their costs of production, better satisfy their customers’ needs, and yield higher profits. Bank customers demand for variety, convenience and new services. They want products that can meet their precise, individual needs. Technology boom in the past decades have helped banks to respond to this challenge.
Financial innovation, like other economic behaviors, generally arises in anticipation of material gains following a cost-benefit analysis. The innovation makes possible either a reduction in costs or an increase in revenues, or both. On the cost-reducing side, in particular, exogenous technological change provides room for cost reduction that induces innovation. For example, advances in information technology have significantly lowered the cost of accounting-intensive products such as mutual funds (Frame and white, 2004). Other product innovations relying on speedy calculation and action, such as portfolio insurance and index arbitrage transaction, have similarly been made feasible by upgrade in computer speed. The ATMs, which reduce banks’ operating costs by efficiently executing much of a teller’s duty over the retail counter, is one of the renowned innovations that benefit from technological advances.

The Kenyan financial sector has undergone tremendous changes since the start of the new millennium. A lot of reforms have been undertaken in the sector that have led to proliferation of financial products, activities and organizational forms that have improved and increased the efficiency of the financial system. Irechukwu (2000) lists some financial services that have been revolutionized through the use of Information and Communication Technology (ICT) as including account opening, customer account mandate, and transaction processing and recording. ICT has provided self-service facilities (automated customer service machines) from where prospective customers can complete their account opening documents direct online. It assists customers to validate their account numbers and receive instruction on when and how to receive their cheque books, credit and debit cards. ICT products in use in the banking industry include
Automated Teller Machine, Smart Cards, Telephone Banking, Electronic Funds Transfer, Electronic Data Interchange, Electronic Home and Office Banking (Kariuki, 2005).

Deposit-Taking microfinance institutions in Kenya have adopted the new financial innovations that have influenced their profitability; these include Mobile banking, Online banking, RTGS, ATM withdraws and deposits among many others. All these financial innovations contribute heavily in building customer base, capital base as well as enhancing their profitability which results to improved financial performance. Financial performance of banks is usually measured using a combination of financial ratios analysis, benchmarking, measuring performance against budget or a mix of these methodologies the common assumption which underpins much of the financial performance research and discussions is that increase of financial performance leads to improved functions and activities of the banks (Mutua, 2011).

Mobile network operators and financial institutions have responded rapidly to these new powers. Between 2007 and 2012, Safaricom, has rolled out more than 40,000 mobile payment agents nationwide. Since 2010 a total of 10 banks have connected more than 10,600 bank agents. However, of the banks, two banks Equity Bank and Kenya Commercial Bank have been particularly quick to introduce agency networks across Kenya, with thousands of agents respectively (Sumiyu, 2013). For microfinance institutions the powers granted by the Central Bank of Kenya are particularly important. Until the new powers, regulated deposit taking microfinance institutions (DTMs) could only accept deposits through their network of branches, with each branch needing to conform to expensive standards. Most regulated microfinance programmes therefore have
‘marketing offices’ through which they provide credit services, and a much smaller branch network. Under these new powers the largest microfinance programme KWF Microfinance DTM gains more than 200 potential deposit taking outlet (CBK, 2012).

Online banking, which allows customers to monitor accounts and originate payments using “electronic bill payment,” is now widely used. Stored-value, or prepaid, cards have also become the norm. Online banking has been aimed at understanding the determinants of bank adoption and how the technology has affected bank performance. In terms of online adoption, Furst et al, (2002) found that U.S. national banks (by the end of the third quarter of 1999) were more likely to offer transactional websites if they were: larger, younger, affiliated with a holding company, located in an urban area, and had higher fixed expenses and non-interested income.

The Central Bank of Kenya launched a Real Time Gross Settlement (RTGS) system known as the Kenya Electronic Payments and Settlement System (KEPSS) in July 2005 in an effort to modernize the country’s payment system in line with global trends (Oloo, 2007). Financial systems innovations include RTGS, a Kenya Electronic Payment and Settlement System in which both processing and final settlement of fund transfer transactions take place on an item by item (gross) basis continuously throughout a business day. It is an on-line system that facilitates the transfer of high value and/or time critical payments between participants in real time and aims at enhancing efficiency by reducing inherent risks in traditional payment System such clearing house (CBK, 2012).
Cohen (1995) in his study in the British banking sector found that Automated teller machines (ATMs), which were introduced in the early 1970s and diffused rapidly through the 1980s, significantly enhanced retail bank account access and value by providing customers with around-the-clock access to funds. ATM cards were then largely replaced through the 1980s and 1990s by debit cards, which bundle ATM access with the ability to make payment from a bank account at the point-of-sale.

1.1.2 Profitability

Measures of after-tax rates of return, such as the return on average total assets (ROA) and the return on total equity (ROE), are widely used to assess the performance of firms, including commercial banks (Allen, 1988). Bank regulators and analysts have used ROA and ROE to assess industry performance and forecast trends in market structure as inputs in statistical models to predict bank failures and mergers and for a variety of other purposes where a measure of profitability is desired. Commercial banks’ profitability is determined from the interest spreads between loans and deposits, as majority of its income is from interest income. As profitability is determined from revenue and costs, banks have to closely monitor the factors that affect these two determinants (Bennaceur and Goaied, 2008).

The determinants of banks’ profitability are usually assorted into internal and external factors. Some studies were country specific and few of them considered panel of countries for reviewing the determinants of profitability (Allen, 1988). Overall these studies propose that the determinants of profitability for bank can be divided into two groups; internal and external factors. These studies specify return on asset (ROA), return
on equity (ROE), return on capital employed (ROCE) and net interest margin (NIM) as the dependent variables and considering the internal and external factors as independent variables. Molyneux and Thornton (1992) examine the profitability of banking zone on different countries. Return on Assets (ROA); this is measured by the net profits before tax divided by the total assets of the bank. It measures the overall effectiveness in generating profits with available assets.

1.1.3 Effect of Financial Innovation on Financial Performance

The study focus on the first mover advantage as it may be more probable in the banking industry than in other industries due to the importance of bank-client relationship (Berger and Dick, 2006). Theories concerning first mover advantages have typically evolved out of the Schumpeterian argument that new products and processes developed by a firm are protected from imitation for a certain period. A successful innovation thus generates a proprietary competitive position that bestows on the firm a competitive advantage and superior performance. The imitation that occurs during the Schumpeterian process of creative destruction then generates the need for enterprises to produce still more innovations in order to maintain a competitive advantage. Price theory regards price as a mechanism that delivers first mover advantages. On the one hand, establishing high prices prior to the entry of imitators allows innovators to recover the cost of investing in innovations. On the other hand, these monopoly rents are temporary and are eroded once imitation appears. This is the classic monopoly argument upon which Van Horne (1985) relied to explain the performance of financial innovators. Berger (2003) argues that the relevant aspects of technological change include innovations that reduce costs related to the collection, storage, processing, and transmission of information, as well as
innovations that transform the means by which customers access bank services. Humphrey et al. (2006) cite ATMs (automated teller machines), telephone banking, internet banking, and e-money as being among the significant innovations affecting the banking distribution system that influence banking performance significantly. Goddard et al. (2007) add that client relation management systems, bank management technologies, and various other technologies are among the major changes in internal banking systems that also have exercised a positive influence on banking performance and profitability. The first institutions to adopt successful new technologies earn extraordinary profits because of the high prices they impose or the increased market shares they acquire. Other banks follow their lead in order to avoid losing market share.

Berger and Mester (2003), Consistent with the results of other studies that support the hypothesis that the first mover advantage offers the enterprise better performance, the examination by Dos Santos and Peffers (1995) of the introduction of ATMs (Automatic Teller Machines) by American banks demonstrated that the competitive advantage and performance that is associated with it were not realized by those who subsequently adopted the technology.

In their examination of the dynamic of financial innovation in the banking industry in the U.K, Batiz-Lazo and Woldesenbet (2006) stipulated that a distinction between product innovation and process innovation is necessary as much as the adoption of each type of innovation has its own characteristics and has a different impact on banking performance. They argue that product innovations have a market focus and are effectiveness driven, while process innovations have an internal focus and are efficiency driven.
1.1.4 Deposit-Taking microfinance institutions in Kenya

The Kenyan microfinance sector is one of the most vibrant in Sub-Saharan Africa. It includes a diversity of institutional forms and a fairly large branch network to serve the poor. However, microfinance activities have been regulated in Kenya only since 2006. The absence of regulation has allowed innovations to take place: institutions were set up easily without any barriers, such as minimum capital requirements. The microfinance industry has thrived in this environment (Nyaga, 2008).

In the 1990s, banks focused on microfinance have entered the market through a green fielding strategy (e.g. Co-operative Bank) or an institutional transformation approach - Equity Bank and Family Bank have transformed from building societies and K-Rep Bank from an MFI NGO. These institutions offer fully-fledged banking services to micro and SME clients. A high number of NGO MFIs are also serving the same market segment. The NGO MFIs considered various possibilities of expanding their businesses but they were not allowed to collect deposits and therefore had to rely either on expensive funding sources (borrowings) or unreliable subsidies and grants.

The Microfinance Act of 2006 and the supportive Deposit Taking Microfinance Regulations of 2008 have together paved the way for institutional transformation in Kenya. With the support of the Financial Sector Deepening (FSD) Kenya, Faulu and Kenya Women Finance Trust engaged in the process that led to their licensing as the pioneer deposit-taking microfinance institutions (DTMs) in Kenya. Both transformations
were generally successful and have helped the two institutions to maintain their strategic positioning in the market.

However, in both cases, the process required more resources and took much longer than expected. In addition, the transformations rose greater than anticipated organizational challenges. By start of 2009 when Kenya Women Finance Trust (KWFT) embarked on the transformation into a deposit-taking institution in earnest, it was the largest non-bank microfinance institution in Kenya, serving 250,000 women only clients. By May 2013, nine microfinance institutions had been issued with a licence by the Central bank of Kenya, these institutions offers deposit taking and group lending model services. These are the Kenya Women Finance Trust (KWFT), Faulu Kenya, SMEP, Remu DTM Limited, Rafiki Deposit Taking Microfinance, UWEZO Deposit Taking Microfinance Limited, Century Deposit Taking Microfinance Limited, SUMAC DTM Limited and U&I Deposit Taking Microfinance Limited. It is these nine MFIs that formed the sample of this study.

1.2 Statement of the Problem

The rapid rate of innovation in the financial sector as well as the rising importance of the sector in modern economics has generated a research interest in financial innovation and its impact on financial performance of commercial banks in Kenya. Indeed a broad descriptive literature that discusses recent financial innovations and that advances various hypotheses about them has arisen (Noyer, 2007). Furst et al. (2000) studied on internet banking in the 3rd quarter of 1999 to find out the characteristics of banks that offer internet banking using the Logit models and found out that the adoption of internet
banking is dictated by urban area locations, affiliation to a holding company, higher fixed expenses and higher non-interest income.

Additionally, the study concluded that for the banks which offered internet banking, a great number of their service offerings were positively correlated to the size of the bank and the length of period of offering internet banking related services. Sullivan (2000) compared banks in the 10th Federal Reserve district (that is banks in Colorado, Kansas, Missouri, Nebraska, New Mexico, Oklahoma, and Wyoming) that used Internet web-sites for transactional services to banks that did not offer the service in the first quarter of 2000; using survey data of the 1st quarter of 2000. The study established that internet based transactional services were larger in areas with an educated populace with a higher proportion of the population being in the 18-64 age brackets. The banks that were offering transactional Internet web-sites also had higher non interest income and non interest expenses. Dos Santos and Peffers (1995) examines the introduction of ATMs (Automatic Teller Machines) by American banks demonstrated that the competitive advantage and increased financial performance was associated with the banks that initially adopted the technology.

Despite the undeniable importance of financial innovation in explaining banking performance, the impact of innovation on profitability is still misunderstood. Financial innovation is an essential force motivating the financial system toward greater economic competence with considerable economic advantage accruing from the changes over the time. In the process of creating a new financial product, a financial engineers needs to acquire knowledge of optimization and financial modeling techniques besides basic
theory of financial management. In May 2012, the Central Bank of Kenya allowed regulated deposit taking microfinance institutions to operate not only through third party agents, but to operate agencies for deposit taking within their credit offices. Further innovations in payment systems are likely with new payment systems regulations in discussion draft.

Locally some research studies have been conducted on financial innovations; Kamotho (2009) carried out a study on mobile phone banking usage experiences in Kenya and observed that competition triggers innovation and creativity. Continuous innovation not only yield new products but rather promotes efficiently in the performance of activities hence lowering the transaction cost. This finding is also confirmed by Tufano (1989). Furthermore, in spite of an extensive descriptive literature on financial innovation, there is a paucity of empirical studies on financial innovation and its effect on profitability of the innovators. Most of the existing empirical works have focused on the same handful of financial innovations (Tidd & Hull, 2003). Noyer (2007) states that despite a growing literature developed on financial innovation; these are mainly innovations of securities on financial markets. Financial innovation has been indicated to affect economic growth and financial inclusion as well as boost the financial performance of commercial banks (CBK, 2011). There is scanty of information regarding the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya. Motivated by this gap in literature, the study seeks to determine the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya.
1.3 Objectives of the Study

1.3.1 Main objective

The objective of this study is to determine the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya

1.3.2 Specific Objectives

i. To investigate the effect of Mobile banking on profitability of Deposit-Taking Microfinance Institutions in Kenya

ii. To investigate the effect of Online banking on profitability of Deposit-Taking Microfinance Institutions in Kenya

iii. To investigate the effect of Real time Gross Settlements (RTGS) on profitability of Deposit-Taking Microfinance Institutions in Kenya

iv. To investigate the effect of Automated Teller Machine (ATM) withdraws and deposits on profitability of Deposit-Taking Microfinance Institutions in Kenya

1.4 Value of the Study

This study is significant in a number of ways. The findings of the proposed study will be of great benefit to the microfinance sector in Kenya. This is because, once documented, the findings will be a valuable source of information for any microfinance institution that might wish to overcome the effect the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya in future. Armed with the information on the effect of financial innovation on profitability of deposit that they are likely to face as well as the tested methods of dealing with them, such MFIs will be able to manage the
process with more ease. The findings will also be useful to policy makers in the area of regulation and supervision of deposit-taking microfinance institutions. The study will provide useful lessons on how various legal, regulatory and procedural requirements could impact on the MFIs as they endeavours to conform. In this way, the study findings will offer useful inputs to advise the review of the policy and legal framework in the future.

In addition, the study is important as the findings will contribute to the existing body of knowledge on the effect of financial innovation on profitability. This is important not only in Kenya but also globally for the sake of posterity of the sector, its clients and humanity in general. The study will further offer useful insights to scholars and sector practitioners through its recommendations on areas requiring further research. This is critical for the development, testing and improvement of a model of dynamics.
CHAPTER TWO  
LITERATURE REVIEW 

2.1 Introduction 
This chapter provides theoretical and empirical information from publications on topics related to the research problem. It summarizes the information from other researchers who have carried out their research in the same area of technology and innovation and its influence on performance. 

2.2 Theoretical Literature Review 
In deriving a framework for this study two existing research frameworks will be considered: The Technology Acceptance Model (TAM) and Theory of Diffusion of Innovations. 

2.2.1 The Technology Acceptance Model 
TAM is a theoretical model that evaluates the effects of things like system characteristics on user acceptance (Davis, 1986). TAM assumes that a computer user generally acts quite rationally and uses information in a systematic manner to decide whether to adopt, or not to use this technology in the workplace. Davis (1986) identified three major determinants of technology acceptance that relate to cognition and effectiveness and were suggested by previous research studies. He began with the TRA and adapted this as a basis for causal links between perceived usefulness, perceived ease of use, attitude towards using technology and behavioral intention to explain technology adoption.
According to the TAM, these two beliefs are of primary significance for technology acceptance. PU refers to the prospective user's subjective likelihood that the use of a certain application will increase his or her performance. PEOU is defined as the degree to which the prospective user expects the potential system to be free of effort (Davis et al., 1989). If commercial banks perceive the cost of technological innovations as acceptable, they are likely to adopt it and then use it.

2.2.2 Theory of Diffusion of Innovations

The theory of Diffusion of Innovations as described by Rogers (1995) is well known. Rogers describes diffusion of innovations as: “the process by which an innovation is communicated through certain channels over time among the members of social systems. It is a special type of communication, in that the messages are concerned with new ideas” (Rogers, 1995). A decision not to adopt an innovation relates to the rejection of the available new idea. However, in order to explain the rate of adoption of innovations Rogers suggests measurement of the following perceived characteristics of innovations: relative advantage compatibility; complexity; reliability; and observability. Rogers (1995) postulated that the adoption of innovations is influenced by these five characteristics, and that they can explain the rate of technology adoption.

Relative advantage refers to the degree to which an innovation is perceived as providing more benefits than its predecessor (More & Benbasat 1991). Relative advantage results in increased efficiency, economic benefits and enhanced status (Rogers 2003). Past research has found that relative advantage of an innovation is positively related to the rate of adoption (Moore & Benbasat 1991). Research suggests that when user perceives relative
advantage or usefulness of a new technology over an old one, they tend to adopt it. In the context of banking sector, benefits such as immediacy, convenience and affordability to customers have been reported (Lin 2011).

Cheung et al. (2000) defined complexity as the extent to which an innovation can be considered relatively difficult to understand and use. They found that complexity negatively influences the adoption of internet usage. Complexity is the opposite of ease of use. Ease of use refers to the extent to which mobile banking is perceived as easy to understand and operate. Lin, (2011) suggests that there is a strong impact of perceived ease of use of new technology on its adoption. As banking services have very user friendly interfaces, users see them as easy to use, and hence to form positive attitudes towards them (Lin 2011).

Compatibility refers to the degree to which a service is perceived as consistent with users’ existing values, beliefs, habits and present and previous experiences [Chen et al. 2004]. Compatibility is a vital feature of innovation as conformance with user’s lifestyle can propel a rapid rate of adoption (Rogers 2003). Research has shown that compatibility is a significant antecedent in determining consumers’ attitude towards internet banking adoption in Malaysia (Ndubisi & Sinti 2006). Compatibility has further been found influential in the adoption of virtual store (Chen et al. 2004), and mobile banking (Lin 2011). Al-Gahtani (2003) found that compatibility had significant correlation with computer adoption and use in Saudi Arabia. Thus, it is also likely that the relation between compatibility and adoption will hold in the context of financial profitability.
Observability of an innovation describes the extent to which an innovation is visible to the members of a social system, and the benefits can be easily observed and communicated (Rogers, 2003). Moore & Benbasat, (1991) simplified the original construct by redefining observability into two constructs: visibility and result demonstrability. In the context of banking, observability is defined as the ability to access the banking services at any time and from any location without any delay or queue, and seeing the effect of banking transactions immediately, and conveying the accessibility benefits to others.

Trialability refers to the capacity to experiment with new technology before adoption. Potential adopters who are allowed to experiment with an innovation will feel more comfortable with it and are more likely to adopt it (Rogers 2003). Further support is given by Tan & Teo (2000) who argue that if customers are given a chance to try the innovation, it will minimize certain unknown fears, and lead to adoption.

Technology diffusion is an indispensable process through which technological potential of innovative activities can be actually turned into productivity. Various characteristics of the economic environment in which diffusion takes place may affect the pace of diffusion, while the diffusion itself may also have feedbacks on the environment. To better understand this process, many important questions have to be answered. Among them, experts are curious about the following: who are the early adopters of technological innovations, what factors determine the various diffusion rates across adopter groups, and what feedbacks, if any, the diffusion may have on the economic environment. The ongoing diffusion of Internet Banking (IB) provided a good opportunity to look closely at
these questions (Gongera, 2013). If a commercial bank in Kenya observes the benefits of technological innovations they will adopt these innovations given other factors such as the availability of the required tools. Adoption of such innovations will be faster in organizations that have internet access and information technology departments than in organizations without.

2.3 Empirical Literature Review

Simpson (2002) suggests that e-banking is driven largely by the prospects of operating costs minimization and operating revenues maximization. A comparison of online banking in developed and emerging markets revealed that in developed markets lower costs and higher revenues are more noticeable. While Sullivan and Richard, (2000) finds no systematic evidence of a benefit of internet banking in US click and mortar banks, Furst, et al., (2002) found that federally chartered US banks had higher Return on Equity (ROE) by using the click and mortar business model. Furst, et al., (2002) also examined the determinants of internet banking adoption and observed that more profitable banks adopted internet banking after 1998 but yet they were not the first movers. Jayawardhena and Foley, (2000) show that internet banking results in cost and efficiency gains for banks yet very few banks were using it and only a little more than half a million customers were online in United Kingdom.

Kagan, et al (2005), studied on whether internet banking affects the performance of community banks found that banks that provide extensive online banking services tend to perform better. They further found out that online banking helps community banks
improve their earning ability as measured by return on equity and improved asset quality by reducing the proportion of overdue and underperforming assets.

DeYoung (2005) analyzed the performance of Internet only banks versus the brick and mortars in the US market and found strong evidence of general experience effects available to all start-ups. Yet there is little evidence that technology based learning accelerates the financial performance of Internet-only start-ups. He finds that bank profitability is lower for pure-play (internet-only) banks in the US market. In a later study DeYoung, et al., (2007) analyzed the US community banks market to investigate the effect of internet banking on bank performance. They compared the brick and mortar banks performance to click and mortar banks which do have transactional websites over a three year period. Their findings suggest that internet banking improved bank profitability, via increase in revenues from deposit service charges. Movements of deposits from checking accounts to money market deposit accounts, increased use of brokered deposits, and higher average wage rates for bank employees were also observed for click and mortar banks.

Agboola (2006), study on Information and Communication Technology (ICT) in Banking operations in Nigeria used the nature and degree of adoption of innovative technologies; degree of utilization of the identified technologies; and the impact of the adoption of ICT devices on banks, found out that technology was the main driving force of competition in the banking industry. During his study he witnessed increase in the adoption of ATMs, EFT, smart cards, electronic home and office banking and telephone banking. He indicates that adoption of ICT improves the banks’ image and leads to a wider, faster and
more efficient market. He asserts that it is imperative for bank management to intensify investment in ICT products to facilitate speed, convenience, and accurate services, or otherwise lose out to their competitors.

Hernando and Nieto (2006), studied whether internet delivery channels change bank’s performance, they found out that adoption of internet as a delivery channel involved gradual reduction in overhead expenses (particularly, staff, marketing and IT) which translates to an improvement in banks’ profitability. The study also indicates that internet is used as a complement to, rather than a substitute for, physical branches. The profitability gains associated with the adoption of a transactional web site are mainly explained by a significant reduction in overhead expenses. This effect is gradual, becoming significant eighteen months after adoption and reaching a maximum generally two and a half years after adoption. Their study showed that multichannel banks present statistically significant evidence of efficiency gains that is reduction in general expenses per unit of output. Banks would further profit from cost reductions to the extent that the Internet delivery channel functions as a substitute for traditional distribution channels. Their analysis shows that this effect varies over time and explains, in terms of cost and income structure, the main drivers of better performance.

Shirley and Sushanta (2006), studied the impact of information technology on the banking industry and analyzed both theoretically and empirically how information technology related spending can affect bank profits via competition in financial services that are offered by the banks. (IT related products are internet banking, electronic payments, security investments, information exchanges, Berger, 2003). Using a panel of
68 US banks for a period of over 20 years to estimate the impact of IT on profitability of banks, they found out that though IT might lead to cost saving, higher IT spending can create network effects lowering bank profits. They further contend that the relationship between IT expenditures and bank’s financial performance is conditional to the extent of network effect. They say that if network effect is too low, IT expenditures are likely to; reduce payroll expenses, increase market share, and increase revenue and profit.

Kihumba (2008), analyzed the reason for innovation and financial performance of 43 banks between 2000 and 2007, how each factor caused innovation in the Kenyan market and how innovation has increased annual revenue, business volume, customers’ turnover and reduced costs of operation, facilitated expansion of market share and geographical coverage of the bank. He found that, some financial institutions do innovate to utilize their excess capacity and to maximize their revenues within existing capacity.

Malhotra and Singh (2009), study on the impact of internet banking on bank performance and risk found out that on average internet banks are larger, more profitable and are more operationally efficient. They also found that internet banks have higher asset quality and are better managed to lower the expenses for building and equipment and that internet banks in India rely substantially on deposits.

In a study on dynamics of financial innovation and performance of banking firms by (Mabrouk and Mamoghli 2010), the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking and so on) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic
cash dispenser were analyzed; (Automatic teller machine; Electronic payment terminal and so on) on the performance of banks. Their analysis included two adoption behaviours, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first mover.

2.4 Determinant of Profitability

The main source of bank-specific profitability is credit risk. Poor enforcement of creditor rights, weak legal environment, and insufficient information on borrowers expose banks to high credit risk. At the macroeconomic level, weak economic growth adds to risk as it promotes the deterioration of credit quality, and increases the probability of loan defaults.

We measure credit risk using the ratio of loans to deposits and short-term funding since this provide a forward-looking measure of bank exposure to default and asset quality deterioration (Goddard, Molyneux, and Wilson, 2004). Given that the portfolio of outstanding loans is nontradable, credit risk is modeled as a predetermined variable in our specification. Based on standard asset pricing arguments, we expect a positive association between profits and bank risk.

The bank activity mix is also an important proxy for the overall level of risk undertaken by banks to the extent that different sources of income are characterized by different credit risk and volatility. We control for the activity mix with the ratio of net interest revenues over other operating income. Interest earning activities are generally regarded as riskier than fee-based activities, which would need to be rewarded by higher returns.
Demirgüç-Kunt and Huizinga (1998) in their study of banks in 80 countries found that those with relatively high non-interest earning assets are, in general, less profitable. Banks that rely on deposits for their funding are also less profitable, possibly due to the required extensive branch network, and other expenses that are incurred in administering deposit accounts.

*Capital* should be an important variable in determining bank profitability, although in the presence of capital requirements, it may proxy risk and also regulatory costs. In imperfect capital markets, well-capitalized banks need to borrow less in order to support a given level of assets, and tend to face lower cost of funding due to lower prospective bankruptcy costs (Goddard, Molyneux, and Wilson, 2004).

Also, in the presence of asymmetric information, a well-capitalized bank could provide a signal to the market that a better-than-average performance should be expected (Athanasoglou et al., 2005 and Berger, 1995). Well-capitalized banks are, in this regard, less risky and profits should be lower because they are perceived to be safer. In this case, we would expect to observe a negative association between capital and profits. However, if regulatory capital represents a binding restriction on banks, and is perceived as a cost, we would expect a positive relationship to the extent that banks try to pass some of the regulatory cost to their customers. Profits may also lead to higher capital, if the profits earned are fully or partially reinvested. In this case, we would expect a positive causation from profits to capital. We proxy for capital with the ratio of equity to total assets, and, based on the above considerations, we model it as a predetermined rather than strictly exogenous variable. Athanasoglou, et al. (2005) find a positive and significant effect of
capital on bank profitability, reflecting the sound financial condition of Greek banks. Likewise, Berger (2005) finds positive causation in both direction between capital and profitability.

Size signals specific bank risk, although the expected sign is ambiguous. To the extent that governments are less likely to allow big banks to fail, a risk approach to size would predict that bigger banks would require lower profits (e.g. through lower interest rates charged to borrowers). However, if larger banks have a greater proportion of the domestic market, and operate in a non-competitive environment, lending rates may remain high (while deposit rates for larger banks are lower because they are perceived to be safer) and consequently larger banks may enjoy higher profits. Moreover, modern intermediation theory predicts efficiency gains related to bank size, owing to economies of scale. This would imply lower costs for larger banks that they may retain as higher profits if they do not operate in very competitive environments. To capture the relationship between size and bank profitability, while also accounting for such potential nonlinearities, we proxy bank size by using the logarithm of total assets and their square (Goddard, Molyneux, and Wilson, 2004).

Apart from capital requirements, a major regulatory issue is state-ownership of commercial banks. Privately owned banks may be more profitable than state-owned due to imperfectly designed incentives or because public banks may have objectives other than profit or value maximization. In this regard, we included a dummy for ownership. Moreover, in developing countries, foreign banks are likely to have technological and efficiency advantages (Goddard, Molyneux, and Wilson, 2004). If these advantages offset
the informational disadvantage that foreign banks face compared to domestic banks, we expect to observe higher profitability in foreign banks, in particular if they do not operate in a competitive environment and are able to translate these advantages into profits. Moreover, as a matter of fact, nearly all foreign banks in SSA focus their activities on the service sector, leaving the financing of riskier activities, such as agriculture, mining or infrastructure, to the publicly owned or private local banks. Also, the terms of their loans are generally short, not more than six months, and more often less than one year. By limiting the exposure of foreign banks to risk of default payment, this prudent approach might increase foreign banks’ chances of making profits.

*Market power* is expected to be a major determinant of profits. This is because banks in more concentrated markets should be capable of adjusting spreads in response to unfavorable changes in the macroeconomic environment to leave returns unaffected. We test for the existence of market power in different ways: (i) market concentration, measured by the ratio of each bank’s total outstanding loans to the net domestic credit of the country; (ii) the impact of managerial inefficiency (proxied by the log of overheads costs). Operating costs are indeed high in Sub-Saharan Africa, which indicates a lack of competitive pressure. In addition, we expect high operating expenses to erode profits unless banks manage to pass on their costs to depositors and lenders; and (iii) the coefficient of the squared size variable. This coefficient controls for non-linearities in the size-profitability relationship, owing to possible diseconomies of scale as banks become too big. If such a coefficient turns out to be negative but statistically non-significant, this would provide evidence that banks in SSA enjoy enough market power to be able to pass costs on to customers.
2.5 Summary of Literature Review.

One study was found which analyzed the reasons for innovation and financial performance of 43 commercial banks in Kenya and was conducted in 2008. These are almost five years since the study was done. There have been major improvements on technological innovations which have increased significantly the access of banking services to majority of Kenyans and significantly reducing the costs of operation. Previous studies have produced mixed results regarding the impact of innovations on bank performance. It is at the center of such mixed conclusions that creates and necessitates the need to carry out a study from a Kenyan context to establish the effects of technological innovations on Deposit-Taking Microfinance Institutions’ financial performance.

The foregoing literature review highlights the relationship of financial innovation strategies on financial performance in these challenging times of changing external environments. For instance, greater reliance on alternative sources of financing by business and corporations may delay speed and magnitude of transmission of policy rates to the actual cost of financing. This is especially important if alternative sources of financing have significantly different funding structures not directly influenced by Central Bank’s policy rate.
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the research methodology that was used, in an attempt to achieve the objectives of the study. Attention is focused on research design, study population or target population, sample size, sampling techniques, data collection instruments, data collection procedure and data analysis procedures.

3.2 Research Design

This study took on a descriptive survey research design. A descriptive survey attempts to describe or define a subject often by creating a profile of a group of problems, people or events through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated by Cooper and Schindler (2006). This was a descriptive study where the researchers gathered data from the published financial statements of Deposit Taking Microfinance institutions in Kenya. The study employed both quantitative method through analysis of the financial statements using various models and ratios to provide predominantly quantitative and qualitative data to the study. The qualitative data was used to shed some light on the quantitative data to enable for a more in-depth analysis of the research problem. The data to be used was accessed from the published financial statements of Deposit Taking Microfinance Institutions in Kenya.

3.3 Target Population

The target population in a research study is the total number of individuals in a group or the number of groups that the researchers are intending to work with (Cooper and
Schindler 2001). Cooper and Schindler (2001) terms the population as the total collection of the elements about which the researchers are intending to make their inferences from. In this study, the target population is the 9 microfinance institutions (appendix I) which are involved in deposit-taking.

3.4 Sampling Design

According to Adèr, et al., (2008), sampling is that part of the statistical practice that is concerned with the selection of individual observations with an intention to yield some knowledge about a population of concern especially for the purposes of statistical inferences. Each of the observable measures is considered to measure one or more properties of an observable entity that has been enumerated to distinguish the objects. The sampling technique that will be employed in this study was a census with a clear preference on this based on the fact that the population sample was small.

3.5 Data Collection

The study used both primary and secondary data collection methods. Primary data involved administration of questionnaires to the selected employees of the 9 microfinance institutions selected in the study. Secondary data was obtained by use financial statements and management report of the Deposit Taking Microfinance institutions (DTMs) in Kenya. Ratio analysis and multi-linear regression models was used to analyze the secondary data collected. The target data in this study was profitability of DTMs, number of Mobile banking, number of Online banking, number of Real time Gross Settlements (RTGS), number of Automated Teller Machine (ATM) withdraws and deposits for a period of five years from 2009 to 2013. Within this time, microfinance
have adopted financial innovations which includes; mobile banking, online banking, RTGS and ATM services and have influenced their profitability.

3.6 Data Analysis

Data analysis involves organizing, accounting for and explaining the data; that is, making sense of the data in terms of respondents’ definition of the situation noting patterns, themes, categories and regularities (Cooper and Schindler 2001). Mobile banking, online banking, Real time gross settlement and Automated teller machine data from the census will be tabulated to show the growth over the years of the study. After the data was analyzed, a cross examination was done to ensure the trend and patterns of the various ratios and models used to enable for an accurate and complete interpretation. The data was thereafter analyzed using a statistical computer package, the SPSS. The researcher used non-parametric tests in the computation on correlation, frequencies, percentages, standard deviations, graphs and charts.

The regression model was; \[ Y = \beta_0 + X_1\beta_1 + X_2\beta_2 + X_3\beta_3 + X_4\beta_4 + \varepsilon \]

This model was also used by Kagan, et al (2005), studied on whether internet banking affects the performance of community banks found that banks that provide extensive online banking services tend to perform better.

**Where:**

\[ Y = \text{Profitability (ROA)} \]
\[ X_1 = \text{NO. Mobile banking} \]
\[ X_2 = \text{NO. Online banking} \]
\[ X_3 = \text{NO. Real time Gross Settlements (RTGS)} \]
\[ X_4 = \text{NO. Automated Teller Machine (ATM) withdraws and deposits} \]
\( \beta_0 = \text{constant (y intercept)} \)

\( \beta = \text{coefficient} \)

\( \varepsilon = \text{error term} \)
CHAPTER FOUR
DATA ANALYSIS AND PRESENTATION

4.1 Introduction
This chapter entails presentation, analysis and interpretations of study findings. The main objective of the study was to determine the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya. Data was collected from 9 microfinance institutions which are involved in deposit-taking business. The data collected from the institution was data on financial innovation transactions on mobile banking, RTGS, online banking and ATM services. Secondary data on profitability for the last 5 years was obtained from the institutions published financial statements.

4.2 General information
4.2.1 Name of the MFI
The following MFIs were; Faulu Kenya DTM Limited; Kenya Women Finance Trust DTM Limited; SMEP Deposit Taking Microfinance Limited; Remu DTM Limited; Rafiki Deposit Taking Microfinance; UWEZO Deposit Taking Microfinance Limited; Century Deposit Taking Microfinance Limited; SUMAC DTM Limited; U&I Deposit Taking Microfinance Limited
4.2.2 Length of Operation

Figure 4.1: Length of operation

The figure shows that 45% of the firms had been in operation for 6-10 years, 33% of the firms had been in operation for 2-5 years while 22% of the firms had been in operation for less than 2 years.

4.2.3 Number of employees

Figure 4.2: Number of Employees

The figure shows that 35% of the firms had 26-30 employees, 25% of the firms had 21-25 employees, 16% had 16-20 employees while 12% had 11-15 employees and over 30 employees.
4.2.4 Maintaining records

All the microfinance’s indicated that they maintain both manual and computer records.

4.2.5 Expenditures

All the microfinance’s indicated that they had the following expenses; Salaries, Allowances, Rent for business premise, Stationeries and transport.

4.3 Effect of Mobile banking on profitability

4.3.1 Usage of Mobile banking applications

Figure 4.3: Mobile banking services

The results show that majority of the microfinance firms 75% had mobile applications such as mpesa in their service peorvision while 25% did not have mobile applications.
4.3.2 Effect of Mobile banking on profitability of Deposit-DTMFI

Table 4.1: Effect of Mobile banking on profitability

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-banking help MFIs reach new customer segments hence increase profitability</td>
<td>9</td>
<td>4.4029</td>
<td>0.6653</td>
</tr>
<tr>
<td>M-banking reduce costs for MFIs and for customers hence increase profitability</td>
<td>9</td>
<td>4.3658</td>
<td>0.8688</td>
</tr>
<tr>
<td>M-banking help MFIs serve existing customers better hence increase profitability</td>
<td>9</td>
<td>4.0517</td>
<td>0.7541</td>
</tr>
<tr>
<td>If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis.</td>
<td>9</td>
<td>4.2154</td>
<td>0.6857</td>
</tr>
<tr>
<td>MFIs can act as agents on behalf of m-banking service. This can help both the MFI and its customers to become familiar with the system and bring in additional revenue.</td>
<td>9</td>
<td>4.1357</td>
<td>0.6648</td>
</tr>
<tr>
<td>M-banking can reduce operational costs for MFIs and that these costs can be passed on to customers in the form of lower interest rates.</td>
<td>9</td>
<td>4.1234</td>
<td>0.9876</td>
</tr>
</tbody>
</table>

Results show that the respondents agreed on the factors indicated as follows: M-banking help MFIs reach new customer segments m=4.4029; M-banking reduce costs for MFIs and for customers m=4.3658; If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis m=4.3658; If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis m=4.2154; MFIs can act as agents on behalf of m-banking service. This can help both the MFI and its customers to become familiar with the system and bring in additional revenue m= 4.1357; M-banking can reduce operational costs for MFIs and that these
costs can be passed on to customers in the form of lower interest rates $m=4.1234$ and M-banking help MFIs serve existing customers better $m=4.0517$.

### 4.3.3 Opinion on Mobile banking effect on Profitability

Mobile banking have made banking transaction to be easier by bringing services closer to its customers hence improving banking industry performance. MFIs are looking to technology such as mobile banking and to support growth in profits. Henceforth they are continually using vast IT infrastructure to increase reach and utilisation of service delivery channels.

### 4.4 Effect of Online banking on profitability

#### 4.4.1 Usage of Online banking

The respondents were asked to indicate whether their organization providing internet online banking to its clients.

**Figure 4.4: Online banking**

<table>
<thead>
<tr>
<th>Usage of online banking applications</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55%</td>
<td>45%</td>
</tr>
</tbody>
</table>
The results show that majority of the microfinance firms 55% was proving had online applications services while 45% did not have online applications.

### 4.4.2 Effect of Online banking on profitability

**Table 4.2: Effect of Online banking on profitability**

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFIs that provide extensive online banking services tend to perform better than those who lag behind.</td>
<td>9</td>
<td>4.1544</td>
<td>0.7548</td>
</tr>
<tr>
<td>Online banking helps MFIs improve their earnings ability as measured by return on equity and improve asset quality.</td>
<td>9</td>
<td>4.2651</td>
<td>0.3271</td>
</tr>
<tr>
<td>There exist a positive relationship between online banking and bank performance since online banking has brought services closer to bank customer’s hence improving performance.</td>
<td>9</td>
<td>4.3257</td>
<td>0.4567</td>
</tr>
<tr>
<td>Online banking has increased the profitability of banks</td>
<td>9</td>
<td>4.4779</td>
<td>0.8655</td>
</tr>
<tr>
<td>Online banking has enabled banks meet their costs and earn profits even in the short span of time.</td>
<td>9</td>
<td>4.3265</td>
<td>0.9876</td>
</tr>
</tbody>
</table>

The results in the table above shows that the respondents agreed on the factors in the following way; Online banking has increased the profitability of banks m=4.4779; Online banking has enabled banks meet their costs and earn profits even in the short span of time m=4.3265; There exist a positive relationship between online banking and bank performance since online banking has brought services closer to bank customer’s hence improving performance m=4.3257; Online banking helps MFIs improve their earnings ability as measured by return on equity and improve asset quality m= 4.2651 and MFIs that provide extensive online banking services tend to perform better than those who lag behind m=4.1544.
4.4.3 Opinion on online banking effect on profitability

Respondents affirmed that e-banking has changed the business environment. Manual banking has been reduced; the culture of keeping ledgers and recording transactions by hand has diminished by the advent of electronic banking. Now, banking has become real fast, customers get the services more quickly and reliably, the local and international transactions require a very less time as compared to before. It has also increased the competition and now majority the institutions tend to provide these services and facilities to the customers also, the environment and ambiance provided by the banks is a factor which complements their clientage, loyalty and’ profits.

4.5 Real time Gross Settlements (RTGS) on profitability

4.5.1 RTGS services offered

Figure 4.5: RTGS services

The figure above shows that 60% of the organisations were using RTGs while 40% of the organisations did not have RTGS applications.
4.5.2 Effect of Real time Gross Settlements (RTGS) on profitability

Table 4.3: Effect of Real time Gross Settlements (RTGS) on profitability

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTGS present more benefits in funds transfers and payments</td>
<td>9</td>
<td>4.6524</td>
<td>0.8651</td>
</tr>
<tr>
<td>RTGS significantly reduce risks inherent in the Automated Clearing House (ACH) payment system.</td>
<td>9</td>
<td>4.5625</td>
<td>0.3265</td>
</tr>
<tr>
<td>RTGS throughput is a significant predictor of financial performance of MFIs.</td>
<td>9</td>
<td>2.3741</td>
<td>0.5554</td>
</tr>
<tr>
<td>With RTGS acting as substitute payment and transfer system options, it would be expected to increase profits</td>
<td>9</td>
<td>4.3873</td>
<td>0.4124</td>
</tr>
<tr>
<td>An increase in the turnover of RTGS annually would result into a decline in the annual turnover recorded by the automated clearing house.</td>
<td>9</td>
<td>4.3651</td>
<td>0.8647</td>
</tr>
</tbody>
</table>

The results show that the respondents strongly agreed that RTGS present more benefits in funds transfers and payments m=4.6524 and RTGS significantly reduce risks inherent in the Automated Clearing House (ACH) payment system m=4.5625. The respondents agreed that With RTGS acting as substitute payment and transfer system options, it would be expected to increase profits m=4.3873 and An increase in the turnover of RTGS annually would result into a decline in the annual turnover recorded by the automated clearing house m=4.3651.

4.5.3 Opinion on Real time Gross Settlements (RTGS) effect on profitability

Cost savings under an RTGS system improves the overall efficiency in the market for payment services. This, in turn, creates the conditions for an efficient financial system and economy. The high speed at which payments in RTGS are processed facilitate and
improve cash management. Moreover, this enables participants to increase their turnover of funds. No payment-related information is lost in RTGS. The payment instruction, if provided in accordance with the standards, is always forwarded in its entirety to the beneficiary participant. This is then affects profitability of the banks.

4.6 Automated Teller Machine (ATM)

4.6.1 Automated Teller Machine (ATM) service provision

The respondents were asked to indicate whether their institution provide ATM services

Figure 4.6: ATM service

The results show that majority of the microfinance firms 60% did not offer ATM services service provision while 40% did not offer ATM services.
4.6.2 Effect of Automated Teller Machine (ATM) on profitability

Figure 4.7: Effect of Automated Teller Machine (ATM) on profitability

<table>
<thead>
<tr>
<th>Statement</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial institutions charge fees to use their ATM, making the transactions very profitable for the host banks.</td>
<td>9</td>
<td>4.6233</td>
<td>0.8101</td>
</tr>
<tr>
<td>The use of ATM has cut service staff in traditional banks, impacting employment in the industry.</td>
<td>9</td>
<td>4.5215</td>
<td>0.3261</td>
</tr>
<tr>
<td>The ATM initiative has a positive effect on profitability and efficiency.</td>
<td>9</td>
<td>4.4572</td>
<td>0.9517</td>
</tr>
<tr>
<td>ATM have eliminated the need to enter a bank for basic transactions and allow access to accounts on machines located at strategic places and this increases more transactions</td>
<td>9</td>
<td>4.7658</td>
<td>0.5628</td>
</tr>
<tr>
<td>MFIs that provide ATMs services tend to perform better than those who lag behind.</td>
<td>9</td>
<td>4.0325</td>
<td>0.9654</td>
</tr>
</tbody>
</table>

Results show that most respondents strongly agreed that ATM have eliminated the need to enter a bank for basic transactions and allow access to accounts on machines located at strategic places and this increases more transactions $m=4.7658$. Financial institutions charge fees to use their ATM, making the transactions very profitable for the host banks $m=4.6233$ and the use of ATM has cut service staff in traditional banks, impacting employment in the industry. The respondents agreed that the ATM initiative has a positive effect on profitability and efficiency $m=4.4572$ and MFIs that provide ATMs services tend to perform better than those who lag behind $m=4.0325$. 
4.6.3 Opinion on ATM services effect on profitability

ATM services brings down the operational costs of the MFI and that ATM services facilitates and speed up institutions procedures to accomplished standardized and low value added transactions. there is obvious increase in the deployment of Automated Teller Machines (ATM) along with other ICT based devices indicative of the fact that banks have channeled substantial financial resources on ICT investment. ATMs have been acclaimed to be able to process routine transactions and therefore a close substitute to Teller labour. ATM intensity has positive effect on bank cost efficiency. In addition, they found that bank scale is also positively related to cost efficiency, while non-performing loans and salary level have negative impact. As for sustainability of income gained, earlier adopters could have cost improvements by replacing tellers with ATM.

Table 4.4: Distribution statistics

<table>
<thead>
<tr>
<th>Microfinance</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faulu Kenya DTM Limited</td>
<td>-0.1</td>
<td>-0.3</td>
<td>0.2</td>
<td>0.52</td>
<td>0.7</td>
</tr>
<tr>
<td>Kenya Women Finance Trust DTM Limited</td>
<td>4.3</td>
<td>1.6</td>
<td>1.5</td>
<td>0.93</td>
<td>0.94</td>
</tr>
<tr>
<td>SMEP Deposit Taking Microfinance Limited</td>
<td>5</td>
<td>0.3</td>
<td>0.9</td>
<td>2.24</td>
<td>0.69</td>
</tr>
<tr>
<td>Remu DTM Limited</td>
<td></td>
<td></td>
<td>-11.6</td>
<td>-8.6</td>
<td>-6.3</td>
</tr>
<tr>
<td>Rafiki Deposit Taking Microfinance</td>
<td></td>
<td></td>
<td>-3.5</td>
<td>-2.4</td>
<td>-0.35%</td>
</tr>
<tr>
<td>UWEZO Deposit Taking Microfinance Limited</td>
<td></td>
<td></td>
<td>-13.6</td>
<td>-12.3</td>
<td>-11.3</td>
</tr>
<tr>
<td>Century Deposit Taking Microfinance Limited</td>
<td></td>
<td></td>
<td></td>
<td>-1.4</td>
<td>0.2</td>
</tr>
<tr>
<td>SUMAC DTM Limited</td>
<td>2.60</td>
<td>3.30</td>
<td>5.30</td>
<td>6.00</td>
<td>8.30</td>
</tr>
<tr>
<td>U&amp;I Deposit Taking Microfinance Limited</td>
<td></td>
<td></td>
<td></td>
<td>0.2</td>
<td>0.35</td>
</tr>
</tbody>
</table>
From the table, it is seen that some MFIs have very low and or even negative ROA for the last five years, however, there those which have consistent positive ROAs. Notably, for most MFIs, higher ROA are observed in 2008 and 2009 but the same reducing substantially in 2010 and 2011. It also worth noting that only 33% of MFIs have positive ROA while all the others have negative ROA.

4.7 Relationship between Financial Innovations and profitability of DTMFI

The study sought to test the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya. This was done through Correlation and regression analysis. A Pearson correlation was run to establish how the variables were related to each other.

Table 4.5: Relationship between Financial Innovations and profitability

<table>
<thead>
<tr>
<th></th>
<th>profitability</th>
<th>online banking</th>
<th>mobile banking</th>
<th>RTGS</th>
<th>ATM services</th>
</tr>
</thead>
<tbody>
<tr>
<td>profitability</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online banking</td>
<td>0.446</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile banking</td>
<td>0.06</td>
<td>0.3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTGS</td>
<td>0.236</td>
<td>0.096</td>
<td>0.491</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ATM services</td>
<td>0.282</td>
<td>0.03</td>
<td>0.242</td>
<td>0.682</td>
<td>1</td>
</tr>
</tbody>
</table>

The table shows the correlation results of the study on the variables. According to the correlation, the range of the output is between -1 to 1. A positive value indicates that the variables are positively related while a negative value indicates that the variables are negatively related.

From the findings shown online banking and DTMFI profitability are positively related (0.446), RTGS is positively related with the DTMFI profitability (0.236) and Mobile
banking (0.060). ATM services were positively related with DTMFI profitability (0.282). The use of online banking by the DTMFI was positively related with mobile banking (0.320), RTGS (0.096) and ATM services (0.030). The use of Mobile banking was positively related with RTGS (0.491) and ATM services (0.242). Lastly the adoption of ATM services had a positive relation with RTGS (0.682). This indicates any of the financial innovation had a positive correlation with the profitability of DTMFIs and the financial innovations had positive correlations among themselves. This indicates that DTMFIs increased the use of the innovations simultaneously.

4.8 Regression Analysis

To study the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya, the study run a linear multiple regression test to establish the effects of each of the innovations. The findings are discussed in the following sections.

Table 4.6: Model summary

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.786a</td>
<td>.618</td>
<td>.480</td>
<td>.42097</td>
</tr>
</tbody>
</table>

The findings shown in Table above indicate the extent of variations on the profits which are explained by the independent variables. The R square value is 0.618. This means that the independent variables explain 61.8% of the variations in dependent variable. The rest 38.2% are explained by other factors.
Table 4.7: ANOVA

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig..</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3.160</td>
<td>4</td>
<td>.790</td>
<td>4.458</td>
<td>.022</td>
</tr>
<tr>
<td>Residual</td>
<td>1.949</td>
<td>11</td>
<td>.177</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.109</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors: (Constant) online banking, mobile banking, RTGS and ATM services

The results in table above show that the independent variables are statistically significant in predicting the profits or affecting the profits of the DTMFI. The study established a significant value of p=0.022 showing a statistical significance relationship.

Table 4.8: Regression Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>5.485</td>
<td></td>
</tr>
<tr>
<td>Online banking</td>
<td>.630</td>
<td>.127</td>
</tr>
<tr>
<td>Mobile banking</td>
<td>.770</td>
<td>.237</td>
</tr>
<tr>
<td>RTGS</td>
<td>.656</td>
<td>.191</td>
</tr>
<tr>
<td>ATM services</td>
<td>.175</td>
<td>.095</td>
</tr>
</tbody>
</table>

The findings in Table above show the coefficients of the regression. According to the findings, Online banking (P=0.029), mobile banking (p=0.041), RTGS (p=0.006) and ATM services (p=0.042) were all significant in predicting the profits of the DTMFI since
all the p values were less than 0.05. However, as it can be seen ATM services had a p-value of 0.047 which that it was not as significant as the rest of the factors which had lower values of p. Since a low value indicates high significance of the variable on the dependent variable and vice versa. This is because ATM services was not practiced in many some of the DTMFI in Kenya and therefore the number of the DTMFI's which had ATM services were few. The aggregate of the values were therefore not coming out as strongly as the rest of the factors which were almost in all the DTMFI.

The resulting regression equation was:

\[ Y = 5.485 + 0.630\beta_1 + 0.771\beta_2 + 0.656\beta_3 + 0.175\beta_4 \]

The findings indicate that when all the factors are held constant the profits will increase by 5.485 units. When all the factors are held constant one unit use of Online banking increases the profits by 0.630 units. When all the factors are held constant a unit increase in the use of mobile banking increases the profits by 0.771 units. Similarly, a unit increase in the use of RTGS holding other factors constant increases the profits by 0.656 units. The use of ATM services holding the rest factors constant increases the profits by 0.175 units. This shows that the use of financial innovations have had a great impact on the profitability of DTMFI.

### 4.9 Discussion of findings

Study results indicated that the independent variables (mobile banking, online banking, RTGS and ATM services) explain and can therefore predict profitability of DTMFI's. These variables could explain 61.8% of the variation in profits in the DTMFI's (r-squared
= 0.618). This indicates that the regression model had a strong explanatory power as only 38.2% of variation in profitability in the DTMFIs is not explained by the model.

This is consistent with a study by Noyer (2007) which argued that financial innovation in the financial industry has been spurred by research in products and services and new distribution channel systems such as internet and mobile banking as well as innovation in payment systems. This, according to Noyer (2007) has translated into more improved financial performance of the institutions that make a conscious effort to innovate. Although this study looked at institutions grouped as a sector, and not individually, improved performance of institutions individually would result into better sector performance by aggregation.

The findings indicate that online banking and DTMFI profitability are positively related (0.446), RTGS is positively related with the DTMFI profitability (0.236) and Mobile banking (0.060). ATM services were positively related with DTMFI profitability (0.282). The use of online banking by the DTMFI was positively related with mobile banking (0.320), RTGS (0.096) and ATM services (0.030). The use of Mobile banking was positively related with RTGS (0.491) and ATM services (0.242).

This study has established that a single innovation has a small effect on the profitability (ROA) of DTMFIS. Increasing the number of innovations enhances the relationship between profitability (ROA) and financial innovations. This was depicted by the fact that the linear relationship between financial innovation and profitability (ROA) became stronger in the multiple linear regression model as compared to the relationships in the
simple linear regression models where each financial innovation was considered individually. This shows that ICT investment has had a strong influence on the structure and the activities of the financial sector; this allows transactions to be conducted more efficiently, technology allows banks to market their products more effectively.
CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of findings outlined in chapter 4, conclusions and recommendations of the study on the effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya.

5.2 Summary of Findings

This study targeted eight (9) DTMFI operate in Kenya. It covered the period between 2009 and 2013. Specifically, the study sought to effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya. Return on Assets (ROA) was used to measure profitability which was calculated by dividing the DTMFI net profit before taxation by the average of the total assets held by the bank over the study period. Financial innovation was measured by; mobile banking, online banking, RTGS and ATM services contribution to profitability of DTMFI.

Findings show that M-banking help MFIs reach new customer segments. M-banking reduce costs for MFIs and for customers. If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis. If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis. MFIs can act as agents on behalf of m-banking service. This can help both the MFI and its customers to become familiar with the system and bring in additional revenue. M-banking can reduce operational costs for MFIs and that these costs can be
passed on to customers in the form of lower interest rates and M-banking help MFIs serve existing customers better.

Findings show that Online banking has increased the profitability of banks. Online banking has enabled banks meet their costs and earn profits even in the short span of time. There exist a positive relationship between online banking and bank performance since online banking has brought services closer to bank customer’s hence improving performance. Online banking helps MFIs improve their earnings ability as measured by return on equity and improve asset quality and MFIs that provide extensive online banking services tend to perform better than those who lag behind.

The results show that RTGS present more benefits in funds transfers and payments and RTGS significantly reduce risks inherent in the Automated Clearing House (ACH) payment system. With RTGS acting as substitute payment and transfer system options, it would be expected to increase profits and An increase in the turnover of RTGS annually would result into a decline in the annual turnover recorded by the automated clearing house.

Findings show that ATM have eliminated the need to enter a bank for basic transactions and allow access to accounts on machines located at strategic places and this increases more transactions. Financial institutions charge fees to use their ATM, making the transactions very profitable for the host banks and the use of ATM has cut service staff in traditional banks, impacting employment in the industry. The respondents agreed that the
ATM initiative has a positive effect on profitability and efficiency and MFIs that provide ATMs services tend to perform better than those who lag behind.

A regression analysis on each of the innovations individually against the DTMFI profitability (ROA) revealed that there is a strong relationship between individual innovations and profitability. The study established a multiple linear regression model of the form;

\[ Y = 5.485 + 0.630 \beta_1 + 0.771 \beta_2 + 0.656 I \beta_3 + 0.175 \beta_4 \]

In establishing the strength and the direction of the relationship, the findings revealed that there is a positive linear relationship between financial innovations and DTMFI profitability. This was demonstrated by a coefficient of determination of 0.786 and a Pearson Product Moment (Correlation coefficient) of .618. Notably, both coefficient of determination and Pearson Product Moment Correlation coefficient for the multiple model was greater as compared to that obtained from a regression of the DTMFI profitability and each of the individual financial innovations.

5.3 Conclusions

The study concludes that DTMFI in Kenya are using highly financial innovations to survive in the current environment characterized by tough competition and competitive financial products. The study uses various innovative products to remain competitive in the market. The study note that DTMFI in Kenya have adopted the new technologies and
modern ways of operating which is safer and superior compared to the old ones. This include use of mobile banking, online banking, RTGS and ATM services.

The study also indicated that DTMFI have been motivated by the different interests to pursue different financial innovations. Mobile banking is being adopted by the DTMFI so as increase income, profits, and to reduce credit and liquidity risks. The study concludes that DTMFI use mobile banking to improve accuracy and efficiency and to increase speed and reliability of the DTMFI system. This is because the process is automated and is less prone to human errors.

The study established that the use of online banking increased accuracy and efficiency, reliability and speed which give them competitive advantage over the rest of the MFIs. It is recommended that financial institutions adopt online banking to increase their competitiveness and service quality.

5.4 Recommendations for policy and practice

Based on the findings of the study, financial innovation greatly contributes to the growth of financial institutions and should be employed by firms whose objective is to grow in depth and width. The research recommends a well strategized innovation process preceded by a market research to ascertain the market needs and competition trend.
5.5 Limitations of the study

The study focused on the concept of financial innovation as a key contributor to MFIs growth although there are other factors that contribute to MFIs growth whose effect could not be disaggregated from that of financial innovation.

The finance industry is very competitive thus many respondents had fear of disclosing some pertinent information. It therefore took a lot of time to gather adequate data for this research through the junior staff members who were more cooperative than the management as initially anticipated.

5.6 Suggestions for further research

The following areas are considered appropriate for further research, what are the perceptions of the customers of financial innovation of Deposit taking Micro Finance Institutions in Kenya. Secondly, the findings of the research were confined to the recorded financial indicators, further research can be done targeting the finance institutions listed in the NSE to try and correlate the effects of financial innovation to the stock prices.
REFERENCES


www.centrabank.go.ke/downloads


Rogers, E., (2003).*Diffusion of Innovations*, New York, Free Press,


APPENDIX I: LIST OF LICENCED DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN KENYA

1. Faulu Kenya DTM Limited
   Date Licenced: 21st May 2009
   Branches: 27

2. Kenya Women Finance Trust DTM Limited
   Date Licenced: 31st March 2010
   Branches: 24

3. SMEP Deposit Taking Microfinance Limited
   Date Licensed: 14th December 2010
   Branches: 6

4. Remu DTM Limited
   Date Licensed: 31st December 2010
   Branches: 3

5. Rafiki Deposit Taking Microfinance
   Date Licensed: 14th June 2011
   Branches: 3

6. UWEZO Deposit Taking Microfinance Limited
   Date Licensed: 08 November 2010
   Branches: 2

7. Century Deposit Taking Microfinance Limited
   Date Licensed: 17th September 2012
   Branches: 1

8. SUMAC DTM Limited
   Date Licensed: 29th October 2012
   Branches: 1

9. U&I Deposit Taking Microfinance Limited
   Date Licensed: 8th April 2013
   Branches: 2
APPENDIX 11: RESEARCH QUESTIONNAIRE

Section A: Biographic Data

Please fill in the spaces provided with information that is as accurate as is practicable, please tick where appropriate.

1. Name of the MFI

........................................................................................................................................

2. How long has the firm been in operation in Kenya?

Less than two years { } 2-5 years { } 6-10 years { }

11-15 years { } Over 15 years { }

3. How many employees does the institution have in your branch?

Less than five { } 5-10 { } 11-15 { } 16-20 { }

21-25 { } 26-30 { } over 30 { }

4. How are the records maintained?

Manually { }

Use of Computers { }

Others (specify)..............................................................................................................

5. What are the expenditures? Please tick.

Salaries { } Allowances { } Rent for business premise { }

Stationeries { } Transport { }

Others (specify)..............................................................................................................
Section B: Effect of financial innovation on profitability of Deposit-Taking Microfinance Institutions in Kenya

Effect of Mobile banking on profitability

6. Is your organization using any Mobile banking applications such as MPESA and mobile banking services?
   
   Yes { }   No { }  
   
   Indicate the year of inception ..................

7. To what extent, in your own opinion do you concur with the following statements regarding the effect of Mobile banking on profitability of Deposit-Taking Microfinance Institutions in Kenya with 1 being strongly disagree, 2 being disagree, 3 being neither agree nor disagree, 4 being agree and 5 being strongly agree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-banking help MFIs reach new customer segments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-banking reduce costs for MFIs and for customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-banking help MFIs serve existing customers better</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If MFIs share the costs associated with m-banking, it will be much more affordable on a per institution basis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MFIs can act as agents on behalf of m-banking service. This can help both the MFI and its customers to become familiar with the system and bring in additional revenue.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M-banking can reduce operational costs for MFIs and that these costs can be passed on to customers in the form of lower interest rates.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. In your opinion how does Mobile banking effect on profitability of Deposit-Taking Microfinance Institutions in Kenya

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

Effect of Online banking on profitability

9. Is your organization providing internet online banking to its clients?
   Yes { }           No { }

   Indicate the year of inception .................

10. To what extent, in your own opinion do you concur with the following statements regarding the effect of Online banking on profitability of Deposit-Taking Microfinance Institutions in Kenya with 1 being strongly disagree, 2 being disagree, 3 being neither agree nor disagree, 4 being agree and 5 being strongly agree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFIs that provide extensive online banking services tend to perform better than those who lag behind.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online banking helps MFIs improve their earnings ability as measured by return on equity and improve asset quality.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There exist a positive relationship between online banking and bank performance since online banking has brought services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
closer to bank customer’s hence improving performance.

Online banking has increased the profitability of banks

Online banking has enabled banks meet their costs and earn profits even in the short span of time.

11. In your opinion how does online banking effect on profitability of Deposit-Taking Microfinance Institutions in Kenya

…………………………………………………………………………………………
…………………………………………………………………………………………
…………………………………………………………………………………………

**Effect of Real time Gross Settlements (RTGS) on profitability**

12. Is your organization providing Real time Gross Settlements (RTGS) services to its clients?

  Yes { }  No { }

  Indicate the year of inception ……………

13. To what extent, in your own opinion do you concur with the following statements regarding the effect of Real time Gross Settlements (RTGS) on profitability of Deposit-Taking Microfinance Institutions in Kenya with 1 being strongly disagree, 2 being disagree, 3 being neither agree nor disagree, 4 being agree and 5 being strongly agree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTGS present more benefits in funds transfers and payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RTGS significantly reduce risks inherent in the Automated</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Clearing House (ACH) payment system.

RTGS throughput is a significant predictor of financial performance of MFIs.

With RTGS acting as substitute payment and transfer system options, it would be expected to increase profits.

An increase in the turnover of RTGS annually would result into a decline in the annual turnover recorded by the automated clearing house.

14. In your opinion how does Real time Gross Settlements (RTGS) effect on profitability of Deposit-Taking Microfinance Institutions in Kenya

.................................................................................................................................................................................................
.................................................................................................................................................................................................
.................................................................................................................................................................................................

**Effect of Automated Teller Machine (ATM) on profitability**

15 Does your institution provide ATM services?

Yes { }  No { }

Indicate the year of inception ..................

16. To what extent, in your own opinion do you concur with the following statements regarding the effect of Automated Teller Machine (ATM) on profitability of Deposit-Taking Microfinance Institutions in Kenya with 1 being strongly disagree, 2 being disagree, 3 being neither agree nor disagree, 4 being agree and 5 being strongly agree.
Financial institutions charge fees to use their ATM, making the transactions very profitable for the host banks.

The use of ATM has cut service staff in traditional banks, impacting employment in the industry.

The ATM initiative has a positive effect on profitability and efficiency.

ATMs have eliminated the need to enter a bank for basic transactions and allow access to accounts on machines located at strategic places and this increases more transactions.

MFIs that provide ATMs services tend to perform better than those who lag behind.

17. In your opinion how does ATM services effect on profitability of Deposit-Taking Microfinance Institutions in Kenya

........................................................................................................................................
........................................................................................................................................
........................................................................................................................................

Thank you for your participation