EFFECT OF FINANCIAL INNOVATION ON THE FINANCIAL PERFORMANCE OF DEPOSIT TAKING MICROFINANCE INSTITUTIONS IN KENYA

BY

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

OCTOBER, 2013

DECLARATION

This project is my original work and has not been submitted for examination in any other University.

Signature…… **Date……..**

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SUPERVISOR

This project has been submitted for examination with my approval as the university supervisor

Signature…… **Date……**

MR. MIRIE MWANGI

ACKNOWLEDGMENTS

It has been an exciting and instructive study period in the University of Nairobi and I feel privileged to have had the opportunity to carry out this study as a demonstration of knowledge gained during the period studying for my master's degree. With these acknowledgments, it would be impossible not to remember those who in one way or another, directly or indirectly, have played a role in the realization of this research project. Let me, therefore, thank them all equally.

First, I am indebted to the Almighty God for all the blessings he showered on me and for being with me throughout the study. I am deeply obliged to my supervisor, Mr. Mirie Mwangi, for his exemplary guidance and support without whose help; this project would not have been a success.

Finally, yet importantly, I take this opportunity to express my deep gratitude to the lasting memory of my loving family, and friends who are a constant source of motivation and for their never ending support and encouragement during this project.

DEDICATION

This project is dedicated to the following: First, to my dear wife Evelynne and daughters, Milan and Lynn. Secondly, to my mum and dad. Last but not least, to my brother and sister for their love, support, patience, and encouragement they gave me to complete my postgraduate studies.

ABSTRACT

Innovation by firms is an important determinant of financial performance and growth. Locally, some researchers have concentrated on financial innovation and financial performance of banks as a topic but overlooked the effect of financial innovation on the financial performance of DTMs. The study thus sought to establish the effect of financial innovation on the financial performance of DTMs in Kenya.

The study targeted all DTMs in Kenya. Data was analyzed by applying both descriptive and inferential statistics. Descriptive statistics was used to summarize qualitative data and the results presented in tables. The SPSS Version 17 was used to analyze primary data collected by using questionnaire administered to the respondents. Through regression analysis, the researcher was able to formulate an analytical model that shows the effect of financial innovation on financial performance of DTMs.

Results from descriptive statistics shows that the full potential of financial innovation in loan appraisal is yet to be fully realized; innovation is yet to be fully integrated into product development among the DTMs; financial innovation is of positive influence to staff performance and that the cost of loan recovery has been substantially reduced with financial innovation as indicated by the high means. The study concludes that financial innovations have positive effect of financial performance of DTMs in Kenya. The researcher recommends financial literacy and capability initiatives as measures for stimulating rapid financial innovations among DTMs in Kenya and should be part of their comprehensive strategy for responsible and innovative financing to borrowers in Kenya.

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LIST OF ABBREVIATIONS

AMFI	Association of Microfinance Institutions of Kenya
CAMEL	Capital Adequacy, Asset Quality, Management, Earnings, Liquidity
CBK	Central Bank of Kenya
CGAP	Consultative Group to Assist the Poor
CEO	Chief Executive Officer
DTM	Deposit Taking Microfinance
ECP	Employee customer profit
EDI	Electronic Data Interchange
FSD	Financial Service Deepening
IT	Information technology
KPOSB	Kenya Post office and Saving Bank
KWFT	Kenya Women Trust Fund
MFIs	Micro-Finance Institutions
OECD	Organization for Economic Cooperation and Development
R&D	Research and Development
ROA	Return on Asset
ROE	Return on Equity
SACCOs	Saving and Credit Cooperatives
SPARQS	Stock Participation Accreting Redemption Quarterly-pay Securities
SMEP	Small and Micro Enterprise programme
SSPS	Statistical Package for Social Sciences
TQM	Total Quality Management

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The term innovation refers to both radical and incremental changes in thinking, things, and processes or in services (McIntosh, 2004). In many fields, something new must be substantially different to be innovative, not an insignificant change, e.g. in the arts, economics, business and government policy. In economics, the change must increase value, customer value, or producer value. The goal of innovation is positive change, to make someone or something better. Innovation leading to increased productivity is the fundamental source of increasing wealth in an economy. Financing innovation has been a longstanding concern, especially in any country worldwide where there is a widespread perception that there is more difficulty in raising finance for innovation than in the USA. Lack of finance is cited as a major obstacle to innovation by firms responding to the Community (International monetary fund, 2009)

According to Mishkin (2008), financial innovation survey is currently appearing as a major issue affecting performance of any organization. At the time of the “dot com bubble”, venture capital became prominent as a major source of R&D funding, with numerous small firms reportedly raising funds for pursuing their (sometimes) new ideas from this source. The “dot com crash” has led to less emphasis on this role of venture capital at least it is not being hailed as a dominant source of R&D funding but it may well be seen as more significant again in the future. The current economic crisis has posed questions about the future role of all types of financing instruments, with many

firms even large and established ones experiencing difficulty in raising loans. Microfinance has been proven to be resilient during the previous financial crises. Thus, it is not surprising that in the present economic crisis, there are high hopes that microfinance will prove to be robust and even become more vital. Not only is it hoped that microfinance will remain a viable tool for development, but also that it will become a substantial alternative for financing innovation in both developing and developed economies. Of course it is all yet to be seen whether microfinance schemes can meet this expectation (Barra, 1990).

Microfinance has been long proposed as an instrument (or set of instruments) relevant to stimulating entrepreneurship in developing countries and deprived regions. Even before the current economic crisis, it had been becoming of interest to investment companies, too (White, 1997). This is probably largely because the returns from microfinance have been held up as rather impressive ones. This could be a new avenue for financiers to explore – and it certainly appears more stable than the "toxic debts" that have upset the financial systems of many countries. According to Srinivasan (2009), at present, there may be high caution about microfinance as about other forms of investment, since we would expect many small firms to confront tough times with market downturns and rising unemployment, but again this may be alleviated by an economic revival. As microfinance (along with other financial services provided by nonfinanciers) has attracted more attention in the development context, so it has become of growing interest as a possible solution (or part of the solution) to the problems of small firms in more industrialized countries. Most attention has been focused on developmental issues such as support for

peripheral and deprived regions and socially excluded groups in these countries. Relatively little analysis has dealt with microfinance as an alternative route to financing innovation that can help overcome shortcomings in established arrangements for so doing (Schinasi, 2005).

An impartial review of financial innovations over time would find that many innovations have been beneficial, resulting in increased choice for consumers and greater flexibility on the part of other economic agents. And while no complete accounting has been done, a valid case can probably be made that the effect of innovations for the global economy has, on net, been positive over the longer term. That said, an impartial observer would also note that there have been unexpected and undesirable side-effects associated with some new products and services. The fact that episodes of financial instability have often occurred in the wake of a change in the structural regime that reflected some form of market innovation has not gone unnoticed by advocates of stricter oversight of innovative activities in financial services (Schinasi, 2005).

1.1.1 Financial Innovation

Financial innovation is an ongoing process where new financial products, services and procedures are created or/and standardized products are differentiated in order to response at the continuously changing economic environment. This running process has various periods of uncertainty (Philippas, 2011).

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 (DeYoung, 2001 b).

Van Horne (1984) believes that a financial innovation is possible to survive when it completes the markets: i) by reducing the intermediate costs of services and, ii) by realising an unfulfilled investors' wish for a certain type of security, that is exposed to lower unpredictable costs, making the market more effective. He highlights the changes in the economic environment that dictate the creation of financial innovations like inflection and interest instability, policy changes, and technological changes, the level of economic activity and academic research. To conclude, he believes that financial innovations will continue to thrive as long as markets become more competitive.

Financial innovations can be grouped as new products (e.g. adjustable rate mortgages; exchange-traded index funds); new services (e.g. on-line securities trading; Internet depositing); new "production" processes (e.g. electronic record-keeping for securities; credit scoring); or new organizational forms (e.g. a new type of electronic exchange for trading securities; Internet-only MFIs). Of course, if a new intermediate product or service is created that is used by financial services firms, then it may become part of a new financial production process (DeYoung, 2001a).

Merton (1992) underlines that the creation and the form of financial innovations depend on the general economic and institutional environment that shapes financial innovations

and on other factors like complexity, technological availability, political decisions, economic mechanisms, etc. Given the technological development and the need for complete markets, the ground is fertile for a greater system development to face the issue of market regulation.

1.1.2 Financial Performance

Today, microfinance institutions are seeking financial sustainability. Many MFIs were restructured in order to achieve financial sustainability and finance their growth. Sustainability is defined as the capacity of a program to stay financially viable even if subsidies and financial aids are cut off (Woolcock, 1999). It embraces "generating sufficient profit to cover expenses while eliminating all subsidies, even those less-obvious subsidies, such as loans made in hard currency with repayment in local currency" (Tucker and Miles, 2004).

Tucker and Miles (2004) studied three data series for the period between March 1999 and March 2001 and found that self-sufficient MFIs are profitable and perform better, on return on equity (ROE) and return on assets (ROA), than developing-world commercial MFIs and MFIs that have not attained self-sufficiency.

Tucker and Miles (2004) recalled the use of the Accion CAMEL rating system (a modification of the CAMELS system used by U.S. commercial lenders) by the microfinance industry to report financial measures, such as capital adequacy, asset quality, management, earnings, liquidity management and sensitivity to market risk. The

adoption of the Accion CAMEL rating model made the comparisons between MFIs possible based on standard accounting practices.

1.1.3 Financial Innovation and Financial Performance

Financial iinnovation by firms is an important determinant of financial performance and growth. There is evidence in theory that small firms find it relatively costly to finance innovation, and recent empirical work (Benfratello et al. (2006)) suggests that depositing development encourages innovation by small firms. This channel could partly explain the growing cross-country evidence on the disproportionate association between financial development and growth in microfinance firms. Theoretically, it is expected that financial innovation will have positive effect on the financial performance of microfinance institutions.

Profit-seeking enterprises and individuals are constantly seeking new and improved products, processes, and organizational structures that will reduce their costs of production, better satisfy customer demands, and yield greater profits. Sometimes this search occurs through formal research and development programs; sometimes it occurs through more informal "tinkering" or trial and error efforts. When successful, the result is an innovation.

Innovation is clearly an important phenomenon in any sector of a modern economy.

Although standard microeconomic theory (rightly) 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. The centrality of finance in an economy and its importance for economic growth naturally raises the importance of financial innovation. Since finance is an input for virtually all production activity and much consumption activity, improvements in the financial sector will have positive direct ramifications throughout the economy. Further, since better finance can encourage more saving and investment and can also encourage better (more productive) investment decisions, these indirect positive effects from financial innovation are yet greater still (Levine, 1997)

1.1.4 Microfinance Institutions in Kenya

Microfinance Institutions emerged as an alternative financing source and a powerful instrument for poverty reduction among relatively poor people through the provision of broad range of financial services such as loan, deposits, payment services, money transfer and insurance services (Robinson, 2003). Among the major objective of these institutions was to help poor people who are financial constrained and vulnerable, with financial services to enable them to engage in productive activities or start small businesses (CGAP, 2009). With a primary objective of social mission through outreach to the poor, Microfinance institutions were originally financed entirely by grants, low-interest loans and donor's subsidies (Zeller & Mayer, 2002), and offered financial services at low cost to ensure that the poor could access the services. This resulted into highly dependence on subsidies and grants from the donors, governments and other development agents (Armendariz & Morduch, 2005).

Findings of Ayayi and Sene (2010) indicate that, extreme poverty makes Kenya a candidate for microfinance small loans. The microfinance industry started in Kenya about

20 years ago, but it only gained the status of an industry in the past ten years, where it is generally categorized along two lines (Hospes et al., 2002). First and most common is the formal versus informal. Formal providers are registered by Kenyan law. Informal providers are subject to self-regulation or group-based rules. Second, microfinance in Kenya can be categorized as client- or member-based. In member-based organizations, members provide the resources as well as constituting the main target group for the loans. These are cooperatives. In client-based organizations, the customers are distinct from the owners. Customers are not involved with the management of the organization. Sometimes the borrower provides other collateral. Nevertheless, each member of the group guarantees the loans of other members. Group members often deposit savings with the MFI (or lender) as additional security. If a member defaults on a loan without sufficient collateral, the MFI will take the outstanding balances paid by group members including their deposited funds.

The Microfinance Act of 2006 that was enacted on 2nd May 2008 paved way for the transformation of Microfinance Institutions (MFIs) to deposit taking Microfinance Institutions (DTMs) in Kenya. Kenya has a relatively well developed financial sector which comprises 43 commercial MFIs, 1 mortgage finance company, 9 Deposit Taking Microfinance companies (DTMs), some 3,500 active Savings and Credit Cooperatives (SACCOs), one postal savings bank - Kenya Post Office Savings Bank (KPOSB) 125 foreign exchange bureaus, a host of unlicensed lenders, and an Association of Microfinance Institutions (AMFI) with 56 members (Canals, 2012). According to FSD Report (2012), there is a strong expansion in the contribution of the micro-finance segment, doubling over the period of the two studies, to reach 3.4%. The more recent

account data suggests that this expansion has been maintained. The three former non-deposit taking MFIs (KWFT, Faulu and Jamii Bora Bank) already make up 10% of the deposit accounts in the regulated system.

1.2 Research Problem

Innovation by firms is an important determinant of financial performance and growth. There is evidence in theory that small firms find it relatively costly to finance innovation, and recent empirical work (Benfratello et al., (2006)) suggests that depositing development encourages innovation by small firms. This channel could partly explain the growing cross-country evidence on the disproportionate association between financial development and growth in microfinance firms. Theoretically, it is expected that financial innovation will have positive effect on the financial performance of microfinance institutions.

Globally, although innovation has been a critical part of the financial landscape over the past few centuries, its determinants remain poorly understood. In a review article, Frame and White (2004) identify 39 related empirical studies but most focus on the "back end" of innovation processes, looking at issues such as the way they are diffused, the characteristics of firms that adopt them, consequences for firm performance and social welfare. In many countries, the pace of change in MFIs indurstry is dramatic. Frequently reported trends are blurring of industry boundaries, deregulation, and globalization, pressures from new and existing competitors, rapidly advancing information technology, and increased customer sophistication. These trends have increased the pace of financial innovation in microfinance industry to enhance its survival (Schmit, 2004).

In East Africa, Microfinance Institutions emerged as a result of financial sector reforms, which took place in 1990's aiming at developing sustainable, efficient and effective financial systems through strengthening monetary control, boosting deposit mobilization, stimulating competition in financial markets, enhancing the efficiency in financial services provision and financial resources allocation, structuring insolvent MFIs and promoting the diversification of financial services (Benfratello et al, 1992). The financial reforms in East African countries have significantly improved the financial service's conditions to the poor through MFIs which unlike traditional MFIs with formal lending systems, MFIs use informal lending mechanism using group lending and family lending with small size loans and shorter maturity. The financial services market in Kenya has been subject to radical transformation since Kenya started to register economic growth early 2003. MFIs and microfinance institutions in Kenya started to compete for Kenyan hugely untapped unbanked population. The distribution of retail financial services received growing attention in the academic and professional literature as it has been hailed as an increasingly important factor in determining whether a company competes effectively in its chosen markets (Chandler et al., 1962).

Locally, some researchers have concentrated on financial innovation and financial performance of MFIs as a topic but overlooked the effect of financial innovation on the financial performance of deposit taking microfinance institutions. Omwenga (2010) conducted a study on the relationship between financial innovation and financial performance of commercial MFIs in Kenya. He concluded that financial innovations improved operations, liquidity and the asset quality, consequently improving financial

performance in commercial MFIs in Kenya. Mwangi (2007) carried out a study on Factors Influencing Financial Innovation of Companies listed at Nairobi Stock Exchange and concluded that Kenyan laws protecting investors was the major factor influencing financial innovation. Mwangi (2007) argued that global financial competition and integration had an influence on financial innovation with increased financial competition amongst financial institutions influencing financial innovation the most. Mbogo (2009) conducted a study on the factors Influencing Product Innovation in Micro Finance Institutions in Kenya: A Case Study of MFIs Registered with the Association of Microfinance Institutions, Nyaga (2008) conducted a study on the nature of competition within micro finance industry in Kenya. However, none of these studies focused on the effect of financial innovation on the financial performance of deposit taking microfinance institutions in Kenya.

As much as the impact of organizational performance may appear to be external to the microfinance institution, the institution has a big role to play in ensuring that performance is within acceptable levels (Signis Alkins & Peter Zeltins, 2002). Although researchers have an interest in the underlying relationship between financial innovation and financial performance of deposit taking microfinance institutions, they usually find it difficult to collect soft data such as innovativeness and performance across DTMs. Thus, it is rare to find large-scale studies that investigate their relationship, not to mention a mediation effect of innovativeness and quality. This creates an academic gap that this study sought to fill by investigating the effect of financial innovation on the financial performance of microfinance institutions in Kenya.

1.3 Research Objective

The research objective was to establish the effect of financial innovation on the financial performance of deposit taking microfinance institutions in Kenya.

1.4 Value of the Study

The findings of the survey will be used by stakeholders in the microfinance industry to make appropriate decisions towards adoption of financial innovation. They will understand the benefits of adopting innovations in their financial institutions. The Microfinance Institutions (MFIs) will be able to know how to be effective in managing their loan repayment. This will act as a basis upon which improvement through financial innovation leading to an increasing profitability. The MFIs in Kenya will recognize the importance of selecting appropriate credit financial innovation, ensuring sustainability, increasing programme cost-effectiveness and improving loan repayment.

The research will bring in current statistics that the policy makers can utilise in analysing the micro financial sector and micro enterprises. The government will be able to quantify the contribution made by the MFIs in the alleviation of poverty and thus assist in development of more effective loan recovery system.

Future researchers and scholars may use the survey as a source of reference for further research on the same area. Financial sector innovations and inventions depend on the surveys carried out in such areas. It is important to document the research findings for future reference. Scholars will be keen to understand relationship between financial innovations and financial performance in financial intermediaries.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter presents discussion of the relevant literature to the study. This chapter is divided into smaller section which include; Theoretical and Empirical reviews.

2.2 Theoretical Review

The literature on innovation is extensive, covering a wide range of topics, with increasing attention paid to neglected forms of innovation (e.g. organizational innovation) and locations of innovation (e.g. service industries). Innovation studies have traditionally been dominated by industrial economists and geographers but there appears to be a trend towards cross-disciplinarily, since understanding the processes and outcomes of innovation requires analysis from many angles. Still, the study of innovation is weighted toward the market sectors of the economy, with less attention to innovation in public services (despite a blizzard of research into e-government and e-health) and less still to voluntary organizations and communities as sources and users of innovation (Nugroho and Miles,2009).

Tufano (2003) provides an excellent survey of the literature on financial innovation. The standard explanation for financial innovation is that it helps correct some kind of market inefficiency or imperfection. For example, if markets are incomplete then financial innovation can improve opportunities for risk sharing. If there are agency conflicts, then new types of security can improve the alignment of interests. Other important

motivations for financial innovation are to lower taxes or to avoid the impact of regulations. Since both issuers and buyers must benefit from an innovation for it to be successfully introduced, the traditional view of financial innovation has been that it is desirable.

Sinha (1998) states, "Micro credit refers to small loans, whereas micro finance is appropriate where NGOs and MFIs supplement the loans with other financial services (savings, insurance)", therefore micro credit is a component of micro finance in that it involves providing credit to the poor, but micro finance involves additional non-credit financial services such as savings, insurance, pensions and payment services (OECD, 2009). The provision of micro finance services focuses on three core dimensions of poverty alleviation. These are centered on the terms "Promotion" (promotion of individuals and households out of poverty) and "Protection" (protection of people from vulnerability because of fluctuations of income) Rhyne (1999).

2.2.1 Diffusion of Innovation Theory

According to Lieberman and Montgomery (1988), inventions are by definition, only introduced by one firm, or at most by a small handful of firms that bring a new product or service to market simultaneously. They add that companies that attempt to introduce an invention should logically stand to gain some substantial advantage, because there is a real risk of coming late to the finish line and gaining no prize. Companies that succeed in commercializing an invention are sometimes known as first movers. If an invention involves proprietary technology then the first firm to obtain the patent or copyright wins

the exclusive right to market the product. The lack of competition can be a definite strategic advantage (Geroski, 1993).

Chandler (1990), states that preemption of scarce assets can sometimes provide an advantage to one or a few first movers that will not be available to those that adopt the innovation later. According to Rogers, (1983), the creation of buyer switching costs can also provide an advantage to one or a few first movers that are denied to followers. Firms seeking to gain one or another of these advantages are sometimes referred to as first movers. Those that do not aim for invention, but innovate by adopting an invention that appears to be a winner, can be said to be late movers. Even if an innovation is clearly incremental rather than radical, the first mover is introducing or seeking change to a greater degree than the late mover, who waits until an invention no longer seems new to the market or the industry before adopting it (Tushman and Anderson, 1986).

Second movers are firms that do not aim for invention, but anticipate a key point at which advantages that are not available to inventors will be up for grabs. These advantages might consist of market knowledge or resolution of technological uncertainty. Innovators in this category are not so much reactive or defensive as they are opportunists who identify the point of opportunity as some time later than invention (Tushman and Anderson, 1986).

Rogers (1990), argues that first movers are those aiming for invention they clearly break new ground. Inventions, because no other firm has yet introduced them, seem different and new. Second movers are still aiming for relatively early introduction, and tend to be closer to the first mover than the late mover end of the continuum. Late movers, who

introduce an innovation because many competitors already have it and who will lose sales unless they introduce one too, are obviously toward the late end of the continuum. Furthermore, the degree of technological imitation or invention is sometimes very different from the impact of an innovation.

Technologically imitative innovations can sometimes have truly inventive effects; conversely, innovations that require highly inventive technology can sometimes bring about very little perceived change. The technology required to design and mass-produce each new generation of computer chips is complex and very expensive. To the average user, the new chip makes computers operate a little faster, but if the user limits his or her work to word processing and relatively simple spreadsheets, the difference may not even be noticed (Tushman and Anderson, 1986).

In determining whether a given innovation fits better with one kind of innovation strategy than another, both the technological and the customer perception aspects must be taken into account. Innovations that are technologically inventive generally require more time and effort to develop than those that are technologically imitative. Innovations that are perceived as imitative by the customer lend themselves to perceptions of stability, whereas those seen by the customer as inventive foster a perception of change (Navajas, 1993).

Both supply and demand side factors influence the decision to adopt. From the demand perspective, there is some consumer demand for this facility. On the supply side, protection of reputation, competition, cost savings, mass customization, enhancement of marketing and communication activities, and retention and attraction of consumers have

been cited as influential factors on the diffusion of Internet depositing (Daniel and Storey, 1997).

Contrary to these motivating factors, security concerns have been highlighted as the most important issue delaying the diffusion of Internet depositing (Zeller, 2009). Lack of user-friendly technology and consumer demand, high initial set-up costs, redundancy of existing high-cost legacy systems and lack of suitable skills have also acted as delay factors, if not deterrents, to many MFIs regarding the decision to adopt Internet depositing (Daniel, 1999).

2.2.2 Silber's Theory of Financial Burden.

Silber's (1975) basic hypothesis, emphasising the microeconomic framework of financial innovation. It could be summarised in the phrase that firms face some financial constraints and try to remove or lessen their burden. Silber uses the word firm for financial institutions. These constraints could be self-imposed, market -imposed or government imposed. He expressed an institution's behaviour as a simple linear programming model of optimization where firms maximise utility subject to a number of internal and external constraints (Silber, 1975). Self-imposed constraints usually are the firm's liquidity (competitive or oligopoly, perfect or imperfect capital markets) in which they participate.

Silber (1983) provides us with four different types of financial innovation. Initially he repeats his micro economic theory and approaches the welfare impact of financial innovation. Then, he presents a survey of financial innovations that took place from 1970

contracts, market structures and institutional organisation. During his classification, he uses his already mentioned constraints as the main exogenous reason(s) that had initiated these financial innovations.

He concludes that his model could explain around 60% of all innovations that took place during the period. He highlights the leading role of technology and legislation in the initiation process of innovations. He finally concludes that these two main constraints have led to increased economic benefits through reduction of costs, a better allocation of risk, and circumvention of outdated regulation. The result has been an increase in the economic welfare of the organisation (Silber, 1983).

2.2.3 Kane's Theory of Regulatory Dialectic

A different perspective is expressed by Kane (1981) who argues that the most prominent and significant factor which initiates the financial innovation process is regulation. Kane (1997) had already introduced the concept of regulatory dialectic. This concept describes the cyclical relationship between regulation and firms. He conceives the political process of regulation and the economics of regulatee avoidance as opposite forces where both try to maximise their utility subject to the constraints imposed by the other party. It is a typical Hegelian endless interaction of regulation, regulatory avoidance or alternatively called 'loophole mining' and re-regulation.

Kane (1997) uses his model to explain most of the evolution that took place in the US during the 1960s and 1970s. The main force is the regulative dialectic between the federal depositing regulation and the exogenous market forces such as technological

change, changing depositing environment and increasing uncertainty about future financial developments. He approaches innovation as an arbitrage instrument trying to take advantage of regulation lags. Innovation takes the form of product substitution in order to circumvent regulation sometimes by just rearranging contracts and by just simply moving along different financial systems.

He defines regulation's burden as a form of taxation imposed on MFIs. MFIs' main concern during the 1970s was to avoid it. In order to attract customers despite the regulative burden, they used a mixture of means initially covering non-monetary benefits to indirect monetary benefits and at the end' mainly monetary advantages. But on the other hand regulators developed their own defences and adopted new approaches resulting in the emergence, in the late 1970's and early 1980's, of a re-regulative action (Kane, 1997).

Kane (l988a) analysed his theory in more depth, where he explained in details his association and acceptance of the Hegelian concept of thesis (regulation), antithesis (loophole mining), synthesis (re-regulation), using examples from the US depositing environment of the period 1960-1985. A final point is that the final synthesis is going to be a new thesis and the process could go on infinitely, Kane's contribution is essential for the better understanding of the existence of dialectic between financial institutions and exogenous factors.

2.2 Review of Empirical Studies

The study of innovation in the financial service industry is a relatively new area of business research. An analysis of the extant literature on financial service innovation reveals several research topics. One set of studies has concentrated on the definition of success for new financial services. Some of these studies have incorporated the traditional paradigms of new product success within a services setting and have explored the differences between new product development and new service development (Cooper,1986), have proposed multiple success measures for evaluating new financial service performance: financial measures being profit based, sales-based, or relating to cost performance and non-financial measures such as competitive performance of the new financial service, and boosting sales and market share of other services.

Merton (1992) underlines that the creation and the form of financial innovations depend on the general economic and institutional environment that shapes financial innovations and on other factors like complexity, technological availability, political decisions, economic mechanisms, etc. Given the technological development and the need for complete markets, the ground is fertile for a greater system development to face the issue of market regulation.

Tufano (1989) gave two reasons why a company innovates. The first one is the creation of an effective monopoly in order for the new financial innovation to be sold in a higher price than its cost. The second one is to cover, with the introduction of the innovation, the bigger part of the marker. By examining a sample of fifty eight innovations between 1974 and 1986, Tufano realized that the latter reason happens more easily than the former. If

the institution that promotes the innovation is an investment bank, it has the advantage of its experience and reputation among possible investors. Thus, according to Tufano, there will be a reputation about its profit and a lower cost as a result of its experience. Financial innovation advantages reduce in time, but they obviously do survive long enough to motivate investment MFIs to develop new products.

A study conducted by Kamotho (2009) on Mobile Phone Depositing: usage experiences in Kenya. Across two main dominant mobile depositing service providers- Safaricom and Zain - during the three year period 2006-2008, from inception with total outlets of 8000 agents. This number tripled compared to 876 branches and 1424 ATM for commercial MFIs (CBK, 2008). He observed that competition triggers innovation and creativity. Continuous innovation not only yield new products but rather promotes efficiency in the performance of activities. Hence lowering the transaction cost. This finding is corroborates that of Tufano (1989). Contrary to popular wisdom that mobile phone money services are meant for funds transfer and remittances.

Persons & Warther (1997) developed a dynamic model for the financial innovation adoption. During each period of time, the company decides whether to adopt or not an innovation of questionable value. The profit from each period's adaptation reveals information about the innovation's value. Moreover, the authors showed that social welfare is boosted, innovations are adopted by more companies and that intermediaries have a reason to motivate such adoptions.

DeYoung (2002; 2005) examined the case of Internet only-MFIs and demonstrated that their success depends on the transaction rate, the technological development and its effect

on the economies of scale and on the powerful administrative organization and practice. Furthermore, Cheney & Rhine (2006) analyzed the important innovation of prepaid cards and underlined the consumers' advantages compared to the traditional bank transactions.

Lerner (2002) describes financial patenting of innovations that is to say of innovations that are patented with a certificate of innovation, between 1971 and 2000 (455 patents). He notes that the level of patents was mediocre but suddenly surged in 1998 after the *State Street Decision* that allowed business method patents. Lerner studied the activity of investment MFIs, awarded with patent certificates, and found that it is proportional to their size.

Later, Lerner (2005) expanded his initial research. He took into consideration the rareness of empirical studies and the fact that awarded financial patents were rarely used and he developed a measurement for financial innovations based on the *Wall Street Journal*. The analysis was similar to his previous study and focused on the institutions that relate to innovations by examining a number of hypothesis suggested in the literature. His results showed that innovation generation is inversely proportional to the company's size, highlighting that small companies don't obtain their patent rights.

In Africa, the evidence on efficiency of MFIs operating in the region indicates that most of them are still inefficient. The study by Lafourcade et al, (2005) on efficiency of African microfinance Institutions reported that, formal MFIs had higher efficiency as compared to semi formal and cooperative MFIs are less efficient as compared to other type of Microfinance institutions. Furthermore the study found out that, Africa was the most productive MFI region on the basis of cost per borrower and cost per saver than

other regions. On other hand, the study by Abayie et al, (2011) investigates economic efficiency of 135 Microfinance institutions in Ghana, the results shows an average of 56.29% overall economic efficiency which indicate a high degree inefficiency in the economic behaviour among the MFIs surveyed in Ghana. The study recommended improvement in technical training programs, operation of diversified saving products in order to improve portfolio quality and ensure sustainability and also improvement in social commitment on both staff and clients in order to improve social efficiency.

Using UK firm-level data from 1972-83, Geroski and Machin (1992) and Geroski et al. (1993) find that there are positive effects of firm-level innovation on profits, but these are relatively small and transitory. Indirect effects are larger and more long lasting: that is, it is the process of innovation that really matters for profitability (i.e. the transformation of internal capabilities), rather than individual innovations. The fact that innovators persistently earn higher profits than non-innovators are a result of three components: a small, transitory difference associated with the production of specific innovations; a substantial permanent difference (improved capabilities though the process of innovating); and a large cyclical component (non-innovators' profit margins are more sensitive to trade cycle than those of innovators).

Subsequent studies have built on this work, particularly on the idea that the process of innovation helps build the internal capabilities of firms. Another UK study, this time for the period 1988-92, also finds that innovators are persistently more profitable than non-innovators, and that the gap is greater between persistent innovators and non-innovators.

(Cefis and Ciccarelli, 2005). Cefis and Ciccarelli (2005) also find that innovation has a positive effect on profitability which decreases over time (i.e. there is a decay effect). Using data for Finnish manufacturing firms, Leiponen (2000) is able to assess the profitability of both process and product innovation, and finds that process innovation has a positive effect on profitability, while product innovation has a negative effect. Leiponen also finds that the profitability of innovators and non-innovators are determined by different factors, with competencies built on knowledge-based factors being much more important for innovators.

2.3 Summary of Literature Review

This chapter has reviewed and summarized the existing theoretical issues and empirical literature on financial innovation, financial performance and microfinance institutions both locally and globally. The chapter has provided some interesting insights on the effects of financial innovation on financial performance of a firm. A considerable empirical literature in the chapter has considered the link between R&D inputs, innovation and firm profitability. Research on the link between innovation and profitability at the firm or establishment level suggests that innovators are persistently more profitable than non-innovators (Geroski et al., 1993; Leiponen, 2000; Cefis and Ciccarelli, 2005). This may arise because innovators, due perhaps to their market position, are able to protect their new products from the competition which normally erodes such profits, or because innovating firms are able to introduce multiple innovations over time, and are therefore able to maintain high profits although the profit effect of any individual innovation may be transitory. The empirical evidence here is

mixed. Both Geroski et al. (1993) and Leiponen (2000), for instance, conclude that the profitability effects of individual innovations are relatively transitory, and that innovators are persistently more profitable than non-innovators because they have superior internal capabilities. By contrast, in an analysis of the US pharmaceutical industry, Roberts (1999) finds evidence of a 'conveyor belt' of new products, each of which provides only a temporary monopoly position, but which collectively result in persistently high profits among innovating firms. The consensus is overwhelmingly of a positive relationship between financial innovation and financial performance, but with some debate about the precise nature of the relationship.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the research design, target population, sampling techniques, preparation of data collection instruments and the procedures that were used.

3.2 Research Design

This study used a descriptive research design. Descriptive research portrays an accurate profile of persons, events or situation (Robinson, 2002). It also allows one to collect quantitative data, which can be analyzed quantitatively using descriptive and inferential statistics (Saunders et al, 2007). According to Chandran (2004), descriptive study describes the existing conditions and attitudes through observation and interpretation techniques. In addition, the study incorporated both qualitative and quantitative research.

3.3 Target Population

The target population was all deposit taking microfinance institutions in Kenya. According to AMFI (2012) there are 9 registered deposit taking microfinance institutions and fifty non deposit taking microfinance institutions. AMFI membership ranges from large to small MFI's, development institutions and insurance companies which represent the entire landscape of the microfinance industry in Kenya.

3.4 Sample Size and Sampling Techniques

A sample size has a specific level of certainty called the level of confidence. The precision of estimate of the population or tolerable level of accuracy for any estimate

made from the sample is called the confidence interval or margin of error. According to Kothari (1990), researchers normally work to a confidence level of 95% and a margin error of between 3% and 5%. The sample size is the part of the target population that was selected by the researcher for the purpose of data collection. The whole population was used thus no sampling was done.

3.5 Data Collection Instruments

The study used both secondary data and primary data. Secondary data was collected from annual financial reports of each DTM and annual reports by AMFI on Microfinance sector in Kenya for the period 2009-2011. The primary data was collected through the use of questionnaires. Questionnaires, both structured and unstructured were designed with snares to check for validity and reliability. The questionnaires were divided into different sections to cater for all the possible aspects.

3.6 Data Analysis Techniques

Quantitative techniques of data analysis were used. Emphasis was put on statistical analysis. Both descriptive and inferential statistics were used. Descriptive statistics was used to summarize qualitative data and the results presented in tables, charts and measures of variation; this included frequency distribution, percentages, mean, standard deviation and variance. The questionnaire responses were grouped into various categories for analysis using descriptive statistics. The Statistical Package for Social Sciences (SPSS) version 17 was used to analyze the structured questions. Analysis of Variance was also used. The Researcher chose Regression analysis as it is a statistical technique

for analyzing the relationship between variables. The following linear regression model was adopted:

$$Y = \alpha i + \beta_1 X_{1it} + \beta_2 X_{2it} + + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon i$$

Y is the Return on Equity (ROE) i.e proxy for financial performance. αi is the autonomous performance. β_1, β_2, β_3, and β4 represent regression coefficient of predictor variables. X_1 is the proxy for innovation in staff performance and is measured by calculating the staff productivity i.e. average number of active borrowers divided by the average number of total staff in a DTM. X_2 is the proxy for innovation in product development. This variable will be measured by average number of financial product developed by the DTMs during the period of analysis. X_3 is the proxy of innovation in loan appraisal process. This variable will be measured by the average period of time taken by DTMs to process loan applications. X_4 is the proxy of innovation in cost of loan recovery. This variable will be measured by calculating average cost per loan portfolio in each DTM. εi is the error term.

3.7 Data Validity and Reliability

According to Robinson (2002), validity is the degree to which results obtained from the analysis of the data actually represents the phenomenon under study. In this study, validity was ascertained by including objective questions in the questionnaire. Reliability on the other hand refers to a degree to which research instruments yield consistent results (Mugenda and Mugenda, 2003). Reliability was ascertained by pre-testing the questionnaire with a selected sample of questions.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter covers data presentation and analysis. The study objective was to establish the effect of financial innovation on the financial performance of deposit taking microfinance institutions in Kenya. The reliability and viability of the data collected for the study was ascertained through ascertaining the reliability of the questionnaires used in data collection by both a pilot study and Cronbach alpha internal consistency measure used to test the internal reliability of the measurement instrument.

4.2 Descriptive Statistics

The study targeted all the deposit taking microfinance institutions in Kenya. Owing to the relatively small number of the registered institutions, the study adopted a census survey, where the entire target population made the sample and were all included for response. To this end, 9 institutions were expected to participate in the study. A 100.0% response rate was therefore attained, with all the 9 institutions managing to respond.

According to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. It therefore goes that the study registered an excellent response rate. This is reflected in the table below.

Table 1 : Response Rate

Questionnaires	Frequency	Percent (%)
Returned	9	100.0
Unreturned	0	0.0
Distributed	**9**	**100.0**

4.2.1 Reliability Test

Reliability of an instrument being the consistency of an instrument in measuring what it is intended to measure, it was established by first using internal consistency approach followed by carrying out pilot study. The pilot study was conducted among deposit taking MFIs respondents purposively chosen and reliability was tested using a Cronbach's alpha.

Table 1: Reliability Test

Variables	Cronbach alpha coefficient
Innovations	0.6928
Financial performance	0.7192

Source: Primary data

All Cronbach alpha coefficients were above 0.60 indicating that the scales used to measure study variables were consistent and therefore reliable.

As proxy to innovation, the study sought to assess the effect of innovation on staff performance, product development, loan appraisal efficiency and cost of the loan recovery. The predictor variables were expected to have an effect on the financial performance of deposit taking microfinance institutions in Kenya. The researcher also

sought to determine the innovation levels among the respondent institutions. To this end, a set of questions were developed meant to capture the different kinds and levels of innovations among the institutions. The results obtained from the questionnaire are summarised in appendix III

Table 3: Descriptive Statistics for Predictor Variables.

DTM	No. of Staffs	Average No of active borrowers	Staff productivity	No. of new products	Average Loan processing duration	Average loan portfolio (in $ million)	Average loan recovery cost ($)
KWFT	1672	394,379	236	7	5	140.332	37,468,815
Rafiki	790	70	11	5	7	1.226	327,513
Faulu	730	93,647	128	6	5	37.235	9,965,848
SMEP	233	46,095	198	6	5	15.335	4,094,523
REMU	20	310	16	4	7	.498	133,217
Uwezo	7	148	21	6	7	.397	106,091
Century	-	-	-	4	5	-	-
Sumac	11	235	21	5	2	1.132	302,424
U&I	-	-	-	3	3	-	-

Source: AMFI Report, 2012

Table 3 above show the study findings on descriptive statistics for predictor variables i.e. staff performance, product development, loan appraisal efficiency and loan recovery cost. The statistics shows that KWFT, SMEP and Faulu DTMs are leading in staff productivity. Questionnaire findings on respondents' view on staff performance in

relation to financial innovation shows a positive influence on of financial innovation on staff productivity.

The study also sought to further assess product innovation in respect to product development among the DTM participating in the study. The study findings indicate that KWFT, SMEP, Faulu and Uwezo are leading in development of new products. The questionnaire finding on respondents' views on product development in their respective institutions shows that most participant were to a large extent of the view that financial innovation has enabled more differentiated products thus attracting large clients. This is shown by means and standard deviation in appendix III (X=4.08, S.D=.476)

With respect to loan appraisal efficiency, the descriptive statistics shows that Sumac DTM was able to finalise an all loan applications received within 48 hours. KWFT, Faulu,SMEP and Century DTMs took a period of 5 five working days to process loan applications. Through the research questionnaire, respondents were asked to rate on a 6-point likert scale the extent to which automated system was used to appraise clients. It was found that most participants were to a moderate extent of a view that clients are appraised through an automated system shown by means and standard deviation in appendix III (X=3.54, S.D=.586).

The study also sought to establish the influence of financial innovation on the cost of loan recovery among the institutions. Table 3 above shows that KWFT has the highest cost of loan recovery followed by Faulu DTM. This can attributed to the big loan portfolio in

these institutions. Results from the research questionnaire indicate that respondents were to a large extent of the view that automation of credit process has reduced the cost of default analysis and submission. This is shown by means and standard deviation in appendix III (X=4.76, S.D=.517)

Table 4: Descriptive Statistics for Financial Performance.

	Return on Equity(ROE)			
DTM	2009	2010	2011	Mean
KWFT	23.3%	12.6%	15.7%	17.2%
RAFIKI	-	-	-11.4%	-11.4%
FAULU	-0.8%	-22%	2%	-9.3%
SMEP	23.1%	1.8%	7%	10.6%
REMU	-	-	-13.6%	-13.6%
UWEZO	-	-	-15.7%	-15.7%
CENTURY	-	-	-	-
SUMAC	3.6%	5.9%	10.3%	6.6%
U&I	-	-	-	-

Source: AMFI Report 2012.

From the above table, stable trends of positive financial performance are registered by KWFT, SMEP and Sumac DTMs. These three institutions remain profitable over the period of analysis and the profitability indicators seem to improve in 2011. For Faulu, the breakeven was reached in 2011. However, the portfolio yields for REMU, Uwezo and Rafiki have not yet covered the operating expenses to allow for breakeven which is typical of an institution in its early stages of development. Century and U&I DTMs had not yet registered their financial performance as at the date of AMFI report. The financial

performance trend being exhibit by the DTMs from the above table, show improved growth. This is partly attributed to the financial innovations being undertaken by the MFIs sector.

4.2.2 Relationship between Innovativeness and Financial Performance

After data collection, data was edited and entered using a Statistical Package for Social Sciences. Descriptive statistics were employed in the presentation and analysis of results. Spearman correlation and regression analysis were used to determine the degree of relationship between Innovations and financial performance.

Table 5: Correlation Matrix for Innovations and Financial Performance

			Innovations	Financial performance
Spearman's rho	Innovations	Correlation Coefficient	1.000	
		Sig. (2-tailed)	.	
		N	120	
	Financial performance	Correlation Coefficient	.526**	1.000
		Sig. (2-tailed)	.000	.
		N	120	120

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data

There was a significant positive effect of Innovations on financial performance (r=0.526, p-value<0.01). This implied that Innovations enhanced the financial performance at Deposit taking MFIs.

Table 6: Regression Model of Innovations and Financial Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.700	.370		4.589	.000
	Innovations	1.550	.302	.427	5.124	.000
R-Square= 0.182 , Adj R-Square= 0.175 , F= 26.257, Sig=0.000						

Source: Primary data

Innovations linearly and positively affected financial performance (F=26.257, Sig=0.000). Innovations predicted 17.5% of financial performance at Deposit taking MFIs. The results are in line with literature that has continued to change the way MFIs and their corporate relationships are organized worldwide and the variety of innovative devices available to enhance the speed and quality of financial performance (Miles, 2004, 2001).

4.3 Regression Analysis

A multiple regression analysis was conducted to determine the effect of financial innovation on the financial performance of deposit taking microfinance institutions in Kenya. The regression model was as shown below: ROE = $\alpha + \beta_1$ (staff performance) + β_2 (product development) + β_3 (loan appraisal) + β_4 (cost of loan recovery) +ε

Regression analysis also produced correlation coefficient of determination and analysis of variance (ANOVA). Correlation sought to show the nature of relationship between dependent and independent variables and coefficient of determination showed the strength of the relationship. Analysis of variance was done to show whether there is a

significant mean difference between dependent and independent variables. The ANOVA was conducted at 95% confidence level.

Table 7: Model Goodness of Fit

R	R^2	Adjusted R^2	Std. Error of the Estimate
0.771	0.631	0.532	0.06227

a. Predictors: (Constant), staff performance, product development, loan appraisal and cost of loan recovery. b. Dependent Variable: ROE

Regression analysis was used to establish the relationship between ROE and the factors that affects variables. The results showed a correlation value (R) of 0.771 which depicts that there is a good linear dependence of ROE on staff performance, product development, loan appraisal and cost of loan recovery. With an adjusted R-squared of 0.532, the model shows that staff performance, product development, loan appraisal and cost of loan recovery explain 53.2 percent of the variations in ROE while 46.8 percent is explained by other factors not in the model.

Table 8: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.181	3	1.394	3.135	.038a
Residual	15.562	35	.445		
Total	19.744	38			

ANOVA statistics was conducted to determine the differences in the means of the dependent and independent variables thus show whether a relationship exists between the

two. The P-value of 0.038 implies that ROE has a significant joint relationship with staff performance, product development, loan appraisal and cost of loan recovery which is significant at 5 percent level of significance. This also depicted the significance of the regression analysis done at 95% confidence level.

Table 9: Regression Coefficient Results

	Unstandardized Coefficients		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	7.724	5.006		1.543	.132
Staff performance	1.719	.720	.362	2.387	.023
Product development	1.434	.697	.338	-2.058	.047
Loan appraisal	.456	.827	.091	.551	.045
Cost of loan recovery	-0.724	5.006	-0.762	-1.442	.113

Source: *Computed by the researcher (2013)*

From the data in the above table, there is a positive relationship between ROE and the Predictor variables which are staff performance, product development, loan appraisal and loan recovery. The established regression equation was: ROE = 7.724 + 1.719 staff performance + 1.434 product development + 0.456 loan appraisal - 0.724 cost of loan recovery. The regression results show that, when the staff performance, product development, loan appraisal and loan recovery have zero values, the financial performance would be 7.724. It is also established that a unit increase in staff performance would result in a 1.719 increase in ROE, a unit increase in loan appraisal efficiency would result in a 0.456 increase in ROE, a unit increase in product

development would result in a 1.434 increase in ROE and further unit increase in cost of loan recovery would result in a 0.724 decrease in ROE. The staff performance statistic had a t-value of 2.387 at 0.023 showing that the statistic is significant at 95% confidence level and so on respectively. A t-value of -2.058 was established at 0.047 error margin. This shows that the statistics was significant at 95% significance level. A unit increase quality would lead to a 0.456 increase in ROE. A t-value of 0.551 was established at 95% confidence level (p=0.045).

Table 10: Chi-Square Test: Two-sample assuming equal Variances Microfinance Institutions with no Financial Innovation against those with Financial Innovation

	(Institutions with financial innovation**)**	**(**Institutions with no financial innovation**)**
Mean	0.062177643	0.023739
Variance	0.00233563	1.38085E-05
Observations	9	7
Df	18	
t Stat	2.958540189	
P(T<=t) one-tail	0.00554419	
t Critical one-tail	1.770933383	
P(T<=t) two-tail	0.01108838	
t Critical two-tail	2.160368652	
Mean	0.062177643	0.023739

Source: *Computed by the researcher (2013)*

From the Chi-square results, Companies with traditional management paradigm recorded a mean of 0.023739 against those with quality management paradigms with a mean of

0.062177643. However, the variances are 1.3808 and 0.0023 respectively. Furthermore, at two- tailed, the t- calculated of 2.9585 is seen to be greater than the t-tabulated of 2.1603. Institutions with financial innovation can therefore be said to be better performing as compared to those without or with minimal financial innovation.

From the above analyses the study measured the degree of association between financial innovation and financial performance among the deposit taking microfinance institutions in Kenya. The researcher used staff performance, product development, loan appraisal and loan recovery as variables for financial innovation and Return on Equity (ROE) for financial performance. Regression coefficient results indicate a positive relationship between ROE and the Predictor variables which are staff performance, product development, loan appraisal and loan recovery. The study concludes that financial innovation has positive effect on performance of deposit taking microfinance institution in Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study and makes conclusion based on the results. The implications from the findings and areas for further research are also presented. This section presents the findings from the study in comparison to what other scholars have done as noted under literature review.

5.2 Summary

The study provided two types of data analysis; namely descriptive analysis and inferential analysis. The descriptive analysis helps the study to describe the relevant aspects of the phenomena under consideration and provide detailed information about each relevant variable. For the inferential analysis, the study used the Pearson correlation, the panel data regression analysis and the Chi-square statistics. The study first evaluated the performance of the financial performance variables under consideration i.e. staff performance, product development, loan appraisal and loan recovery. Their mean and standard deviation values were determined.

Descriptive statistics involved the generation of means and standard deviation for the all the four distinguished variables, that is, staff performance, product development, loan appraisal and loan recovery. From the findings, ‘reduced cost of loan recovery’ had the highest mean score at 5.030 and a standard deviation of 0.504, implying strong levels of

agreement with the view that financial innovation leads to reduced costs of loan recovery incurred.

Second up at a mean of 3.8775 and a standard deviation of .695 was staff performance implying an overall moderate agreement pointing to an increase in the performance of the employees with innovating processes introduced. Loan appraisal efficiency attained a mean score of 2.880 and a standard deviation of 0.554, implying a low extent of financial innovation meaning that the full potential of innovation in loan appraisal is yet to be fully realized among most deposit taking microfinance institutions in Kenya. Product development on the other hand had a mean score of 2.877 and a standard deviation of .506 pointing to low levels of financial innovation in product development.

The study further measured the degree of association between financial innovation and financial performance among the deposit taking microfinance institutions in Kenya. The researcher used staff performance, product development, loan appraisal and loan recovery as variables for financial innovation and Return on Equity (ROE) for financial performance. Regression coefficient results indicate a positive relationship between ROE and the Predictor variables which are staff performance, product development, loan appraisal and loan recovery. The established regression equation was:

$$ROE = 7.724 + 1.719 X_1 + 1.434 X_2 + 0.456 X_3 - 0.724 X_4$$

5.3 Conclusion

The study has investigated the effect of financial innovation on financial performance of deposit taking microfinance institutions in Kenya. Data have been analyzed by applying both descriptive and inferential statistics. Results from descriptive statistics lead to conclusive assertions as informed by the means and standard deviations generated, including the full potential of financial innovation in loan appraisal is yet to be fully realized among most microfinance institutions in Kenya; innovation is yet to be fully integrated into product development among the microfinance institutions in Kenya; financial innovation is of positive influence to staff performance and greatly so and that the cost of loan recovery has been substantially reduced with financial innovation as indicated by the high means.

From inferential statistics, a positive relationship is established between ROE and the Predictor variables which are staff performance, product development, loan appraisal and loan recovery. Chi-square test results show that companies with financial innovation can be said to be better performing as compared to those without or with minimal financial innovation.

5.4 Recommendations

The study recommends that there is need for examining actual innovations and focusing upon those frequently cited for their contributory role in the crisis is inconclusive. While certain factors appear to recur, there is no obvious combination of defining characteristics for an innovation that predicts negative outcomes. Financial literacy and capability initiatives can help to mitigate potential negative outcomes of rapid financial innovation

and should be part of a more comprehensive strategy for responsible finance among the microfinance institutions, which includes consumer protection and working with providers to raise the bar on product and service quality. Financial capability efforts may also be able to contribute to the adoption of new products and services as well as sustained positive behaviors, such as loan repayment, committing to savings, etc. But to be successful at these tasks, financial literacy and capability programs need to be incorporated in microfinance sector's innovation strategies.

5.5 Limitations of the Study

The target population in this study consisted of deposit taking microfinance institutions in Kenya that were dully registered with Central Bank of Kenya, this left out the larger population of non deposit taking microfinance institutions and other financial institutions such as SACCOs, Insurance companies who have also established financial innovations in their operations.

Another limitation of the study was that, the sample of this study, consisted mostly of managers in DTMs (IT managers, finance managers and Credit managers), the study therefore, restricted itself only to a certain group with similar demographic characteristics. The sample size used in the study could therefore be considered to be not representative enough.

The study was also restricted to a short period of time i.e. 2009-2011.This is the period in which DTMs have been in operation after obtaining license from Central bank of Kenya. This period may therefore not give a true and fair picture of the effect of

financial innovation on financial performance of DTMs in Kenya.

5.6 Suggestions for Further Research

The researcher suggests that for effective conclusive study on the relationship between financial innovations and improvement in financial performance, a replicate study be carried out in the entire microfinance sector. Probably an in-depth approach would uncover more.

The researcher also suggests that there is a need to carry out further study on the rate of innovation diffusion in microfinance industry. Such a study will help microfinance institution to accelerate the rate of innovation diffusion in their operations thus improving their financial performance.

The researcher also suggests further study on the effect of technology on MFIs profitability. Such a study will help microfinance sector to employ technology that will have positive effect in the profitability of MFIs.

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Appendix I: Questionnaire

My name is Mwangi, Alexander Kagira an MBA student at the University of Nairobi. I am conducting a Research Project on **"EFFECT OF FINANCIAL INNOVATION ON THE FINANCIAL PERFORMANCE OF DEPOSIT TAKING MICROFINANCE INSTITUTION IN KENYA"** and kindly request for your assistance in completing the following questionnaire.

PART A: GENERAL INFORMATION

1. Name of the Institution: _____

2. How many branches does your Institution have in Kenya? .....

3. What is the average number of employees is in your organisation? ……

4. Do you consider your Institution to be innovative with respect to any of the following categories? (Tick in the appropriate bracket)

   a) A new financial product or service introduced to the market (product innovation)

      Yes [ ] No [ ]

   b) A new financial process or method (process innovation) Yes [ ] No [ ]

5. During the three years 2009 to 2011, did your Institution introduce?

   a) New or significantly improved financial product or services. Yes [ ] No [ ]

   b) New or significantly improved financial process. Yes [ ] No [ ]

6. If yes to (a) above, what product or services and how many? ……

   ……

7. Have your Institution experienced any late repayment problems arising from the new loan products in the last 48 months?

   Yes [ ] No [ ]

8. What factors do you believe caused the late repayment problems? ……

……..

9. In your own estimate, what percentage of the total loan portfolio is derived from products newly introduced into the market by your institution? ……

10) For Part B, C, D and E, estimate to what extent the following statements relate to various kinds of innovations apply to your Institution. Please tick one choice for each of the following statements. (1= Not at all; 2=Less extent; 3= Moderate extent; 4= Large extent; 5= Very large extent; X = do not know)

PART B: LOAN APPRAISAL

Factor	**1**	**2**	**3**	**4**	**5**	X
a) Clients are appraised through an automated system						
b) Management do not have authority to reverse an financial innovation guided decisions on appraisal						
c) The financial innovation has enhanced more client details to be captured beyond the basic 'know your customer – KYC' details						

PART C: PRODUCT DEVELOPMENT

Factors	**1**	**2**	**3**	**4**	**5**	X
a) financial innovation has enabled more differentiated products that are more client friendly						
b) Our system supports prompt updates on new products employed by our competitors hence design new products						
c) The system is flexible enough to accommodate new products effectively						

PART D: STAFF PERFORMANCE

Factors	**1**	**2**	**3**	**4**	**5**	X
a) Staff members are more efficient than when manual system was being used.						
b) Accuracy is more enhanced as compared to prior the financial innovation application						
c) Employees feel motivated by the financial innovation hence perform better						
d) The system is completely user friendly						

PART E: REDUCED COST OF LOAN RECOVERY

Factor	**1**	**2**	**3**	**4**	**5**	X
a) Automation of credit process has reduced the cost of default analysis and submission						
b) financial innovation has made gathering of evidence in the case of loan defaulters						
c) The system is flexible enough to accommodate penalties and waivers on loan defaulted						

11) For part F and G, estimate to what extent the following statements relate to various kinds of innovations apply to your Institution. Please tick one choice for each of the following statements.
(1 = strongly disagree, 2 = disagree, 3 = nor disagree nor agree, 4 =agree, 5 = strongly agree; X = do not know)

PART F: FINANCIAL PRODUCT AND SERVICE INNOVATIONS

Factor	1	2	3	4	5	X
a) In new financial product and service introduction, our Institution is often first-to-market.						
b) Our new financial products and services are often perceived as very novel by customers.						
c) New financial products and services in our Institution often take us up against new competitors.						
d) Our Institution manages to deliver special products flexibly according to customers' orders.						

PART G: FINANCIAL PROCESS INNOVATIONS

Factor	1	2	3	4	5	X
a) Development of new channels for financial products and services offered by our Institution is an on-going process.						
b) We deal with customers' suggestions or complaints urgently and with utmost care.						
c) In marketing innovations (entering new markets, new loan pricing methods, new distribution methods, etc.) our Institution is better than competitors.						

THANK YOU FOR YOUR PARTICIPATION

Appendix II: List of Registered DTMs in Kenya

	MEMBER NAME	ADDRESS
1	Kenya Women Finance Trust-DTM	Upperhill, Kiambere Road P.O BOX 4179-00506 NAIROBI.
2	Rafiki Deposit taking Microfinance Ltd	Elroy Plaza, Tom Mboya Street, P.O. Box 66049 00800 Nairobi
3	Faulu Kenya DTM	Ngong Road, Ngong lane P.O BOX 60240-00200 NAIROBI
4	SMEP DTM	Kirichwa Road, Kilimani P.O BOX 64063 NAIROBI
5	Remu DTM Ltd	Finance House, 14th Floor, Loita street P.O. Box 20833-00100 Nairobi
6	Uwezo DTM Ltd	Park Plaza, Ground Floor, Moktah Daddah Street P.O. Box 1654-00100 GPO Nairobi
7	Century DTM Ltd	New Pumwani Road K K Plaza, Gikomba
8	Sumac Credit DTM Ltd	Consolidated Bank Building, Koinange Street, 2nd Floor P.O. Box 11687-00100 Nairobi
9	U&I Microfinance Ltd	1st Floor, Asili Complex River Road/Latema Road Junction Opposite Kampala Coach E-mail: info@uni-microfinance.co.ke

Source: CBK Report, 2012

Appendix III: Summarised Questionnaire Results

Statement	N	Mean	SD
Staff Performance		**3.878**	**.695**
Staff members are more efficient than when manual system was being used	9	5.00	.523
Accuracy is more enhanced as compared to prior the financial innovation application	9	3.21	.512
Employees feel motivated by the financial innovation hence perform better	9	4.33	.499
The system is completely user friendly	9	2.96	.536
Product Development		**2.87**	**0.506**
Financial innovation has enabled more differentiated products that are more client friendly	9	4.08	.476
Our system supports prompt updates on new products employed by our competitors hence design new products	9	1.73	.566
The system is flexible enough to accommodate new products effectively	9	2.82	.477
Loan Appraisal Process		**2.88**	**0.554**
Clients are appraised through an automated system	9	3.54	.586
Management do not have authority to reverse a financial innovation guided decisions on appraisal	9	1.89	.586
The financial innovation has enhanced more client details to be captured beyond the basic 'know your customer – KYC' details	9	3.22	.489
Loan Recovery Cost		**5.03**	**0.504**
Automation of credit process has reduced the cost of default analysis and submission	9	4.76	.517
Financial innovation has enabled gathering of evidence in the case of loan defaulters	9	5.11	.419
The system is flexible enough to accommodate penalties and waivers on loan defaulted	9	5.23	.578

Appendix IV: Products and Services offered by DTMs in Kenya.

DTM	Products and Services	
KWFT	Savings products Business loan products Touching Life Products Consumer loan products	Mobile banking Agricultural loan products Clean energy loan products
Rafiki	Housing facility Business loans Salaried loans	Micro credit loans Group loans
Faulu	Savings product Loans products	Faulu popote services Micro insurance
SMEP	Business loans Asset financing Development partners loans	Consumer loans Agricultural loans Karo loans
REMU	Savings products Business loans	Personal loans Business group loans
Sumac	Savings products Business loans	Personal loans Group loans
Uwezo	SME loans Group loans Duty financing	Check off loans Salary chap chap Elimu loan
Century	Savings products Business loans	Personal loans Business group loans
U&I	Savings products Business group loans	Individual loans