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

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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This research project has been presented for examination with my approval as university supervisor.

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DEDICATION

This research project is dedicated to my wife and children to whom without their support, would not have been possible to get this far.

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LIST OF ABBREVIATIONS & ACCRONYMS

ANOVA : Analysis of the Variance

CBK : Central Bank of Kenya

DTM : Deposit Taking Microfinance

KWFT : Kenya Women Finance Trust

MFI : Microfinance Institutions

ABSTRACT

The role of microfinance institutions cannot be understated in enhancing credit access to the poor and rural population in Kenya just like in the other developing countries. Indeed microfinance has been perceived as a crucial driving mechanism towards achieving the millennium development target of halving extreme poverty and hunger by 2015. However, despite the importance of the sector in achieving vision 2030 in Kenya, the sector is been faced by the sustainability questions as a result of continued negative returns generated by mostly the deposit taking microfinance (DTM). Some of the key reasons behind the negative DTM financial returns is the competition from commercial banks and the increasing number of MFI as growth of some of MFI to leading banks in Kenya (like Equity Bank) has proved the potential of the sector that had always been taken to be not bankable. Guided by this knowledge, the study sought to determine the effect of financial innovation on deposit taking microfinance institutions financial returns. The study adopted a descriptive study design and applied multiple regression analysis to analyze 2009 to 2013 data obtained. The study found that financial innovation has positive effect on profitability of deposit taking microfinance institutions with investment in research and development also having positive effect on financial returns of deposit taking microfinance institutions. The study also found that financial performance of DTMs remained poor with main reasons being quoted as much regulation from the central bank of Kenya, competition from other financial institutions and poor macroeconomic environment. Study recommends that DTMs need to invest more on research and development so as to come up with more better and customer oriented financial products and services which will go a long way in boosting DTMs financial returns.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The wave of financial innovation begun in the early 1960s in United States and other developed economies producing major changes in the financial landscape (Boot & Thakor, 2007). Changes that came with financial innovations include the development of new financial products and markets, greater tendency toward market determined interest rates and marketable financial instruments rather than bank loans, explicit deregulation or a breaking down of conventions, globalization as national barriers erode and financial markets grow more integrated; and increased competition among financial institutions, with many of the traditional distinctions between commercial banks, investment banks, and securities firms becoming blurred in the process (Richard et al., 1998).

The process of financial innovation process has seen the introduction of a wide variety of new products that trade in new market settings, thereby reducing the reliance upon banks for traditional credit instruments and credit evaluations. Many of these new are of obvious assistance for risk management purposes; to enable the individual or firm to tailor the various dimensions of risk more precisely than before (Henderson and Pearson, 2011). Financial innovations have highly impacted on all aspects of the financial services industry. At the level of the financial services firm, innovation has affected the geographic location of activities, the financial product line, the risks that are being traded or carried, the identity of the major players, and the intensity of competition (Boot & Thakor, 2007). Nonfinancial firms are faced with a vast array of financial choices-new financial markets and products, each with their own risk and return properties-that require increasingly sophisticated analysis (Richard et al, 1998).

Financial innovation has been found to have had the biggest impact on the microfinance institutions and has been viewed as a capable of making microfinance institutions to be profitable (Thorsten et al, 2013). Microfinance, which refers to the provision of ‘small’ financial services to the poor sections of the population (Demirguc-Kunt, Beck, and Honohan, 2008) has been found to have positive impact on the life of the poor by providing

them access to something they previously did not have, namely access to financial services (Morduch, 2000). Microfinance institutions have become an increasingly important component of strategies to reduce poverty or promote micro and small enterprise development and as a result, continuous efforts are being made to improve their financial performance (Yeboah, 2010; Vanroose, and Espallier, 2009).

Microfinance has gained global recognition as an important poverty reduction tool in many developing countries by promoting financial access to the poor (Gibbons and Meehan, 2002; Yeboah, 2010; Perry, 2002). Indeed microfinance has been perceived as a crucial driving mechanism towards achieving the millennium development target of halving extreme poverty and hunger by 2015 (Fernando, 2004; Arun, Imai and Sinha, 2006). According to FSD (2010), in the year 2009 microfinance institutions in Kenya were serving 17.9% of the total number of individuals in the financial sector as compared to 7.5% in the year 2006 indicating the MFI increasing role in promoting financial access. Whereas MFI are so vital in economic development, majority of MFIs in Kenya have been consistently making negative financial returns raising questions on their sustainability (Nkungi & Moauro, 2013).

The microfinance sector in Kenya has experienced tremendous growth in the last decades; however, growth in the sector seems unequally dispersed among institutions (Nkungi and Moauro, 2013). Microfinance institutions (MFIs) have known different levels of growth and success: some have become very significant in size and serve a lot of clients and also have grown to become commercial banks like Equity Bank (Mugo, 2012) while others have continued to make significant losses raising questions on their sustainability (Nkungi and Moauro, 2013).

Unlike formal sector financial institutions, the large majority of MFIs are not sustainable, where sustainability is equated in microfinance literature and parlance with financial self-sufficiency or profitability (Vanroose & Espallier, 2009). Instead, most Microfinance Institutions (MFI) are able to operate without covering their costs due to subsidies and gifts from governments and other donors (Yeboah, 2010). This is not notwithstanding the fact that microfinance industry is dominated by an institutions paradigm asserting that an MFI should be able to cover its operating and financing costs with program revenues (Morduch, 2000).

Welfare advocators argue that MFIs can achieve sustainability without achieving financial self-sufficiency (Morduch, 2000). They argue that donations from which most MFI rely on serve as a form of equity, and as such, the donors can be viewed as social investors. Unlike

private investors who purchase equity in a publicly traded firm, social investors do not expect to earn monetary returns (Yeboah, 2010) and therefore issues of MFI financial returns may not be a key concern. Instead, these donor-investors realize a social or intrinsic return and hence they are willing to accept a lower expected financial return because they also receive the intrinsic return of not investing in firms that they find offensive (Yeboah, 2010). Microfinance social investors take this notion to the limit, generally earning zero financial returns and relying totally upon intrinsic returns (Morduch, 2000). This implies that the MFI financial returns are significant to the MFI's financers to some extent but not like of commercial banks (Vanroose & Espallier, 2009).

The animating motivation behind the microfinance movement was poverty alleviation (Rudd, 2011). Throughout the world, poor are excluded from formal financial systems. Exclusion ranges from partial exclusion in developed countries to full or nearly full exclusion in lesser developed countries (LDCs) (Morduch, 2000). The rise of the microfinance industry represents a remarkable accomplishment taken within historical context and has overturned established ideas of the poor as consumers of financial services, shattered stereotypes of the poor as not bankable, spawned a variety of lending methodologies demonstrating that it is possible to provide cost effective financial services to the poor, and mobilized millions of shillings of social investment for the poor (Mutua, 2011). However, questions on their sustainability from huge negative financial returns are posing the MFI a key challenge in achieving their objectives (Rudd, 2011).

1.1.1 Financial Innovation

Financial innovation refers to something new that reduces costs, risks or provides an improved product/service/instrument that better satisfies participants' demands within a financial system (Frame and white, 2004). Innovations can emerge due to technological changes, as well as a response to increased risk or to new regulations. Financial innovation usually takes three approaches; namely, process, organizational and product.

Process innovation refers to new production processes that allow the provision of new or existing financial products and services. Process innovation is usually aimed at increasing the efficiency in the production process, and it is often associated with technological change. Organizational innovation encompasses new institutions or organizational structures within institutions where the production process is held (Frame and white, 2004). Financial

innovation is meant to eliminate financial inclusion, coming up with better products, enable more households to access financial service and as a result financial institution institutions earn more returns (Henderson and Pearson, 2011).

The developments in the financial sector have not only led to the increase in the number of financial institutions, but also the development in level of sophistication with new payment systems and asset alternatives to holding money. This has resulted mainly from technological advancement and increase in competition as the number of institutions increase. Developments in payment systems have started to create close substitutes for hard currency, thus affecting a core part of banking. Financial innovations have facilitated the use of electronic means of payment and sometimes substituted for the use of physical cash. More importantly, payment cards have also enabled the issuance of electronic money (e- money), which not only directly rivals physical cash in small value payments but also bank deposits through holding e-money balances (Boot & Thakor, 2007). This reduces the amount of money that an individual can hold at hand at any particular time, thus affecting the demand for money. As these cards and e-money balances, e.g., M-Pesa balances, gain wider acceptability, demand for money and even motives for holding cash change significantly with implications on monetary policy transmissions.

Other innovations in the financial sector include: mobile and internet banking, increased use of paper money instead of cash. Cheques are the main paper based mode of payment accounting for 48% of non-cash payments. Use of Magnetic Ink Character Recognition (MICR) ensures clearing of cheques speedily and efficiently. 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.

1.1.2 Financial Returns

The term financial performance is mostly used interchangeably with other concepts like profitability, financial self-sustainability, financial efficiency, self-sufficiency, financial viability, financial performance (Ledgerwood, 1999). The term financial performance means the ability of MFIs to exist indefinitely by generating returns while providing financial services. Savings have been seen to be very important to MFIs and they play a key role in both financial performance and outreach of MFIs (Robinson, 2003).

MFIs bank on the poor and as a result, they are expected to charge lower interest rates and transaction costs than commercial banks hence negatively affecting their financial returns. However the poor may not mind paying high interest rates where MFI clients borrow funds to become moneylenders, presumably successfully lending at rates higher than their MFI charges. The poor who cannot obtain MFI membership are thus willing to pay rates higher than that charged by the MFI (Perry, 2002).

Robinson (1996) argue that MFI should have positive financial returns since the interest rates charged to microfinance borrowers should cover all costs and that the working poor can afford these rates which are relatively low compared to other alternatives. Most of MFIs use group lending strategy to give loans to their customers which enables them to reduce default risks as well as administrative costs hence further increasing MFIs financial returns (Bhatt and Tang, 2001). Although group loans make up the bulk of microloans worldwide, individual lending is significant in some areas and is growing in popularity (Armendariz and Morduch, 2005).

MFIs operate with very high administrative costs per shilling of loan relative to formal financial institutions (Yeboah, 2010). Thus, to achieve positive financial returns and achieve self-sufficiency, MFIs have to charge relatively high interest rates (Armendariz & Morduch, 2005). However, MFI cannot by itself generate income but should be perceived as an important input in the process of poverty reduction (Ellis, 2008). Microfinance institutions are perceived as important because they fund small and Medium scale enterprises (SMEs) which are integral to the private sector which in turn are perceived as an engine of growth for economies of developing countries that have moved from state-directed to market-oriented economies (Ellis, 2008). By enabling the establishment of new SMEs, microfinance supports the efficient use of labour and capital as factors of production and therefore contributing to economic growth and ultimately to sustainable development. Since it is generally accepted that microfinance is labour-intensive, facilitating access to microfinance is likely to result in the acquisition of new skills and the upgrading of existing ones and thus improve on the capacity of the poor to generate income and improve their livelihood (Yeboah, 2010).

1.1.3 Financial Innovation and Microfinance Institutions Financial Returns

Financial innovation has been seen as capable of resolving the sustainability issue through improved financial returns. To benefit from financial innovations, Microfinance institutions need to efficiently manage financial innovations for positive effect on financial returns. This is because from Global Financial Crisis of 2007 to 2009, financial innovations has been seen to have both negative and positive effect on financial institutions returns. Traditionally, financial innovation has been seen to help reduce agency costs, facilitate risk sharing, complete the market, and ultimately improve allocative efficiency and economic growth, thus focusing on the bright side of financial innovation (Thorsten et al., 2013).

However, financial innovations have been viewed from fragility view as having negative effect and has identified financial innovations as the root cause of the recent Global Financial Crisis, by leading to an unprecedented credit expansion that helped feed the boom and subsequent bust in housing prices (Brunnermeier, 2009), by engineering securities perceived to be safe but exposed to neglected risks (Gennaioli, Amdrei and Robert, 2012), and by aiding banks and investment banks design structured products to exploit investors' misunderstandings of financial markets (Henderson and Pearson, 2011). From this view, financial innovation has been found to increases bank fragility and profit volatility (Thorsten, et al., 2013).

A key indicator of how financial institutions are applying financial innovations is through products and services offered (Mugo, 2012)**.** MFIs provide similar products and services to their customers as formal sector financial institutions (Armendariz & Morduch, 2005). The scale and method of delivery differ, but the fundamental services of savings, loans, and insurance are the same. Notwithstanding, to date most efforts to formalize microfinance have focused on enterprise lending (loans for enterprise formation and development) which remain by far today the dominant product offered by MFIs (Brunnermeier, 2009). Increasingly today MFIs have begun to offer additional products, such as savings, consumption or emergency loans, insurance, and business education (Yeboah, 2010).

(Brunnermeier, 2009) reviews the context and rise of microfinance products and argues there is a need for more innovative savings and insurance services for the poor and not just credit products. He goes on to argue that MFIs need to provide tailored lending services for the poor instead of rigid loan products. Similarly, Cohen (1999) argue that MFIs need to be more

client-focused, including offering a mix of financial products tailored to the varied needs and wants of poor consumers. These arguments by various authors act as a call for MFIs in Kenya to embrace the concept of financial innovation and as a result, develop more appealing and competitive products.

1.1.4 Deposit Taking Microfinance Institutions in Kenya

Kenya has nine licensed Deposit taking microfinance institutions (CBK, 2014). An appropriate banking environment in Kenya is considered a key pillar as well as an enabler for economic growth (Koivu, 2002). With the continuously emerging wave of information driven economy, the banking industry in Kenya has inevitably found itself unable to resist technological indulgence. The need for convenient ways of accessing financial resources beyond the conventional norms has seen the recurrent expansion and modernization of banking patterns. And given the huge demand for finance oriented services, institutions beside the historical banks have joined the fray in an attempt to grab a piece of the perceived cake of opportunity in banking the poor (Mwangi, 2013).

Deposit taking microfinance institutions in Kenya aim at expanding financial access which still remains low mostly on the low income and small enterprises. According to Financial Sector Deepening Kenya (FSD Kenya, 2012), only 19% of adult Kenyans reported having access to a formal, regulated financial institution while over a third (38%) indicated no access to even the most rudimentary form of informal financial service. This leaves a percentage of more than 80% outside the bracket of the reach of mainstream banking clearly showing the potential in the banking industry. Most of the unbanked population is the poor and low income households (Yeboah, 2010); this fact can account for the increase in MFI in Kenya and commercial banks targeting the low income population.

DTM growth and development has been seen as a part of financial sector development which fosters economic growth (Levine, 2004). Additionally, financial sector development plays an important role in poverty reduction (Jalilian and Kirkpatrick, 2005). Consequently, an important part of development policy is concerned with developing financial markets for the poor as a way to enhance economic growth (Demirguc-Kunt et al. 2008). Indeed, formal financial institutions do not serve a significant fraction of the population in developing countries (Stiglitz and Weiss, 1981). This is mainly due to market failures stemming from imperfect information and informational asymmetries (Barham, Boucher, and Carter, 1996).

The development and promotion of Microfinance Institutions (MFIs) has been viewed as a promising development policy able to address the challenges in the formal banking system of not being able to serve the poor. It is from this argument that in the last decades, microfinance has received increased attention as a tool for poverty-reduction (Barr, 2005). Many MFI-initiatives have been undertaken in order to serve the large number of people in developing countries that do not have substantial access to financial services. In the start-up period during the early eighties, MFIs were mainly funded with donor money under an NGO status. Since the 1990s, however, the sector is undergoing a process towards formalization and commercialization. This means that MFIs try to become independent from donor money forcing them to aim for financial sustainability (Yeboah, 2010). In that process towards self sustainability, MFIs become more formalized and often take another formal regulatory status (Robinson, 2001).

Due to this formalization process, modern MFIs are believed to serve a dual objective, this is: both to reach the unbanked poor as well as to become self-sustainable (Armendariz and Morduch, 2005). Consequently, an increasing number of MFIs need external commercial funding in addition to revenues from possible lending-activities once donors stop funding (deCrombrugghe, Tenikue, and Sureda, 2008). Increasingly, commercial banks and international investors have become interested in funding microfinance activities, as MFIs seem to be an interesting way to diversify their portfolios (Krauss and Walter, 2008). This process has lead to a pressure on MFIs to perform better and achieve positive financial returns and reduce poverty (Yeboah, 2010).

1.2 Research Problem

Financial innovation has been seen to help reduce agency costs, facilitate risk sharing, complete the market, and ultimately improve allocative efficiency and thus increasing firm's financial returns (Thorsten et al, 2013). However, financial innovations have also been as having negative effect on financial returns, increase the financial institutions volatility and leads to financial crisis (Brunnermeier, 2009; Thorsten, et al., 2013). The adoption of internet banking, mobile banking, offering of insurance products and more comprehensive range of products are examples of financial innovations adopted aimed at improving DTMs financial returns. However, this raises a key question; has adoption of financial innovation lead to improved MFIs financial performance and make them more competitive and profitable

considering that financial innovations have empirically found to have both negative and also positive affect financial institution returns in other parts of the world (Thorsten, et al, 2013).

Study of MFIs in Kenya is intensive and has mainly concentrated on the impact of MFIs in economic growth, alleviation of poverty and the impact on social challenges facing both urban and rural population. Nyaga (2008) studied the nature of competition within microfinance industry in Kenya and Mutua (2011), linkages between micro finance institution and commercial banks in Kenya. Mugo (2013) carried a study the effect of financial innovation on the growth of microfinance institutions in Kenya and concluded that financial innovations adopted by MFIs led to overall growth of MFI. However, his study focused on all MFIs in Kenya and never concentrated on deposit taking Microfinance institutions (DTM) which need to not only give loans like the other MFIs but also compete for funds with commercial banks from the public. No one study in Kenya could be identified addressing the question on whether MFIs financial innovations adopted have made them more competitive and hence impacting on their financial returns.

This study sought to determine the effect of financial innovation on DTMs financial returns and hence bridge the gap that exists in Kenya on what is the effect of adoption of financial innovation by DTM. The study provided information on whether financial innovations can be used to enhance DTMs profitability and hence offering a solution on the sustainability issue facing MFIs at large considering MFIs role in economic growth. It sought to answer the question: what is the effect of financial innovation on Deposit Taking Microfinance institution financial returns?

1.3 Research Objective

To determine the effect of financial innovation of financial returns of deposit taking microfinance institutions in Kenya.

1.4 Value of the Study

The key justification of this study lied on the importance on microfinance sector in poverty elevation and the continued poor financial performance of DTM in Kenya raising key issues on their sustainability. The idea of striving for financial sustainability is that it is institutions which do not depend on external support or subsidies that can grow and achieve wide outreach and have the maximum impact on service users (Robinson, 2003). Financial innovation on the other hand leads to ways of ensuring more access to financial services which is very vital for any economy and is expected to have a positive impact on MFIs financial returns.

In particular, the study can be beneficial to various parties including the DTM and MFIs management at large, the government, researchers and the general public. To the management of MFI and DTM, the study has offered them valuable information on the how they can improve their financial returns by adopting financial innovation in product development and hence becoming more competitive. The same information is also vital to management of financial institutions at large since the study has offered solutions to the challenges facing their organizations.

To the government, the study has provided information necessary for promoting further MFI performance and sustainability. This will promote economic growth and hence assisting the government in solving problems facing the country that include unemployment, poverty and other social problems that come with low economic growth. Improved performance of MFI will also boost financial sector deepening and hence accelerating economic growth further. To researchers, the study has expanded the body of knowledge on the effect of financial innovation on DTM financial performance which is still minimal and present opportunities for further research. The general public can benefit from the study out of the positive impact of economic growth like employment and improved living standards out of MFI improved performance.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter contains a review of existing theoretical literature and empirical evidence available on financial innovation, Microfinance sector and microfinance financial returns. The Chapter is divided into various sections which include section 2.2 on theoretical review, section 2.3 on empirical review on financial innovation and microfinance financial returns and section 2.4 literature review summary.

2.2 Theoretical Review

The study was guided by the following theories that have developed over time trying to explain the concept of microfinance and financial innovation. These theories include the Schumpeterian innovations theory, game lending theory, poverty traps theory and constraint induced financial innovation.

2.2.1 Schumpeterian Innovations Theory

The theory was proposed by Schumpeter (1934) theory and argues that firms innovate to address the constraints and inconveniences caused by market imperfections, regulation, operation costs and taxes. According to this theory, MFIs will be expected to come up with innovative financial products and processes to circumvent the constraints facing them like competition, to lessen the cost of borrowing, reduce expenses and improve investment options.

In relation to deposit taking microfinance and innovation, according to this theory, DTMs will innovate as a response to the challenges facing them that include negative financial returns, competition, regulations among others. Without constraints therefore, DTMs will not innovate. The theory has been supported by Silber (1983) who added that financial innovation is done to lessen the financial constraints that limit the firm's earning capacity; therefore firms innovate to optimize the returns on capital in the light of the firms' goals. Silber further suggested that firms need to continuously renew themselves to prosper in this dynamic environment.

2.2.2 The Game Lending Theory

The theory has tried to explain the reason why MFIs have group lending and therefore not requiring any form of collateral from the loan customers. Classical financial institutions typically require the existence of collateral as security before granting loans to a client. However, low income levels and the lack of assets would exclude most people in developing countries from obtaining credit from standard banks (Brune, 2009).

The theory views group lending as a form of financial innovation whereby microfinance institutions apply the concept of group-lending instead of requiring collateral from each individual. The microfinance use peer pressure and social selectivity to increase repayment rates and hedge against default risk. In addition, group-lending decreases transaction costs, another cause for standard banks to refrain from lending to the poor. At the same time, poor individuals are granted the possibility to access local financial markets and to invest in small businesses. This approach is also interesting to encounter the often assumed insufficient creditworthiness of the poor, which is one of the main arguments to explain why contracts between standard banking institutions and poor people are often said to be not feasible.

2.2.3 Poverty Traps Theory

The poverty trap theory explains the economic stagnation or very slow growth at most in least developed countries. The theory holds that by providing the opportunity to save and borrow in smallest scales, the vicious circle of low income, low saving, and poor growth can be intermitted at microeconomic levels (Shaw, 2004). If the poverty trap theory applies in a given country, then the presence of well functioning microfinance institutions may not only enhance aggregate growth by supporting the poor with credit, but it can also increase confidence of foreign investors (Brune, 2009).

The theory supports financial innovation and measures aimed at improving DTM performance since it attracts foreign investors who may be attracted by a sound base for development and take advantage of increasing returns to scale for low levels of capital accumulation in developing areas. This, in turn, can reinforce complementary industrial growth. Honohan (2004) argues that the existence and functioning of sound financial institutions may further contribute towards poverty reduction especially well compared to alternative mechanisms. Microfinance may be one such promising mechanism alleviating poverty and contributing to aggregate growth at the same time.

2.2.4 Constraint-Induced Financial Innovation Theory

The theory was advanced by Silber (1983). This theory pointed out that the purpose of profit maximization of financial institution is the key reason of financial innovation. There are some restrictions (including external handicaps such as policy and internal handicaps such as organizational management) in the process of pursuing profit maximization. Though these restrictions not only guarantee the stability of management, they reduce the efficiency of financial institution, so financial institutions strive toward casting them off.

The theory supports the argument that financial innovations are as a result of constraints facing Microfinance institutions. It discusses financial innovation from microeconomics, so it is originated and representative. But it emphasizes "innovation in adversity" excessively. So it can't express the phenomenon of financial innovation increasing in the trend of liberal finance commendably.

2.3 Determinant of Financial Returns

Various factors affecting deposit taking microfinance financial returns which will be studied in this research include financial innovation, amount spent on research and development and microfinance client base which measures the DTM size.

2.3.1 Financial Innovation

Financial innovation will be measured by the number of new products and processes introduced. The traditional innovation-growth view posits that financial innovation enhances financial returns by improving the quality and variety of banking services, facilitates risk sharing, completes the market and improves allocative efficiency. Financial innovation measures ranges from new products, such as securities, over new processes, such as credit scoring, to new financial markets or institutions, such as Internet banking (Thorsten et al, 2013).

Financial performance is the profitability of a business enterprise measured through various measures mostly return on assets and return on equity. 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 the consequences of financial innovation in terms of the pay-offs to the innovators and the impact on society as a whole has been a subject for theoretical literature. Innovation generally does seem to have positive effects in raising financial performance of innovators (Boot & Thakor, 2007).

2.3.2 Investment in Research and Development

Research and development is a way of discovering new knowledge about products, processes and services and applying that knowledge to create products, processes and services that meet the new and increasing needs of the market. More funds being spent on research and development provides the researchers with more resources at their disposal, which should result in a better likelihood of coming up with successful products hence resulting to higher financial returns. The decisions that firm management makes regarding R&D investment can affect growth, sustainability, and reputation. The spending on research and development is no longer being looked at as a cost for the firm, but a value-increasing investment to the firm and is one of the key factors affecting firms' profitability (Pindado, 2010).

2.3.3 Microfinance Client Base

The microfinance client base determines the size of the organization and affects its costs and revenues hence profitability. The bank operating expenses are highly determined by the size of the firm and are a prerequisite for improving firms' performance, since expenditures are controllable expenses and if efficiently managed can contribute positively to the performance of microfinance institutions. The impact of growing client size on profitability can be positive up to a certain limit, beyond which the impact becomes negative on profitability. Diversification through by having both corporate and individual clients may marginally affect profitability since greater diversification of the financial institutions dealings does not necessarily transform into increased bank profitability, but may instead reduce profits, therefore optimum level of non-interest income activities must be set (Eichengreen and Gibson, 2001).

2.4 Empirical Review

The section has reviewed the previous studies done on microfinance and financial innovation locally and internationally. While the study findings are related, the methodology and the variables used have been different.

2.4.1 International Evidence

Rahman's (1999) village-level using Bangladesh data revealed that most MFIs adopted financial innovations for strategic reasons of investment and recovery of loans other than to benefit the target community. The products the microfinance institution developed were meant to serve the customers better and lead to higher financial returns for the microfinance institutions. The study concluded that adopting financial innovations ensured efficiency, sustainability and improvement in financial performance. The study also found that the issue of gender to be a main consideration by the MFIs and hence explaining why some of the MFIs like Kenya Women Finance Trust (KWFT) were established specifically as women's MFI and that most MFI clients are women and their products mostly targets women. This also implies that an MFI with large women clientele is likely to have higher financial returns since they default rate is low and so is the administration costs.

Legerwood (1999) analyzing the institutional and financial perspective of microfinance in Washington found that microfinance products were developed innovatively to overcome cultural barriers that often restricted women from access financial services. According to Ledgerwood (1999) adoption of financial innovation ensured that the financial needs of women entrepreneurs were met by the microfinance institutions because they almost always constituted to the poorest segment of society. Providing women with microfinance was observed to facilitate the process of empowering women because they are usually in a subordinate position relative to men and hence creating a positive image to the microfinance institution.

Painter and MkNelly (1999) studying village banking dynamics used the ability of service users to work and repay progressively larger loans as a proxy indicator for the innovativeness of the products offered by microfinance institutions in ensuring that they achieved their perceived objective of eradicating poverty. They found that most microfinance products were not innovative and mainly constituted of loans primarily for investment and generation of wealth. They term this as the promoted purpose of microfinance loans. However, empirically,

they found that microfinance loans are used for income generation and a host of other purposes, the most notable being for consumption. They further revealed that loans were routinely used to pay school fees, to repay other loans and for consumption.

Yeboah (2010) studied microfinance in rural Ghana using quantitative cross section design. The finding of this study suggests that poorer microfinance users were more likely to benefit from the intervention from microfinance institutions financial innovations. Financial innovations were found to promote access to microfinance services and contributed to increased education of the families. Further the savings schemes being operated by DTMs were found not very beneficial to the users. Most of studied MFIs beneficiaries did not have access to savings facilities and the burden of contribution could have contributed the severe loan repayment. Further the study found most microfinance users to lack much knowledge as a result of low education financial literacy.

2.4.1 Local Evidence

Mbogo and Ashika (2011) studied the factors influencing product innovation in micro finance institutions in Kenya found that technology advancement further fuelled financial innovations in microfinance industry by gathering of data and management, its transmission and analysis, benefiting through reduced costs or earn extra revenues, like ATMs, debit cards, IT transactions. The study recommends that MFIs should analyze the market demand then innovate to meet these market needs. To a large extent they find that financial innovation is market driven, where divergent market segment needs guide innovators to tap into different markets and the more diverse population of potential investor ranging from small-scale and short-term to large-scale and long-term investors.

Mugo (2012) studied the effect of financial innovation on the growth of micro-finance institutions in Kenya using descriptive design. The study found that MFIs in Kenya had embraced financial innovation with at least 60% having developed a new product hence widening their product range. The findings proved that financial innovation contributed to the expansion of the MFIs market share, number of clients and earnings. It concluded that financial innovations have strong positive correlation with growth of MFIs and also a strong positive correlation with customer satisfaction, clients' retention and transaction time among Micro Finance Institutions. The study also encourages the industry to adopt the financial innovation to promote their growth.

Mwangi (2013) studied the effect of competition on the loan performance of deposit taking microfinance institutions in Kenya in Nairobi region using a descriptive research design. The study found that as a result of increased completion, MFIs had adopted financial innovations meant to make them more competitive. Further, the study found an inverse relationship between multiple loan-taking and loan performance of the microfinance institutions; a positive relationship between selection standards, customer relationship, cost efficiency and loan performance of the microfinance institutions. Further, most of the deposit-taking microfinance institutions were using selection standards in offering credit to customers. The study concluded that competition lead to cost efficiency; with increased competition, MFIs needed to find ways of delivering services at lower costs to ensure them a competitive edge. The study recommended that MFIs not offer multiple loans to customers so as to improve their loan performance and that MFIs should come up with more innovative products and services that would lower their cost of offering services; MFIs to fully adopt technology in an effort to reduce cost; and enhance their customers' relationship so as to improve their loans performance.

Mwangi (2013) further found that Kenyans MFIs were being faced by huge competition from commercial banks which have also become so interested with the low income clientele which was previously left for MFIs. The study indicates that MFIs have been increasing in number and hence further intensifying competition. The rapid growth of microfinance movement by socially committed non profit institutions has proved that the poor are bankable. Realizing this fact, profits maximizing formal lending institutions have started to penetrate into this market. Now it is the global scenario that non profit organizations are facing competition from profit driven lenders. This has made the socially motivated non profit lenders re-think about their strategies of reaching the poor. The study further concludes that competition in microfinance sector is healthy as it induces financial innovation; innovation gives MFIs a competitive edge to remain ahead of competitors and it's used as reactive measure to prevent a massive shift of clients. Firms develop new products, new transactions-reducing procedures or modify existing products to attract new clients in order to increase or maintain the required market share.

2.5 Summary of Literature Review

For Kenyan DTMs to be profitable, they need to come up with products and processes that will make them cope with changing competition and be profitable; that is, they need to embrace financial innovation. Motta (2004) competition in the microfinance industry increases the welfare of consumers by promoting productive efficiency such as lower production costs and lower interest rates. Large number of MFIs in Kenya is struggling to maintain their performance level, but also on the clients. Borrowers are facing serious problem from paying back their loans, which eventually increases the risk of over-indebtedness to increasing sociological and psychological constraints.

The literature on measuring financial innovation in the manufacturing industry has focused mostly on patents (either outstanding or new ones), research and development expenditures, or share of research staff as indicators of innovative activity (Cohen, 1999). Gauging innovative activity in the financial sector is more challenging, as patents in the financial sector rarely exist and not at all in Kenya. This lack of data, as already pointed out by Frame and White (2004) has impeded the rigorous study of financial innovation across countries. Previous studies done in Kenya have used the number of products and services offered by the financial institutions to measure the level of financial innovation (Mugo, 2012; Mwangi, 2013) and exclude the amount spent on research and development as a measure of financial innovation hence making limiting conclusions. However, this study will use both the number of products and amount spent on research and development as a measure of financial innovation levels. The effect of financial innovation on DTM financial returns in Kenya remains unknown since there no studies in Kenya conducted to find out the same.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter contains the research design and methodology that was employed to gather data for the study. It has discussed research design, sources and type of data, sampling design, and data collection techniques and instruments as well as data collection procedures and data analysis.

3.2 Research Design

The study adopted a descriptive research design. A research design is a roadmap of how one goes about answering the research questions. It is simply the framework or blue print for the research, collection and analysis of data that is suited to the research question. This design determines and reports the way things are and attempted to describe such things as possible behaviour, attitudes, values and characteristics (Mugenda and Mugenda, 2003).

Descriptive research design was used since it examines and reports the way things are and since the data collected describes persons, organizations, settings or phenomena. The design also has enough provision for protection of bias and maximized reliability (Mugenda and Mugenda, 2003).

3.3 Population

A study population consists of all items being studied (Mugenda & Mugenda, 2003). A census approach was applied for the study since the population was manageable. The study population was all the Deposit Taking Microfinance Institutions in Kenya. DTM were chosen for this study since they give credit as well as taking deposits; they are also faced by higher competition from commercial banks who are aggressively targeting the 'unbanked'. According to Central Bank of Kenya (CBK, 2014), there are 9 DTMs in Kenya as shown in Appendix I.

3.4 Data Collection

Data collection refers to the means by which information is obtained from the selected subjects of an investigation (Mugenda & Mugenda, 2003). Data for five years was collected through applying a series of data collection tactics that included desk research, interview and observations. Structured questionnaire with closed and open-ended questions was used to collect primary data. The face to face interview was to enable the researcher to make observations and seek clarification. The desk research involved studying previous research and literatures financial innovation and MFI. Secondary data was collected from journals, articles, websites, and any other relevant information.

3.4.1 Data validity and reliability

Data validity and reliability are related with a very narrow difference between them. Reliability is the consistency of a set of measurement items while validity indicates that the instrument is testing what it should. Reliability is the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. A measure is considered reliable if a person's score on the same test given twice is similar. Validity refers to the accuracy of the data for it to be used for analysis and making conclusions. Reliability does not, however, imply validity because while a scale may be measuring something consistently, it may not necessarily be what it is supposed to be measuring (Cronbach, 1951).

To determine data validity and reliability, Cronbach's alpha (α) was used. It is the most common internal consistency measure known as and it indicates the extent to which a set of test items can be treated as measuring a single latent variable (Cronbach, 1951). The recommended value of 0.7 was used as a cut-off of reliabilities.

3.5 Data Analysis

Various methods of analyzing data was used on the raw data collected to make it meaningful. Data analysis was both qualitative and quantitative. Qualitative analysis consisted of examining, categorizing, tabulating and recombining evidences to address the research questions. According to Mugenda and Mugenda (2003) data obtained from the field in raw form is difficult to interpret unless it is cleaned, coded and analyzed. Qualitative data was grouped into meaningful patterns and themes that will be observed to help in the

summarizing and organization of the data. This involved the identification, examination, and interpretation of patterns and themes in an effective manner. Quantitative analysis was done using descriptive statistics i.e. frequency counts, percentages, graphs to describe distributions, pie charts to show differences in frequencies and bar charts to display nominal or ordinal data, while the mode was used to show the category or observation that appears most frequently in the distribution or the category containing the largest number of responses. Statistical Package for Social Sciences (SPSS) version 21 was used to analyze data.

3.5.1 Analytical Model

The study analytical model related to DTM financial returns as measured by Return on Assets per year (ROA) and number of new products introduced per year (X_1), amount spend on research and development (X_2), number of new process introduced per year (X_3) and DTM client's base per annum (X_4) and age of DTM (X_5). The regressed model is expected to take the following format;

$$Y= \alpha + ß_1X_1+ ß_2X_2 + ß_3X_3 + ß_4X_4+ ß_5X_5 + \varepsilon$$

Where;

Y denotes the of financial returns as a measured by return on assets

X_1 is financial innovation level as measured by percentage growth in the number new products introduced and process introduced per year

X_2 is the percentage increase in amount spent on research and development per year

X_3 is the percentage growth in client base per annum indicating growth in the size of DTM

X_4 is age of DTM

X_5 is the DTM number of branches

B_j is independent variable regression model coefficients

ε is the error term and will be assumed to be zero

α is the constant representing the level of financial returns when all independent variables are zero.

3.5.2 Test of Significance

Inferential statistics tests which include analysis of variance (ANOVA), z-tests, t-tests and F-tests was used to test the significance of the overall model at 95% level of significance. Coefficient of correlation and determination analysis was conducted to show the magnitude and the nature of the relationship and accuracy of the model developed.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

The chapter presents an analysis of the data collected from deposit taking microfinance institutions. The results and findings of the study were based on the research objectives. The section links the various variables included in the model and aims at establishing the relationship between financial innovation and financial returns of deposit taking microfinance institutions in Kenya.

The data collected was analyzed and interpreted in line with the objective of the study mentioned in chapter one which was to determine the effect of financial innovation of financial returns of deposit taking microfinance institutions in Kenya.

4.2 Descriptive Statistics

Questionnaires were administered through drop and pick where the information being sought was thoroughly explained and confidentiality of information guaranteed. Follow ups were then made through phone calls to ensure that the questionnaires were filled and returned on time. This ensured a high response rate of 100% which could also be attributed to the small number of items being studied. The questions were also straightforward and hence the respondents could not struggle answering the questions.

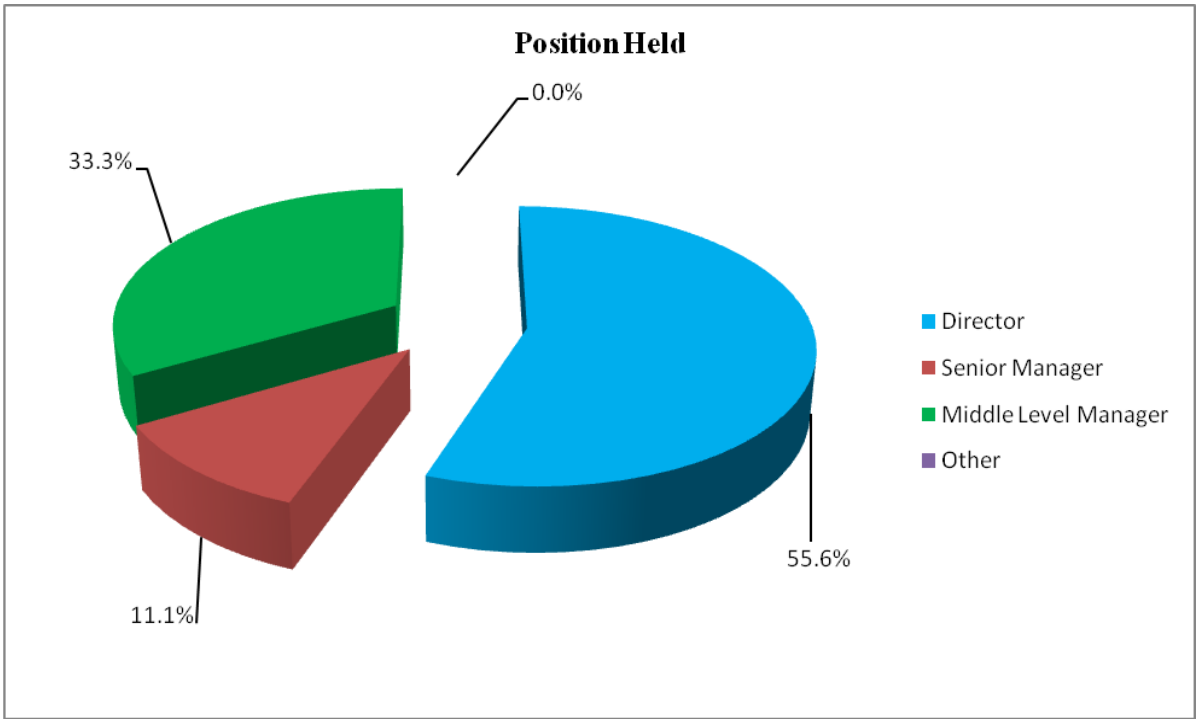
4.2.1 Reliability Analysis

The reliability of an instrument refers to its ability to produce consistent and stable measurements. This study used Cronbach's alpha to test the reliability of study instruments. The findings indicated that financial innovation had a coefficient of 0.874, amount spent on research and development had coefficient of 0.973 and client base of 0.818. All constructs depicted that the value of Cronbach's alpha was above the acceptable value of 0.5 and hence the study was reliable (Cronbach, 1951). On the basis of reliability test it was concluded that scales used in this study were reliable to capture the constructs.

4.2.2 Position Held

Accuracy and reliability of information provided highly depends on the source of such information (Yeboah, 2010). Therefore, the objective of this part was to determine the position held by the respondent and be able to evaluate the accuracy and reliability of the data provided. Since the information sought was sensitive financial information, persons in high ranking positions in the company were in a position to provide more accurate and reliable information. The positions of the respondents are shown in figure 4.1 below. As shown in the figure below, 55.6% were DTM directors, 33.3% middle level managers, 11.1% senior managers and 0% others. This implies that the information provided was reliable since 66.7% was obtained from directors and senior managers.

Figure 4.1: Position Held

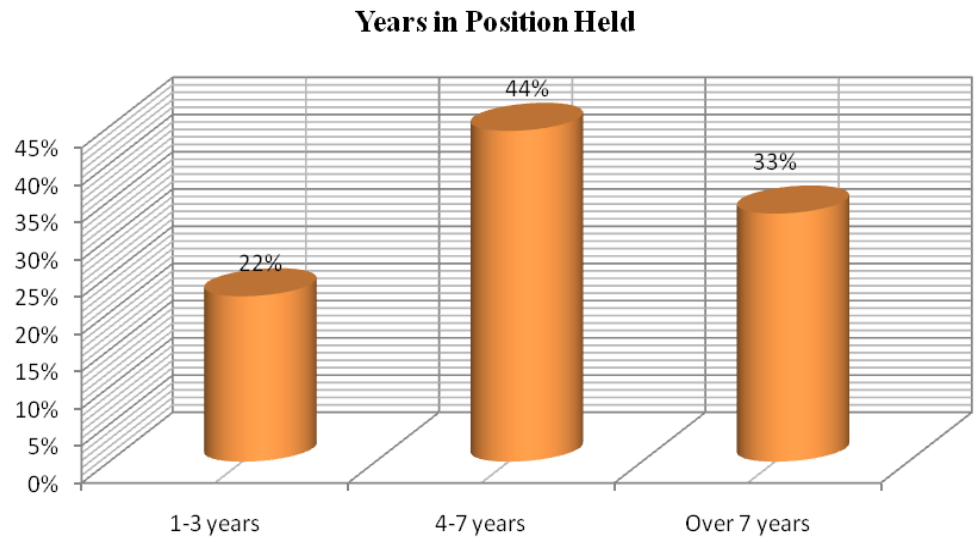


Source: Research Findings

4.2.3 Years in Position Held

As shown in figure 4.2 below, 44% of the respondents had held their positions for 4 to 7 years, 33%over 7 years and 22% 1 to 3 years. The years the respondents had been serving in the positions specified influenced the completeness of information given.

Figure 4.2: Years in Position Held

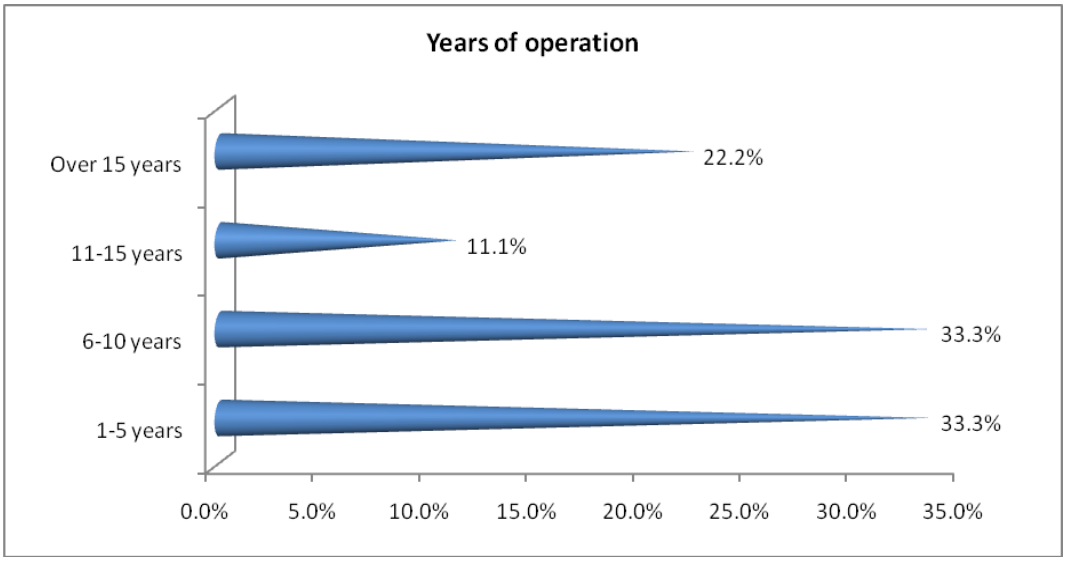


Source: Research Findings

4.2.4 Deposit Taking Microfinance years of Operations

Years of firm's operation affects financial returns of a firm and their stability. As shown in figure 4.3 below, 33.3% of the DTMs were in operation for 1-5 years and 6-10 years, 22.2% over 15 years and 11.1% 11-15 years.

Figure 4.3: Years of Operation

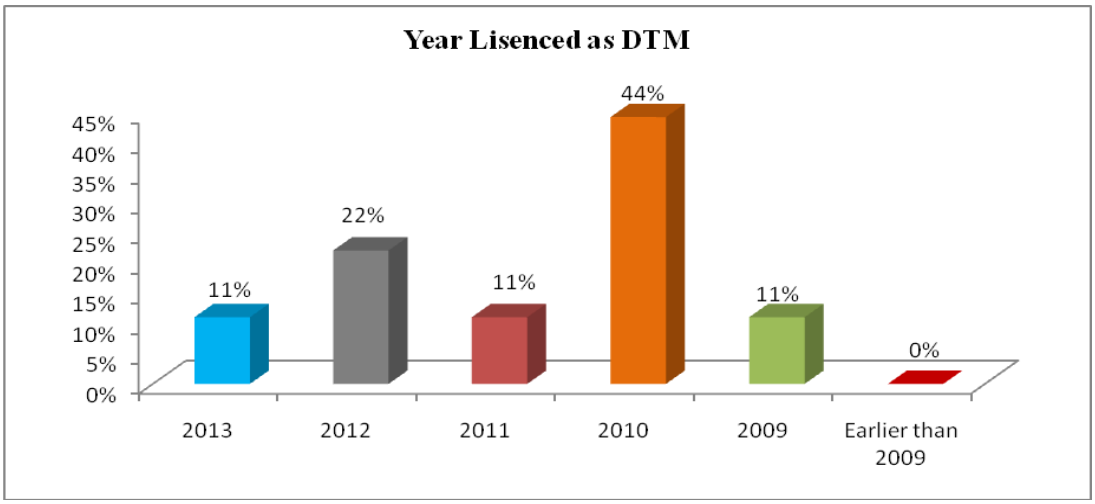


Source: Research Findings

4.2.5 Year microfinance was licensed as deposit taking

The year the microfinance was registered as a DTM determined the data to be considered for analysis since the study specifically concentrated on deposit taking period. As shown in graph 4.3 below, 44% of DTMs were licensed as deposit taking in 2010, 22% in 2012, 11% in 2013 and 2011 and 2009 while 0% in earlier than 2009. The exact dates when the microfinance institutions were licensed is shown in table 4.1 below.

Figure 4.4: Year Licensed as deposit taking microfinance



Source: Research Findings

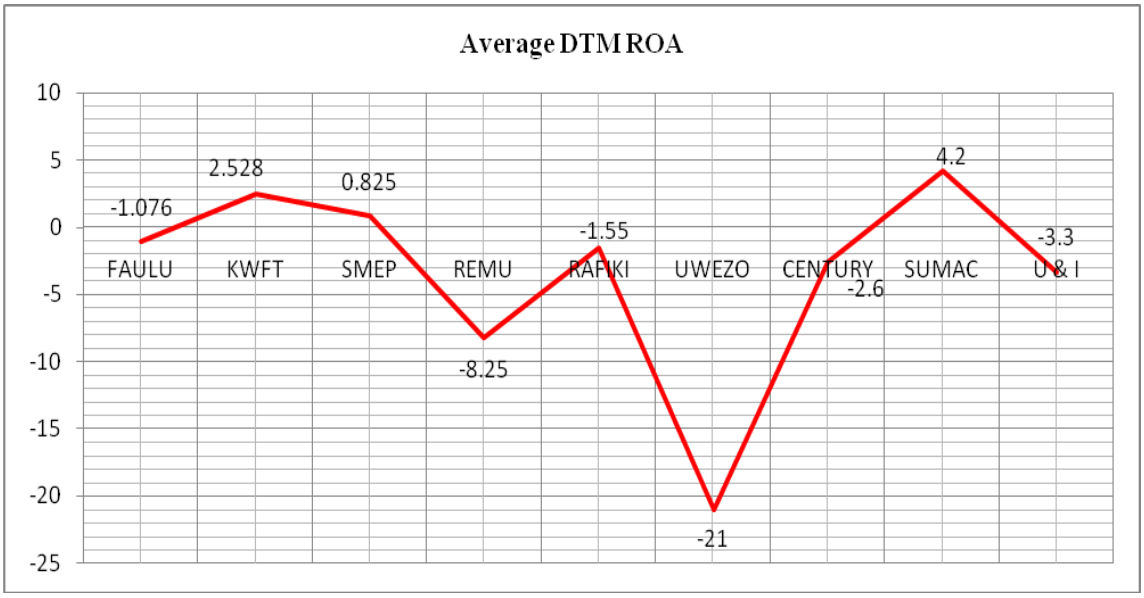
4.2.6 Factors hindering the financial returns of your DTM

The question sought to find out the other factors hindering financial returns of deposit taking micro finance institutions. The key factors quoted by the respondents as affecting DTMs performance included high level of regulation in the industry, high competition from commercial banks and other financial institutions and unfavorable economic environment.

4.2.7 Profitability of DTM

As seen in figure 4.5 below, profitability of deposit taking microfinance institutions has remained low with only 33% of the DTMs having positive five years return on assets.

Figure 4.5: Profitability of DTMs



Source: Research Findings

In addition, the DTMs with positive ROA were those that have been in existence for long with the young DTMs having negative returns. The data on age of DTMs is shown in table 4.2 below.

4.3 Regression Analysis

Regression analysis was used to determine the relationship between independent and dependent variables in achieving the research objective.

4.3.1 Regression between DTMs Years of Operations and Profitability

Table 4.1: Age of Deposit Taking Microfinance Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.554402	0.307362	0.208414	6.92601

Source: Research Findings

As it can be seen in table 4.1 above, years of DTM operations is positively related to financial returns as shown by coefficient of correlation of 0.554 and coefficient of determination of 0.307.

Table 4.2: Years of DTMs Operations and ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	149.0074	1	149.0074	3.106288	0.012136
Residual	335.7873	7	47.96961		
Total	484.7947	8			

Source: Research Findings

The relationship established between age of DTM and financial returns was found to be significant at 5% significant level as shown by the p value of 0.012. The results are shown in table 4.2 above.

Table 4.3: Age of Deposit Taking Microfinance model coefficients

Model	Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-7.7517	3.1307		-2.4760	0.0425
Age	0.2917	0.1655	0.5544	1.7625	0.0012

Source: Research Findings

The prediction model on financial returns and DTM age are shown in table 4.3 above.

4.3.2 Financial Innovation and Financial Returns

Table 4.4: Financial innovation and financial returns model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.4544	0.2065	0.0931	7.4132

Source: Research Findings

Financial innovation has positive effect on financial returns as shown by coefficient of correlation of 0.4544 and coefficient of determination of 0.207. The results are shown in table 4.4 above.

Table 4.5: Financial innovation and financial returns model summary

	Sum of Squares	df	Mean Square	F	Sig.
Regression	100.102	1	100.10201	1.821491	0.021915
Residual	384.6927	7	54.956093		
Total	484.7947	8			

Source: Research Findings

The effect of financial innovation on return on assets is also significant since the p value is 0.02 which is less than 5% as table shown in table 4.5.

Table 4.6: Financial innovation and financial returns model coefficients

	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-11.1591	5.8352		-1.9124	0.0974
Financial Innovation	1.9236	1.4253	0.4544	1.3496	0.2192

Source: Research Findings

The model coefficients for the model between financial innovation and returns are shown in table 4.6 above. The financial coefficient of 1.9 shows that introduction of innovative process or product, financial returns increases by 1.9%.

4.3.3 Amount spent on research and development and financial returns

Table 4.7: Investment in Research & Development and financial returns model ANOVA

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.497	0.247	0.139	7.222

Source: Research Findings

Investment in research and development leads to increase in financial returns as shown by R of 0.497 in 4.7 above.

Table 4.8: Investment in Research & Development and financial returns model ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	119.6761	1	119.6761	2.2944	0.1736
Residual	365.1186	7	52.1598		
Total	484.7947	8			

Source: Research Findings

However, as shown in table 4.8 above, the relationship between investment in research and development is not significant since p value is 0.1736 which is higher than 0.05.

The model coefficients are shown in table 4.9 below.

Table 4.9: Investment in Research & Development and financial returns model coefficients

Model	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-8.1139	3.6171		-2.2432	0.0598
R&D	2.1676	1.4310	0.4968	1.5147	0.1736

Source: Research Findings

4.3.4 Growth in Client Base growth and financial returns

Table 4.10: Growth in client and financial returns model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.7819	0.6114	0.5558	0.1880

Source: Research Findings

As shown in table 4.10 above, client base has a strong positive effect on financial performance of DTMs as shown by R of 0.78 and R square of 0.61. This implies that by DTMs reaching more clients, they can significantly affect financial performance.

Table 4.11: Growth in client and financial returns model ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	296.3879	1	296.3879	11.0119	0.0128
Residual	188.4068	7	26.9153		
Total	484.7947	8			

Source: Research Findings

The relationship derived is significant as shown by p value of 0.0128 which is less than 5%. The results are presented in table 4.11 above.

The model coefficients are shown in table 4.12 below.

Table 4.12: Growth in client and financial returns model coefficients

Model	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-14.4363	3.5825		-4.0296	0.0050
Client base	12.2809	3.7008	0.7819	3.3184	0.0128

Source: Research Findings

4.3.5 Number of branches and financial returns

Table 4.13: Number of branches and financial returns model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.5299	0.2808	0.1781	7.0574

Source: Research Findings

Number of branches is positively related to financial returns as indicated by coefficient of correlation of 0.53. The details are shown in table 4.13 above.

Table 4.14: Number of branches and financial returns model ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	136.1482	1	136.1482	2.7335	0.0142
Residual	348.6465	7	49.8066		
Total	484.7947	8			

Source: Research Findings

As shown in table 4.14 above, the relationship between number of branches is significant as shown by p value of 0.0142 at 95% significant level.

The model coefficients are shown in table 4.15 below.

Table 4.15: Number of branches and financial returns model coefficients

	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-7.2846	3.0694		2.3733	0.0494
Branches	0.4075	0.2465	0.5299	1.6533	0.1422

Source: Research Findings

4.3.7 Overall regression analysis

Table 4.16: Overall model coefficients

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.9624	0.9262	0.8032	0.4535

Source: Research Findings

The objective of this study was to determine the effect of financial innovation on financial returns of DTMs in Kenya as measured by return on assets. To achieve this, age of DTMs and number of branches were used as control variables. As shown in table 4.16 above, the model developed could explain up to 93% of changes in financial returns as indicated by R square. There is a strong positive relationship between independent and dependent variables as shown by R of 0.96.

Table 4.17: Overall model ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	449.0146	5	89.8029	7.5296	0.0064
Residual	35.7801	3	11.9267		
Total	484.7947	8			

Source: Research Findings

The relationship determined between dependent and independent variable is significant as shown by p value 0.0064 which less than 5%. The results are in table 4.17 above.

Table 4.18: Overall model coefficients

Model	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Constant	-22.6165	3.5399		6.3891	0.0078
Financial Innovation	2.2483	0.8302	0.5311	2.7082	0.0073
R&D	0.1207	0.9798	0.0277	0.1232	0.9097
Client base	8.6679	3.2175	0.5519	2.6940	0.0074
Branches	0.2981	0.1782	0.3877	1.6728	0.0019
Age	0.0585	0.1019	0.1112	0.5739	0.0061

Source: Research Findings

The model coefficients are shown in table 4.18 above. The model developed is $Y= -22.62X_1+2.25X_2+8.67X_3+0.3X_4+0.59X_5$ where X_1 is level of financial innovation, X_2 is the growth on amount spent on research and development, X_3 is the growth in client base, X_4 is the number of branches while X_5 is the age of DTM.

4.4 Interpretation of the Findings

The study sought to determine the effect of financial innovation on financial returns of deposit taking microfinance institutions. The study found that financial innovation had positive and significant effect on financial returns of deposit taking microfinance institutions with coefficient of correlation of 0.4544 and coefficient of determination of square of 0.207. The coefficient of determination of 0.207 indicates that financial innovation can account for 20.7% of change in financial returns. Introduction of innovative processes or product led to 1.9% increase in financial returns as found in the model coefficients between financial innovation and returns of 1.9.

The findings were in line with those of Rahmans (1999) who found that adopting financial innovations ensured efficiency, sustainability and improvement in financial performance of microfinance institutions. The findings also are in line with those of Yeboah (2010) who found that financial innovations promoted access to microfinance services and contributed to increased education of the families. Locally, the findings agree with those of Mbogo and Ashika (2011) who found that technology advancement further fuelled financial innovations in microfinance industry by gathering of data and management, its transmission and analysis, benefiting through reduced costs or earn extra revenues, like ATMs, debit cards, IT transactions. In addition, Mugo (2012) found that MFIs in Kenya had embraced financial innovation with at least 60% having developed a new product hence widening their product range with financial innovation contributing to financial performance.

The study further found that age of DTM was positively related to financial returns with coefficient of correlation of 0.554 and that the relationship established was significant at 95% confidence level. Investment in research and development was also found to be positively related to financial returns but the relationship was not significant. Growth in client base was found to have significant strong positive effect on financial performance of DTMs as shown by R of 0.78 and R square of 0.61. Number of branches was also found to be positively related to financial returns as indicated by coefficient of correlation of 0.53. A strong positive significant relationship between independent variables (financial innovation, age of DTM, growth in client base, investment in R&D and number of branches) and dependent (financial returns) was found with a coefficient of determination of 0.96.

The model developed by the study was as follows $Y= -22.62+ 2.25X_1 + 0.12X_2 + 8.67X_3+ 0.3X_4+ 0.59X_5$ where X_1 is level of financial innovation, X_2 is the growth on amount spent on research and development, X_3 is the growth in client base, X_4 is the number of branches while X_5 is the age of DTM. The coefficients indicate that client base is the variable with the biggest effect on DTM financial performance, followed by financial innovation since the higher the coefficient, the higher the effect on overall model in case of change in any factor. Profitability of deposit taking microfinance institutions was also found to have remained low with only 33% of the DTMs having positive five years return on assets. In addition, the DTMs with positive ROA were those that had been in existence for long with the young DTMs making negative returns. The key factors identified for continued poor performance of DTMs were high level of regulation by central bank, high competition from commercial banks and other financial institutions and unfavorable macroeconomic environment.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter sets to draw conclusions that will seek to address the research objectives outlined in chapter one. From the analysis and data collected, the chapter presents discussions, conclusions and recommendations that were made. The conclusions and recommendations were based on the objectives of the study which was to determine the effect of financial innovation on financial returns of deposit taking microfinance in Kenya.

5.2 Summary

The study objective was to determine the effect of financial innovation on financial returns of deposit taking microfinance institutions. The study established that financial innovation has positive and significant effect on financial returns of deposit taking microfinance institutions with coefficient of correlation of 0.4544 and coefficient of determination of square of 0.207. Introduction of innovative processes or product leads to 1.9% increase in financial returns as found in the model coefficients between financial innovation and returns of 1.9.

The study further found that age of DTM is positively related to financial returns with coefficient of correlation of 0.554 and that the relationship established is significant at 95% confidence level. Investment in research and development was also found to be positively related to financial returns but the relationship was not significant. Growth in client base was found to have significant strong positive effect on financial performance of DTMs as shown by R of 0.78 and R square of 0.61. Number of branches was also found to be positively related to financial returns as indicated by coefficient of correlation of 0.53.

A strong positive significant relationship between independent variables (financial innovation, age of DTM, growth in client base, investment in R&D and number of branches) and dependent (financial returns) was found with a coefficient of determination of 0.96. The model developed by the study was as follows $Y= -22.62X_1+2.25X_2+8.67X_3+0.3X_4+0.59X_5$ where X_1 is level of financial innovation, X2 is the growth on amount spent on research and

development, X_3 is the growth in client base, X_4 is the number of branches while X_5 is the age of DTM.

Profitability of deposit taking microfinance institutions was found to have remained low with only 33% of the DTMs having positive five years return on assets. In addition, the DTMs with positive ROA were those that had been in existence for long with the young DTMs making negative returns. The key factors identified for continued poor performance of DTMs were high level of regulation by central bank, high competition from commercial banks and other financial institutions and unfavorable macroeconomic environment.

5.3 Conclusion

From the findings, the study concludes that financial innovation has positive effect on profitability of deposit taking microfinance institutions. In addition, investment in research and development which promotes financial innovation has also positive effect on financial returns of deposit taking microfinance institutions. The study further concludes that growth in client base has also positive effect on financial returns. The financial profitability differentials between DTMs can also be explained by size, age and the number of branches. From the findings, the study also concludes that financial performance of DTMs remains poor with main reasons being quoted as much regulation from the central bank of Kenya, competition from other financial institutions and poor macroeconomic environment.

5.4 Policy Recommendations

Microfinance institutions play an important role in providing financial access to excluded low income earners and small businesses. However, microfinance institutions cannot be able to deliver their roles without having positive financial returns. Therefore, based on the study findings, the study has a number of recommendations. First, financial innovation has positive effect on profitability of DTMs. Therefore, DTMs need to invest more on research and development so as to come up with more better and customer oriented financial products and services which will go a long way in boosting DTMs financial returns.

Secondly, growth in client base has been found to lead to increased performance for DTMs and therefore, microfinance outreach should be promoted so that the firms can be able to reach more people and as a result increase their financial performance. Finally, the key challenges facing DTMs performance is regulation, competition and poor macroeconomic

environment. Consequently, the Central Bank of Kenya should review MFIs regulation with the aim of boosting their performance and protecting them from unhealthy competition from other financial institutions. Policies to stabilize macroeconomic environment should also be formulated.

5.5 Limitations of the Study

The main limitation of study was inability to include more organizations with only DTMs being studied. To make more conclusive results, the study would have studied more institutions across financial sectors so as to provide a more broad based analysis. However, resource constraints placed this limitation. The study also faced a challenge of time which limited the study from collecting information for the study particularly where the respondent delayed in filling the questionnaire and travelling for collection the filled questionnaire.

The respondents were found to be uncooperative from the respondents because of the sensitivity of the information required for the study. The researchers explained to the respondents that the information they provided was to be held confidential and was only for academic purpose only and hence overcoming the challenge to ensure all the questionnaires were filled and returned.

5.6 Recommendations for Further Research

The study investigated the effect of financial innovation on financial performance in Deposit Taking MFIs. A further research should be carried to determine the effects financial performance on financial performance of the Microfinance institution in Kenya not only deposit taking. The study also recommends further study should be carried out to determine the effects financial innovation to other financial institutions in Kenya including commercial banks, insurance firms among others to determine its impact on financial performance.

REFERENCES

Armendariz, B., & Morduch, J., (2005). The Economics of Microfinance. Boston: MIT Press.

Arun, T., Imai, K. & Sinha, F., (2006). Does microfinance reduce poverty in India? Propensity score matching based on a national-level household data. Development Economics and Public Policy Working Paper Series No. 17, IDPM, University of Manchester.

Barham, L., Boucher, S., & Carter, M., (1996). Credit Constraints, Credit Unions and Small-scale Producers in Guatemala. World Development, 24(5), pp. 793-806.

Barr, M., (2005). Microfinance and Financial Development. *Michigan Journal of International Law*, 26, pp. 271-296.

Bhatt, N., & Tang, S., (2001). Designing group-based microfinance programs: Some theoretical and policy considerations. *International Journal of Public Administration* 24, 1103- 1125.

Boot, A., & Thakor, A., (2007). Banking scope and financial innovation. Review of Financial Studies, 10 (4), 1099-1131.

Brune, A., (2009). An empirical study on the impact of microfinance institutions on development Institute for Empirical Research in Economics (IEW) at the University of Zurich

Brunnermeier, K., (2009). Deciphering the liquidity and credit crunch 2007-2008. *Journal of Economic Perspectives* 23, 77-100.

CBK, (2014). List of Deposit-Taking Microfinance Institutions. Retrieved on 16th April, 2014 from http://www.centralbank.go.ke/index.php/bank-supervision/microfinanceinstitutions/-list-of-licensed-deposit-taking

Cohen, M., (1999). Opening Up the Impact Assessment Agenda. Paper prepared for the Latin American Microfinance Meeting. AIMS. Washington D.C: Management Systems International.

Cronbach, J., (1951). Coefficient alpha and the internal structure of tests.

DeCrombrugghe, A., Tenikue, M., and Sureda, J., (2008). Performance Analysis for a Sample of Microfinance Institutions in India. Annals of Public and Cooperative Economics, 79(2), pp. 269-299.

Demirguc-Kunt, A., Beck., T., & Honohan, P., (2008) Finance for All? Policies and Pitfalls in Expanding Access. World Bank Policy Research Report, World Bank, Washington DC.

Eichengreen, B., and Gibson D., (2001). Greek banking at the dawn of new millennium. CERP Discussion paper 2791, London.

Ellis, F., (2008). Livelihood Diversification and Sustainable Rural Livelihoods. In D. Carney (Ed) Sustainable Rural Livelihoods; What contribution can we make? (pp. 53-65). Nottingham: Russell Press.

Fernando, A., (2004). Microfinance Outreach to the Poorest: A Realistic Objective? ADB Finance for the Poor, 5(1).

Financial Deepening Sector Report (2010). Financial access in Kenya

Frame W., and White, L., (2004). Empirical studies of financial innovation: lots of talk, little action? *Journal of Economic Literature* 42, 116-144

Gennaioli, N., Andrei, S., and Robert, V., (2012). Neglected risks, financial innovation, and financial fragility. *Journal of Financial Economics* 104, 452-468.

Gibbons, S., & Meehan, W., (2002). The Microcredit Summit's Challenge: working toward institutional financial self-sufficiency while maintaining a commitment to serving the poorest families. *Journal of Microfinance*. 1(1), 131-192.

Henderson, J., and Pearson, D., (2011). The dark side of financial innovation: a case study of the pricing of a retail financial product. *Journal of Financial Economics*.

Honohan, P., (2004) Financial Sector Policy and the Poor: Selected Findings and Issues. Working Paper, No. 43, World Bank, Washintong.

Jalilian, H., & Kirkpatrick, C., (2005) Does Financial Development Contribute to Poverty Reduction? *Journal of Development Studies*, 41(4), pp. 636-656.

Koivu, T., (2002). Do efficient banking sectors accelerate economic growth in transition countries? Bank of Finland Institute for Economies in Transition

Krauss, N. & Walter, I., (2008) Can Microfinance Reduce Portfolio Volatility? Working Paper

Ledgerwood, J., (1999). Microfinance Handbook: An Institutional and Financial Perspective. Washington D.C: World Bank.

Levine, R., (2004) Finance and Growth: Theory and Evidence. NBER Working Paper Series, No. 10766, National Bureau for Economic Research.

Morduch, J., (2000) The Microfinance Promise. *Journal of Economic Literature*, 37(4), pp. 569-1614.

Motta, M., (2004). Competition Policy: Theory and Practice. Cambridge, UK: Cambridge University Press

Mugenda, O., & Mugenda, A., (2003).Research Methods, Quantities and qualitative approaches, Act press Nairobi.

Mugo, J., (2012). The effect of financial innovation on the growth of micro-finance institutions in Kenya. An MBA project, University of Nairobi

Mutua, I., (2011). The linkages between micro finance institutions and commercial banks in Kenya. University of Nairobi. Unpublished MBA Research Project.

Mwangi, M., (2013). Effect of competition on the loan taking microfinance institutions in Kenya: A case of Nairobi performance of deposit region. *International Journal of Social Sciences and Entrepreneurship.*

Nkungi, B & Moauro, A., (2013). 2012 annual report on microfinance sector in kenya. Microfinanza Rating.

Nyaga, T., (2008). The nature of competition within micro finance industry in Kenya. University of Nairobi. Unpublished MBA project

Painter, J., & MkNelly, B., (1999). Village Banking Dynamics Study: Evidence from Seven Programs, *Journal of Microfinance*, 1(1), 91-116

Perry, D., 2002, Microcredit and women moneylenders: The shifting terrain of credit in rural Senegal, Human Organization 61, 30-40.

Pindado, J., (2010). How Do Firm Characteristics Influence the Relationship between R&D and Firm Value? Financial Management (2010): 757-82.

Rahman, A. (1999). Potato and sweet potato in Bangladesh. Working paper No 7, Bogor, Indonesia: CGPRT Centre

Richard M., Levich, E., Gerald, C., Charles, S., Sanford, J., and George, J., (1998). Financial Innovations in International Financial Markets. The United States in the World Economy. University of Chicago Press

Robinson, M., (2003). The Microfinance Revolution: Sustainable Finance for the Poor. Washington D.C: World Bank

Robinson, M., (2001). The Microfinance Revolution: Sustainable Finance for the Poor, Washington: World Bank and Open Society Institute.

Robinson, M., (1996). Addressing some key questions on finance and poverty. *Journal of International Development*.

Rudd, A., (2011). Microfinance as a poverty alleviant: Have we given it too Much Credit? An Analysis of Variance in Welfare Outcomes, March, 2011

Schumpeter, A., (1934). The Theory of Economic Development, Cambridge, Mass.: Harvard

Shaw, J., (2004). Microenterprise Occupation and Poverty Reduction in Microfinance Programs: Evidence from Sri Lanka, World Development, 32(7), 1247-1264.

Silber, L., (1983). The process of financial innovation. The American Economic Review.

Stiglitz, E., and Weiss, A., (1981). Credit Rationing in Markets with Imperfect Information. American Economic Review.

Thorsten, B., Tao, C., Chen, L., and Frank, M., (2013). Financial Innovation: The Bright and the Dark Sides.

Vanroose, A., & Espallier, D., (2009). Microfinance and Financial Sector Development CEB Working Paper N° 09/040

Yeboah, E., (2010). Microfinance in rural Ghana: a view from below. University of Birmingham Research Archive

APPENDICES

APPENDIX I: LIST OF DTMS AS AT JUNE 2014

Deposit Taking Microfinance	Date Licensed as DTM
Kenya Women Finance Trust Dtm Limited	31st March 2010
Smep Deposit Taking Microfinance Limited	14th December 2010
Remu Dtm Limited	31st December 2010
Rafiki Deposit Taking Microfinance	14th June 2011
Uwezo Deposit Taking Microfinance Limited	08 November 2010
Sumac DTM Limited	29th October 2012
U&I Deposit Taking Microfinance Limited	8th April 2013
Faulu Kenya	21st May 2009
Century Deposit Taking Microfinance Limited	17th September 2012

Source: Central Bank of Kenya

APPENDIX II: AGE OF DEPOSIT TAKING MICROFINANCE

DTM	Year Started	Age
FAULU	1992	22
KWFT	1981	33
SMEP	1975	39
REMU	2011	3
RAFIKI	2011	3
UWEZO	2012	2
CENTURY	2012	2
SUMAC	2004	10
U & I	2013	1

Source: Central Bank of Kenya

APPENDIX III: QUESTIONNAIRE

This questionnaire is for the purpose of data collection for research only. All information will be treated with highest level of confidentiality; please do not indicate your name or name of your organization. Please fill by appropriately by ticking or as required in the various sections.

SECTION A: BACKGROUND DATA

1. What position do you hold in the Deposit Tacking Microfinance?

   Director [ ]

   Senior Manager [ ]

   Middle Level Manager [ ]

   Other [ ] Please specify……

2. How long have you been serving in the organization as specified above?

   1-3 years [ ]

   4-7 years [ ]

   Over 7 years [ ]

3. How old is your Microfinance?

   1-5 years [ ]

   6-10 years [ ]

   11-15 years [ ]

   Over 15 years [ ]

4. Which year was your Microfinance licensed to become Deposit Taking Microfinance?

   2013 [ ]

   2012 [ ]

   2011 [ ]

2010 [ ]

2009 [ ]

Earlier than 2009 [ ] Please specify the exact year……

SECTION B: SIZE AND PERFORMANCE OF MICROFINANCE

5. Please fill the table below as appropriate.

Years	2013	2012	2011	2010	2009
Number of branches per year					
Number of active Accounts (000)					
Number of financial products offered on average for each year (forex, insurance, types of accounts etc)					
Total number of ATMs					
Total New process introduced per year (Mobile banking, online banking)					
Profitability as measured by Return on Assets per year					
Amount spent on Research and Development per year (In Thousands)					

6. Which other key factors are hindering the financial returns of your DTM not captured above?

……

……

End

Thank you for providing the responses