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Effect of Credit Market Information Systems on Financial Performance of Microfinance Institutions in Nairobi County

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Abstract: *The study examines the effect of credit market information systems on financial performance using nine Deposit Taking Microfinance Institutions in Nairobi County regulated by the Central Bank .The objective of the study was examine whether internal reporting systems and market intelligence systems have any significant effect on DTMs financial performance (DV) for the period 2011 to 2015. Literature was reviewed to ascertain knowledge gap left by earlier scholars and researchers' .The study was guided by credit access theory and information asymmetry theory. Descriptive research design was used to measure the relationship between the independent variables and the dependent variable on nine (9) Licensed DTMs and not the whole number of thirteen (13) because four of them were licensed in 2015 and 2016 as their performance could not be determined accurately. One hundred and eight (108) credit officers were sampled and 92 questionnaires were duly filled and returned. Primary and secondary data obtained from the institutions' financial reports and the Central Bank of Kenya Banks' supervision report. A questionnaire was used to collect primary data while secondary data was collected using a secondary data collection schedule where the relevant information collected was filled in and analyzed using statistical measures of central tendency. Data was analyzed using SPSS and multiple linear regression model was used to determine the effect of each explanatory variable on the financial performance and results indicated that internal reporting systems and market intelligence systems predict a significant amount of the variation in financial performance of the MFIs.Overally, the findings indicated that the there is a strong link between the independent variables tested and financial performance(DV).Further studies should be carried out in other geographical regions and other financial institutions such as banks, SACCOs ,Real Estates and insurance companies among others.*

Keywords: *Credit Access, Deposit taking, Market Intelligence systems, Internal Reporting Systems, Financial performance.*

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I. Introduction

Chapter one introduces the background information of the study on MFIs and credit market information systems. The chapter is divided into the following sub-topics: evolution of Microfinance Institutions, statement of the problem, purpose of the study, study objectives, research hypothesis, and significance of the study, scope of the study, limitations, assumptions and delimitations

1.1 Background of the study

1.1.1 Microfinance

Biekpe (2010), defined microfinance as loan(s) given to poor people without access to commercial banks. It is provision of financial services to low-income customers, consumers and self-employed lacking access to banking and related services (Ledgerwood, 1999).According to Mobegi & Memba (2013), MFIs have the ability and opportunity to serve poor people in areas that are unattractive to commercial banks.

1.1.2 History of Microfinance

According to CGAP(2003) formal credit and savings institutions for the poor have been around for decades, providing customers who were traditionally neglected by commercial banks a way to obtain financial services through cooperatives and development finance institutions.MFIs are not a new concept as noted by researchers since savings and credit groups have served the poor for centuries and the notable ones include the Susus of Ghana, Chit funds in India, Tandas in Mexico, Arisan in Indonesia, Cheetu in Sri Lanka, Tontines in West Africa and Pasanaku in Bolivia including savings clubs and burial societies found all over the world.

The earlier and longer-lived micro credit organizations that provided small loans to rural poor with no collateral was the Irish Loan Fund system initiated in the early 1700s.The principal purpose was to make small loans with interest for short periods and at their peak they made loans to 20% of all Irish households annually (Brau, 2004).In the 1800s, various types of larger and more formal savings and credit institutions began to emerge in Europe and were organized primarily among the rural and urban poor and were known as People's Banks, Credit Unions and Savings and Credit Co-operatives.

According to Robinson (2002) from 1950s all through to the 1970s the provision of financial services by donors and governments were mainly in the form of subsidized rural credit programmes. These often resulted in high loan defaults, high losses and an inability to reach poor rural households. Further according to Robinson (2002) and Otero (1999) Microcredit and microfinance came to prominence in the 1970s. Robinson states that the 1980s represented a turning point in the history of microfinance in that MFIs such as Grameen Bank and BRI2 began to show that they could provide small loans and savings services profitably on a large scale (Yunus, 2008). The importance of microfinance in the field of development was reinforced with the launch of the Microcredit Summit in 1997 where the Summit aimed to reach 175 million of the world's poorest families, especially the women of those families, with credit for the self-employed and other financial and business services, by the end of 2015 (Microcredit Summit, 2005). More recently, the UN, as previously stated, declared 2005 as the International Year of Microcredit.

Much success in Latin America and South Asia is enough evidence that MFIs provide almost every financial service to low-income individuals and households. Similarly in India and Bangladesh self-help groups have led to the promotion of female empowerment programmes through availability of financial services to many low income earners in the region. In socially conservative countries such as Afghanistan women are accorded explicit recognition as economic agents as a result of microfinance interventions.International NGO Technoserve of Ghana has operated for years and has an inventory credit scheme where farmers' groups obtain higher value for their crops by providing post-harvest credit through linkage with rural financial institutions. Such loan permits them to settle outstanding debts as well as immediate cash needs. When prices rise in the off-season, the farmers either sell the stored crop or redeem it for home consumption (World Bank, 1997).According to Dichter (2007), the National Microfinance Bank of Tanzania was created to retain the extensive rural branch network of its National Bank of Commerce when it was privatized in 1997. Its Key initiatives have been correct pricing of products, particularly payments and remittance services, which had traditionally been cross-subsidized by other product lines, and the development of microfinance products, mainly small individual loans (average US $400).

According to CGAP (2003) Equity Bank of Kenya emerged as one of Kenya's leading microfinance institutions and now a commercial Bank with more than 155,000 depositors and 41,000 loan borrowers. The bank transformed itself from an insolvent building society to MFI and currently a stable and profitable commercial Bank. The MFI attributes its success to focusing on the needs of its customers and particular, by developing a wide range of market-based financial products services and the now publicised e- banking.

1.1.3 Challenges facing Microfinance Institutions

More often the microfinance system is now largely independent of the conventional financial sector and very recently globally, the sustainability of the industry has raised significant concerns (Awaworyi & Marr, 2012). During the first quarter of 2013 approximately 30 unnamed microfinance institutions in Ghana collapsed due to an alleged inability to sustain their operations. As a consequence of the collapse, customers were not refunded any money that they deposited leading to a great mayhem in the whole country, reportedly because they could not be traced or MFIs did not have the funds to refund

1.1.4 Credit market information systems

Harmon (2003) defined marketing information system as a computerized system that is designed to provide an organized flow of information to enable and support the marketing activities of an organization. Marketing activities are directed toward planning, promoting, and selling goods and services to satisfy the needs of customers and the objectives of the organizations; marketing information systems (MKIS) support decision making regarding to these activities (Harmon, 2003).Marketing information system prepares data and makes them available when the need for such data arises for better decision (making better alternative course of action).Presently the business world is characterized by the wave of information technology and therefore looking for information about own organization and opponents is vital for survival. No one single component of information can guarantee success but will contributes to complete performance.

1.1.5 Information systems in financial institutions

According to Kotler & Keller (2012), the financial success of an organization depends on its marketing ability since finance activities, accounting operations and other strategic functions are not significant if the there

is no creation of demand for the organization's products and services. According to Gertler (1995), credit market information systems are interaction of people, equipment and ways of executing business operations with the purpose of gathering, sorting, analyzing, evaluating and distributing information to the relevant users. This is used in decision making resulting to improving marketing, planning, implementing and controlling. Credit markets play a major role in facilitating fund intermediation and hedging of risks between fund lenders and borrowers (Bernanke, Ben and M. Gertler, 1995).

According to CBK (2012), the outcome of efficient credit market information results to fewer mistakes by lenders, less default by borrowers and appropriate pricing of credit. The credit market to great extent experiences information intermediation imbalance, a problem in financial markets where fund borrowers possess more information about their financial status than their lenders (Akerlof, G.A, 1970). This makes it very hard for lenders to verify customers in order to make correct informative decisions.

1.2 Statement of the Problem

The success of MFIs largely depend on the effectiveness of their credit market information systems because these institutions generate most of their income from interest earned on loans extended to small and medium entrepreneurs. The Kenya Central Bank Annual Supervision Report of 2014 indicated high incidence of credit risk reflected in the rising levels of non- performing loans by the MFI's in a period of 10 years, a situation that adversely impacted on their profitability. This trend not only threatens the viability and sustainability of the MFI's but also hinders the achievement of the goals for which they were intended which are to provide credit to the rural unbanked population and bridge the financing gap in the mainstream financial sector.

As competition in microfinance lending intensifies in the developing countries, borrower information becomes more important. MFIs are increasingly utilizing the services of credit bureaus to address a fundamental problem of all credit markets: asymmetric information between borrowers and lenders that can lead to problems of adverse selection and moral hazard. Motivated by industry survival amidst increasing competition, a wide array of lending institutions in developing countries are becoming increasingly aware of the essential role that credit market information systems play towards the creation and maintenance of an efficient market financial system. The Loan delinquency has continued to pose serious challenges to most of these institutions. This is a serious risk to the MFIs sustainability as credit risk affects their success and general financial performance. It is certain that these MFIs are vulnerable to wide range of risks in the course of their operations due to the nature of their businesses, customers' profile and diversification of their assets in the credit markets (Agene, 2011).

The poor financial performance is being dictated by inadequate credit market information systems. According to McCarthy & Perreault (1993), without market information, managers tend to use intuition and guesses to evaluate customers' creditworthiness which in today's fast changing and competitive markets invites failure.

The subject of credit market information systems operating in the microfinance sector has been virtually untouched by the academic literature. McIntosh and Wydick (2007) show that the existence of a credit bureau may improve credit access for the poorest borrowers. Assuming that credit markets are competitive, information availability and sharing lowers lender costs through lower default rates. This implies that in a zero-profit equilibrium, borrowers with lower levels of initial assets become added to micro-lender portfolios. However research is mostly limited to a number of case studies in Kenya such as Jagongo (2013), Kipyego & Mwangi et al.,(2013) have in turn been carried out regarding the new phenomena of CRBs in the Kenyan banking sector and the main focus has been on how the CRBs and information sharing have influenced the NPLs.

Limited information exists on how credit information has affected the performance of Microfinance institutions in Kenya. There are scarce studies dealing with this aspect and this study therefore seeks to investigate the effect of credit market information systems in decision-making in DTMs financial performance.

1.3 Purpose of the study

To establish the significance of using credit market information systems in decision-making on MFIs financial performance.

1.4 General Objective

To determine the effect of credit market information systems on financial performance of MFIs in Nairobi County.

1.5 Specific Objectives

i). To examine the effect of internal reporting systems on financial performance of MFIs in Nairobi County.

ii). To examine the effect of market intelligence systems on financial performance of MFIs in Nairobi County.

1.6 Research Hypotheses

H_O1: Internal reporting system has no effect on financial performance of MFIs in Nairobi County.

H_O2: Market intelligence system has no effect on financial performance of MFIs in Nairobi County.

1.7 Significance of the study

The results of the study will help the Government to enact and strengthen laws to Protect and to enforce the rights of the financial intermediaries' in Kenya. Secondly the outcome of the study provides a door to scholars for further research as less has been written on this topic. Thirdly the results will assist deficit units in credit market to understand the available information on the menu of products provided by financial intermediaries. Lastly the study brings out clearly the benefits that accrue due to the integration of credit market information systems in financial institutions operation thereby providing useful information in making investment and credit decisions.

1.8 Scope of the study

The study covered 9 Deposit Taking Microfinance Institutions operating in Nairobi County licensed and Regulated by the Central Bank of Kenya from January 2011 to December 2015. It involved examining the influence of internal reporting systems, market intelligence systems, market research systems and market decision support systems and how they influence the financial performance of the DTMs. The study was conducted in a period of Five months, November 2016 to February 2017 and involved collecting and analyzing data. The effect of credit market information systems on the financial performance of MFIs in this area was analyzed and established its contribution to the industry.

1.9 Limitations of the Study

Due to conservative nature of organizations, participants viewed market information as confidential, sensitive and their responses were to some extend biased as they feared that competitors may use the information for their own gain. Consequently the participants encountered difficulties in understanding the engagement of finance terms leading to human error. Thirdly Nairobi County is very expansive with MFIs scattered all over and required a lot of time to reach the participants who were also busy people and who did not have adequate time to attend to the questionnaires immediately. Secondary data was obtained from online annual financial reports and statements and this posed a major challenge to get direct data from the institutions offices. Hence this limited the scope of the study. Currently the sector has 13 DTMs and the inclusion of the most recent especially those started in 2014 to date did not have a well-developed information infrastructure and therefore results from them were not reliable. Lastly the target population and the experience of workers are from one county which differs from other counties.

To overcome the conservative nature of these organizations the researcher created an awareness of the relevance of the study and assured confidentiality. An introduction letter from the university was attached to the questionnaires to confirm the purpose of the study. To overcome the problem of having most of the MFIs scattered all over the expansive Nairobi area, the researcher distributed the questionnaires to all MFIs through EMS and Securicor courier services and picked them after a considerable time. The study included only 9 DTMs that were in operation as 31st December 2013 as they are deemed to have enough experience as well as information in this business. Lastly the results of the study were generalized to represent the MFIs in the entire country.

1.10 Assumptions

The assumptions are that MFIs keep and prepare their financial books according to IFRS, Generally Accepted According Principles, adhere to local legal requirements, they operate within the framework of the Microfinance Act and that their annual financial statements are audited.

II. Literature Review

2.1 Introduction

This chapter examines the theoretical and empirical literature casing effect of credit market information systems on financial performance of MFIs. The research explains several theories that back-up the study variables. Also included is the operational framework that states relationship between variables and how they affect the performance of DTMs and gives thorough background of the subject under investigation.

2.1 Scholarly Review

2.1.1 Internal Report systems and financial performance

According to Kotler & Keller (2012), Marketing managers require market information to spot market opportunities and threats. Internal reporting systems include records on orders, revenue, prices, costs, stock levels, debtors and creditors. According to Tumay (2010), internal report system are designed to provide the

ultimate beneficiary or decision-maker with reports that contain information to support daily decision-making and the data sources of these systems are derived from the internal environment of the regulation-making process.

Internal system is any type of publication within an organization that contains information for use in organizational decision-making and refers to the overall infrastructure and processes involved in the preparation, generation, storage and dissemination of internal reports. They are the overarching framework of how internal reports are provided which includes combination of budgets, monthly performance reports, operational data, and ad hoc reporting for special decisions that occur throughout an organization.

According to Romney (2003) record keeping is a set of components that collects, records, classifies, analyses, processes and summarizes books of accounts. In his study, One important area of accounting information system is financial reporting where they are used to monitor an organization's financial health and can inform decisions which need to be made about the direction in which the organization will be taken. For example in the study an internal report could reveal that one division spends a lot of funds without generating very much revenue and management could discuss how to make that division more efficient or consider the possibility of closing altogether.

2.1.2 Marketing intelligence systems and financial performance

According to Craig (2003) study on Intelligence systems impact on performance, market intelligence is an industry-targeted smartness that is developed on real-time basis of competitive events that affects the 4Ps of the marketing mix (pricing, place, promotion, and product) in the product or service marketplace in order to better understand the attractiveness of a market. (Fao.Org, 2010).

According to Fao.Org (2010) study on the applicability of market intelligence systems, found out that market intelligence systems provide information that drives strategic and tactical decisions for an organization. MI is an ongoing process and interacting structure of people, equipment and procedures that its aim is to gather, sort, analyze and distribute pertinent, timely and accurate information for use by marketing decision makers to improve marketing, planning, implementation and control (Kotler and Armstrong, 2010).

According to Jazdtech (2010) study on relationship between intelligence systems and credit information sharing in Bangladesh found out that, organizations invest heavily to aggregate data from various systems to create a whole enterprise view that fully reflects the daily state of business that supports more effective informed decisions. According to the same study organizations that invest in MIS less experience market information deficiencies as they are in position to share information about the dynamics of the market with similar institutions. Efficient information intermediation promotes efficient financial systems that initiate transparency in lending, mitigation of adverse selection and moral hazard in credit markets. Efficient information intermediation lowers loan defaults, interest rates and improves the pool of borrowers in formal credit markets (Luoto, McIntosh & Wydick, 2007).Increase in competition among microfinance lenders has made credit bureaus a necessary step toward financial sector steadiness.

According to Amaravadi, (2015) study on Credit information sharing and its challenges and constraints found out that, intelligent marketing information system (IMkIS) has the capacity to address some of the pressing concerns facing credit marketers today. The study supports that Intelligence marketing system can help in analyzing loan product features with customer data, evaluating channel and pricing options, creating and testing promotion plans, gaining instant feedback on concepts and plans, and moving marketing plans rapidly into production.

2.1.5 Financial Performance

According to Lynch (2011) financial performance are the results of an organization's policies and operations in monetary terms as a result of its different activities that include operating income, earnings before interest and taxes, and net asset value .Organizations measure financial performance for two reasons: firstly to produce financial statements at the right time and secondly to analyze the financial statements to produce information about its performance to be used to improve performance.

According to Lynch (2011) study on success of financial performance found out that, financial performance remains a fixed scale for success of organizations, as well as lack of it with basic required level threaten their existence and continuity. It is a measure of how an organization puts to use its assets from its central business and generates its revenue.

Meyer (2010) study revealed that one of the benefits MFIs derive from credit market information systems products and services delivery is improved efficiency and effectiveness of operations so that more transactions can be processed faster and most conveniently, which will undoubtedly impact significantly on their overall financial performance.

In MFIs the main measure of performance is profitability assessed by return on assets (ROA) which is the ability to deploy assets profitability as well as return on equity (ROE) which is a measure of the returns on

the owner's investment (Rosenberg ,2009). In overall financial performance is clearly noticed in loan sizes, enterprise size and revenue (Stieglitz & Weis 1981).Expansion and survival of financial lenders depends on successful fund transaction programs.

2.2 Theoretical Literature

A theory is a set of systematic interrelated concepts, definitions and propositions that are advanced to explain and predict phenomena (Cooper & Schindler.2014).various variables that influence the degree of effect of information systems on financial performance of deposit taking microfinance institutions in this study are considered: Internal reporting systems and market intelligence systems. The finance theories supporting financial performance of DTMs and credit access theory and information asymmetry theory and concluding from these theories the research obtained the variables that influence financial performance and the multiple linear regression model.

2.2.1 Credit Access Theory

Credit access theory was formulated by Stiglitz & Weiss (1981) and deliberated that the unavailability of information on credit markets has been the main contributor of financial underperformance and exit of financial intermediaries in financial markets. Financial intermediaries are always bothered with the safety of the funds they are entrusted with and end-up spending too much to screen and to monitor credit customers as it possess great financial risks.

This theory explains how adverse selection and credit rationing can be effected in MFIs as they require security and supports that low-risk borrowers expect a lower rate of return on average (Stiglitz& Weiss, 1981).In advancing this study the theory advocates that less information on credit customers dictates that MFIs seek for high collateral in exchange for credit as this saves the MFIs assets and consequently improves their financial performance.

Managing credit risk is an integral part of a microfinance institution operating technique where reducing risks requires a major operational effort. MFIs as loan service providers' faces the hazard of imperfect selection of credit clients with little or no collateral security and therefore the need for internal report systems designed within an adaptive framework.

MFIs must develop numerous approaches in coming up with internal client appraisal process. They should range from relatively simple methods, such as the use of subjective or informal approaches, to fairly complex ones, such as the use of computerized simulation models. Many lending decisions by Microfinance institutions are frequently based on their subjective feelings about the risk in relation to expected repayment by the borrower. Microfinance institutions commonly use this approach because it is both simple and inexpensive. While each company would have its own method of determining risk and quality of its clients, depending on the target group, the following client evaluation concepts are useful for most occasions. These concepts are referred to as the 5C's of credit appraisal (Edward, 1997). These elements are Character, Capacity, Collateral, Capital and Condition (Edward, 1997).

2.2.2 Information Asymmetry Theory

The asymmetric theory of information was developed in 1970s and 1980s by George Akerlof, Michael Spence and Stiglitz as a plausible explanation for common phenomena that mainstream general equilibrium economics couldn't explain. This theory proposes that an information imbalance between a buyer and a seller can lead to inefficient outcomes in a financial market (Yunus, 2008).According to this theory it is not possible naturally to differentiate a good and bad borrower. It suggests that in debt markets, deficit units seeking to obtain loans seemingly have better information on risks and returns on investments (Edwards, P. and Turnbull, 1997).If financial institutions exchange private information about their clients' credit worth it allows loans to be awarded to safe borrowers and this result in reduced levels of NPLs and deters in-save cash outflows.

Mushkin (1999) states that the rationale behind financial intermediaries is the ability to collect information and reduce moral hazard. Banks have an incentive to collect information because they make private loans that are not traded. They can also engage in lower cost monitoring than individuals since they can threaten to cut off lending in the future to improve a borrower's behavior. Nevertheless, the ability to collect information is only increased when banks engage in long –term customer relationships (Mushkin, 1999) and that information provides competitive advantage and is an important source of bank profits.

This theory is ideal as it gives answers to the hard questions financial lenders undergo when solving money lending problems in evaluating and monitoring borrowers and sharing their information (Binks et al, .1996).It opinions that marketers are supposed to gather information from available sources and processes them into meaningful information that can be used to make critical decisions. In a business set-up the more information about a market environment is gathered the more accurate business decision will be. Adverse selection and moral hazard has robbed financial intermediaries' seed capital and interest income leading to accumulation of unpaid loans. According to Nkusu (2011), the survival of financial intermediaries are bench-

marked by their ability to solve three basic problems of unavailability of information, which are, ex ante, interim and ex post. It is therefore necessary for financial institutions to invest in market intelligence systems to solve information asymmetry.

2.3 Empirical Literature

Previous Studies have been done on financial performance explaining credit market information systems as an influencing factor and this present study considers various studies identified as beneficial.

Ngango at el., (2015) examined the impact of E-banking and performance of commercial banks in Rwanda, Kigali. The study was guided by four specific independent variables: Mobile Banking, Internet Banking, and Telephone Banking Electronic Card Banking. The study used descriptive research design where the unit of analysis was the bank of Kigali and primary data was collected from its 44 employees using questionnaires. The 44 employees were purposively selected depending on their ability to easily analyze and understand the problem of study. Also a fair representation from each office and the stakeholders were considered when sampling. Secondary data was obtained from published reports. The study concluded that the use of Electronic Banking System : ATM, Pay direct, mobile phone banking, debit or visa card payment and E electronic check payment have a great impact on bank performance as they increase profitability, improves bank management quality, increase bank asset and promotes bank growth and expansion. The results indicate that independent variable has positive high correlation to dependent variable equal to .656 and p-value was below .001

Dong (2009) examined the effect of creditor information sharing in resolving a asymmetric information friction in bank cross-border consolidation decision. Data was collected from selected banks cross-border consolidation between 1990 and 2007 in 58 countries. The data set Djankov et al., (2007) was utilized to measure credit information sharing mechanism in conjunction with creditors' rights index. The study was guided by two variables, namely, Bank regulation and supervision. Regression was used and the study established that the existence of information sharing institutions could increase the probability of a country's bank to be international targets. A similar study by Olegario,(2003). also provided evidence that information sharing reduced credit constraints at firm level. This was done by examining balance sheet data of large companies in 23 countries where the investigations revealed a positive relation between credit access and an index of information sharing. Evidence also supports the theory that information sharing reduces moral hazard.

Kemei (2014) conducted study on the effects of information asymmetry in the performance of the banking industry in Mombasa County. The study was guided by four specific variables: information on borrower's creditworthiness, information on cost of borrowing, the legal system on enforcement of financial contracts and the protective mechanisms employed. The study adopted descriptive research design. Primary data was collected by use questionnaires and secondary data was collected from annual reports, Central Bank of Kenya publications, newspapers, journals and other publications. The study established that high loan default in new markets was due to lack of borrowers' information. From the study it was clear that if the banks were able to determine the borrower's creditworthiness, then this would lead to deserving borrowers getting the loan reducing the high rate of loan defaults. Then if this does not happen, there will be a high rate of loan defaults adversely affecting the performance of the banking sector. Secondly the study found that due to information asymmetry the cost of borrowing is inversely proportional to the performance of banks. Thirdly the study found that an efficient and water tight legal system is more efficient in enforcement of financial contracts. Lastly the study established that the actions of borrowers affect the performance of banks as evidenced by the use of flawed bank statements, Lack of funds due to market failures such as inflation, dynamic of credit history and qualified people without bank accounts. As Bank statements may not necessarily depict the financial status of the borrower. However this study had no respondents, no data presentation and analysis, had no scope data collection instruments were not pre-tested

Kago (2014) did a study on the effect of credit reference bureau service on financial performance of deposit taking microfinance institutions in Kenya. Her study investigated the effect of the number of defaulters on return on assets of MFIs.The study employed descriptive design to establish the effect of credit reference bureaus on the on financial performance of 9 deposit taking microfinance institutions registered by the Central Bank of Kenya as at 8th April 2013. The study used secondary data available from the financial statements of the MFIs for five years from 2009 – 2013 and was presented in tables and graphs. Further the study employed linear regression equation to test Return on Assets and total number of defaulters at the CRBs per year. The study established a strong relationship between number of defaulters and the financial performance of the DTMs (t-value =2.998, p=0.020).The study by Kago (2014) concerned itself with the level of Return on Assets and only singled one method of achieving this (defaulters) but failed to include its internal reports, capital market information, market research reports, its cash flow statements and liquidity ratios.

Yusuf et al., (2014) investigated the Impact of Management Information System (MIS) on the Performance of Business Organization in Nigeria. The main objective of the study was to determine how information systems help organizations to perform effectively. The target population of the study were the

operators of businesses organization in Nigeria. In obtaining the sample size of the population were selected through random sampling from five local government areas where a sample of 100 respondents selected through a probabilistic sampling techniques. The primary sources of data collection were through the use of questionnaire, personal observation and interview to collect data that was statistically analyzed using the Z-test.The study recommends that business organization should introduce flexibility in the nature or Pattern and structure of MIS, attention should also be paid to communication through the media agencies as a way of promoting company's control of the market as well acquiring appropriate and suitable computer software and program to meet MIS ever growing and expansion in the global business market environment. The study work revealed that there were a lot of barriers other than financing militating against the growth and development of MIS with 58% agreeing that Poor Technological equipment and advancement is one of the major barriers hampering the growth of MIS in Nigeria.It further revealed that 60% agree that lack of adequate knowledge and skill on information technology and the ability to manage the MIS process by various organizations is one of the major factor that affect the efficient performance of management information system in Nigeria, while 19% ascribe it to the poor data base management in most organization as another factor militating against the efficient performance of MIS in Nigeria, other factors like Rigidity in MIS process, pattern and structure which prevent easy information flow and accessibility to all information end user and the inability of most business in Nigeria to develop suitable computer software

Nyawira (2015) conducted a study to establish the effect of adoption of information technology on the growth of licensed MFIs in Nairobi. The study examined the extent to which effective adoption of technology has on licensed MFIs capabilities to grow. Her study specifically examined the effect of Mobile Banking, Automated Teller Machines and Internet Banking (Independent Variables) on growth of licensed Microfinance Banks (Dependent Variable) for the period January 2012 to June 2015.The study adopted a correlational research design to determine the relationship between the independent variables and the dependent variable on 9 DTMs.The study used secondary data obtained from the institutions' financial reports and the Central Bank of Kenya Bank supervision reports. Data was collected using a secondary data collection schedule and analyzed using statistical measures of central tendency. A multiple linear regression model was used to determine the relative effect of each explanatory variable on the growth of licensed MFIs. The study found that all the licensed microfinance institutions had adopted Information technology and that there exists a positive relationship between Information Technology and the Growth of licensed microfinance institutions in Kenya. The study recommended that MFIs should create awareness of the e-banking services and should involve security measures as well as the financial performance level indicated by ROA.However the study failed to clearly identify respondents, never used primary data, and was vague on Linear and multiple regression application. Further the study concentrated on adoption of information technology but failed to show how information technology can be used to better financial performance.

Munee (2011), conducted a study on the effect of credit information sharing on the financial performance of commercial banks in Kenya. The study adopted descriptive research design guided by financial performance level indicated by ROA (DV), level of Non-performing loans (IV), the total number of entries at the 2 CRBs per year for each bank (IV) and Other intervening factors that influenced ROA.The target population were the 43 commercial regulated by CBK as at March 2011.The study used secondary data from CBK reports, own banks financial statements and CRBs reports. To predict financial performance the study used regression linear equation. To present and to analyze data Frequencies tables, percentages, mean and standard deviation were used. The study found that 58.6% variations in the financial performance of Commercial banks was explained by credit information sharing and Non- performing loans. The study by Munee had no respondents, used t-test a wrong test, failed to diagnostic test, used only secondary data and ignored primary data from the institutions.

In 2013, Frank conducted a study to establish the effect of credit information sharing on the non-performing loans among commercial banks in Kenya. The study used exploratory research where the study population was 43 commercial banks and 1 mortgage bank operating in Kenya between 2010 and 2013.Frank study used secondary data from published financial statements and Bivariate regression analysis to establish the relationship between Dependent Variable (NPLs) and independent variable (total monthly reports).The study established that non-performing loans reduced with increase in credit information sharing($r = -0.537$, F-value =12.974 and the p-value=0.001).The study showed decrease in NPLs but failed to show how reports requested reduced NPLs. The study failed to establish the respondents, never collected primary data, and ignored important predictors such as its internal reports, market problems and other outcomes (cash flow, liquidity and financial efficacy.

Wangari & Jagongo (2015) conducted a study to determine the effect of Integrated Financial Management Information System (IFMIS) on Credit Scoring in Cooperative Societies in Nyeri County. The study was guided by four independent variables which are Internal Control Mechanism, Information Flow, Organizational Structures and Resources, Staff Competence and credit scoring as the dependent variable. This

study adopted a descriptive research design and the target population comprised a total of 30 respondents who included the Sacco manager and head of IT department of the 15 deposit taking SACCOs in Nyeri County. A self-administered semi structured questionnaire was used to collect both primary and secondary data. A Multiple regressions was used to measure the strength of the relationship between the dependent and independent variables. ANOVA was used to test the significance of the model and regression diagnostics were computed. The study recommended that SACCOs should ensure that their information flow is transparent and effective as this enhances confidence and credibility of the operations of the SACCOs. According to the study SACCOs will be able to monitor the information of clients and avoid falling into bad debts. The study also recommends that SACCOs should ensure they put in place a proper strategy-structure alignment. This is because changes in the competitive environment require adjustments to the organizational structure. In addition, SACCOs should realize that laxity in the realignment has a negative impact on financial performance. The study concentrated on the IFMIS as a measure of effecting internal controls however the study ignored market information systems as predictors of financial performance

2.5 Operational Framework

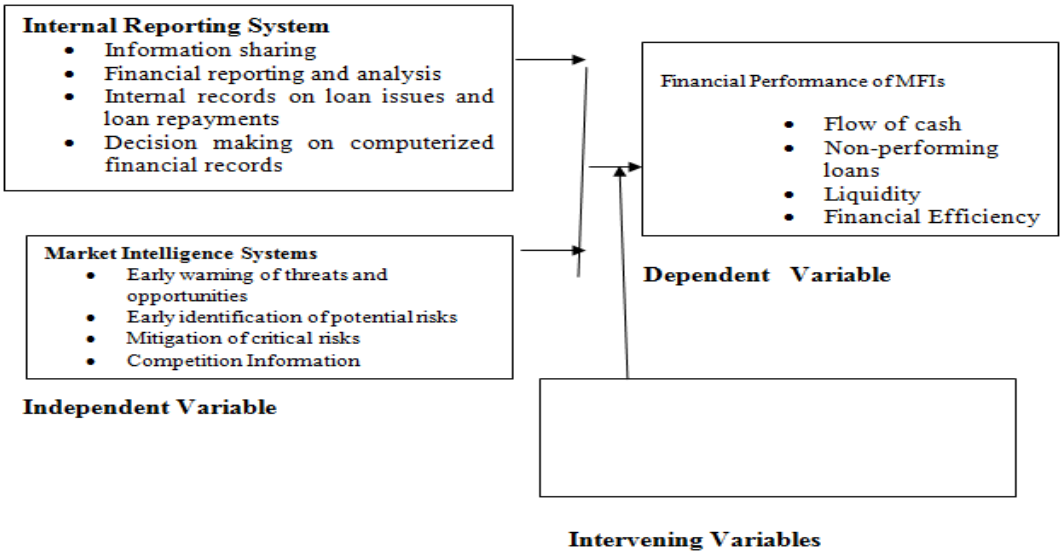


Figure 2.5 Operational Framework

Literature Review (2016)

This diagram explains credit marketing information systems as computerized system designed to provide an organized flow of information to enable and support the marketing activities of an organization (Harmon, 2003) gears at improving the financial performance.

2.6 Chapter summary and research gap

Reviewed studies agree that imperfect information causes at least four problems in credit markets: adverse selection, moral hazard, lack of insurance and lack of enforcement. The studies agree that it common knowledge that, moral hazard with insufficient collateral by the poor is the major reason why credit markets fail for them. Reviewed studies pointed out that information imperfections especially asymmetric information are major frictions in financial markets. Even under normal times borrowers (deficit units) in credit markets often have more information than lenders on the quality of the security and the riskiness of their investments. As echoed by a big number of authors and researchers in the above literature review, high- and low-risk borrowers are indistinguishable ex-ante, hence high-risk borrowers benefit at the expense of low-risk borrowers. The resulting problem of adverse selection when high-quality borrowers choose not to participate in the credit market leads to higher interest rates and a decrease in lending. The theoretical review and empirical findings analysis predict that sharing of information among financial institutions reduces information asymmetry and in turn this reduces the level of NPLs. The reduction of NPLs leads to better financial performance of the financial intermediaries. The chapter further has reviewed motivating finance theories and empirical work on credit market information systems. The discussed finance theories are the best in investigating credit market information systems and financial performance. However large section of studies reviewed focused on commercial banks as major financial intermediaries with scanty studies on effects of credit market information systems on financial performance of MFIs. None of the studies reviewed adequately researched on credit market

information systems in MFIs. Therefore this study investigated effect of credit market information systems on financial performance of MFIs, in order to fill the knowledge gap and foster research.

III. Research Methodology

3.1 Research Design

This study used a descriptive research design which attempts to define a subject through the collection of data and tabulation of the frequencies on study variables as well as their interactions (Schindler and Cooper, 2008).It serves a variety of research objectives which includes description of characteristics associated with the subject population, estimates of proportions of population that have these characteristics and discovery of associations among different variables (Ngechu, 2004). It was chosen because it enables the researcher to generalize the findings to a large population, it allows analysis and relation of variables. This method is appropriate because the researcher has no control over the variables but rather can only report what has been happening without sacrificing efficiency, and accuracy in the research process.

3.2 Target Population

According to Mugenda and Mugenda et al., (2012) population is an entire group of individuals, events or objects with common observable characteristics from which samples are drawn from for measurement and constitutes the items the researcher makes inferences from (Cooper &Schindler, 2014).The target population was 9 DTMs out of 13 in Nairobi County that operated between 1 January 2011 and 2015 December 31.

3.3 Sampling Frame

Denscombe (2007) defines a sampling frame as an objective list of the population from which the researcher can make a selection. The sample was selected from 150 loan officers as these were the people involved in daily lending business for the MFIs and thus, were well conversant with the subject matter of the study.

3.4 Sampling procedure and sample Size

When a population is more than 10,000 individuals, 384 of them are recommended as the desired sample size (Mugenda & Mugenda, 2012). The accessible population in this study was 150 DTM Loan Officers.
Mugenda and Mugenda recommend the formula

$$\text{nf} = \frac{\text{n}}{1 + \frac{\text{n}}{\text{N}}}$$

According to the above formula:
nf= desired sample size when the population is less than 10,000,
n= desired sample when the population is more than 10,000,
N= estimate of the population size.
Using the above formula sample size is:

$$\text{nf} = \frac{384}{1 + \frac{384}{150}}$$

The desired sample size was 108 employees, where expected sample size per MFI:- $\frac{\textbf{individual population per MFI} \quad \textbf{X108}}{\textbf{150}}$

Table 2: Sample Size

	Name of MFI	Loan Officers	Sample Size
1	UWEZO Deposit Taking Microfinance Limited	9	**6**
2	Faulu Kenya DTM Limited	5	**4**
3.	Kenya Women Finance Trust DTM Limited	48	**35**
4.	SMEP Deposit Taking Microfinance Limited	3	**2**
5	Remu DTM Limited	10	**7**
6	Rafiki Deposit Taking Microfinance	55	**40**
7	Century Deposit Taking Microfinance Limited	8	**6**
8	SUMAC DTM Limited	3	**2**
9	U&I Deposit Taking Microfinance Limited	9	**6**
	Total	150	**108**

Source: Author (2016)

3.5 Data Collection Instrument and Method

Data collection is the process of gathering and measuring information on variables of interest in an established systematic fashion that enables one to answer stated research hypothesis and evaluate their

outcomes. The study used self –administered closed and open ended questionnaires as main instrument for data collection through drop and pick method in which the respondents replied in writing.

A self-administered questionnaire was the only way to stimulate self-report on people's opinion, attitudes, beliefs and values (Sproul, 1998). It was less bias and respondents had adequate time to give well thought out answers and those who were not easily approachable were also reached conveniently (Kothari, 2004). A questionnaire was the best instrument as it acts as a future reference of a study done, was economical in realizing a large sample within a very short time and anonymity of respondents when filling the questionnaire agitated them to be honest.

3.6 Pilot Testing, Reliability and Validity

3.6.1 Pilot Testing

Pilot study is the component in the data collection process and a crucial element of a good study design. It is a small scale trial run of all the procedures planned for uses in the main study. Prior to the main fieldwork, a pilot test study was conducted using eleven CEOs of DTMs in Machakos County. The DTMs from Machakos County did not participate in the main study. These DTMs were characteristically similar to the participants. The pilot test was deemed important for identifying any problems and omissions as well as checking time spent in responding. Pilot testing of instruments was intended to improve the precision, reliability and cross-cultural validity of data. Following the analysis of the pilot study data, ambiguous or unclear questions were rephrased and others removed.

3.6.2 Reliability

Reliability is the measure of the degree to which research instruments yield consistent results after every repeated trial. The researcher carried out a pre-test of the questionnaire by issuing a set of questionnaires to establish whether the research questions are correctly answered by the respondents. The researcher collected the answered questionnaires and then carried out a pre-test to evaluate the responses and rectified the questionnaire where possible or where the respondents could not fully understand. The researcher tested the reliability of instrument by use of reliability values (Alpha values) recommended by Cronbach who recommends analysis of each alpha value for each variable under study which should not be less than 0.6 (Mohsen and Reg, 2011).According to Sekaran (2001) Alpha values for each variable under study should not be less than 0.6 for the statements in the instruments to be deemed reliable. A measure is reliable when it is error free and consistent across time and across various items in the instrument.

3.6.3 Validity

Validity is the degree to which results obtained from analysis of data actually represent the phenomenon under study (Robinson, 2002).The validity of the data collection instruments was done with the help of the Researcher's Supervisors to edit the questionnaire and the interview guide. The researcher discussed the questionnaire and the interview guide with the supervisors who are experts in the area under study.

3.7 Data presentation and Analysis

Collected data was edited, coded, classified and systematically analyzed using descriptive and inferential statistics: mean, standard deviation and variance. The coded data was entered into SPSS (Statistical Package for Social Sciences) for analysis. According to Mugenda et al., (2012) it is desirable to use a computer to analyze data as this saves time and increases the accuracy of results.

Regression analysis was used to determine the relationship between the independent and dependent variables and was preferred due to its ability to show relationships between the independent and the dependent variables, Castillo (2009). The Independent variables were internal reporting systems, market research systems, market intelligence systems and market decision support system while the dependent variable was financial performance measured by flow of cash, NPLs, liquidity and financial efficiency. Likert scale questions were computed to determine means for all the variables and then regression analysis was done. The algebraic expression of the regression model consisted of a constant term, coefficients and an error term with the format below:

$$\mathbf{y=\alpha+\beta_1 x_1+\beta_2 x_2+\varepsilon}$$

Where;

α - Is the constant or intercept and is the true mean value of the influence of credit market information systems to financial performance when the independent variables are zero.

β_{1-2} - Are the regression coefficients or change induced in Y by each X_{1-2}

X_1 - Independent variable internal reporting system.

X_2 - Independent variable market research system.

Y - Dependent variable financial performance.

ε - Is the error component, which is any other variable that has influence on the model.

The strength of the relationship between the dependent and the independent variables was measured by carrying out F-test at 95% level of confidence. The test was to establish whether the coefficients β1 and β2 were significantly different from zero and this being, thus it was concluded that there was a strong positive relationship between the dependent and independent variables. Strength of the relationship was determined by the value of r^2. The value of r^2 ranges from 0 to 1.Values of 0 shows no relationship, while 0.5 show moderate relationship and values above 0.7 show strong relationship.

The hypothesis were tested using the Z – test statistical tool and were conducted at 95% confidence interval and 0.05 level of significant. The decision rule was that if the p- value of the model is less than the level of significance (0.05) then the independent variables will be taken as having an effect on the dependent variable. If the effectiveness of credit market information systems increases, then the financial performance increases. The study will conclude that credit market information systems have a significant effect on financial performance. If the p – value is greater than 0.05 then the model is insignificant and therefore the study cannot conclude that the independent variables have no significant effect on the dependent variable.

3.7.1 Hypothesis Testing

Hypothesis is a wise guess or an assumption about distribution of random variables. Hypotheses testing procedure requires researchers to construct Null hypothesis (Ho) and alternative hypothesis (Ha) for the measurable variables. For this study a pair of hypothesis were expressed for each variable, one stating the null hypothesis while the other one stated alternative hypothesis.

Ho: $\beta = 0$

While

Ha: $\beta \neq 0$

Calculation of ANOVA statistics and p-values.

Comparing the P-values against 0.05 and if p-value is less than 0.05 then the variable is significant and the opposite is true.Hence the stated hypotheses are essential to illustrate methodology for accepting or rejecting null hypothesis and by concluding on hypothesis, the study demonstrates relationships between variables or lack of it.

3.8 Diagnostic Tests

In order to obtain a regression that is Best Linear Unbiased Estimator, the residuals need to be independent of each other. Autocorrelation describes the correlation between observations over a certain period of time. The serial correlation violates the ordinary Least Square assumption of time independent residual and creates an unreliable hypothesis test. To examine the existence of autocorrelation one can use the Durbin-Watson test. As rule of thumb, if the Durbin-Watson statistics is below one, the regression is said to suffer from positive autocorrelation. A test statistic exceeding three shows negative autocorrelation.

Normality of the variables was examined using the skewness and kurtosis tests. According to Kline (2011), the univariate normality of variables was assumed if the skewness statistic is within the interval (-3.0, 3.0) and the kurtosis statistic lies in the interval (-10.0, 10.0).Kurtosis measures the "peakedness" of the probability distribution of a random variable and is described in terms of how "fat" the tails are where high levels of kurtosis are associated with fat tails.

Multicollinearity can be tested by examining tolerance and the Variance Inflation Factor (VIF) .These are two collinearity diagnostic factors that can help you identify multicollinearity. Tolerance is a measure of collinearity reported by most statistical programs such as SPSS; the variable's tolerance is 1-R2. A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of the independent variables already in the equation and that it should not be added to the regression equation. All variables involved in the linear relationship will have a small tolerance. Some suggest that a tolerance value less than 0.1 should be investigated further. If a low tolerance value is accompanied by large standard errors and non-significance, multi collinearity may be an issue. The Variance Inflation Factor (VIF) measures the impact of collinearity among the variables in a regression model. The Variance Inflation Factor (VIF) is 1/Tolerance, it is always greater than or equal to 1. There is no formal VIF value for determining presence of multi collinearity. Values of VIF that exceed 10 are often regarded as indicating multi collinearity, but in weaker models values above 2.5 may be a cause for concern.

3.9 Ethical Considerations

Saunders (2007) defines research ethics as the appropriateness of researcher behavior in relation to the right of those who become the subject of the study work. This study was carried out with due regard to the issues of privacy and confidentiality to the MFIs. This included obtaining an introduction letter from the University Business School and then forwarded it to the MFIs before the commencement of data collection. The

letter explained the objectives of the research and what the findings were intended for. The questionnaire also included a clause showing data confidentially, security keeping, safe custody and participants were not be required to write their names to avoid exposing respondents. Lastly all sources of information that did not belong to the researcher were acknowledged through citations.

IV. Data Analysis ,Interpretation And Presentation

4.1 Introduction

To achieve the objective of the study Software Package for Social Sciences (SPSS) was used to analyze data and multiple regression analysis model to determine the effect of credit market information systems on financial performance of DTMs in Nairobi County. The unit of analysis were DTMs and study targeted 9 DTMs as at 31st December 2015. The data analysis was in line with specific objectives, hypothesis formulated and inferences made on the results obtained.Financial performance was the dependent variable while effect of credit market information systems was the independent variable. The first section presents the response rate, the second section presents the characteristics of the sample and the third section presents the findings and the discussion of the study.

4.2 Response Rate

The researcher distributed 108 questionnaires and a total of 92 questionnaires were filled and returned. This represented 85.19% response rate. According to Edward et al., (2000) a response rate of 80% and above is absolutely satisfactory while 60-80% is quite satisfactory. This response rate was therefore considered sufficient to credence the findings. The high response rate was attributed to data collection methods where the researcher pre-notified the potential participants who were credit officers, hand delivered the questionnaires and persistent telephone follow-up. The questionnaires were semi-structured which made it easy for the respondents to fill them. The secondary data response rate was 100% as it was input direct into the computer by the researcher.

4.3 Sample Characteristics

The study sought to establish the profile of the sample in terms of gender, years of experience and the department to which they belong. The following sections discusses the characteristics of the sample.

4.3.1 Gender of the Respondents

Table 4.1 presents the distribution of the sample by gender. Majority of the respondents 50(54.3%) were male and the rest 42(45.7%) were female.

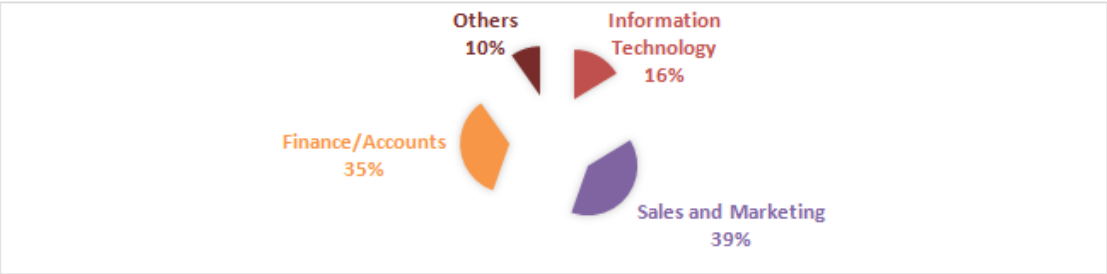
Table 4.1: Distribution of the Respondents by Gender

Gender	Frequency	Percentage
Male	50	54.3
Female	42	45.7
Total	92	100

Source: Research Findings (2017)

The results indicate that both gender were represented in the sample and the sample was capable of giving balanced opinions due to near gender parity.

4.3.2 Distribution of Respondents by Departments



Source: Research Findings (2017)

Figure 4.2: Respondent's Departments

Majority of the respondents 36(39.1%) were drawn from sales and marketing department, 32(34.8%) from finance/accounts, 15(16.3%) from information technology and only 9(9.3%) of the respondents were drawn from other departments. The results indicated that the sample had a good representation from the main departments in the MFIs.

4.3.3 Distribution of the Respondents by Years of experience

The sample was composed of staff with diverse lengths of experience. Table 4.2 summarizes the distribution of the sample according to length of working experience.

Table 4.2: Distribution of Respondents by the Years of Experience

Years of experience	Frequency	Percentage
Less than 2 Years	**3**	**3.3**
2-5 Years	**39**	**42.4**
5-8 Years	**37**	**40.2**
More than 8 Years	**13**	**14.1**
Total	**92**	**100.0**

Source: Research Findings (2017)

Majority of the respondents 39(42.4%) had a work experience spanning 2-5 years, 37(40.2%).
Figure 4.3 summarizes the distribution of the sample according to length of working experience.

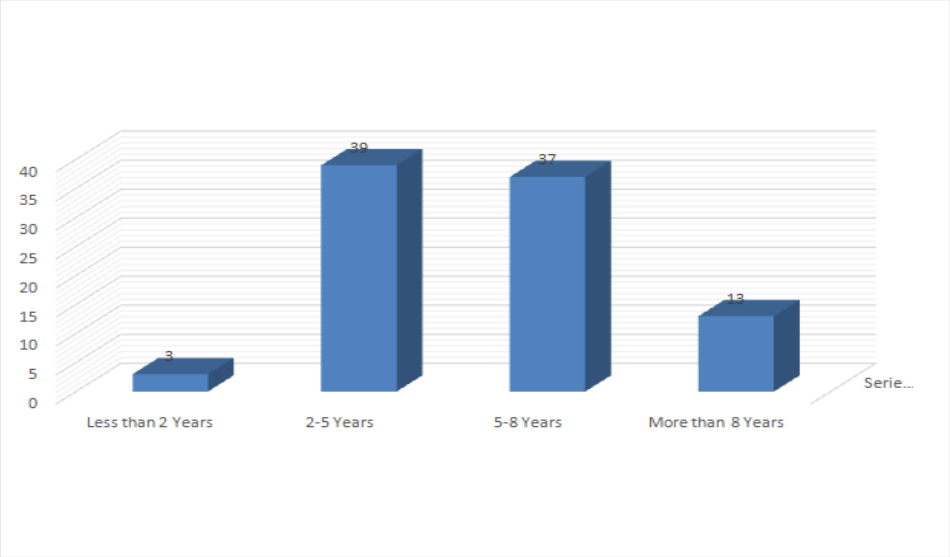


Figure 4.3: Distribution of Respondents by the Years of Experience
Source: Research Findings (2017)

4.4 Descriptive Statistics

This section presents empirical findings and discussion of the same objective wise.

4.4.1 Effect of Internal Report Systems on Financial Performance

The first objective of the study sought to establish the effect of internal reporting systems on financial performance of the MFIs. A 5-point likert scale was used to quantify the opinion of the respondents on a number of statements on the relationship between internal reporting systems and financial performance. Table 4.3 summarizes the descriptive statements on the responses obtained.

Table 4.3: Descriptive statements for relationship between internal reporting systems and financial performance.

Statement	**N**	**Mean**	**Std Dev**
Improved identification of opportunities for process improvements	92	2.72	0.998
Contributed to the increased business process agility	92	2.15	0.983
Improved efficiency in information sharing	92	1.86	0.806
Improved efficiency of financial reporting &analysis	92	1.978	0.902
Internal records information on Loans Issues and Loan repayment affect financial performance of your MFI	92	2.228	0.878
Internal records information on the performance of customers affect the financial performance of the MFI	92	2.239	0.856
Decision-making process on computerized financial records and internal reports of the MFI affect the financial performance	92	2.098	0.914
Average	**92**	**2.180**	**0.905**

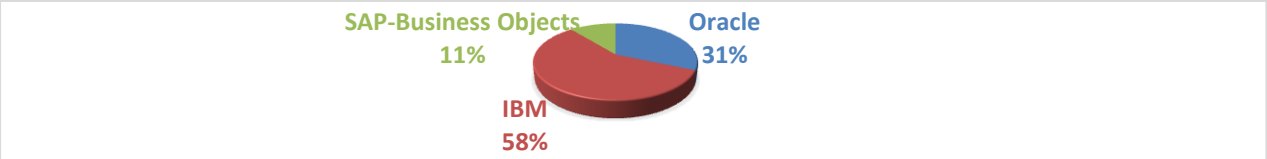
Source: Research Findings (2017)
KEY: 1-Very great extent, 2- Great extent, 3- Moderate extent, 4- Little extent, 5- No extent

Table 4.3 shows the descriptive statements for relationship between internal reporting systems and financial performance. Most of the respondents were of the opinion internal reporting systems improved efficiency in information sharing and also improved efficiency of financial reporting & analysis and thus affect the financial performance of the MFIs. In addition, most respondents rate the effect of internal reporting systems on the increased business process agility to be high. Most respondents rate the effect of internal records information on Loans Issues and Loan repayment on financial performance of the MFI to be high. The internal records information was found to affect the financial performance of the MFI to a large extent. Also, decision-making process on computerized financial records and internal reports of the MFI were perceived by majority of the respondents to affect the financial performance of the MFI to a large extent (means ranging from 1.86 to 2.15 in the 'great extent region'). However, majority of the respondents were of the opinion that internal reporting systems have a moderate impact on the improved efficiency of financial reporting & analysis and thus have moderate impact on the financial performance of the MFI (mean=2.72). The standard deviations were less than 1 indicating that the response was unanimous.

The findings of the study that there is a strong link between internal reporting systems and financial performance of MFIs strengthens the findings of Tumay (2010) who found out that internal report system are designed to provide the ultimate beneficiary or decision-maker with reports that contain information to support daily decision-making and the data sources of these systems are derived from the internal environment of the regulation-making process. Further he noted that the more robust the internal reporting systems are, the better the financial performance of the organization. In addition, Romney (2003) recorded similar findings that one important area of accounting information system is internal financial reporting where they are used to monitor an organization's financial health and performance since it can inform decisions which need to be made about the direction in which the organization will be taken.

4.4.2 Effect of Market Intelligence System on Financial Performance

The second objective of the study sought to establish the effect of market intelligence system on financial performance of the MFIs. The first item sought to establish which software application is employed by the MFIs. Figure 4.4 displays a summary of the responses obtained.



Source: Research Findings (2017)

Figure 4.4: Effect of market intelligence systems on financial Performance

The results indicated that majority of the MFIs (58%) use IBM, 31% of the MFIs use Oracle and the rest (11%) of the MFIs use SAP. The findings imply that all the MFIs represented use a marketing software application. Further, the findings indicated that majority of the MFIs(52.2%) had been using the system for 2-5 years, 26.1% had been using the software for less than 2 years, 20.7% have been using the system for the between 5-8 years and only 1.1% of the MFIs had been using the systems for more than 8 years. This finding underling the importance the MFIs hold marketing software with.

Further, a 5-point likert scale was used to quantify the opinion of the respondents on a number of statements on the relationship between market intelligence system and financial performance. Table 4.4 summarizes the descriptive statements on the responses obtained

Table 4.4: Descriptive statements for relationship between market intelligence system and financial performance

Statement	N	Mean	Std Dev
Marketing intelligence in the MFI help in early warning of threats and opportunities	92	2.141	0.764
Marketing intelligence effectiveness in the MFI is positively reflected on the marketing performance of the staff of the institution.	92	2.272	0.813
Management has put in place mechanisms for mitigation of critical risks that may result from loan repayment default	92	2.380	0.810
Management identifies risks that affect achievement of the objectives	92	2.011	0.719
Average	**92**	**2.201**	**0.776**

Source: Research Findings (2017)

KEY: 1-Very great extent, 2- Great extent, 3- Moderate extent, 4- Little extent, 5- No extent

Table 4.4 shows the descriptive statements for relationship between market intelligence systems and financial performance. Most of the respondents were of the opinion that marketing intelligence in the MFI help in early warning of threats and opportunities, marketing intelligence enhances the effectiveness marketing performance of the institution. Further, majority of the respondents were of the opinion that the management has put in place mechanisms for mitigation of critical risks that may result from loan repayment default and that the management identifies risks that affect achievement of the objectives. The responses indicate that market intelligence systems and considered by majority of the respondents as to a large extent of 2.272 affect the financial performance of the MFI (means ranging from 1.86 to 2.15 in the 'great extent region). The standard deviations were less than 1 indicating that the response was unanimous.

The findings of the study on the relationship between market intelligence systems and financial performance are consistent with the findings of Fao.Org (2010) which found out that market intelligence systems provide information that drives strategic and tactical decisions for an organization and thus enhances the financial performance of the organization. Further, Jazdtech (2010) in his study in Bangladesh.

4.3 Financial Performance of MFIs

The study sought to establish the level of financial performance measured against trends of three indicators namely: cash balances at the end of the year, non-performing loans, liquidity ratios and financial efficacy ratio at every year end. Table 4.7 displays a summary of the findings obtained.

Table 4.7: Descriptive statements for relationship between market decision support systems and financial performance.

Statement	**N**	**Mean**	**Std Dev**
Cash Balances at year end	92	2.348	0.8311
. Non-performing Loans at year end	92	2.044	0.8884
Liquidity Ratio at year end	92	1.823	0.7203
Financial Efficacy Ratio at year end	92	2.054	0.7612
Average	**92**	**2.067**	**0.8003**

Source: Research Data (2017)

KEY: 1- Below 5%, 2- 6%-10%, 3- 11%-15%, 4- 16%-20%, 5- Above 20%

The descriptive statistics; mean and standard deviation in Table 4.7 indicate that in majority of the MFIs, the cash balances have increased by the biggest margin of 6-10%, followed by financial efficacy ratio and non-performing loans at each year end. Liquidity ratios have grown by the smallest margin of below 5%. The findings imply that there is a relatively low growth in the financial indicators used in the MFIs. The growth of non-performing loans is also high at between 6-10% signalling negative growth.

4.4 Inferential Statistics

Inferential statistical analysis infers properties about a population and includes testing hypothesis and deriving estimates. The population is assumed to be large which implies that the observed data has been sampled from a larger population. Regression analysis was carried out in order to determine the statistical influence of the independent variables on dependent variable (financial performance). The regression model summary of the influence is displayed on Table 4.8, Table 4.9 and Table 4.10.

The results indicate that R^2=0.941 which implies that Market Decision Support Systems, Market Intelligence Systems, Internal Reporting Systems and Market Research Systems predict a significant amount of the variation in financial performance of the MFI. This indicates that the independent variables tested predict 94.1% of the dependent variables.

Table 4.8: Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.970[a]	.941	.939	.34349

a. Predictors: (Constant), Market Intelligence Systems, Internal Reporting Systems

Table 4.9:ANOVA[b]

	Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	164.985	4	41.246	349.581	.000[a]
	Residual	10.265	87	.118		

Total	175.250	91				

a. Predictors: (Constant), Market Intelligence Systems, Internal Reporting Systems
b. Dependent Variable: Financial Performance

The output on Table 4.9 indicates that the p-value is small ($p<0.05$) implying that the relationship between the predictor variables and the dependent variables is statistically significant and the model can be used to predict the dependent variable.

The results on Table 4.9 indicates that F value = 349.581 with a small p-value ($p=0.000$) implying that the association between the predictor variables and the dependent variables is statistically significant and the model can be used to predict the dependent variable. It further suggests that Market Intelligence Systems and Internal Reporting Systems have a significant effect on financial performance.

Table 4.10: Coefficients

Model		Unstandardized Coefficients		T	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	-.120	.087	-1.376	.172		
	Internal Reporting Systems	.323	.101	3.181	.002	.190	5.263
	Market Intelligence Systems	.252	.099	2.555	.012	.183	5.465

In view of the results in Table 4.10, the model for predicting financial performance of MFI is represented as follows;

$Y= -0.120 +0.323X_1+0.0.252X_2+.087$

Where; Y= Financial performance

X_1=Internal Reporting Systems

X_2=Market intelligence Systems

The constant could be explained by other variables like prevailing economic conditions, organization structures, and prevailing government regulatory and legislative environment affecting the MFIs.

4.5 Hypothesis Testing

The study sought to test four null hypotheses. The first hypothesis stated that there is no significant relationship between Internal reporting systems and the financial performance of MFIs in Nairobi County. The regression of internal reporting systems and the financial performance of MFIs in Nairobi County (Table 4.10)indicates a high statistical significance of the relationship between the variables ($p=0.002$) indicating that internal reporting systems used is a predictor of financial performance hence the null hypothesis is rejected.

The second hypothesis stated that there is no significant relationship between market intelligence systems and the financial performance of MFIs in Nairobi County. The regression of the variables (Table 4.10) indicates a high statistical significance of the relationship between the variables ($p=0.012$) indicating that market intelligence systems is a good predictor of financial performance and consequently the null hypothesis is rejected.

4.6 Diagnostic Tests

To avoid misleading results the linear regression assumption tests were conducted and among the tested were multicollinearity, autocorrelation and normality.

4.6.1 Test for Normality

Normality of the variables was examined using the skewness and kurtosis tests. According to Kline (2011), the univariate normality of variables can be assumed if the skewness statistic is within the interval (-3.0, 3.0) and the kurtosis statistic lies in the interval (-1.0, +1.0) and the results show that the data collected was normally distributed.

Table 4.11: Descriptive Statistics

	N	Skewness		Kurtosis	
Statement	**Statistic**	**Statistic**	**Std. Error**	**Statistic**	**Std. Error**
Internal Reporting Systems	92	.416	.251	-.732	.498
Market Intelligence Systems	92	.413	.251	-.856	.498
Financial Performance	92	.437	.251	-.548	.498
Valid N (listwise)	92				

Source: Research Findings (2017)

According to the information presented in Table 4.11, the skewness statistics for all the variables in the regression model were within the interval of -3 and +3. Kurtosis statistic for all the variables in the regression model was within the interval of -1.0 to +1.0. The data can therefore be considered normally distributed.

4.6.2 Test Multi Collinearity

Multicollinearity means that there is a linear relationship between explanatory variables which may cause the regression model to be biased and was tested by examining the Variance Inflation Factor (VIF). When there is strong correlation between variables it becomes difficult to identify the impact of individual independent variables The Variance Inflation Factor (VIF) measures the impact of collinearity among the variables in a regression model. The Variance Inflation Factor (VIF) is 1/Tolerance, it is always greater than or equal to 1. Values of VIF that exceed 10 are often regarded as indicating multi collinearity, but in weaker models values above 2.5 may be a cause for concern. All the VIF values for the variables in the study were found to be less than 10 (Table 4.11) hence multi collinearity was considered not to be a problem in the data analyzed.

4.6.3 Auto correlation

To examine the existence of autocorrelation Durbin-Watson test was carried out. As rule of thumb, if the Durbin-Watson statistics is below one, the regression is said to suffer from positive autocorrelation. A test statistic exceeding three shows negative autocorrelation.

Table 4.12: Model Summary[b]

Model	Durbin-Watson
1	1.220[a]

a. Predictors: (Constant), Market Intelligence Systems, Internal Reporting Systems
b. Dependent Variable: Financial Performance

As displayed in Table 4.12, the Durbin –Watson statistic for the data was 1.220. It was therefore concluded that autocorrelation was not an issue with the data. This is because the criterion for testing auto correlation is that Durbin-Watson statistics below one implies that the regression suffers from positive autocorrelation. A test statistic exceeding three shows negative autocorrelation

V. Summary, Discussions, Conclusions And Recommendations

5.1 Summary of major findings

This chapter consists of a summary of findings that were obtained, the deduced conclusions, and recommendations to improve the present situation. The research implications are discussed and suggestions of opportunities for further research presented. It looks at the association between internal reporting systems and marketing intelligence systems and Financial Performance of MFIs. The conclusion relates directly to specific objectives and research hypothesis and these are discussed in the proceeding chapter.

5.1.1 Effect of Internal Report Systems on Financial Performance

The first objective was designed to establish the effect of internal reporting systems on financial performance of MFIs in Nairobi County. This was achieved by analyzing individual components of internal reporting systems. Most of the respondents were of the opinion internal reporting systems improved efficiency in information sharing, efficiency of financial reporting & analysis and thus affect the financial performance of the MFIs. In addition, most respondents rate the effect of internal reporting systems on the increased business process agility to be high, they rate the effect of internal records information on loans issues and loan repayment on financial performance of the MFI to be high.

The internal records information was found to affect the financial performance of the MFI to a large extent. Also, decision-making process on computerized financial records and internal reports of the MFI were perceived by majority of the respondents to affect the financial performance of the MFI to a large extent. However, majority of the respondents were of the opinion that internal reporting systems have a moderate impact on the improved efficiency of financial reporting & analysis and thus have moderate impact on the financial performance of the MFI. The findings of the study that there is a strong link between internal reporting systems and financial performance of MFIs and previous empirical studies appear to be in agreement with the results especially with those of Tumay (2010).

5.1.2 Effect of Market Intelligence System on Financial Performance

The second objective was designed to establish the effect of marketing intelligence systems on financial performance of MFIs in Nairobi County. This was achieved by analyzing individual components of marketing intelligence systems. Most of the respondents were of the opinion that marketing intelligence help

in early warning of threats and opportunities, marketing intelligence enhances the effectiveness marketing performance of the institution.

Further, majority of the respondents were of the opinion that the management has put in place mechanisms for mitigation of critical risks that may result from loan repayment default and that the management identifies risks that affect achievement of the objectives. The findings of the study on the relationship between market intelligence systems and financial performance are consistent with the findings of Fao.Org (2010) and Jazdtech (2010).

5.1.3 Conclusions

The results indicated that R^2=0.941 which implied that market intelligence systems and internal reporting systems predict a significant amount of the variation in financial performance of the MFIs. The p-value was small ($p<0.05$) suggesting that the relationship between the predictor variables and the dependent variables was statistically significant and the model can be used to predict the dependent variable. The regression of each of the predictor variables and the financial performance of MFIs indicated a high statistical significance of the relationship between the variables ($p<.05$) indicating that the independent variables can predict financial performance hence the null hypothesis were rejected.

5.1.4 Recommendations

Based on the findings, the study finds it wise to make a few recommendations which are considered important to guide other readers, researchers, students and policy-makers. Firstly financial institutions need to enhance their internal reporting systems to make them more effective. This is due to the fact that effective internal reporting systems translate into better financial performance. Secondly financial institutions need to invest in the most updated market intelligence systems so as to make them more responsive to the current marketing challenges.

5.1.5 Recommendation for Further Study

The present study was carried out in MFIs located in Nairobi County, however more studies can be carried out in other geographical regions and other financial institutions such as banks, SACCOs and insurance companies among others. Probably the study would have yielded different results if the data were collected in both Deposit Taking and Non-Deposit Taking.

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