RELATIONSHIP BETWEEN FINANCIAL RISK MANAGEMENT AND THE FINANCIAL PERFORMANCE OF MICROFINANCE INSTITUTIONS IN KENYA

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DECLARATION

I assert that this dissertation is my original work, which has never been written or submitted for an award of degree award elsewhere. I can also state that it does not contain any material written or published by others, with the exception of areas where their work has been properly cited and the writers have been recognized.

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ABSTRACT

The Kenyan Microfinance Institutions are wrestling with multiple challenges originating from the inherent risks within the environment they are operating in both internal and external. Financial risk management is one of the main hurdles threatening the sustainability and viability of the microfinance institutions in Kenya, therefore, this study aimed to establish the relationship between financial risk management and the financial performance of the Microfinance Institutions in Kenya. A descriptive research design was employed on this study to test how operational risk, market risk, liquidity risk and credit risk posed a major threat to the financial performance of the Kenyan Microfinance Institutions. The study incorporated a target population of 58 microfinance institutions in Kenya as at 31st December 2020 with an aggregate loss of 2 billion. Secondary Panel data was analyzed as obtained from the available financial statements of the 58 Microfinance Institutions over a period of 5 years running from January 2016 to December 2020.The data was collected from CBK (Central Bank of Kenya) and AMFI (Association of Microfinance Institutions) because CBK requires that all regulated Microfinance banks to publish their audited financial statements to the public every year. To minimize potential endogeneity challenges the study utilized financial ratio analysis and panel data methods of random effects and fixed effects estimation. The study also determined the correlations between the variables and used Wald and F- tests to determine the significance of the regression whereas the overall, within and between R2 of the coefficient of determination, were utilized to establish how much dependent variable's variations were explained by the independent variables. Tests such as Breusch and Pagan Lagrange multiplier (LM) were adapted to test between the fixed effects model and the appropriateness of the random-effects model respectively. The study findings depicted that there exists a significant negative relationship between Operational risk, Market risk, Liquidity risk, Credit risk and financial performance of Kenyan MFIs. The study concluded that financial risk management and the financial performance of the Microfinance Institutions of Kenya are inversely related. Therefore, the microfinance Institutions should establish an efficient and salient financial risk management framework in order to overturn their loss-making position.

Key words: Financial risk management, financial performance, operational risk, market risk, liquidity risk, credit risk

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DEDICATION

This work is a dedication to my nephew Justus Kibet, Fellow students, my parents, and my Lecturers for their prayers, encouragement and continued moral support during the entire research period.

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ABBREVIATIONS AND ACRONYMS

CBK	Central Bank of Kenya
COSO	Committee of Sponsoring Organizations
ESAAMLG	Eastern and South African Anti-Money Laundering Group
FATF	Financial Action Task Force
FRC	Financial Reporting Centre
FRM	Financial Risk Management
IRA	Insurance Regulatory Authority
LDG	Loan Deposit Guarantee
MFI	Microfinance Institution
NGO	Non-Governmental Organization
ROA	Return on Assets
ROE	Return on Equity
SACCO	Savings and Credit Cooperatives
SME	Small and Medium Enterprises
VIF	Variance Inflation Factors

DEFINITION OF TERMS

Credit risk is the likelihood that a borrower would not honor a loan by failing to make the necessary repayments (Nawaz, 2019)

Financial performance is the process of measuring the results of an Institution's policies and operations in monetary terms (Verma, 2020).

Liquidity risk refers to the chances of an entity failing to be able to obtain cash necessary to meet its liabilities of short-term and intermediate-term nature (Yusuf, 2017).

Market risk refers to the organization prospect of loss facing emanating from disparity in its assets prices due to alteration in the rate of interest, prices of commodities and other factors of market risk (Sewage, Lee & Thompsett, 2020)

Operational risk refers to the risk resulting from poor internal processes and procedures, system malfunction, human error or an external event (Elhanan, 2017).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Most business enterprises today have adapted the risk-based approach model in their day to day operation and management of the business. This is because the approach extensively conceptualizes on risk management (financial action task force, 2019). Risk management is an important concept in business, especially in the Microfinancing industry and the entire banking sector. According to Christoffersen (2011) financial risk is the unexpected volatility or fluctuation of returns. Financial risk management is a wide phenomenon that involves handling of Credit risk, operational risk, market and liquidity risks as well as other attributable risks such as compliance risk, legal risk and strategic risk that are inherent to most businesses not only the microfinance sector (Dimitropoulos *et al*., 2010). The relationship between financial risk and financial performance is that, there can be failure of financial performance of risks is not well managed. Poor financial risk management can accrue to financial crisis which in turn inflict a long-term damage of economies, markets, countries and people as evidenced in the 2007-2008 financial crunch in USA, so every strategic move and entrepreneurial decision should be considerate of its inherent risks (Brookings, 2009).

Financial institutions including banks and microfinance institutions are prone to common risks such as liquidity risk, market risk, compliance risk, credit risk, legal and strategic risks partly due to deregulation in the financial market. These risks highly affect the leverage, asset turnover, capital and cash flows within the financial institutions which adversely affect their financial performance. As per the Basel Accords, banking Act and

the prudential guidelines, every financial institution must have in place an elaborate financial risk management framework to mitigate all the inherent risks to acceptable levels (Elhanan, 2017). An organization can either get into a loss or find an opportunity for profit once exposed to financial market risk. Financial market exposure such as fluctuations in interest rates and currency exchange rates can avail strategic or competitive benefits. Financial risk management and implementing a sound risk management serve the same purpose, as financial risk is a subcategory of the company's risks (Gyumri, 2012). Reducing the variability of the cash flows or returns attributable to financial risk exposure is one objective of every institution that aims at sustainable financial performance (Sewage, Lee & Thompsett, 2020). The reduction facilitates the organization to carry out good forecasts (Drogt & Goldberg, 2008). In addition, management of market risk assures sufficient supply of funds within the firm that can be used for investment diversification and more dividends. It is also argued that sound financial risk management can assist in avoiding financial distress and its inherent costs such as high staff turnover and one of the main causes of poor financial performance (Triantis, 2000; Drogt & Goldberg, 2008). Market risk in a microfinance institution entails the risk of financial loss which can result due to fluctuations in market prices such as interest rates and exchange rates.

Policies and procedures of Credit Risk Management in MFIs incorporate those structures of decision-making concerning the minimization of exposures to loan default risk or even the classification of credit asset as well as provisioning of loan loss. Omasete (2014) argued that managing risks in a microfinance relates to the mitigation of the likelihood that the borrowers or a counter-party may not meet loan repayment requirements as stated in the credit agreement terms.

In the microfinance sector liquidity risk is defined as the risk of inability either to fulfil their liabilities to depositors or to finance their increase in assets as at and when they fall due with no addition of unacceptable costs or losses (Ismail, 2010). The potential of adverse effects on the interests of microfinance stakeholders such customers, owners, partners and any other within the microfinance institution attributable to the inability to cover up current cash or liquid obligations in an effective and efficient manner is termed as liquidity risk. According to Ogol (2011) the origin of the liquidity risk is from the inadequate capacity of the management to precisely forecast and plan for fluctuations in financing sources as well as the cash needs. Maintenance of sufficient cash reserves and ensuring diversified investment on many funds as possible with the aim of maximizing earnings can lead to efficient liquidity management.

Operational risk arises where Weak structures, fraudulent activities by clients and employees, unhealthy competition from unlicensed and non-regulated fintech and institutions, fall down of some firms caused by deficiency of liquidity, redundant economic growth, and inefficient governance, slow entry of microfinance services and permeation of the market industry are some of the numerous roadblocks encountered by the microfinance industry (Kodongo & Kendi, 2013). Increase on entry or registration into countries' financial systems indicates increase in financial inclusion and regulatory bodies' awareness and a higher exposure to interest rates and liquidity risk. Effective and efficient management of financial hazards is therefore important for the efficient operation, sustainability and growth of a microfinance institution, indicating the essence to develop a methodology of the risk mitigation (Abhay, 2010).

In the past five years the microfinance sector has recorded poor performance which can be attributed to the inadequate risk management practices within the institutions, considering other various challenging factors like home currency depreciations and losses on unwarranted foreign exchange in Kenya as guided by the Risk Management initiative within the microfinance (Central Bank of Kenya annual report, 2020). The consequences of inadequate handling of these are accrued losses and lose of savers confidence in the microfinance institution. Therefore, it is quite important for microfinance institutions to up their governance models and conduct more internal audits on risk management and plan on being risk oriented (Sewage, Lee & Thompsett, 2020). The management ought to make strategic decisions about how to handle the inherent hazards which are attached to the business, ask themselves on the amount of risk to absorb and ways to minimize the hazards which are the elements of risk management (Kinuthia, 2013).

With the fluctuating business environment of the financial industry, then the microfinance industry needs to relook their means of operations if at all they want to remain sustainable in business (Njeri, 2010). This has continuously raised questions on the MFIs performance of in Kenya, especially with the fact that MFIs target small and medium enterprises (Quaye 2014). This brings to board the attention to conduct a further study of determining the relationship between the financial risk management approaches and the daily operations of microfinance institutions in Kenya. This study will highlight on how management of risks procedures determine performance of Kenyan MFIs, and will be mostly based on MFIs' performance related variables and the risk management approaches employed.

1.1.1 Financial Risk Management

Financial risk is the uncertainty in the financial performance or expected returns and may include: credit risks, underwriting risks, market risk, operational risk and liquidity risks (Panigrahi, 2013). Definition of risk management as per ISO, 31000 is the methodology entailing identification, assessment, and prioritization of an organization's the inherent risks which is followed by coordination and utilization of the assets available within the institution to mitigate and control the probability or to minimize the exposure of unfavorable events that may bring the failure of not achieving business' set plans and objectives. Making sure that institution set objectives are not diverted hence leading to the institution not realizing the set targets is the main objective of risk management framework (ISO, 31000). The measurement of performance by an organization in monetary terms against its set strategic plan and goals over a given period of time is what has been widely defined as financial Performance (Panigrahi, 2013).

Another definition of Financial Risk Management is the process of in advance identification of possible risks, examination and implementation of preventive activities to curb or mitigate the risks (Economic Times, 2017). Different scholars including Stulz (1984) and Smith et al (1990) made conclusions on why active management of risks should be of great concern to the managers within their institutions. Optimizing the expected pay-offs and returns taking into consideration its volatility or variability (financial risk) can be termed as the prime objective of risk management in MFIs. (Noor & Abdalla2014)

When it comes to the management of the risks, they encounter in their day to day operations, still the microfinance institutions face several challenges which is significantly affecting their financial performance or profitability (Bank supervision Annual Report,

2020). Various studies have conveyed that financial institutions' management of risks in is very vital for efficient and effective banking practice (Rampini et al., 2019). The way most banking institutions and other financial organizations in the present-day fluctuating and vulnerable money related environment are counterattacking several risks such as; credit risk, liquidity hazard, remote trade risks, market risks and financial risks and compliance risk (Yusuf, 2017). These aforementioned hazards amidst others may differently result to closure of microfinance institutions due to failure to realize its financial commitments as at and when they fall due. Therefore, we can justify that; microfinance sector is an industry surrounded by risk therefore sound risk management framework is very important to the survival of microfinance institutions (Tchuigoua, 2012).

The negative effects caused by financial peril arising from factors such as internal and external vulnerabilities can be dealt with via sound risk management procedures. In regards to the procedures, development of priorities schedule has to be done where a risk possessing the huge loss and highest likelihood of occurring is dealt with as first priority and hazards bearing minimal loss are handled later (Stulz, 2016; Kiochos, 1997). The institutions prevent the small risks from heading to unmanageable risks by the use of same procedures which allow early internal warnings and management responses. Poor management of risks in an institution leads to accrued losses and loss of confidence/trust by members who invest with the institution (Boateng, & Boateng, 2014). However, lack of particular theory to control the balancing point betwixt hazards with huge likelihood of happening and the ones with minimal loss, has made risk management process to be troublesome. An efficient handling of a probability of realizing loss can therefore make the

possibility for an entity to reduce its exposure to inherent risks and be well prepared to sustain itself after any unpredicted crisis (Omasete, 2014).

1.1.2 Microfinance Institutions in Kenya

Amid poverty eradication efforts, the ideology of micro financing emerged back in the middle of the 1800s from the theorist Lysander Spooner who highlighted the benefits of small credits to farmers and entrepreneurs as a way of uplifting the people out of poverty (McLaughlin, 2019). The micro financing concept remained a quasi-idea to many until the end of World War II with its impacts greatly felt (Nawaz, 2019).

The Micro financing concept largely adopted and implemented during 1970s after organizations, such as Grameen Bank of Bangladesh as steered by the microfinance pioneer Mohammad Yunus (father of Microfinance), who reshaped and commenced the modern industry of micro financing (Gebremariam, 2010). Other pioneers such as Akhtar Hameed Khan have developed more new innovations into the micro financing sector to ensure growth of new wave of microfinance initiatives (Yunus, 2011). Globally Microfinance ranks highest among the critical subjects of deliberation in regards to the debate of poverty eradication which is the main goal of the micro financing concept. This hammers the idea by Daoud (2015). Who outlined micro financing in terms of the adoption of market oriented and commercial approaches to avail multiple banking services to the less fortunate in the society? Availing of financial services such as remittances, payments, micro-credit, savings, insurance and money transfer by the microfinance institutions has greatly improved financial inclusion, (Kwon, 2010). Despite the overall poor financial performance of the Kenyan Microfinance Institutions, there are some MFIs declaring profits (Kepkemboi, 2013).

The Microfinance sector which is anchored on the concept of micro lending and co-guarantee mechanism of operations stands out as the most robust weapons in the war against poverty all over the world, particularly to the less fortunate population (Dual, 2018). Microfinance Institutions inevitably comes across inherent risks that have to be managed effectively and efficiently for the sake of obtaining sustainable good performance (Gyumri, 2012). Previously, various studies were conducted to determine how financial risk management influences the performance of Kenyan financial organizations, but very minimal has been carried out on the relationship between management of risks approaches and the financial performance of microfinance Institutions in Kenya. As per the Basel Accords, banking Act and the prudential guidelines, every financial institution must have in place an elaborate financial risk management framework to mitigate all the inherent risks to acceptable levels (Elhanan, 2017).

In the developing countries Microfinance was initially born as an alternative to both banks, which serve only 5-20% of the population, and informal and in-formal financial sources for the poor such as shylocks and other moneylenders. (Al-sham et, al. 2014) Microfinance has also been defined as "a credit methodology that employs effective collateral substitutes to provide and recover short-term, working capital credits to micro entrepreneurs." The commercial lending is distinct from microfinance lending in the concepts of (co-guarantee-) joint liability or group borrowing, dynamic incentives that gives room for higher loans size over time, frequent repayments pattern and alternative security via forced savings (Gine, 2013). For instance, joint borrowing aids to overcome negative selection in terms of credit worthiness (borrowers can identify individual in their community vulnerable credit risk) and moral hazard (borrowers are able monitor each

other), and to enforce their self-auditing (by ensuring borrowers are trustworthy in the case of default) and repayment (loan borrowers can impose impounding and on defaulters social sanctions). The concept of alternative loan securities is especially important for borrowers without assets to pledge as securities, and for creditors who operate in jurisdictions with weak secured lending regulations and enforcement (Kazakova & Sivkova, 2019).

Globally debates on alleviation of poverty, microfinance has stood as one of the major tools of discussion. Micro lending remains quite attractive business and cost-effective elements of the global war of poverty alleviation (Quinones & Remenyi, 2014). As described by Christen (1997) the utilization of market-driven and commercial procedures to avail different financial services to the less fortunate is termed as microfinance. The description incorporates the offering of essential financial services such as savings, transfer of money, payments, remittances, and insurance, among others. Globally, joint concerns have been put to promote availability of these financial services to the less fortunate through micro finance institutions (MFIs).

The low-income target market in Kenya has been neglected and for the longest time not being granted access to the necessary products offered by microfinance (Mbogo, 2010). Actually, in the sub-Saharan Africa and Kenya in particular where gender inequality is rampant, MFIs have become source of empowerment to women in terms of financial access and in development matters (Njuru, 2018). While in Kenya, over 90% encounter multiple hazards with the low-income earners being the highly exposed; there is only 13% of the total population getting services from MFIs. Kenyan MFIs are registered under the 2006 MFI Act. The microfinance Act of 2006 is the one which governs the provision of microfinance services in Kenya. Further categorization of MFIs like the microfinance

banks, non- bank financial institutions, Saccos that have been licensed and some financial NGOs are some of the chief kinds of microfinance service givers in Kenya. As at today, there are 58 registered MFIs in Kenya where 14 are licensed microfinance banks and 44 are credit only microfinance provider (Association of Microfinance Institutions of Kenya, 2017).

Weak structures, fraudulent activities by clients and employees, unhealthy competition from unlicensed and non-regulated fintech and institutions, fall down of some firms caused by deficiency of liquidity, redundant economic growth, and inefficient governance, slow entry of microfinance services and permeation of the market industry are some of the numerous roadblocks encountered by the microfinance industry (Kodongo & Kendi, 2013). Increase on entry or registration into countries' financial systems indicates increase in financial inclusion and regulatory bodies' awareness and a higher exposure to interest rates and liquidity risk. Effective and efficient management of financial hazards is therefore important for the efficient operation, sustainability and growth of a microfinance institution, indicating the essence to develop a methodology of the risk mitigation (Abhay, 2010). The effects of the pandemic covid-19 and other recessionary economic conditions leading to high cost of living brought up mismatch of assets and liabilities leading to Liquidity risk. Another key parameter that generates losses in the MFIs was high costs of operations which reduces the anticipated returns and is also termed as Operational risk.

1.1.3 Financial Performance

Financial performance is the process of measuring the results of an Institution's policies and operations in monetary terms (Verma, 2020). The description of financial Performance in monetary terms has been expressed as the amount of monetary ambitions

an institution has realized within a given period of time (Iqbal, Nawaz & Ehsan, 2019). Likewise, it has also been described as a measurement tool of the achievements of an entity operation, procedures and extensively used in daily activities as it works towards realizing its financial mandate. Furthermore, financial performance can be used as a benchmark to show how best entities in the same industry are performing or to evaluate businesses or departments in a conglomerate and can moreover be utilized to implement financial strategies and allocation of financial resources over a given period of time (Ngo, Mullineux & Ly, 2014). It is necessary to connect financial performance to overall operations of an entity in line with its previous, future and more anticipated costs, firm's productivity, administrative duty and overall obligation. Financial performance can thereafter be utilized by entities to implicate the presentation of their organizational results and the strategies by which the organization achieved the results. Under most industry set up performance is taken to depict the institution's strength, success plus its sustainability of dominance in the industry (Trivedi, 2010)

With efforts to measure financial performance of an institution several methods have been developed; however, all the measures should be factored as an aggregate. Revenue streams like revenues from the entity's operations of an entity, revenues from other revenues from the entity's operations related undertakings and cash inflows from its daily activities can be utilized to estimate organizational performance based on the field of operation (Gatuhu, 2013). Alternatively, financial performance can be measured using other techniques such as deeper analysis of the financial statements to identify a growth rate margin in different areas such as sales assets or even expenses. This entails computing of several ratios for gauging organizations financial performance. This

study will use ratios analysis to estimate the financial performance of the microfinance institutions in Kenya. Ratios such as return on assets (ROA) as well as the return on equity (ROE) are commonly applied and appropriate models of measuring organizational Performance (Trivedi, 2010). In order to the financial performance of the Kenyan microfinance institutions, this study utilized the ROE ratio. Most micro finance institutions aim at yielding good profits; and restrictions have been undertaken in a good number of the microfinance institutions in order to realize financial performance and gain sufficient funds to finance their development especially during the covid 19 and post pandemic era (Zheng, & Zhang, 2021).

Anaman (2019) also described financial performance as the means of doing things properly which should be the strategy of every MFI in their ambition of yielding good performance. This is an indication of insignificant distribution of the available inadequate resource to make sure they achieve set management goals. Carl (2018) also presents financial performance as the extent to which an entity can efficiently and effectively use its available financial resources to handle certain trading's (liquidity, risk and return and profitability). Financial performance estimates yielding of gross revenues by the proper usage of the assets of an entity. Effectiveness of production, marketing and pricing resolutions are also measured by financial performance. Monitoring of the firm's performance can also be used to measure efficiency. Profit maximization levels of companies are evaluated and monitored periodically so as to use profitability measures to evaluate MFIs financial performance. The most two popular tools of computing profitability are ROE and ROA (Hassan et al., 2018).

1.1.4 Financial Risk Management and MFIS' Performance

Maximization of shareholder wealth is the principal objective of MFIs management. Primarily this objective was often the quantifiable revenues and costs than non-quantifiable risks that can affect the performance of the MFIs, for example, expanding risks such as reputational risk and governance risk. Microfinance institutions confronts multiple risks, for example, credit default risks, premium risks, business risks including innovation and operational risks reeling risks, and controls of the organizations, for example, liquidity hazard, outside trade risks, bankruptcy risks and nation risks (Allet, 2012).

The risks management guideline for MFI's is acquired from those institutions' hazards which are prone to give rise to the microfinance institutions underperformance. While administering an account division, matters arising from risks management in plus other monetary base have bigger influence on the developments and other economic sectors not limited to financial performance. According to Tai et al. (2020) who analyzed some empirical statistics, proposed that previous return of stock portfolio yielded from managing a segment of an account possessed a bigger impact the one seen on the variances of local trade and the total returns of the stock portfolio, in addition to the stock floatation costs, indicating that performance related to money can be a significant source of contamination amid any unforeseen hazard.

A mean score was used to create a Link betwixt management of risk and financial performance whereby each risk management approach score was correlated then matched with the institution's ROE. The linking was only be performed for all MFIs given that all the registered microfinance institutions in Kenya had taken part in the survey. This study evaluated the management of risk practices through examining the following: Investment

strategies and procedures, the environment of risk management of the MFI, procedures, policies and guidelines of the microfinance institution, risk measurement approaches, capital adequacy of the MFI, approaches of risk mitigation adopted by the MFI, approaches of risk monitoring practiced by the microfinance institution and the institution's internal control procedures.

To be successful, institutions must effectively and efficiently take charge of all the hazards they face. Institutional financial performance is significantly affected by different financial risks faced by the organizations. Therefore, sufficient risk management serves a vital task of boosting institutional performance. Management of hazards involves repetitive procedure of step by step process that later on leads to better performance and sound decision-making. That system should include: identification the risk, examination, risk evaluation, mitigation, monitoring and reporting of the risks. Institutions therefore have a chance to maximize the returns and lower the losses (COSO Enterprise Risk Management Framework, 2004).

Implementation of sound risk management framework in microfinance institutions according to Bikker (2018) has a main objective of maintaining excellent financial performance, effective and efficiency. Another reason why institutions also manage financial risks is to mitigate the earnings instability or cash outflows due to financial risk exposure. This makes the institutions to run away from challenges of financial distress and its associated cost (Garlappi & Yan, 2011). According to Bobakovia (2013), the competence of an institution is dependent on its muscles to foresee and minimize inherent hazards, and where possible cover the losses arising from the inherent risk by use of provisions. Therefore, the real position of an entity should establish the awareness of the

management of risk. Entities that have effective risk management framework surpass their peers after the occurrence of the associated risks and they are more willing and ready to tackle risky moments.

The underlying concept of accepting only those risks that are uniquely a part of the MFIs' array of services and products rendered to its customers by the microfinance institutions should create more need to conduct this research. All the institutional risk caused by fluctuation in interest rates, poor liquidity management; default and currency exchange rates may have adverse effects on the bottom-line of the MFI. The level of the MFIs' risk-taking appetite possesses some effects on microfinance financial Performance as indicated by the accumulated member deposit, net interest, total assets, margin and net income. The financial performance of microfinance depends on its capability to foresee, monitor and avoid risks, and possibility of providing provisions to cover losses attributable to the arising risks. The principal goal of risk management implementation is to sustain financial performance in the MFIs sector as aspects of managing financial risk is to promote early warning system of monitoring relevant indicators; as well as provoking and making provisions for possible realistic strains on the system by carrying out stress testing. (Wanjohi et al. 2017)

1.2 Statement of the problem

Financial institutions are key building blocks of the economy, therefore any change in the financial performance of the microfinance institutions have significant implications on country's economy (Banerjee et al., 2019). According to Stulz (2016) 83% of the financial institutions' liability is the depositors' money held with them which outlines how sensitive the nature of banking business is.

Even though there has been a tremendous increase in the number of new entry of registered microfinance institutions in Kenyan market providing enticing customized products to their customers, the Kenyan MFI sector financial performance remain low and poor. The challenges of retaining customers, high competition from commercial banks, SACCOs, mortgage entities and other informal mobile credit providers like Tala and Branch are currently predominant in the microfinance sector. Furthermore, the other challenges which are suffocating the financial services sector especially the microfinance institutions include strategic risk, financial risk, poor governance, technological risk, legal and compliance risk which has not been wholly addressed by previous scholars. This study focused on the relationship between the financial risk management and the financial performance as one of the problems facing the Kenyan microfinance institutions. According to the Bank supervision Annual Report (2020), from the year 2016 to 2020 the financial performance of the Kenyan microfinance institutions has been deteriorating heading into a tune of 2 billion of losses which caught the attention of the CBK as they had proposed to carry out a performance audit to establish the causes on the adverse performance especially from the big players in the MFI sector. Increased default risk by customers led to deterioration of asset quality hence the reduction of the anticipated profits. For example, according to CBK bank supervision annual report in 2020 the decline in the MFIs financial performance has however been motivated by the increase in defaulted loans by 5%.

Fluctuations in the foreign exchange rate and interest rate accrued to Market risk which affected the MFIs returns given that microfinance institutions take in financial instruments as security for loans yet they are exposed to market price volatility. 81% of the

financial loss reported by the microfinance sector in the year 2020 came from the (3) large microfinance institutions in Kenya which had not adequately complied with risk management framework issued by CBK, 96% of the MFIs had not invested on the Financial risk Management systems that aid in effective Identification, assessment, measuring, mitigation, monitoring and reporting of the risks they are exposed to (Bank supervision Annual Report, 2020).

In Kenya many researches have been conducted with an attempt to address the matters of financial risk management but they have been researched in piece meal basis. The researchers have tackled the different components of financial risk individually. For example, Tung'a (2013) researched on compliance risk, Kepkemboi (2013), and Nderitu (2017), researched on credit risk while Stulz (2016), Muriithi et al., (2016), Kahihu et al., (2021) and Wanjohi (2013) researched on market risk. Ogol (2011), Maaka (2013) and Mwangi (2014) researched on liquidity risk. The studies failed to articulate the effect of financial risk management on the financial performance by researching on the risks individually. Thus, created the urge to conduct a more in-depth view of how financial risk management and its components accounts for the financial performance of Kenyan MFIs.

1.3 Research Objectives

1.3.1 General Objectives

The study was mainly aimed to determine the relationship between the financial risk management and the financial performance of microfinance institutions in Kenya.

1.3.2 Specific Objectives

The study will be focused on the following specific objectives;

i) To determine the extent to which operational risk affect the financial performance of the Kenyan microfinance institutions

ii) To establish the effects of liquidity risk on the financial performance of Microfinance Institutions in Kenya.

iii) To ascertain the influence of market risk on the financial performance of Microfinance Institutions in Kenya

iv) To determine effects of credit risk on the financial performance of Microfinance Institutions in Kenya.

1.4 Research Questions

The study will focus to answer the following questions

i) What is the extent to which operational risk affect the financial performance of microfinance institutions in Kenya?

ii) What are the effects of liquidity on the financial performance of the microfinance institutions in Kenya?

iii) What is the influence of market risk of the financial performance of MFIs in Kenya?

iv) How does credit risk affect the financial performance of MFIs in Kenya?

1.5 Significance of the Study

In the theoretical contribution, the study brought up the knowledge gap on the challenges arising on the link between management of financial risks and financial performance of the Kenyan microfinance institutions. Furthermore, the study filled in more extensive understanding to the readers in the financial and socio-economic sector. Additionally, the

study also created the ground for other researchers who would have interest of conducting further studies of the area.

Expectations of the conclusions of this study provided contributions from both a speculative and practical point of view and therefore be of value to the general public, other students and microfinance institutions. The study focused on establishing the effect of financial risk management on MFIs financial performance in Kenya. It sought to document how FRM approaches affect financial performance and hence depict the importance of MFI'S to avoid unforeseen eventualities and losses by strengthening the institution internal capacity to recognize and foresee potential inherent risks. Methods which MFIs might additionally adopt to mitigate the financial risks they face were also summarized in this paper.

The research benefited general public from the through improved management of uncertainties and enhanced service provision by microfinance institutions and other financial institutions. Government institutions like the FRC (Financial Reporting Centre), the Central Bank of Kenya and other regulatory bodies such as IRA (Insurance Regulatory Authority) will also benefit from the study in that it will aid them in formulating regulations, rules and policies in the financial sector as well as protecting the consumer rights, resources and exposure of the country financial crimes that can lead to sanctions and penalties from global financial organizations such as FATF (Financial Action Task Force).

Practicability, the research contained information which provided an extensive guideline to MFIs managers, depositors and other microfinance institutions employees, based on the presumptions or outcomes of this research paper. Microfinance

institutions managers could utilize the knowledge and focus to increase performance of banks by putting more efforts on the hazards in microfinance institutions. Microfinance institutions have now got a better way of resources allocation in consideration of the position of risks.

Alternatively, the research also contributed to the ever-emerging measures, policies, rules and regulations set to be formulated and executed by holders of policy in regards to risk management. They can use this study in formulating salient and efficient governing rules, policy and procedures. Other international institutions such as World Bank Group, other countries central Banks, Capital market Authority and other financial institutions such as FATF, FRC and ESAAMLG (Eastern and South African Anti-Money Laundering Group) utilized our findings for efficient and effective delivery of their regulatory responsibility, operations and upgrade investors' confidence as well as improving financial inclusion. Furthermore, the research was utilized as a reference point by all financial entities for development of controls, policies and procedures in regards to management of their inherent risk to ensure appropriate risk management.

1.6 Scope of the Study

The study sought to examine the effects of financial risk management on the financial performance of the microfinance institutions in Kenya. The study highly focused on the operations of all microfinance institutions in Kenya. Microfinance lending is one of the best strategies of alleviating poverty in the country, promoting financial inclusion, encouraging entrepreneurship and SMEs growth resulting to the country's economic growth. In addition, new business venture in retail, hospitality, services and transport are coming up across the country due to partnership and provision of customized products to

customers. Equally, participants in these sectors were included in the study. Finally, input of financial officers tasked with managing and extending credit services under the microfinance institutions within Kenya was included in the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

Generally, the overview of the literature available on the effect of financial risk management approaches on financial performance of Microfinance Institutions (MFIs) is highlighted in this chapter. This chapter will also outline theory on risk rating in finance, hypotheses and a review of the literature existing on the topic. The researcher will also expound on a variety of empirical work in this chapter. A useful material will be established from connecting together arguments and concepts from a variety of sources.

2.2 Theoretical review

Studying different means through which industries and individuals raise finances, as well as how money is allocated to projects while considering the risk factors attached with them are some of the concepts contained in of risk management theory. This chapter assesses the following theories; optimal capital structure theory, Merton's default Risk Theory, Capital Asset Pricing Theory and Arbitrage Pricing Model.

2.2.1 Loanable Funds Theory

In 1997 a Swedish economist by the name Knut Wicksell developed the loanable funds theory. The theory outlines that the relationship between amounts of loanable funds requested by customers and the interest rates set by the microfinance institutions is inversely proportional in nature. This calls for the determination of an equilibrium interest rate which can be described as the rate that guarantees equality between the demand and supply of the loanable funds with the aim of mitigating the default risk by the customers as well as managing market risk especially on interest rate fluctuation. The theory was meant

to upgrade the earlier classical theory of interest rates by establishing and conceptualizing the importance of hoarding factor and its effects on interest rates. The theory established an analytical view of the financial risk management by linking together customers' savings, firms' investments and quantity of money held and the institutions' liquidity preference. In its applicability thee theory also considered the role of the MFIs credit and its importance as a source of loanable funds. The theory builds more sense by taking into account both aspects of the risk, whether monetary or non-monetary (Wicksell, 1997).

Looking at the market risk, then interest rate can be taken as that price which establishes an equilibrium point of equity in between the supply and demand of loanable funds (Ngugi, 2014). In the microfinance set up, the customers, government and business partners are the three primary sources for the loanable funds demand, where funds may be requested with the need of hoarding, either in liquid, forms or in cash. Savings or customers deposits aid in the loanable funds supply, it also helps in dis-hoarding as well as credit from the bank which curbs liquidity as the MFIs will have enough funds to operate. High interest rates attract higher saving appetite of incentive and vice versa (Onaya & Maniagi, 2020). The same concept will also apply to the MFIs money or credit especially when or where more credit is disbursed at a higher rate than at a lower interest rate. Determination of the interest rates is similar as to how the demand and the supply of goods and services are determined by the economy (Saunders, 2010).

The increase in supply of loanable funds leads to increase in interest rates at ceteris paribus which yields more return to the MFIs hence increasing their financial performance. According to Gichuki, Mwaniki and Ogolla (2019), decrease in the interest rates leads to increase in demand for loanable funds and its vice versa. Microfinance Institutions in

Kenya always face high market risk and credit default risk by trying to set very high interest rates in order to maximize their returns from lending which leads to poor financial performance due to low demand or uptake of their products (Meja, 2017). Perhaps, Microfinance Institutions will induce the risks of adverse selection and moral hazards by formulating high rates of interest. This now creates the effects of Microfinance Institutions attracting borrowers with very risky business projects, low income earners and the illiterate into their portfolio leading to high cost of maintenance hence high operational risk.

The theory sets a touchline for this research by establishing a relationship between the investors behavioral risk and the topic of the study. Therefore, based on the data gathered in our research and the theoretical framework outlined in this theory we can draw conclusive results. Ngetich and Wanjau (2011) argued that the control or interest rate assist to account on the amount of spread (return) the MFIs will gain. This now affects their performance via return on asset.

2.2.2 Financial Distress Theory

Financial Distress Theory was developed by Baldwin and Scott in1983 as he sought to establish how an institution fails to meet its financial obligation due to deterioration of its day to day core business. Therefore, financial distress is the state at which an entity cannot meet its financial obligation as at and when they fall due. The identification of a financially distressed institution is characterized by violations of debt payment and reduced dividends payouts or failure to pay (Ashraf & Serrasqueiro, 2019). According to Whitaker (1999) financial distress enters in the first year where the cash flows are lower than current maturities' long-term liabilities. Where liquidity risk is well managed the institutions will always ensure that they have sufficient funds to pay their creditors because the cash flows

will be exceeding the current liabilities and obligations. Another perspective of linking the theory to the financial risk management and financial performance is that, a financially distressed institutions ruins the morale of its stakeholders especially the employees and suppliers leading to operational risks, reputational risk which in turn can affect the return on asset and return on equity.

However, significant effects of financial distress are felt well before the default. According to Ashraf & Serrasqueiro (2019), economic distress, poor performance and poor governance especially poor management of risk makes institutions to enter into financial distress. Hamza et al., (2017) researched on the process of a financial distress beginning with the first incubation stage characterized by poor governance which strategically make costly mistakes and a set of adverse economic conditions. Looking at the microfinance institutions, lack of capacity to disburse loans to borrowers and give back cash to depositors when the demand is due may be considered a liquidity problem. As the MFIs try to put financial risk management measures in place, they also need to consider other creditors to avoid negative listing. Loan default risks can also put the MFIs into financial distress and also need to be well addressed. This because one of the most crucial determinants of the institution's liquidity is loan portfolio management. In order to avoid financial turmoil, the MFIs should precisely manage their credit and liquidity risk.

Financial distress theory hails from the liquidity challenges and credit risk encountered by an institution. The theory sets out an impartial point of view on the relationship between credit risk, liquidity risk and financial performance variables utilized in the study. The fact that the theory holds into the idea that the financial distress effects

hits before default risk, then it clearly creates a non-biased opportunity to conduct an incisive empirical analysis of this relationship within the microfinance institutions.

2.2.3 Shiftability Theory of Liquidity

Harold G, Moulton who developed the shiftability theory in 1915, argued that financial institutions encounter massive deposits withdrawal and they could effectively guard themselves against it by retaining, which can be a kind of liquidity reserve, loan instruments and collaterals for which there exist a readily available secondary market. This theory was built on the concept that financial institutions' liquidity is retained if it holds securities or instruments that could be transferred or exchanged to other lenders for money or investors for cash. The central banks were also allowed to receive the assets for cash with no material loss especially during necessity instead of depending on the maturities to sort out their liquidity challenges (Ibe, 2013). The fact that the theory was built on the concept that financial institutions' liquidity is retained if it holds securities or instruments that could be transferred or exchanged to other lenders for money or investors for cash, then its assumption contends that financial institution's liquidity could be increased as far as there is availability assets to sell and the discount market and Central Bank are willing to buy the instrument availed at a discount price. In order to ensure sufficient liquidity, the theory contextualizes the transferability, marketability or mobility of a financial institutions' assets. The theory also argues that the more the value and marketability of the collateral held by the institution the higher the source of liquidity. The asset or instrument needed to meet three requisites which include, lack of appreciable loss, availability and convertibility without delay (Dodds, 1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet three requisites.

Liquidity management theory involves obtaining of money from depositors and savers and then evaluating the most viable mix of the money for a particular financial institution (Alshatti, 2015). Several authors have critically reviewed the liquidity theory but the main assumption is that, in time of financial distress, it might be difficult for a microfinance institution to receive their desired liquidity. This occur due to the affected customer confidence on the MFIs market and lack of credit worthiness among MFIs customers. However, for those stable MFIs, their obligations and liabilities form important source of liquidity due to the factor of the monthly Loan Deposit Guarantee (LDG) where customers save as they borrow.

Based on the new Basel III framework this liquidity shiftability theory gives an elaborate knowhow about how the liquidity risk influences the financial performance through computation of liquidity coverage and applying the net stable funding ratios. The analytical view of this study presents the information on the relationship between liquidity maintained by the microfinance institutions and the returns to the shareholders equity.

2.2.4 Merton's Default Risk Theory

The Merton's model was initiated by a financial scholar Robert C Merton in 1970s and its purpose is for estimation of credit risks of cooperation and homeowner loans providers. The objective of developing the model was to assess debt owners' ability to repay back their debts. Officers and credit security analysts who try to ascertain a firm's credit default risk can adopt this theory during their analysis. One assumption of the theory is that the credit analysts should upgrade the worth or value of the financial institutions and relook at the institutions' capacity to maintain their liquidity throughout the analysis period and debt maturity.

In (1974) Merton wrote a paper on the valuation of corporate client loans collaterals in one of his contributions to finance. Merton in the paper outlined several interrelated financial queries and questions in economics. On his first contribution, he suggested ways in which investor should acknowledge and elaborate the credit spreads of an institution. The second issue described in the theory was how an entrepreneur should develop a capital structure of the organization. The drive for this was to establish the optimal structure of the institution.

Based on the above theories, this study will be lay more weight on the 3rd theory, Merton's default Risk Model. This model is built on some simple speculations about the capital alignment of the entity's finances. In case of default, the institution's net worth of the resources owned by the MFI in conjunction with the decrease of the entity's obligations below the set minimum threshold, hence the institution is regarded to be in default. One of the major reasons for default in the MFIs is credit risk which forms significant part of the risks faced by microfinance institutions.

2.3 Determinants of Financial Performance in MFIs

The financial entities' performance and more so the MFIs is of huge importance to financial experts and other economy stakeholders on the loose. Traders on the financial industry operate with speculations on the stock profit based on the firm's performance; this means a business that is successfully performing can prompt increased returns from their investment portfolios. These highlights the benefits accrued to an entity such as; pay rise in the remuneration of its employees, higher quality products and good customer experience for the customers, furthermore a benevolent and enabling environment. Concerning the

study elements, such as, Corporate Governance, Ownership structure, firms' qualities, hazard administration, and financial condition strategies set will be reviewed.

2.3.1 Corporate Governance

The description of corporate governance is set as the procedures and the structures established to convey how every entity lays down its destination goals, establishes defined methodologies to follow through persistent planning, observation, controlling and reporting its strategic budgetary implementation plus management of any variances or deficiencies in its inherent risks (Reddy, 2010). Most analysts have likewise summarized that the higher the corporate governance the better the institution's financial performance (Chugh et al. 2011).

There are two theories of corporate governance supported by several studies and they include the shareholder theory and partner held theory. The shareholder theory concentrates more on improving the shareholders wealth while the partner held theory gives more comprehensive concept and focuses on the extended point of view of the entity (Maher and Anderson, 1999). Brooks and Iqbal, (2012) conducted a study and discovered that corporate governance on performance of the entity is grown by preparing quality board files in the entity, prudence with accountability and reporting in the entity, shareholder and possession characteristics connected with management satisfaction. Therefore, the study continued to suggest that good corporate governance is a vital indicator of a promising financial performance of the business due to their efforts of strategic risk management.

2.3.2 Ownership Structure

According to agency theory organization's ownership of entities is built on the concept of separation of powers of the organization and the controlling of the organization where in most cases it is overseen by the management. There are two types of ownership as developed by Ongore (2011) in his classification of ownership; where on one hand he categorized organizations controlled and run by the owners and on the other hand classified entities run by the management what he termed as Managerially-controlled entities.

Borrowing from the agency theory, if directors daily handling the firm's activities hold significant stake in the organization, they will perhaps increase shareholders wealth than in a case where the management has no shareholding stake (Dutta, 1999). The concept of wealth optimization requirements and managerial role on risk management restricts the mandate in the institution's ownership by managers. (Din et al. 2011). The nature of business portfolio carried out by an entity is contrary identified with insider possession (Lin et al. 2011) given that the significant number of the shares in an entity held by the management are disallowed from trading (Jensen et al. 1992).

2.3.3 Prevailing Economic Conditions

Monetary and economic status of working country can influence an institution's budgetary and financial planning implementation in several areas, for example, the risks imposed by accompanying obligation cost and alternative activity financings can negatively affect the institution's capacity to realize profits and constrain or retaining resources for future activities (Ntim et al. 2013). Others like inflation includes product prices in the country, inflated expenses related on the list of its different assets, such as, plant and properties due to variables such as money disintegration, extended growth rates against poor wages of

workers can tap into the famous automatic merchandise developed hence creating a negative effect on the performance of the organization (Forbes, 2015)

Currently microfinance institutions in Kenya have been highly affected by covid 19 pandemic effects, increasing rates of inflation and higher borrowing cost and increased rates of lending to borrowers as well as competition from non-regulated and informal financial entities. Taxations and other unfavorable economic conditions such as low-income levels, high interest rates and high inflation rates adversely influence the performance of MFIs in Kenya. The economic conditions prevailing and experienced in Kenya has been stable except the political disruptions encountered in the post- election violence which happened towards the end of 2007 and early 2008 and currently the unstable conditions of the global pandemic of Covid 19.

2.3.4 Risk Management and Controls

Management of risks in an entity set up can be a determinant in the financial performance of the entity. Firms undertaking riskier operations attract investors who love to take risks. Business risks have a relationship with returns that ought to be well outlined in a way that the risk-taking investors realize the returns obtained from the risks taken (Forbes, 2015). One of key determinants in the performance of microfinance institutions in Kenya is risk management because banking industry is a risky sector.

Likewise, hazard management can be defined in terms of the strategies and procedures employed by the microfinance institutions to avoid any adversity. Monetary analysis argues that entity's top management should strategically increase their normal benefit with no respect to the variety surrounding its intrinsic motivation. Paape (2012)

established four reasoning models for a sound risk management framework and approaches. They include the administrative self-premium, non-linearity of the entity assess structure, the presence of perfect capital market and the money related distress costs of organization. The main inherent risks to be monitored and mitigated in MFIs can be listed as follows. This also calls for the rising concerns of risk and compliance management officers to be given their independence to exercise their duties without the influence, pressure and intimidation from the management due to the conflict between compliance, risks and business.

2.3.4.1 Credit Risk

It is a financial risk originating from the utilization of capital of debt to finance part of the institution's assets. It is also the probability that a debtor or borrowing party will be unable to settle its liability as per the agreed terms and conditions (Bank for international Settlements, 2000). Management of credit risk leads to an organized methodology utilized for overseeing vulnerabilities through assessment of hazards, creating strategies to deal with the hazards, oversee it, and easing of risk by use of administrative asset (Husni, 2011). The methods include diminishing the unconstructive impacts of hazard, exchanging to an alternate gathering, avoiding the hazard, and also absorbing all or a portion of the outcomes of a specific hazard. Microfinance entities should acknowledge the need of identifying measuring, monitoring and manage credit risk since it is the significant source of challenges especially to banks and MFIs (Bank for international Settlements, 2000).

2.3.4.2 Liquidity Risk

It is associated with the capacity of the company to utilize assets that can be speedily transformed into cash (current assets) to cover up its short-term liabilities as at when they

fall due. Efficient control of liquidity incorporates giving out loans as well as investing proceeds to maximize returns and managing cash reserves to achieve client needs (Microfinance Network, 2000). A very vital component in the determining the level of sufficient cash levels that microfinance institutions should hold per time is known as liquidity management. It is important for MFIs to develop the optimal level of retaining funds for immediate needs and the cash needed for investment purposes. This covers the costs connected to continued competitive advantage and its operational costs in its industry. Sustaining a sufficient return on investments and remaining in business industry while availing access to financial services for the unbanked is aided by effective liquidity management in MFIs (Alele, 2020).

2.3.4.3 Financial Risk,

This is the risk that does not have a universal definition that is universally accepted. The issues commence with the overall risk description. With regard to this, two concepts of risk emerges- one that is unfavorable, and another that is neutral. The adverse conception of risk outlines it as the probability to incur a loss - hence is a threat that has to be avoided. The second conception outlines risk as an opportunity that has to be managed with some sense of minimization, in case of potential, known outcome that will give rise to a threat. In connection to this view, risk is the likelihood of realizing results that are different from the expected (Horcher, 2011). As described by the model of finance financial hazards are any fluctuations in the financial report/results, cash flows, and the company's worth as a result of the effect of various types of factors, especially market ones, for example: rates of interest, stock prices, exchange rates, and the prices of commodities (Alibés, 2016). Therefore, in regards to this definition, financial risk is in charge of any changes in the

conditions of finance of the business (Tarantino, 2010). The financial risk elements analyzed in past researches include: liquidity, credit, market, and interest rate risks.

2.3.4.4 Market Risk

It is the possibility of falling into losses, due to the factors that affect the financial market wholly. It is the hazard of negative variation of market value enterprise due to fluctuations in the market during the time required to dissolve or off set positions (Bank Negara Malaysia, 2014). For instance, interest rate fluctuations which can be caused by the potential that a change in the asset's value and liabilities is relative to the fluctuations in interest rates. Financial institutions adopt it as a benchmark to set maturity strategies and risk profiles of their financial intermediation business, therefore, it is an important part of treasury variable (Alele, 2020). Interest rate risk manipulate project finance in that if the interest rate rise, financing may be unavailable for a new loan for a project. Other market sectors influenced by rates of interest risk include the bonds market and long term and fixed income securities market.

The current or prospective risk to returns and capital arising from transgressions or non-compliance with the market laws, rules, regulations, agreements, rules, prescribed practices, or ethical standards, or rather from the possibility of inappropriate interpretation of effective laws or regulations. Financial entities are exposed to market compliance risk due to relations with a multiple stakeholder, e.g. customers, regulators, counter parties, including local authorities, tax authorities and other external authorized agents. In addition to the regulatory legal and framework established by the local regulatory agencies, multinational institutions must also ensure full adherence to the applicable legal and regulatory requirements in the other countries they carry out business.

Non-compliance with the market legal and regulatory framework results to Compliance Risk which has great Impact that subjects an institution to payment of damages, fines, penalties and the violation of contracts like in the case of HSBC Bank or even the commercial banks involved in the NYS 2018 scandal. Diminished reputation, constrained business opportunities, reduced franchise value, reduced expansion potential and an inability to enforce contracts are other damages of non-compliance risk. Furthermore, public awareness and understanding of legal and regulatory violations can lead to substantial harm to the Microfinance entities' reputation contributing to a loss of public confidence.

2.4 Empirical Review

Pagadala and Arif (2017) conducted a research on practices of risk management to select MFIs in Telangana state in India. The research adopted a survey technique. The paper revealed that Telangana's state microfinance institutions were in the process of developing efficient hazard management approaches. The research paper additionally conveyed that a positive relation existed that betwixt risk management approaches of MFIs and the variables of risk for example understanding risk and proper hazard management, identifying the risk, analyzing and assessment of the risk plus monitoring the risk and implementing controls. Additionally, it was also argued that there was no relationship betwixt the years taken operating as a micro finance organization in Telangana state or even the number of effective borrowers plus the gross outstanding loan portfolio.

Wanjiku (2016) did a research on influence of financial risks on institutional financial performance. The study revealed that interest rate risk, foreign currency and credit

risk, affected institutional reported performance of firms listed in Nairobi Securities Exchange. Employing financial risk quantified by foreign currency risk has potential positive or negative foreign currency risk or positive and negative abnormal returns during performance results publication. The study also revealed that the coefficient for interest rate risk was 0.65, meaning that interest rate risk positively and significantly affected the institutional financial performance of firms listed in Nairobi Securities Exchange. The study finally argued that the coefficient liquidity risk size was 0.456, meaning that liquidity risk positively and significantly influenced the institutional financial performance.

Kinuthia (2013) conducted a paper on the micro finance institutions in Kenya to ascertain the relationship between financial risk management systems and financial performance. Based on the hypothesis of the findings as indicated by most respondents, it was revealed that sound practices of financial risk management bring effectiveness to firm's performance. In determination of whether the organization has a financial risk handling department that manages recovery of defaulted loans; the results obtained from most respondents revealed and confirmed yes and further confirmed there is existence of standardized guidelines for managing financial risk management systems. However, the study is different from our paper as it did not show the connection of financial risk management practices and financial performance.

Singh, Goyal and Kumar (2012) came up with a journal of innovation, economics and management on the factors of financial performance and risks in microfinance institutions. DEA (Data Envelopment Analysis) was employed in the study for assessing financial performance of 41 MFIs in India by utilization of input and output oriented techniques. The findings emphasized that the output of MFIs can be boosted by 59.4% with

no increase on the quantity of inputs. This is an assurance that gross credit portfolio of similar level can be achieved by reducing the inputs. The study disagreed highly from the present research in that it only looked at technical performance and its components as opposed to how management of financial hazards practices influence financial performance of MFIs.

Nderitu (2017) carried out a research to evaluate the impact that risk management practices have on micro-finance institutions' financial sustainability in Kisii town Municipality, Kenya. The study carried out a survey design. Only MFIs within Kisii town Municipality were incorporated by the research, and selection were by the use of purposive sampling. Descriptive figures such as percentages were used to analyze data. Some of the findings concluded indicated that the funding sources mostly preferred by the MFIs sampled were; revolving fund, funding from donors and government incentives. Frequent risks highly noted were the credit risk, strategic hazard and liquidity hazard whereas reliance on subsidy and reputational risk were recorded at a very low rate.

2.4.1 Financial Risk and Financial Performance

The financial performance of the most financial institutions where all microfinance lies have been significantly affected by the inherent financial risks. These financial risks lead to the volatility of financial performance of the microfinance performance and they include; Liquidity risk, Market risk, operational risk and credit risk plus other associated risk like the compliance risk (Gietzen, 2017). Liquidity risk is the risk associated with the capacity of the company to utilize assets that can be speedily transformed into cash (current assets) to cover up its short-term liabilities as at when they fall due (Forbes, 2015). Credit risk is the financial risk originating from the utilization of capital of debt to finance part of the

institution's assets. It is also the probability that a debtor or borrowing party will be unable to settle its liability as per the agreed terms and conditions (Husni, 2011). In Africa Credit risk which arises from high default rate is the main hindrance to the performance of microfinance institutions. Market Risk is the possibility of falling into losses, due to the factors that affect the financial market wholly. It is the hazard of negative variation of market value enterprise due to fluctuations in the market during the time required to dissolve or off set positions (Bank Negara Malaysia, 2014). For instance, interest rate fluctuations which can be caused by the potential that a change in the asset's value and liabilities is relative to the fluctuations in interest rates.

According to Dimitropoulos et al., (2010) the interest rate risk occurs due to the fluctuations of lending or deposit interest rate. If a Microfinance lends at a lower interest rate than the deposit rates, or allows deposits at a rate lower than the market rate or lending at a rate higher than the market rate, then the MFI may encounter interest rate risk. The market risk also incorporates exchange rate risk which is the risk attributable to the depreciation in the local currency compared to foreign currency, decreased output and prices increase (Bank Negara Malaysia, 2014). Financial Performance provides information as to whether the microfinance is able to manage risks and to expand its operations. The profitability and financial performance indicators main indicators in the MFIs include; return on asset (ROA), financial leverage indicator and return on equity (ROE) (Pagadala & Arif, 2017). Return on Assets (ROA) is the ration of institutions' profits against its total assets and can be a good measure of MFIs profitability. Return on Equity which is the ratio of pre-tax profits to equity can also be a preferred measure of MFIs performance instead of total assets because MFIs with high equity ratio are expected

to yield a high return on assets (Gietzen, 2017). The viability and sustainability of a Microfinance is based on its capability to yield an adequate return on its capital and assets.

According to Haron and Hockn (2007), it is quite important for an institution to have a functional risk management framework since an institution's financial performance is significantly influenced by the efficiency of its risk management practices. Several scholars argue that institutions financial performance is affected by the nature of its risk management practices. For instance, Lake (2013) did a research on the the influence of financial risk on the performance of banks in Ethiopia using a total of eight commercial banks for the period of 10 years from 2000-2011. Through the use of ordinary least square (OLS) method for his quantitative analysis, his study findings depicted that the banks' profitability was negatively affected by both liquidity and credit risk credit risk. On the other hand, the study found that the banks' profitability was insignificantly affected by both interest rate risk and foreign exchange rate risk.

Another study done by Musa (2014) in Nigeria sought to determine how financial performance of deposit microfinance Banks is affected by various financial risk like credit risk, interest rate risk and operational risk. The study was done from the year 1997 to 2011 and incorporated the entire banks existing in Nigeria. Through the use ordinary least square regression and descriptive statistic data analysis, the researcher concluded that the financial performance of the banks is strongly influenced by the risk components with an indicated r-squared value of 91%. Even though the credit risk variables and the rate of capital to total weighted risk asset variables depicted a positive relationship, both interest rate risk and operational variables adversely affected the profitability of the banks.

Hassan et al. (2015) conducted a research on how financial risk influence the financial performance of the Islamic banks of Gulf Cooperation Council by considering the inherent risks. The study period was from the year 2000 to 2012 and took into account 11 out of the 47 Islamic banks including microfinance banks of the Gulf Cooperation Council area. The banks' existing database was the main source of data. The research took into consideration four types of risks including; liquidity risk, capital risk, credit risk and operational risk while return on equity and return on assets were used to measure the banks' performance. Results from the regression analysis showed that a significant negative relationship exist in between operational risk, capital risk and the performance of the Gulf Cooperation Council Islamic banks.

2.4.2 Market Risk and Financial Performance

Market risk is the hazard of negative variation of market value enterprise due to fluctuations in the market during the time required to dissolve or off set positions (Bank Negara Malaysia, 2014). For instance, interest rate fluctuations which can be caused by the potential that a change in the asset's value and liabilities is relative to the fluctuations in interest rates. Financial institutions adopt it as a benchmark to set maturity strategies and risk profiles of their financial intermediation business, therefore, it is an important part of treasury variable (Alele, 2020). Interest rate risk manipulate project finance in that if the interest rate rise, financing may be unavailable for a new loan for a project. Other market sectors influenced by rates of interest risk include the bonds market and long term and fixed income securities market.

In the global financial sector one of the main sources of income changes is market risk. Market risk is further reclassified into smaller risks including interest rate risk, stock

price risk and foreign exchange risk (Gietzen, 2017). Acceptance of a financial instrument as a collateral for a loan when it is exposed to fluctuation of market price can raise market risk (Worzala, 1995). The changes in prices increase and decrease on daily market operations. When prices in both stock and options are increasing and doing well is said to be bull market while a decrease is called bear market. The change in the market volatility determines the change in the expected return of the investment.

Muriithi (2016) conducted a research on the banking institutions in Kenya to ascertain the market risk management tools applied by financial institution in Kenya and how they are sustainable in minimizing financial loss. He carried out a census survey with a population of 43 banks and microfinance banks operating in Kenya under the license of Central Bank of Kenya. The results yielded depicted that stress testing and Scenario analysis were the most techniques used by the financial institutions in large extent. Some of the banks with investment portfolio indicated that they use mark-to-market of securities. The study finally concluded risk management exposure was maintained within the banks risk appetite through adherence to the approved limits. It was also concluded that adherence to shareholders' approved limits led to prudent market risk management. Other insignificant assumptions were that limits ensured close monitoring and precise management of institution's liabilities and assets (Muriithi, 2016). The above study findings are relevant to Kenya's financial institutions in that, they should employ the best practices in the industry for the purpose of controlling the market risk exposure in order to mitigate any eventualities of losses arising from market risk. However, the conflicting aspect of the above study is that it utilized the primary data only and could not depict the influence of market risk by utilizing indicators on balance sheet. The difference between

the past studies and the current study is that it used financial indicators to establish the influence of market risk on financial performance.

In China, Wong et al., (2009) conducted a research on the influence of foreign exchange exposure on bank. He utilized equity prices panel dataset from fourteen listed banks in china covering a period of 2 years and 8 months from July 2005 to February 2008. From the results it was evident that the Chinese banks' financial performance and equity values was negatively affected by the appreciation of china's currency(renminbi) where significant impact was felt by the larger banks. This was a clear indication that depreciation of equity values led to high default risk as seen from the findings.

Another study conducted by Odeke and Odongo (2014) on the exposure of interest rate risk and foreign exchange risk on financial performance of Ugandan banks depicted a positive relationship except for basis risk. The study used the final bank accounts to collect both secondary and longitudinal data from the year 2009 to 2011. The conclusion of the study was arrived through use of quantitative technique, data analysis and its presentation in a descriptive and inferential statistics manner. The showed that basis risk had low effect of bank financial performance while maturity gaps had significant influence on bank performance as well as assets and liabilities.

Mwangi (2013) carried out a study on the relationship between foreign exchange and interest rate exposure and the financial performance of selected microfinance institutions in Kenya. He applied a descriptive design and collected both primary and secondary data. The study findings depicted a negative relationship between foreign

exchange exposure and performance of MFIs in Kenya. The results also depicted an insignificant positive relationship between interest rates and the MFIs performance.

A study conducted by Fapetu and Kolapo (2015) on the effects of interest rate risk on the Deposit taking Banks' financial performance in Nigeria from the year 2002 to 2011 concluded that there is no significant effect of the interest rate risk on performance of deposit taking banks in Nigeria. They considered return on assets as their measure of performance and used regression model where interest rate risk function was indexed with loans to asset ratio, risk of interest diversity and average lending ratio. With alternative method of fixed effect regression each interest rate risk measure depicted an insignificant influence on bank performance.

The banking sector especially the Microfinance institutions play a key role in the Kenyan economy in terms of poverty alleviation, resolving gender disparity and ensuring financial inclusion and their presence puts Kenya as a global benchmark. In their day to day to day operations they face too many challenges including stiff competition from commercial banks, saccos mobile creditors and other informal lending institutions and above all they encounter financial risks such as market risk which drives them to making significant losses due to volatile market conditions. Therefore, the above divergent results called for an attention to establish the influence of market risks on financial performance of microfinance institutions in Kenya.

2.4.3 Liquidity Risk and Financial Performance

Efficient control of liquidity incorporates giving out loans as well as investing proceeds to maximize returns and managing cash reserves to achieve client needs (Microfinance

Network, 2000). A very vital component in the determining the level of sufficient cash levels that microfinance institutions should hold per time is known as liquidity management. It is important for MFIs to develop the optimal level of retaining funds for immediate needs and the cash needed for investment purposes. This covers the costs connected to continued competitive advantage and its operational costs in its industry. Sustaining a sufficient return on investments and remaining in business industry while availing access to financial services for the unbanked is aided by effective liquidity management in MFIs (Alele, 2020). Liquidity can be categorized into two, that is; inherent liquidity which entails the ability of selling an asset without incurring huge loss of value in any market condition and maturity transformation which outlines the maturity of assets and liabilities. In a situation MFIs have assets that they can sell without incurring any loss, they should not worry about the maturity transformation. Where MFIs have assets maturing in a shorter period they may keep less or no liquid assets (Ahmed et al., 2015).

Financial risk in an organization can be measured through conducting liquidity mismatch which is also termed as liquidity gap and is the difference between institutions assets and liabilities (Plochan, 2007). The gap can either be negative or positive but in either way the liabilities have to be paid. Recession conditions that constrain generation of resources is also another cause of liquidity risk beside the maturity mismatch. This creates liquidity risk due to increased demand which make depositors to withdraw funds. According to Diamond & Rajan (2005) liquidity risk can lead to contagion effect which can bring down the entire banking system. There is also the possibility that liquidity risk arising from early termination of the projects or when borrowers delay cash flows (Diamond & Rajan, 2005).

Yussuf (2019) researched on the liquidity management practices of microfinance institutions in Nigeria by assessing the influence of macroeconomic environment on MFIs portfolio management. He majored on liquidity risk management tools, sources of mismatch in asset and liability, liquidity planning procedures, sources of liquidity crisis and its exposure on Nigerian MFIs. The study argued that the institutions which had invested their major portion in short term assets reported high liquidity despite their lower rate of return compared to long-term assets. Proper liquidity management means that funds are invested into liquid assets so they are not available day to day use because they have been invested for higher returns since high liquidity is associated with low profitability. The opportunity cost arising from maintenance of the liquid assets can affect the entire profitability of the MFI. This means that for an institution to improve its profits it has to reduce its liquidity and it should always fight to balance o the conflicting goals of liquidity and profits.

An analysis on the effects of net stable funding ratio (NSFR) was done by Said (2014) on Malaysian banks as described by the Basel III on new liquidity framework. The study selected 8 commercial banks and collected panel data from the year 2005-2011. Data analysis was done through the use of fixed effect estimations and POLS and the results depicted that the banks' profitability was significantly affected by the new liquidity coverage ratio. In other words, a positive relationship was identified to exist between NSFR and financial performance indicators which identified as Return on Assets, Return on Equity and Net Interest Margin. The relationship between cost to income ratio and profit was negative while the relationship between size of bank and profit, equity and profit

turned positive. Proper management of stable funding sources and assets liquidity would create more advantages to the banks and could mean high profits.

In Kenya Wambu (2013) conducted a research on the extent to which profitability of commercial banks is influenced by the bank's liquidity levels. He selected 44 Kenyan commercial banks operating from the year 2008 to 2012. Through the use of secondary data collected from audited financial statements he considered current ratio and CBK liquidity coverage ratio to measure liquidity while return on assets was used to measure profitability for that period. After utilizing descriptive statistics and regression analysis on the variables, the study concluded that a positive relationship exists between financial performance and liquidity of Kenyan commercial banks.

A study was carried out by Ogol (2011) on the practices of liquidity risk management in Kenyan microfinance institutions. The study sort to understand the MFIs liquidity risk identification process, monitoring and classification of liquidity risks by the MFIs, the exposure of liquidity risk on the MFIs and the various tactics employed or adopted by the MFIs to mitigate and manage the liquidity risks. Questionnaires were issued to all MFIs located in Nairobi city to collect data and descriptive statistics and SPSS version 17 was used to analyze the data. The study findings depicted that there are liquidity risk management procedures put in place by the MFIs. The study gave more light on how MFIs carry out identification, assessment and monitoring of the liquidity risk.

Looking at the above studies and others contributions from different scholars, liquidity level affects institutions Profitability with MFIs included. According to Basel III framework, liquidity coverage ratio and net stable funding ratio can be two important

independent variables to be used when evaluate effects of liquidity risk on profitability. It is now evident that this study stands a modest position to evaluate the influence of financial risk management of the financial performance of microfinance institutions in Kenya.

2.4.4 Operational Risk and Financial Performance

Failure to systematically address operational risk in the MFIs can lead to poor performance and low returns to the shareholders. Mostly operational risk exposure affects the costing center which later touches the revenue flow and firm's net worth leading to losses. Thus, operational risk exposures can have an impact on banks' revenues and net worth.

Operational risk can materialize either directly or indirectly. Directly, operational risk actualizes in circumstances such as erroneous or fraudulent electronic transfer of funds whereas it can also materialize indirectly through market loss or even credit loss. This is due to the fact that there exist a close link between all other types of risks and operational risk. Therefore, every MFI must establish a distinct understanding of the operational risk concept prior to developing their suitable framework for operational risk all the way from identification, measurement, management to reporting (Epetimehin and Obafemi , 2015).

Annannab and Khan (2022) conducted a research on the operational risk and performance of MFIs in Thailand and explained how operational risk is attached to activities involving processing and delivery of items and services for exchange of money. The study further outlined that the system functionality, fulfillment of various regulations and record keeping are vital elements of operational risk. In conclusion the study argued that even in a well governed institution one individual problem can cause costly effects. Considering frauds, internal frauds accounts for 50-80% of frauds reported as committed in

an institution and they are fraud attached to both management and employees (Goldmann, 2010). The ease of employees to commit frauds without being detected is due to their frequent interactions with the assets, systems, processes and their access to entity information.

Ammar and Ahmed (2016) examined how adoption cost of mobile banking was used by Sudanese Microfinance institutions, Sudan MFIs, with the aim of reviewing their operational efficiency. The study concluded that, despite the principal metric used for benchmarking the experiment was cost income ratio, it aimed to determine not only the best practice of mitigating this ratio but also in terms of highlighting crucial ratios in line with cost structures across excelling microfinance banking institutions. At the end the study revealed that the cost income ratio was inversely related to the MFIs profitability.

Osiemo (2013) reviewed fraud risk for Deposit Taking Microfinance institutions in Kenya and argued that the statistics from these MFIs depicted a drastic increasing trend on the internal frauds which significantly impacted the huge losses within the microfinance sector. The fact that there are dishonest employees and managers tirelessly finding links to collude with external persons to defraud or override systems is the cause of the increasing internal frauds within the MFIs. According to the Banking Fraud and Investment Department/unit (BFID) report 2013, financial institutions incur greatest financial losses from internal frauds though they less frequently occur. The amount of information and assets managers and assets have access is more than that of regular staff, therefore, this gives them an opportunity to commit frauds easily without getting noticed simply because position equals power (BFID Kenya, 2013).

2.5 Knowledge Gap

There was limited empirical evidence showing how management of Risks affects financial performance of the microfinance institutions in Kenya which leaves a knowledge gap. This study seeks to narrow some of the gaps by establishing how management of financial risk practices can improve the financial performance of the Kenyan microfinance institutions.

2.6 Research Hypothesis

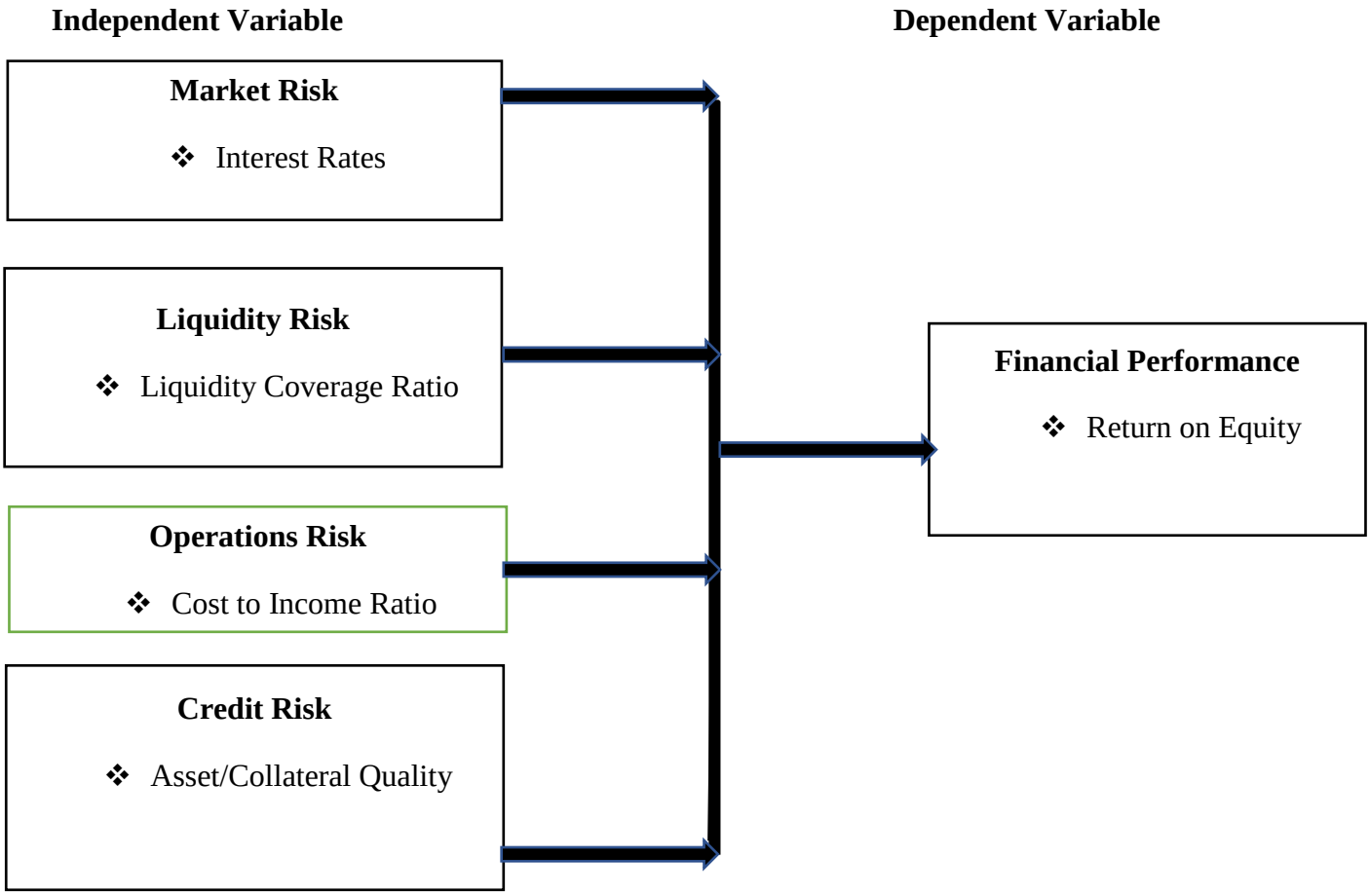
In summary, studies have identified various and different factors influencing the performance of microfinance institutions in different regional blocs, continents and globally as well. This study has only outlined financial risk management as the main factors influencing the reported performance of microfinance institutions in Kenya.

2.7 Conceptual Framework

The definition of conceptual framework can be articulated as variables analysis tool used in a study. Conceptual frame work shows the theoretical distinctions, thoughts or processes and aligns the study ideas. Efficient conceptual frameworks ought to articulate the proposals captured in the study in an easy and real way to remember and apply. The Conceptual Framework principal objective of the study is to highlight and boost the awareness of the idea of risk management by giving a clearer, complete and full set of ideas including the dependent and independent variables and any linkages (Koopmans et al.2011), In order to achieve this understanding, risk management and financial performance has been conceptualized in the table below.

FIGURE 3.1

Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section entailed the methods of analysis and approaches that were employed in conducting the research, the population of study, and the methodologies that were applied for gathering data that was pertinent in answering the research and analysis of data.

3.2 Research Design

Descriptive research approach was utilized in the study as it aims to ascertain the influence of financial risk management on financial performance of Kenyan Micro Finance Institutions. According to Kothari (2004), descriptive research mainly focused on describing the matters as they presently prevail; above all it involved enquiries of finding the facts and a survey. Descriptive research design adopted methods that are both quantifiable and qualitative. It involved bringing together quantifiable information that were analyzed in number form. Brink & Wood (1998), indicated that the objective of a research design was to put up a plan for coming up with solution suitable to the question of the research and is a lay out for any strategic move.

3.3 Target Population

The population of this study comprised of all 58 registered and licensed MFIs and which were registered with Association of Micro finance Institutions of Kenya (AMFI) by December 2020. This was utilized to strengthen the information obtained from primary data which at times may become inaccurate and subjective based on the respondents' predisposition as at the time of data collection. Financial ratios were computed to establish

how practices of financial risk management have influence on the MFIs financial performance.

3.4 Sample Design

The study employed census method for the purposes of collecting data. This constituted any available data for the 58 registered microfinance institutions that registered with Association of Microfinance Institutions in Kenya and the Central bank of Kenya for the deposit taking Microfinance Banks. The technique was practical, easy, cost efficient and faster and did not need a detailed sampling setting that may not be readily accessible (Kipkemboi, 2013). The technique proved appropriate as it made sure that all the available financials and data for targeted registered MFIs were captured.

3.5 Data Collection

Secondary data was utilized in the study in pursuance of appropriate results. In order to obtain full understanding of facts on parameters of management of risk by the microfinance institutions, secondary source panel data was utilized from 58 microfinance institutions. For this study, gathering of the secondary data was done personally through well administered instrument as shown in appendix 2. The excel data collection instrument utilized was sourced from Khan and Ahmed (2001) and Ariffin et al. (2009). This excel data collection instrument collected data on the measurement of risk, then monitoring of risk, mitigation of the risk and set internal control techniques, Investment guidelines and adequate liquidity and strategies embraced by the microfinance institutions. To achieve good results on the behavior of each microfinance over time and across the country the study used panel data. The collection of the auxiliary data was done from the Supervision

Annual Reports of CBK Bank. The annual ROE ratio was averaged for five years (2016-2020) to form the dependent variable (financial performance).

3.6 Data Analysis

In order to outline the data and scrutinize the relationships between the variables under study the researcher used descriptive statistics. The descriptive statistics used comprised of measures of central tendency, Frequency distributions, line graphs and pie charts that described the data. The researcher also used inferential statistics and compute financial ratios to properly examine the casual relationships betwixt the financial risk management and the MFIs financial performance.

3.6.1 Diagnostic Tests

The study involved conducting of several diagnostic tests to determine the study model's viability. These tests weren't be limited to; multicollinearity test, normal test, stationarity test, autocorrelation test, heteroscedasticity test as well as Hausman test. Multicollinearity between independent and dependent variables was drawn from the correlation analysis. Levin lin-chu unit-root test was used for the stationarity test which was the test considered to ascertain if statistical properties such as variance, mean and autocorrelation exist overtime. To determine the existence of a normal distribution around the mean of the residual of the response variable, a normality test was carried out. The test was conducted using the Jerque Bera test, Shapiro Wilk test or Kolmogorov Smirnov test and where there was no any normal distribution in one of the variables then it was standardized and transformed using the logarithmic transformation method. Durbin-Watson method and Wooldridge test were used for autocorrelation test which measured the level of similarity in a certain time series compared to a lagged value of a similar time series in between given

successive time period. Where violation of the test assumption occurred, the study incorporated robust standard error in the model. Where an exact or near exact linear relation was noted between two or multiple variables then Multicollinearity test was performed by considering (VIF) Variance Inflation Factors and Tolerance levels. Where the errors from regression have variance, which is reliant to the independent variables, then heteroskedasticity test conducted via use of Levine test. However, where the data failed the homogeneity of variances assumption then the study applied robust standard errors method (Hassan et al., 2018).

3.6.2 Analytical Model

Regression analysis was used in the study and an equation of the form

$Y = \beta 0 + \beta 1X1 + \beta 2X2\text{------}\beta nXn + \varepsilon$ was adopted to facilitate the computation. The equation was used to provide a statistical methodology for identifying the relationship between the management of financial risk in Kenyan microfinance institutions and how it accounts for their financial performance.

$Y = \beta 0 + \beta 1X1 + \beta 2X2+\beta 3X3 + \beta 4X4+ \varepsilon$ Where:

$\beta 0$ =constant/the meeting point of the y-axis and regression line.

$\beta 1, \beta 2 \ldots \beta 4$ = the independent variables' coefficients that were computed.

Y=Measurement of Financial performance through the simple average ROE

X1= Market Risk

X2= Liquidity Risk.

X3= Operational Risk.

X4= Credit Risk.

ε = error term

3.6.3 Test of Significance

To determine how well the arrangement of variables as a group, outlines the variety in the variable/viability of the model in general and outlining the independent variable, an F-test was used as a part of the study. A T-test was also used to survey the criticalness of the individual regression elements/parameters assessing whether the individual coefficients are significantly noteworthy. A 95% certainty interim and 5% level of significance was set as significance of the relapse model.

3.7 Ethical considerations of the research

The study ensured it was salient to further comply with the fundamentals of moral research involving human participants. This aimed to avoid some of the ethical dilemmas commonly experienced as an 'insider researcher,' whereas others include the power differential and continuous relationships with respondents (Fleming, 2018). Logistics were set for the researcher, and approval was be obtained from K.C.A University before the commencement of data collection from the MFIs risks managers.

The following ethical considerations were undertaken during the research process.

i. Participants Informed Consent

Since "Informed consent" is the cornerstone of the ethical research process, as highlighted by Denzin & Lincoln, (2011), all the participants were quite knowledgeable of what was

asked of them, how the data provided was utilized, and what consequences could be faced (if any). This was done by ensuring every participant provided straightforward, active, signed consent to being part of the research, which included understanding his/her rights of access to their information and the right to withdraw at any point for more accountability (Zegwaard, Campbell, & Pretti, 2017).

ii. Risk of harm, anonymity, and confidentiality

The study aimed at ensuring that the participants' identity is kept confidential or anonymity sorted and gave the assurances that extend beyond protection of their names to also incorporate the avoidance of using self-identifying information and statements. The research considered the potential of harm attached to reputational, resource loss (including time and money), emotional, and even physical to the participants, the researcher, the economy, and the institution.

iii. Research conflicting interest

The study employed all the efforts to mitigate activities that might have created a conflict of interest between the researcher and the respondents or activities that had an influence on study especially involving other external stakeholders with similar business interests. This was due issues like underlying current relationships or prior activities by the researcher which could potentially create a conflict of interest (Fleming, 2018).

3.8 Panel Model Specification

The study examined data from 2016 to 2020 using imbalanced panel data. Panel data, according to Jirata (2014), is a sort of data in which observations are acquired from the same collection of entities throughout many time periods. This information is a

combination of time series observations (T) and cross-sectional data with a large number of observations (N). Panel data analysis, according to Jirata (2014), is prevalent in studies because it allows the researcher to regulate the unobservable time-invariant entities/variables, reducing bias and inconsistency in the results. Panel data, according to Hsiao and Yanan (2006), has more degrees of freedom and less multicollinearity than cross-sectional and time series analysis. It also produces more accurate estimates of specific entities by pooling data rather than using data from a single entity.

Panel data, on the other hand, has several limitations, such as limiting the effect of unobserved heterogeneity (dependent variable, Yit) on the coefficients (β).

Zulfikar (2019) noted that three typical estimating strategies are used to solve the issues given by panel data, notably the Pooled Least Square method (PLS), the Fixed Effect Model (FE), and the Random Effect Model (REM) (RE).

PLS combines time series and cross-sectional data using the Ordinary Least Squares technique. It is assumed that the data behaved similarly in earlier times. The model equation is written as:

$$Y_{it} = \alpha + \beta' X_{it} + \varepsilon_{it} \qquad (2)$$

Where;

Yit= dependent variable for the i^{th} firm in the t^{th} year.

Xit= independent variable for the i^{th} firm in the t^{th} year.

α= the intercept for each entity

β= coefficients for the independent variables.

$\varepsilon_{it=}$ error term

$_{i}$ = 1,2……115 is the number of listed microfinance institutions.

t=1,2…….5 is the number of time periods.

However, in order to employ the OLS approach, the assumptions connected with it must be met (Greene 2012). This is a problem since the error term may be linked between the variables over time. As a result, new estimating strategies are being examined.

The Fixed Effect Model assumes that variances across variables/individuals are accommodated by various intercepts. As a result, a dummy variable may be used to demonstrate the differences between various intercepts.

According to Allison (2009), fixed effect allows unseen factors to have a connection with observable variables. As a result, the impacts of time invariant variables on time invariant effects are controllable. In this paradigm, the equation is

$$Y_{it}= \alpha_i +\beta' X_{it} +\varepsilon_{it} \quad (3)$$

When utilizing a dummy variable to account for changes in intercepts, the strategy is known as the Least Squares Dummy Variable technique, as shown in equation 4.

$$Y_{it}= \alpha_i +\beta' X_{it} +\mu+ \varepsilon_{it} \quad (4)$$

Where μ is the fixed effect.

The Random Effect Model, on the other hand, uses error terms to account for changes in intercepts. This method removes heteroscedasticity.

The distinction between the FE, PLS, and RE is that the RE employs Maximum Likelihood or General Least Squares assumptions rather than OLS assumptions. The equation 5 represents the model.;

$$Y_{it}= \alpha_i +\beta' X_{it} +\mu_i+ \varepsilon_{it} \quad (5)$$

Where ε_{it} is the error term and μ_i is the error term between individuals/ entity.

3.8.1 Model Specification Tests

Before estimating a regression model, Model Specification tests are performed. This is done to reduce specification mistakes that may occur during the regression. This research implemented the five standards given below, as well as the relevant tests that will be employed. Regression model for the study:

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

TABLE 3.1

Model Specification Tests

Test	Test Used	Conclusion
Pooled Effects Model	Breusch Pagan Test	If the P value > 0.05, use the pooled effect model
Heteroscedasticity	Modified Wald Test	If the P value < 0.05 then there is presence of non-uniform variance
Serial Correlation	Wooldridge Drukker Test	If P value is > 0.05 there is no serial correlation
Time Fixed Effects	F Statistics	If P value >0.05, then there are no time fixed effects
Random or Fixed Effects	Hausman Test	If the P value > 0.05, then use the random effects model.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The study was mainly aimed to determine the relationship between the financial risk management and the financial performance of microfinance institutions in Kenya. The focus of the study was on Operational Risks, liquidity risks, Market Risks and Credit risks and how they affect the financial performance of microfinance institutions in Kenya. Panel model was employed to analyse the longitudinal effects of the independent variables on the dependent variable between different firms. The companies were segmented as the panels while time periods were the 6 year periods

4.2 Descriptive statistics

Descriptive statistics provide a brief summary of a set of data in order to identify trends in the data, which might be a representation of the full population or a subset of the population. Descriptive statistics include measurements of spread or dispersion, as well as indices of central tendency. The mean, median, and mode are central tendency measurements, whereas kurtosis and skewness, standard deviation, variance, and the minimum and maximum variables are dispersion measurements.

4.2.1 Descriptive Statistics General

Table 4.1 contains descriptive statistical parameters such as minimum, maximum, mean, and standard deviation. The findings were further described and expanded upon. According to Nicholas (2006) mean accounts for the sum of all valid observations within the variable divided by the number of valid observations. Creswell (2008) defines standard deviation as a statistic that is computed as the square root of the variance and quantifies the dispersion

of a dataset compared to its mean. The standard deviation is determined as the square root of the variance by calculating the departure of each data point from the mean. Minimum and maximum scores are the lowest and highest scores of each variable.

Results from table 4.1 indicated overall Operational risks mean 0.0706523, a standard deviation of 0.044475, also found a minimum value of 0.01 and a maximum value of 0.246 with 348 observations. The overall descriptive results for liquidity risks indicated a mean of 0.3266351 a standard deviation of 0.012194 with a minimum of 0.31, and maximum of 0.37. Marketing risks indicated a mean of 0.1052299, a standard deviation of 0.0675422 and a minimum of 0.002 and a maximum of 0.271. Lastly credit risks resulted in a mean of 0.1330057, a standard deviation of 0.0758156 and a minimum of 0.005 and a maximum of 0.276 These ratios were all percentages for all the independent variables.

TABLE 4.1

Descriptive statistics

Variable		Mean	Std. Dev.	Min	Max	Observations	
financ~e	overall	.034842	.0024777	.031	.041	N =	348
	between		.0013357	.0321667	.038	n =	58
	within		.0020931	.0295086	.0391753	T =	6
operat~s	overall	.0706523	.044475	.01	.246	N =	348
	between		.025387	.0273333	.142	n =	58
	within		.0366444	-.038181	.1934856	T =	6
liquid~s	overall	.3266351	.012194	.31	.37	N =	348
	between		.0077258	.3166667	.3521667	n =	58
	within		.0094797	.2951351	.3641351	T =	6
market~s	overall	.1052299	.0675422	.002	.271	N =	348
	between		.0306877	.042	.1986667	n =	58
	within		.0602809	-.0289368	.2642299	T =	6
credit~s	overall	.1330057	.0758156	.005	.276	N =	348
	between		.0317568	.0396667	.1948333	n =	58
	within		.0689495	-.0403276	.2935057	T =	6

Source, Research Data (2022)

4.2.2 Descriptive statistics of financial performance of microfinance institutions in Kenya.

Table 4.1.1 displays the financial performance of 58 microfinance institutions within Kenya analyzed for a six-year period of 2015 through to 2020 as evaluated by the Herfinndal Hirschman Index (HHI). Table 4.1.1 showed that the financial performance had mean statistic of 0.034842, Standard deviation 0.0024777, a minimum of 0.031 maximum of 0.041. The deviation between and within firms was 0.0028301 and 0.0003658 indicating it was higher within the institutions.

TABLE 4.1.1

Descriptive Statistics for Financial performance

Variable		Mean	Std. Dev.	Min	Max	Observations	
financ~e	overall	.034842	.0024777	.031	.041	N =	348
	between		.0013357	.0321667	.038	n =	58
	within		.0020931	.0295086	.0391753	T =	6

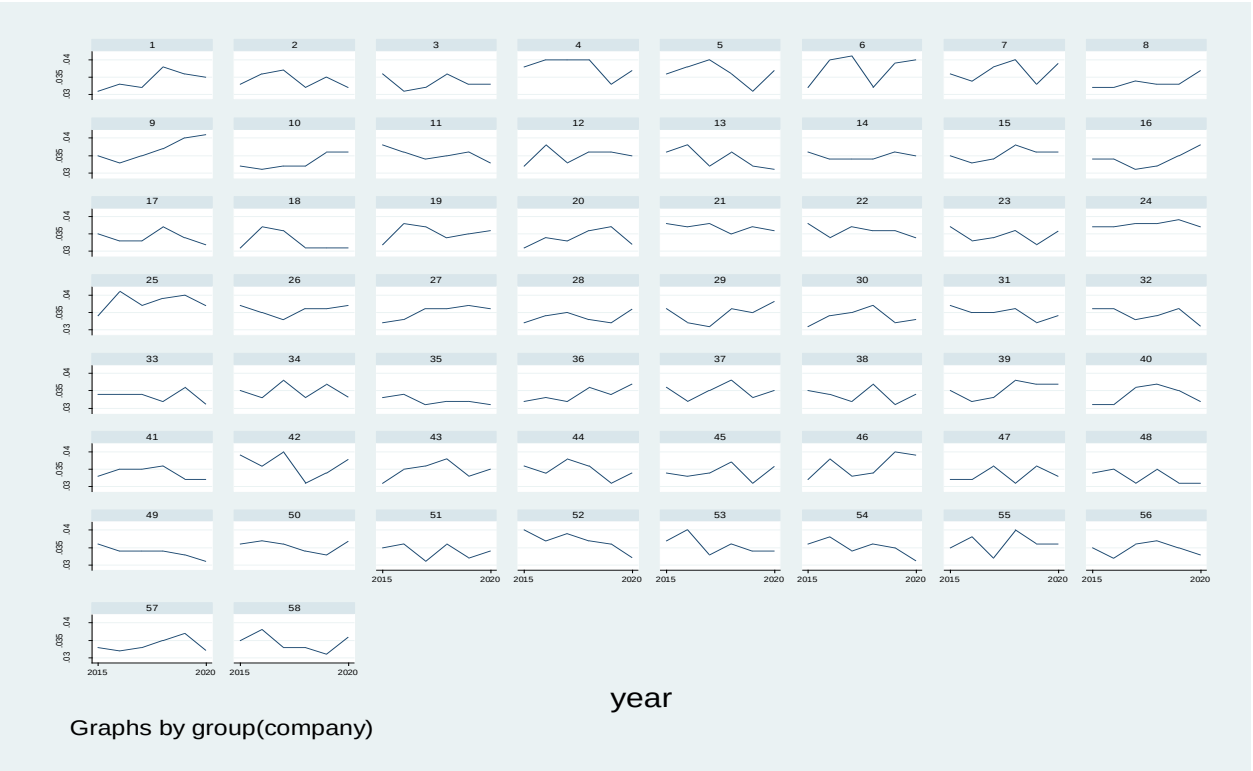
Source, Research Data (2022)

4.2.3 Trend Analysis

This included assessing whether or not there are discrepancies inside and across businesses. According to the results in figure 4.1 (trend plots), the trend output does not show resemblance, suggesting that time-related factors must be considered. Microfinance institutions' financial performance was very varied. Overlain plots check if the intercept is the same for firms or varies over each of a sample of 58 firms, the basic models assume intercept is the same for all.

FIGURE 4.1

Performance of Microfinance Institutions trend plots



Source, Research Data (2022)

4.3 Tests of Assumptions of Regression model

This section will go over the assumptions of the regression model and how they were checked to determine if any of them were broken. The findings may be biased if the regression model assumptions are violated.

4.3.1 Validity and Reliability tests

King (1991) states that validity and reliability are two critical aspects to consider when evaluating a measuring device. Conventional knowledge, skill, or attitude exams, clinical

simulations, or survey surveys can all be used as instruments. Instruments can be used to assess concepts, psychomotor skills, and emotional values. The extent to which an instrument measures what it is supposed to measure is referred to as its validity. Lee Cronbach invented Alpha in 1951 to offer a measure of a test's or scale's internal consistency; it is represented as a number between 0 and 1. The value of alpha is affected by the number of test items, item interrelatedness, and dimensionality. There are several reports on acceptable alpha values ranging from 0.70 to 0.95.

From the results discovered after the test on table 4.1.2 the alpha value is 0.7959 indicating that the data is valid and reliable.

TABLE 4.1.2

Cronbach's Alpha

```
Test scale = mean(unstandardized items)
Reversed item:  financialperformance

Average interitem covariance:     .0016849
Number of items in the scale:            5
Scale reliability coefficient:      0.7959
```

Source, Research Data (2022)

4.3.2 Multicollinearity test

The study conducted a regression investigation using tolerance and the variance inflation factor (VIF) as reference scales to assess the presence of multi-collinearity among the predictor variables.

Tolerance and VIF, according to Borssoi, Paula, and Galea (2017), are effective markers of multi-collinearity in a regression model. According to Relvas and Paula (2016), in order to develop a model suitable for the inquiry, the tolerance margins should be restricted above 0.1 (> 0.1) and the VIF should be restricted below 10. Tolerance levels less than 0.1 and VIF outputs more than 10 are considered unacceptable in the model. Table 4.2 indicated the Variance Inflation factors for the predictor variables with Credit risk having a 3.17, operational risks having 2.62 marketing risks 2.47 and lastly liquidity risks had a VIF of 2.37. Each of the predictor variables VIFs <10 and >0.1 therefore the assumption for collinearity was not violated, meaning the independent variables are not highly correlated.

TABLE 4.2

Multicollinearity Test

Variable	VIF	1/VIF
creditrisks	3.17	0.315377
operationa~s	2.62	0.381501
marketrisks	2.47	0.405551
liquidityr~s	2.37	0.422142
Mean VIF	2.66	

Source, Research Data (2022)

4.3.3 Stationarity test

Unit root tests are tests for stationarity in a time series. A time series has stationarity if a shift in time doesn't cause a change in the shape of the distribution; unit roots are one cause for non-stationarity. Levinlin estimates the panel unit root test developed by Levin, Lin and Chu (2002). The test assumes that each individual unit in the panel shares the same AR(1)

coefficient, but allows for individual effects, time effects and possibly a time trend. Lags of the dependent variable may be introduced to allow for serial correlation in the errors.

Shaari (2013) states that Levin Lin and Chu test have as the null hypothesis that all the panels contain a unit root. Table 4.3 indicated the results from the unit root test. Table 4.3 results indicated the Levin–Lin–Chu bias-adjusted *t* statistic is −45.0923, which is significant at 0.000 p<0.05 at all the usual testing levels. Therefore, we reject the null hypothesis and conclude that the series is stationary.

TABLE 4.3

Unit Root Test Operational Risks

```
Levin-Lin-Chu unit-root test for operationalrisks
─────────────────────────────────────────────────
Ho: Panels contain unit roots               Number of panels  =     58
Ha: Panels are stationary                   Number of periods =      6

AR parameter: Common                        Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 5.00 lags average (chosen by LLC)
```

	Statistic	p-value
Unadjusted t	-41.5876	
Adjusted t*	-45.0923	0.0000

Source, Research Data (2022)

Table 4.3.1 results indicated the Levin–Lin–Chu bias-adjusted *t* statistic is −7.0e+02, which is significant at 0.000 p<0.05 at all the usual testing levels. Therefore, we reject the null hypothesis and conclude that the series is stationary.

TABLE 4.3.1

Unit Root Test Liquidity Risks

```
Levin-Lin-Chu unit-root test for liquidityrisks
```

```
Ho: Panels contain unit roots              Number of panels  =     58
Ha: Panels are stationary                  Number of periods =      6

AR parameter: Common                       Asymptotics: N/T -> 0
Panel means:  Included
Time trend:   Not included

ADF regressions: 1 lag
LR variance:     Bartlett kernel, 5.00 lags average (chosen by LLC)
```

	Statistic	p-value
Unadjusted t	-6.4e+02	
Adjusted t*	-7.0e+02	0.0000

Source, Research Data (2022)

Table 4.3.2 results indicated the Levin–Lin–Chu bias-adjusted *t* statistic is −35.9157, which is significant at 0.000 p<0.05 at all the usual testing levels. Therefore, we reject the null hypothesis and conclude that the series is stationary.

TABLE 4.3.2

Unit Root Test Market Risks

Levin-Lin-Chu unit-root test for marketrisks

Ho: Panels contain unit roots	Number of panels = 58
Ha: Panels are stationary	Number of periods = 6
AR parameter: Common	Asymptotics: N/T -> 0
Panel means: Included	
Time trend: Not included	

ADF regressions: 1 lag
LR variance: Bartlett kernel, 5.00 lags average (chosen by LLC)

	Statistic	p-value
Unadjusted t	-35.2358	
Adjusted t*	-35.9157	0.0000

Source, Research Data (2022)

Table 4.3.3 results indicated the Levin–Lin–Chu bias-adjusted *t* statistic is −50.0928, which is significant at 0.0000 p<0.05 at all the usual testing levels. Therefore, we reject the null hypothesis and conclude that the series is stationary.

TABLE 4.3.3

Unit Root Test Credit Risks

Levin-Lin-Chu unit-root test for creditrisks

Ho: Panels contain unit roots	Number of panels = 58
Ha: Panels are stationary	Number of periods = 6
AR parameter: Common	Asymptotics: N/T -> 0
Panel means: Included	
Time trend: Not included	

ADF regressions: 1 lag
LR variance: Bartlett kernel, 5.00 lags average (chosen by LLC)

	Statistic	p-value
Unadjusted t	-48.0753	
Adjusted t*	-50.0928	0.0000

Source, Research Data (2022)

4.4 Test for Autocorrelation

According to Marshall (2018), one assumption of our linear regression model is that the error components are independent. This assumption is frequently violated when each error term is connected to its immediate antecedent, i is related to i-1). This is more likely to happen when the data points are observed in a relevant temporal sequence (weekly sales data, for example). First order autocorrelation is the name given to this sort of interaction. Wooldridge (2002) presents an easily implementable test for serial correlation based on the first-differenced model's OLS residuals.

Drukker (2003) indicated Wooldridge's technique uses the residuals from a regression in first-differences, which removes the individual-level impact, the term based on time-invariant variables, and the constant. The assumption that is tested is that there is

no serial correlation, with a 0.05 scale if p<0.05 then the assumption is violated, the alternative result would indicate that there was a serial correlation. The test results from table 4.4 indicated that there was no autocorrelation since the Prob>F =0.4954

TABLE 4.4

Wooldridge Test for Autocorrelation

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      57) =      0.471
           Prob > F =      0.4954
```

Source, Research Data (2022)

4.5 Test for Homoscedasticity

The dispersion of errors from the regression line is homoscedastic, which means it is constant. According to Wolfgang et al. (2017), a regression error is the distance a point deviates from the normal line of regression. According to Sweeten (2016), a fundamental assumption of linear regression is the distribution of the residual or error term over the graph; if this assumption is breached, the statistical conclusions may be distorted owing to biased coefficients. When the variance of errors from a regression line is neither constant nor homoscedastic, this dispersion is referred to be heteroscedastic.

The Breusch-Pagan/Godfrey test the statistic is resulted from regressing the square of the predicted residuals onto the predictor variables and testing the F statistic and the probability. If the p value is >=0.05 there is homoscedasticity, if it is <0.05 there is heteroscedasticity. Table 4.5 illustrates the results. The test showed a Chi of 2.46 and p

value of 0.1165 indicating that there is homoscedasticity, indicating that the dispersion of errors from the regression line is homoscedastic, which means it is constant.

TABLE 4.5

Breusch-Pagan/Godfrey test

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of financialperformance

         chi2(1)      =     2.46
         Prob > chi2  =   0.1165
```

Source, Research Data (2022)

4.6 Tests for Normality

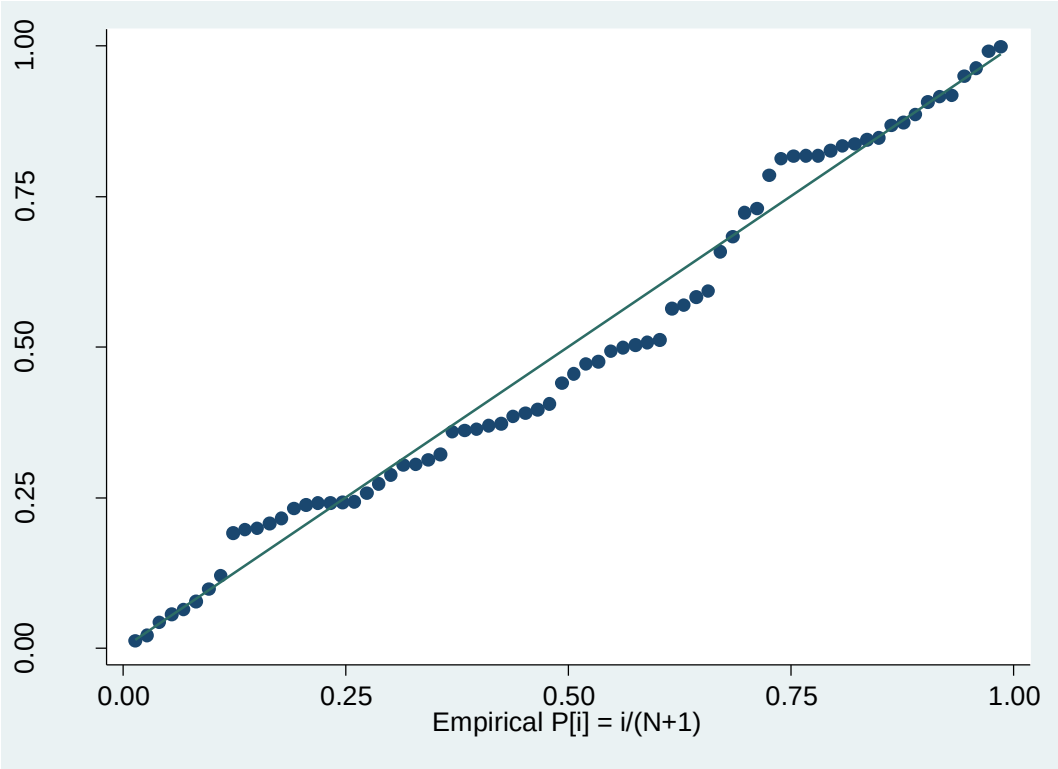
According to Thode (2011), the test for normality is the most effective in most circumstances. It is the ratio of two normal distribution variance estimates based on a random sample of n observations. The numerator is proportional to the square of the standard deviation's best linear estimator. The denominator is the sum of the squares of the observations around the sample mean. The Jarque Bera test for normality was used to measure normality.

Probability-Probability (p-p) plots and Quantile-Quantile (q-q) plots were used to test for normality through visual presentation. According to Myoung (2016), a probability-probability plot (P-P plot or percent plot) compares a variable's actual cumulative distribution function to a specified theoretical cumulative distribution function (e.g., the standard normal distribution function). On figure 4.2 we see the pp plot for the residuals

indicating most of the points touching on the line of best fit with miniscule deviations from the normal distribution.

FIGURE 4.2

P-P Residual Plot



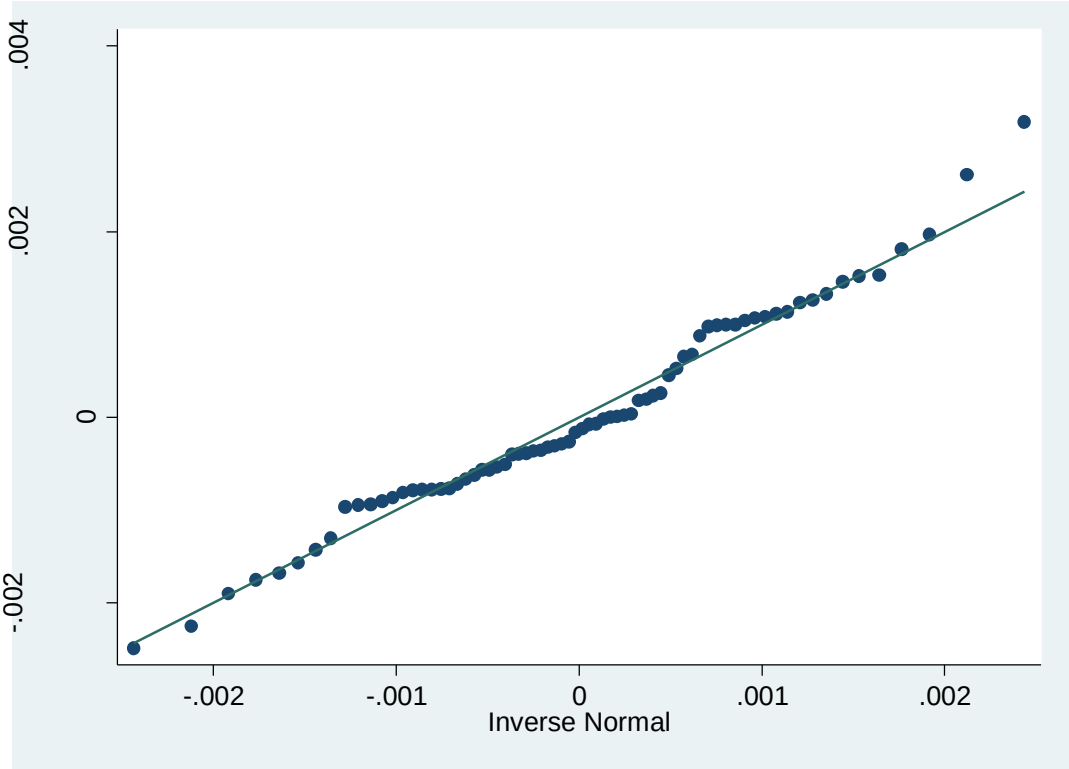
Source, Research Data (2022)

According to Dennis (2020), a quantile-quantile (q-q) plot is an exploratory graphical tool used to test the validity of a distributional assumption for a data set. The main concept is to compute the theoretically anticipated value for each data point based on the distribution under consideration. If the data indeed follow the assumed distribution, then the points on the q-q plot will fall approximately on a straight line. The Q-Q normal

distribution plots were also used to determine normality. The results from figure 4.3 indicated normally distributed points with few dispersions from the line.

FIGURE 4.3

Q-Q Residual Plot

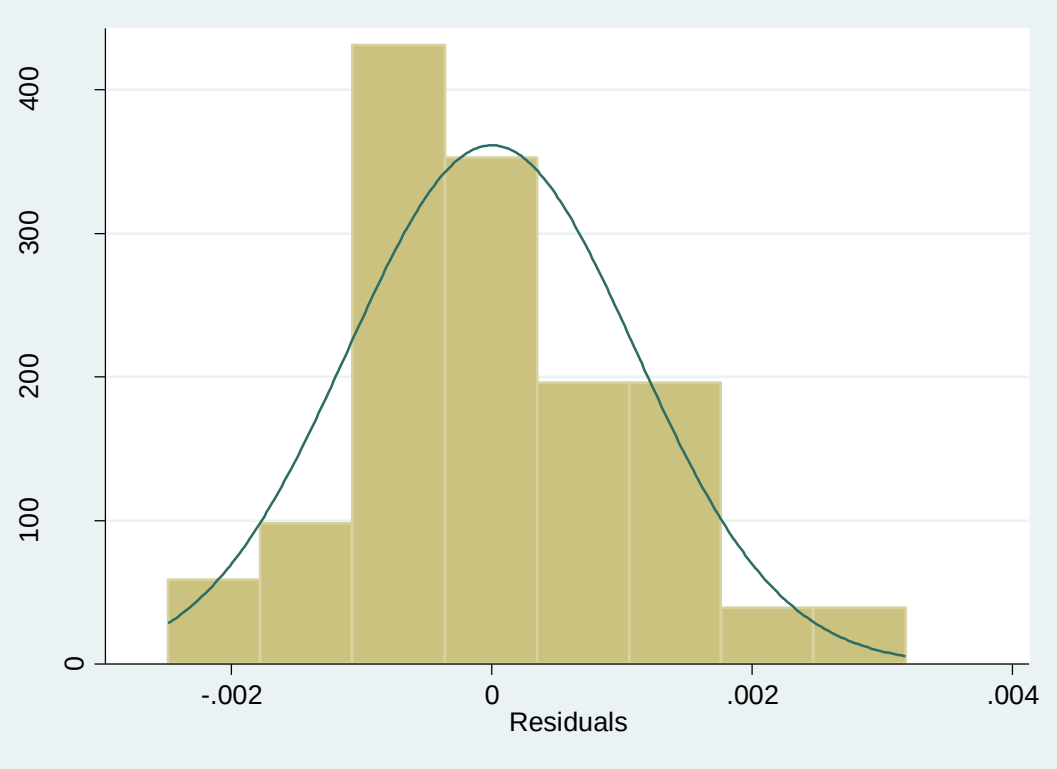


Source, Research Data (2022)

Normal distributions were also tested using a Histogram plotting the residuals against the normal distribution. Figure 4.4 resulted in a bell-shaped curve indicating most of the histogram within the normal distribution curve.

FIGURE 4.4

Histogram Normality Test



Source, Research Data (2022)

4.6.1 Jarque Bera test for normality

According to Fiorentini (2004), researchers regularly use the JarqueBera (JB) normality test to determine if the observed series' conditional distribution is normal. Their test was initially designed for the scenario when the conditional variance is constant (= ω, say) and has no effect on μt(θ), and the conditional mean parameters, δ say, and are variation free.

According to Table 4.6, chi(2) is 0.5279, which is larger than 0.05. As a result, the null hypothesis can't be rejected. Furthermore, because the residuals are normally distributed, there is no violation of the normal distribution assumption of error terms.

TABLE 4.6

Jarque-Bera test

Jarque-Bera	normality test: 1.278 Chi (2) .5279

Jarque-Bera test for Ho: normality:

Source, Research Data (2022)

4.7 Correlation Analysis

In this investigation, the Pearson product moment correlation coefficient was used. Correlations are used to assess the strength of a two-variable linear connection. Correlation coefficients range from -1.0 (completely negative correlation) to positive 1.0 (completely positive correlation) (perfectly positive correlation). According to Creswell (2009), the stronger the link is, the closer the correlation coefficients approach -1.0 or 1.0. As the correlation between the independent and dependent variables weakens, the correlation coefficient approaches zero. Table 4.7 indicated that the Operational Risks was negatively correlated to financial performance -0.77779 and correlation was statistically significant at 0.05 and 0.01 levels. The Liquidity risk showed a -0.8001 correlation at significance level of 0.000, Marketing risks was correlated to financial performance of Microfinance institutions at a -0.7809 and the correlation was statistically significant. Lastly credit risks had a correlation of -0.8579 at a statistically significant level of 0.05,

TABLE 4.7

Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)
Financial Performance	1.000				
Operational Risks	-0.7779*	1.000			
	(0.0000)				
Liquidity Risks	-0.8001*	0.6956*	1.000		
	(0.0000)	(0.0000)			
Market Risks	-0.7809*	0.6766*	0.6207*	1.000	
	(0.0000)	(0.0000)	(0.0000)		
Credit Risks	-0.8579*	0.7283*	0.7121*	0.7425*	1.000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	

**** p<0.01, ** p<0.05, * p<0.1*

Source, Research Data (2022)

4.8 Hausman Test

The Hausman test, according to Ullah (2019), is employed in panel data research to select between models. The Hausman test is used to determine whether or not the panel model is endogenous. The Hausman test, which assesses whether a fixed or random effects panel model should be employed, is one of the tests used to select an acceptable model. If the p value of chi is more than 0.05, fixed effects are recommended for the research; otherwise, random effects are preferred. From table 4.8 the chi prob>chi 2 p value is 0.9489, indicating that the fixed effect model is preferred in our research.

TABLE 4.8

Hausman Test

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
operationa~s	-.0087953	-.0076762	-.0011192	.0023159
liquidityr~s	-.0456961	-.0459803	.0002842	.0079527
marketrisks	-.0084498	-.0076495	-.0008003	.0020998
creditrisks	-.0100474	-.0114502	.0014028	.002198

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 0.72
Prob>chi2 = 0.9489

Source, Research Data (2022)

4.9 Model Fitting

The fixed effect model was used to provide a summary of the model that included all diagnostic tests, notably heteroscedasticity and autocorrelation, in order to construct the output of the fitted model. The purpose of this study was to determine how the independent variables interact with the dependent variable in a group setting, how much each independent variable interacts with the dependent variable in a group setting, and whether the effects on the dependent variable are statistically significant. The best equation for predicting the y variable as a linear function of the x variables is identified via multiple regression analysis. These overall associations were represented by the regression equation:

$$FP_{it} = \beta_0 + \beta_1 OR_{it} + \beta_2 LR_{it} + \beta_3 MR_{it} + \beta_4 CR_{it} + \mu$$

FP_{it} = Financial performance of Microfinance Institutions

OR_{it} = Operational Risks

LR_{it} = Liquidity Risks

MR_{it} = Market Risks

CR_{it} = Credit Risks

μ = Unobserved firm dependent error term

$FP_{it} = 0.0556428 - 0.0087953\ OR_{it} - 0.0456961 LR_{it} - 0.0084498\ MR_{it} - 0.0100474 CR_{it} + \mu$

The overall model was statistically significant with a P value of Prob>F = 0.0000 . Table 4.9 showed that for a constant unit change in Operational Risks there was – 0.87953% decrease in financial performance of microfinance institutions in Kenya, A unit change in liquidity risks caused a – 4.56961% reduction in financial performance of microfinance institutions in Kenya, the results further showed that a unit changing Market risks caused a – 0.84498% decrease in financial performance of microfinance institutions in Kenya. Lastly a unit change in Credit risks caused a – 1.00474% reduction in financial performance of microfinance institutions in Kenya.

TABLE 4.9

Regression Model

```
Fixed-effects (within) regression               Number of obs      =       348
Group variable: companycode                     Number of groups   =        58

R-sq:  within  = 0.7377                         Obs per group: min =         6
       between = 0.0205                                        avg =       6.0
       overall = 0.3959                                        max =         6

                                                F(4,286)           =    201.07
corr(u_i, Xb)  = -0.2509                        Prob > F           =    0.0000
```

financialperfo~e	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
operationalrisks	-.0087953	.004261	-2.06	0.044	-.0173312	-.0002595
liquidityrisks	-.0456961	.0149729	-3.05	0.003	-.0756904	-.0157019
marketrisks	-.0084498	.0035747	-2.36	0.022	-.0156107	-.0012889
creditrisks	-.0100474	.0039442	-2.55	0.014	-.0179485	-.0021463
_cons	.0556428	.0046941	11.85	0.000	.0462394	.0650462
sigma_u	.00071021					
sigma_e	.00099262					
rho	.33859119	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(11, 56) =     2.89                 Prob > F = 0.0045
```

Source, Research Data (2022)

4.10 Discussion of Findings

The results of the examination of the research variables as a group shows that Operational risks, Liquidity risks, market risks, and credit risks together have a significant effect financial performance of micro finance institutions in Kenya as shown by their significance value ProbF 0.000 <0.05. Indicating the fixed effect model was statistically significant.

Results from the Hausmann test indicated that the Fixed effect panel model, was selected for the research. The results indicated that the effect of the independent variables on the financial performance of the micro finance institutions within the firms the

independent variable caused a variation of R^2 73.77% while 26.23% was caused by factors not measured in the fixed model, between the firms there was a 2.05% variation caused on the financial performance of microfinance institutions in Kenya leaving 97.95% variation was caused by factors not measured in the fixed model, and also the overall variation caused by the independent variables on the financial performance of microfinance institutions in Kenya was 39.59%. the remaining 60.41% variation was caused by factors that were not measured in the fixed effects model.

The Model indicated that the variables Operational risk had a statistically significant effect on the financial performance of microfinance institutions in Kenya at 0.044 $p<0.05$, Liquidity risks had a statistically significant effect on financial performance of microfinance institutions in Kenya at 0.003 $p<0.05$, Market risks had a significance value of 0.022 $p<0.05$ indicating that the effect was statistically significant. Lastly the credit risk a statistically significant effect on financial performance of microfinance institutions in Kenya with 0.0014 $p<0.05$.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter outlines the summary of major study findings, highlights worth notable discussions, remarkable conclusions and the researcher's recommendations. In consideration to the study objectives, the summary is drawn based on the outcome of the statistical analysis upon testing of the study's research hypothesis. A section of suggested areas for further research is also captured in this chapter.

5.2 Summary of findings

Evidence from other studies done before determining whether financial risks influence the financial performance of microfinance institutions indicated mixed results depending on the institution's level of risk management. This study's findings established a significant positive relationship between financial risk management and financial performance of Microfinance Institutions.

5.2.1 Relationship between credit risk and financial performance of Microfinance Institutions inKenya

Given the objective of identifying whether credit risk affects the financial performance of the Microfinance Institutions in Kenya, the study looked at the MFIs' credit risk exposure. The study findings depicted that credit risk exposure has a material negative effect on the Kenyan Microfinance Institutions' financial performance which concurred with a study conducted by Gatuhu (2013) who yielded a 76.1% negative effect of financial perfomance.

This was a clear indication that failure to manage the increased exposure to credit risk would reduce profits. This can occur given the fact that changes in credit risk reflects the health of a MFI's loan portfolio which affects the financial performance of the Microfinance Institutions in Kenya. The findings differed with a study conducted by Kithinji (2010) who concluded that non-performing loans does not significantly affect banking institutions.

5.2.2 Relationship between market risk and financial performance of Microfinance Institutions in Kenya

While the study aimed at establishing the relationship between market risk and the financial performance of Microfinance Institutions in Kenya, it revealed that in both short run and long run, market risk influenced the financial performance of MFIs negatively. This is in agreement with a study conducted by Mwangi (2013) which identified a negative significant relationship between market risk and financial performance yet the study also differs with a research conducted by Odeke and Odongo (2014) which depicted a low effect on financial performance of Ugandan banks. The degree of interest rates market fluctuations being the parameter of market risk with significant impact was utilized to test the relationship between market risk and the MFIs financial performance.

5.2.3 Relationship between liquidity risk and financial performance of Microfinance Institutions inKenya

The study sought to determine the relationship betwixt liquidity risk and the financial performance of the Microfinance Institutions in Kenya. Considering liquidity coverage ratio as the key parameter, the results of the study indicated a negative association between liquidity risk and financial performance of MFIs in Kenya which also agreed with Maniagi

(2018) At ceteris paribus, the overall results indicated that liquidity risk is negatively related to the financial performance of Kenyan Microfinance Institutions in both short run and long run even though this differs with Rahman and Saeed (2015). The MFIs that had sustainable liquidity position reported a better profitability compared to the institutions with liquidity challenges in the long run.

5.2.4 Relationship between operational risk and financial performance of Microfinance Institutions inKenya.

With the objective of establishing how operational risk relate with financial performance of Microfinance Institutions in Kenya, the study considered how operational costs account on the MFIs profitability. The cost income ratio was the parameter used for operational risk and the finding of the study was that operational risk (costs) account for the most significant negative effect on the profitability of all the Microfinance institutions in Kenya. A study conducted by Annannab and Khan (2022) on effects of operational risk on financial performance of MFIs in Thailand depicted 84.5 % negative impact of the financial performance which agreed with the findings of this research and this clearly indicated both in the short run and in the long run, the operational risk negatively affected the financial performance of Kenyan MFIs. To boost profitability and investor confidence, an efficient framework for management of the operational risk need to be established by all the Microfinance institutions in Kenya.

5.3 Conclusions

5.3.1 Credit risk and financial performance

The study determined the relationship between credit risk and the financial performance of Kenyan Microfinance Institutions by taking into considerations critical variables related to loan process. The level of credit risk consisted of indicators such as Asset Quality, loans and advances as well as Risk Weighted Assets and the financial ratios of capital to the indicators resulted to coefficients which indicated a negative relationship between credit risk and profitability. This was indication that poor performance of the MFIs could result from poor asset quality. Thus, the study can possibly conclude that MFIs with well managed credit risk have high asset quality and tends to be more profitable than the others. Furthermore, the credit risk variable has the most influence on the financial performance of the Microfinance Institutions across Kenya.

5.3.2 Market risk and financial performance

Through the use of interest rate fluctuations exposure to investigate the relationship between market risk and financial performance of Microfinance Institutions in Kenya, the results of market risk analysis indicated an adverse relationship between interest rate exposure and MFIs incomes. Given the negative relationship it is possible for the study to conclude that adequate management of market risk required by all Kenyan Microfinance Institutions and they should deploy systems to evaluate each material risk element.

5.3.3 Liquidity risk and financial performance

Looking at the liquidity coverage ratio under the relationship between liquidity risk and financial performance of Kenyan MFIs the results indicated a significant negative relationship to the MFIs profitability. Thus the study concludes that failure to check and manage liquidity challenges may adversely influence the Kenyan Microfinance Institutions financial performance and to further extreme lead to insolvency and collapse of the MFI. To mitigate the liquidity, risk the Microfinance institutions should mobilize more deposits, maintaining sufficient cash reserves, extra to avoid failures of meeting depositors' demands. Sustainable funding and capital improve the profitability of the Microfinance Institutions.

5.3.4 Operational risk and financial performance

Across all the Kenyan Microfinance Institutions the study found that operational risk had the highest influence on their financial performance. Which means the related costs incurred from the day to day operations both internally and externally lead to existence of operational risk creating uncertainty on the Kenya MFIs earnings. Such costs resulting from both systems and people also creates risk to both the institutions and their stakeholders. Therefore, the study concludes that Given the critical role the Microfinance Sector play in the nation's economy, efficient operational risk management framework and measures should be taken to mitigate the adverse effects of operational risks in Kenyan Microfinance Institutions.

5.4 Recommendations

Based on the objectives of the study, the following recommendations were reached.

5.4.1 Credit risk

Looking at the findings above, it is recommended that the governance or managers of the Kenyan Microfinance Institutions should facilitate efficient credit analysis and administration, ensure proper collateralization and documentation of loans. Efficient credit policies and sound credit risk framework should be established. Approvals and authorization of different category of loans products should be properly adhered to at every line of management. Proper research on loan products should be conducted and training of the business development officers and credit officers should be duly conducted. Such recommendation will help to minimize the loss on nonperforming loans, increase the asset quality and reduce defaulted loans expenses which will outrightly increase profitability. Credit risk as highlighted on the finance distress theory, is one critical parameter that fuels financial distress lading to deterioration in the returns of the shareholders equity as well. The study also recommends that the Kenyan MFIs should continuously monitor their loan book against the available total deposits and create a sustainable balance guided by the classification of the maturing loans.

5.4.2 Market risk

Fluctuations within the market and the banking industry in particular inhibits market risk therefore study recommends that Kenyan Microfinance Institutions should also diversify into alternative income generating channels which can enhance their financial muscles within the financial sector to market risks. Irrespective of the ownership structure whether

locally or foreign owned all Kenyan operating MFIs need to consider coming up with strategies to mitigate the market risks such as implementation of loan asset securitization and financial derivatives which can aid decrease their interest rates and the exposure to foreign currency risk. The recommendation can be achieved through development of a sound and realistic risk management framework which applies accepted financial concepts and precise risk measurement techniques. With respect to the regulated MFIs the regulators as well as the government and regulatory bodies like CBK and Capital Market Authority need to control both interest plus inflation rates and off-balance sheet items as well as other parameters by implementing a realistic standard for the maximum amount of risks in respect to their respective amount of return. This can be achieved by adapting to the Risk Based Supervision Model.

5.4.3 Liquidity risk

The Kenyan Microfinance Institutions should carry out continuous monitoring of the liquidity position under all available products segment in order to establish a competitive advantage in the market and build a promising investment portfolio. Every Microfinance Institution in Kenya should take heed of the necessary attention to maintain a sustainable liquidity position in order to tap into every viable investment opportunity. Liquidity constrains in any Microfinance Institution should be addressed effectively, followed by immediate realistic remedial measures taken to escape the scenario of running out of funds. The recommendation is in line with the shiftability theory of liquidity directive which holds that every financial institution should efficiently manage their liquidity. The MFIs need to frequently monitor their liquidity and maintain it to sustainable levels balancing

investments and liabilities given the fact that holding more cash also impacts the returns on the shareholders' equity. They can also invest in highly marketable securities as a way of controlling their liquidity.

5.4.4 Operational risk

Operational risks from both external and internal factors affecting the day to day operations of the MFIs significantly affect their financial performance, therefore, each and every Kenyan Microfinance Institution mut establish an elaborate risk management framework that protects the institutions' data, assets, creates risk awareness to the employees and improve operational efficiency. According to the Basel Accord, the new capital Accord every financial institution should set apart a budget to cater for operational risk capital. The Microfinance Institutions should set resources to cater for both internal operating procedures and develop a viable operational risk methodology which can effectively identify, measure, monitor and control any inherent operational risks.

The Microfinance Institutions in Kenya should ensure that their internal operating controls are frequently reviewed by independent internal audit and risk ad compliance team with full support from the board of directors, senior management and the subordinate staff. The regulated Microfinance Banks should ensure that every regulation guidelines and procedures from the relevant CBK and any other relevant regulator in regards to operational risks are fully implemented and adhered to avoid unnecessary penalties and fines that affect their profitability.

5.5 Suggestions for further research

The objective of this study was to establish the relationship between the financial risk management and the financial performance of Microfinance Institutions in Keya. However there being other risks that can affect the Kenyan MFIs such as compliance risks, legal risks, strategic risk and political risks, the study did dig deeper on how such risks relate with the Kenyan MFIs, therefore, this creates the need to analyze further how those risks influence the performance of Kenyan Microfinance Institutions. Given the fact that the study utilized the available secondary data from AMFI and CBK reports covering five years from 2016 to 2020, a longer period of the time series data is recommended. There is need for further research especially on the liquidity management framework and the conceptualization of the respective ratios as proposed in the Basel Accord III.

There is also need to carry out Further study on other factors that influence the financial performance of Microfinance institutions in Kenya such as Governance, regulatory requirements, technical constrains and stiff competition from the Fintechs, informal and the formal banking sector which choke their growth within the financial sector.

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APPENDICES

Appendix 1: List of licensed MFIs in Kenya

1. Caritas Microfinance Bank Limited
2. Century Microfinance Bank Limited
3. Choice Microfinance Bank Limited
4. Daraja Microfinance Bank Limited
5. Faulu Microfinance Bank Limited
6. Kenya Women Microfinance Bank PLC
7. Rafiki Microfinance Bank Limited
8. Key Microfinance Bank PLC
9. SMEP Microfinance Bank Limited
10. Sumac Microfinance Bank Limited
11. U & I Microfinance Bank Limited
12. Uwezo Microfinance Bank Limited
13. Maisha Microfinance Bank Ltd
14. Muungano Microfinance Bank PLC
15. VisionFund Kenya Ltd
16. BIMAS
17. YEHU Microfinance Trust
18. Fincredit Services Ltd
19. Juhudi Kilimo Co.Ltd
20. Real People Ltd
21. Neema Helth Education & Empowerment Program (NEEMA-HEEP Ltd)
22. Hand in Hand Eastern Africa
23. Premier Credit Ltd
24. Moneyworth Investment Ltd
25. Longitude Finance
26. Jiweze Ltd
27. ASA Ltd
28. Kipepeo Microcredit Ltd
29. Milango Financial Services
30. Fort Credit Limited
31. Jubilant Kenya Ltd
32. Habitat for Humanity Kenya
33. Molyn Credit Ltd
34. Mogo Finance
35. Unaitas Sacco Society ltd.
36. Greenland Fedha Ltd
37. Platinum Credit Limited
38. Select Africa

39. Springboard Capital
40. Focus Capital Limited
41. Samchi Credit Limited
42. Jitegemea Credit Scheme
43. AAR Credit Services
44. Pamoja Women Development Programme
45. Musoni Kenya Ltd
46. Eclof Kenya
47. Opportunity Kenya
48. Juhudi Kilimo Co.Ltd
49. My Credit
50. Jitegemee Trust
51. Micro Africa Ltd (Letshego)
52. Fusion Capital Ltd
53. Fountain Credit Services Ltd
54. SISDO
55. SMEP Microfinance Bank Ltd
56. Watu credit
57. Spread Capital ltd
58. Remu Microfinance Bank Ltd

Appendix 2: Secondary Data collection tool

Secondary data was collected as follows for the all the registered microfinance institutions as at 2020:

Name of the microfinance Institution

……KWFT…….

Variable	Variable Measure	Description	2015	2016	2017	2018	2019	2020
Credit Risk	Asset quality Ratio	Non-performing Loans and advances/Total Loans						
	Loan and Advance ratio	Loan and Advances/Total Deposits						
	Degree of financial Leverage	EBIT/EBT						
Market Risk	Net Interest Margin	Log of Net Interest Margin						
	Net foreign currency exposure	Foreign exchange Gains/Losses						
Liquidity Risk	Liquidity Coverage	Liquidity coverage ratio						
	Net stable funding	ASF= (Capital + liabilities)						
Financial Performance	ROE	Net Income before tax/ Total equity Capital						
Operational Risk	Cost to Income Ratio	Operating cost/operating income*100						
	Number of fraud incidences	Internal and external fraud incidences						

THANK YOU.