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DETERMINANTS OF PORTFOLIO CONCENTRATION RISK IN MICROFINANCE INSTITUTIONS IN KENYA

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137049

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF COMMERCE AT STRATHMORE UNIVERSITY

MAY 2023

DECLARATION

I declare that this study is my original work and has not been submitted for degree in any other university.

Signed: …….……..…..…….……. Date: 05/06/2023

NELLY NASERIAN TANYAI

Declaration by the university supervisor

This study has been submitted for examination with my approval as university supervisor.

Signed: …….. Date: ……

……..

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DEDICATION

I dedicate this work to my entire family, all my lecturers, and my fellow graduate colleagues for their support, encouragement, and patience during the entire period of my study and their continued prayers towards the successful completion of my course.

ACKNOWLEDGEMENT

First, I thank the Almighty God for giving me strength, guidance, and providence, which has enabled me to undertake this study. Secondly, I wish to thank my supervisor for his guidance and support. Last but not least, I wish to express my gratitude to my beloved family for their understanding and support throughout my studies.

ABSTRACT

Microfinance institutions' performance is important. Stable microfinance institutions advance commerce helping alleviate poverty and unemployment. Microfinance banks offer vital financial services that include savings, credit, insurance and financial advisory to low-income earners and small firms. However, MFIs are vulnerable to portfolio concentration risk which substantially affect their financial stability. Additionally, legal reforms have been instituted to offer sound regulatory framework for microfinance institutions in Kenya. Specifically, the study sought to examine the determinants of portfolio concentration risk among the microfinance institutions in Kenya and to investigate the moderating effect of 2019 legal reforms on determinants of portfolio concentration risk in microfinance institutions in Kenya. In terms of the determinants of portfolio concentration risk among the MFIs, the study covered firm-level factors, industry-level factors, and macro-economic factors. This study was anchored on public interest theory of regulation and modern portfolio theory. The study adopted a positivism research philosophy and follow an explanatory research design. The study's target population was seventy senior credit officers drawn from the fourteen registered and licensed microfinance banks operating in Kenya. This study used primary data that was collected by the use of a semi-structured questionnaire. Data analysis was done in the form of descriptive and inferential statistics. Results showed that firm specific factors, industry level factors and macroeconomic factors had a positive effect on portfolio concentration risk. This meant that they did not lead to addressing portfolio concentration risk among MFIs, but rather exacerbated it. Moreover, it emerged that 2019 legal reforms moderating the relationship between firm specific factors, industry level factors and macroeconomic factor with portfolio concentration risk. It is recommended that MFIs adopt and practice the legal reforms as instituted as this lowers portfolio concentration risk.

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LIST OF ABBREVIATIONS AND ACRONYMS

BCBS	Basel Committee on Banking Supervision
CBK	Central Bank of Kenya
MFIs	Microfinance Institutions

DEFINITION OF TERMS

Credit risk This is the likelihood of a borrower failing to make good the credit advanced to them (Bari & Syazwani, 2019).

Firm-specific factors Refer to conditions that originate within the firm and are as a result of management decisions (Egbunike & Okerekeoti, 2018).

Industry-specific factors Refer to conditions that affect an entire industry or sector and are not caused by management decisions (Larry & Silvia, 2019).

Macro-economic factors Refer to conditions that are widespread in the entire economy (Killins, 2020).

Microfinance Institution This is an entity that specifically provides financial services to those incapable of accessing the services from commercial banks (Bekalu, Lemie, & Gutu, 2019).

Portfolio Concentration Risk Refers to the risk associated with a financial institution over lending to one sector of the economy instead of balancing the lending to many sectors of the economy (Malla, 2018).

CHAPTER ONE: INTRODUCTION TO THE STUDY

1.1 Background of the Study

In the banking sector, credit risk is the sum of transaction risk and portfolio risk (Mihir & Ranjan, 2016). Transaction risk or default risk is the inherent likelihood of the borrower not repaying the credit advanced as per the contracts. On the other hand, portfolio risk has intrinsic risk and concentration risk. Intrinsic portfolio risk is the chance of the portfolio not yielding expected returns due to other factors other than diversification (Natalia, 2019). Portfolio concentration risk refers to the risk associated with a financial institution over lending to one sector of the economy instead of balancing the lending to many sectors of the economy. MFIs offer services to low-income earners and the poor, who traditionally have higher default risk. Thus, the returns of the portfolio are not in tandem with the risks. Meshkova and Larionova (2017) did a study on concentration risks in the Russian banking sector and revealed that concentration risk places a risk in the bankruptcy of lenders due to the high chances of financial losses. Moreover, the study identified that industry-related factors are key drivers in the existence of portfolio concentration risk. This study, however, did not examine the role of macroeconomic and industry-related factors in influencing portfolio concentration risk, thus presenting a contextual and conceptual gap.

According to Mihir and Ranjan (2016), portfolio concentration risk is a major concern for banks. This is because over-lending in one sector of the economy lowers banks' stability. In addition, portfolio concentration risk is associated with correlated defaults causing massive financial losses to lenders. Jolevska and Milan (2021) note that portfolio concentration risk is influenced by a spectrum of factors and industry regulations, such as the age of the firm, capital adequacy, amount of deposits and competition influences portfolio concentration risk. Slyvia and Liu (2020) in their study to establish whether sustainable investment reduces portfolio risk, they found that sustainable investments plays a significant role in mitigating total, systematic, and idiosyncratic risk of equity funds, even after controlling for other fund characteristics (Sylvia Maxfield, 2020). These finding poses a question on what exactly influence portfolio concentration risk. This is because, prior studies have found portfolio concentration risk to be a function of a wide range of factors. Therefore, there is need to advance literature in order to examine what influences portfolio concentration risk.

Around the world, the demand for microfinance services has continued to grow due to their accessibility and affordability to a majority of the small entity owners and low-income earners. Microfinance banks offer vital financial services that include savings, credit, insurance and financial advisory to low-income earners and small firms (Ofeh & Jeanne, 2017; Mia & Rana, 2018; Lamichhane, 2022). According to Revindo and Gan, (2017) the demand for microfinance services has risen, and this has seen default risk increase significantly, affecting the stability and going concern for the banks. Moreover, the dynamics in the financial markets critically expose lenders to default risks which, if not prudently managed under robust legal regulations, can occasion widespread financial crises (Nurazilah, Fakarudin, Hook, Bakri, & Sufian, 2020; Quartey & Kotey, 2019).

One peculiar issue that characterises microfinance is their business which lead to them experiencing issues relating to portfolio concentration risk. For instance, most microfinance have a specific clientele which they serve. According to Basu, (2023) portfolio risk for microfinance is more than the average in financial markets considering that they have narrow markets as opposed to dealing with widespread markets. Therefore, portfolio concentration risk is manifested by situation where lending firms focus on one sector. In turn, this renders business returns in jeopardy if the sector faces financial turbulence as loan defaults are registered in big numbers. Whilst microfinance entities are more likely to reach more customers owing to their localised approach to businesses, this compromises on their capacity to achieve sustainable profitability which is partly caused by concentration risk. Marcia, Belanger and Felipe (2020) noted that microfinance institutions fail to growth due to prevalence of portfolio concentration in the sector. Therefore, the welfare of MFIs cannot be discussed in alienation from portfolio concentration risk.

1.1.1 Determinants of Portfolio Concentration Risk

There exists vast literature on concentration risk that portrays that it is a function of firm-level factors and industry-wide factors. Firm-level factors are factors that are embedded in management decisions. For instance, Calderon-Contreras, Ostos, Florez-Garcia and Angulo-Bustinza (2022) found that solvency, liquidity, and operational efficiency are key determinants of portfolio risks among banks in Peru. However, there is a contextual gap as the study was done in a different continent from the current one, which is based on Kenya, which is a Sub- Saharan County.

In contrast, Gulati, Goswani and Kumar (2019) noted that the intensity of portfolio risk fundamentally influences the stability of banks, and more diversification increases default risk for banks in India. This divergent results from the first study show the need for more studies. This indicates a conceptual gap because macroeconomic variables were not factored into the models. In this aspect, this study sought to explore the link between firm specific factors, industry level factors and macroeconomic factors and portfolio concentration risk among MFIs in Kenya.

Global literature depicts systemic vulnerabilities in the financial sector, which, more often than not, present catastrophic damages. Adrien (2022) notes that whilst lenders undertake apt strategic interventions to manage defaults, few entities have successfully undertaken to lower financial risks associated with systemic factors such as portfolio risks. Thus there exist an inherent financial shock that can impair the financial stability of lenders if not attended to. For instance, in Portugal, ineffective diversification by commercial banks has escalated concentration risk leading to low profitability, particularly among smaller banks (Santos & Silva, 2019). In the absence of carefully structured policies for dealing with default risks, lenders face difficulties in sustaining good performance. These two studies depict both conceptual and contextual gaps because the current study examines moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in Microfinance Institutions in Kenya

In the United States, portfolio concentration risk is considered a function of bank-specific factors and sectoral factors and is a major risk that lenders seek to deal with by establishing optimal portfolios (Choi, Fedenia, Skiba, & Sokolyk, 2017). Nevertheless, this study did not examine the role of macro-economic variables and thus presents a conceptual gap that should be filled. Additionally, it has since emerged that local diversification is limited in dealing with concentration risks, as some risks affect the entire economy. For instance, in Norway, concentration risk has posed major challenges to lenders, which has seen most resort to venturing into foreign markets (Sturla, 2020). According to Lu and Lee (2021), portfolio risk in the banking sector is a major threat to the stability and sustainability of lenders and is a function of a wide array of internal and external factors. Therefore, scrutiny of portfolio risk is holistic when evaluated from an internal and external perspective. In this aspect, without subtle management of credit risk, MFIs would find it difficult to scale to higher profitability.

At the same time, debt-equity and other economic conditions influence credit risk (Bari & Syazwani, 2019). In this connection, there is a need to examine the role of firm-specific factors, industry factors and macro-economic factors on portfolio concentration risk. Literature in Africa on portfolio concentration risk among microfinance institutions is equally not conclusive. For example, in Ghana, microfinance institutions face challenges in dealing with credit risk due to inadequacy in managing transaction risks, poor risk mitigation measures and inappropriate credit appraisal (Tawiah, 2018). This, therefore, attributes the unstable performance to transaction risk, whereas portfolio concentration risk due to narrow markets is preeminent. Nevertheless, the role of macroeconomic variables was not considered in the study. In Ethiopia, Bekalu, Lemie and Gutu (2019) found out that firm factors, portfolio, risk of the portfolio, market concentration and management efficiency and economic growth are major contributors towards microfinance institutions' performance.

Although MFIs are important in Nigeria, portfolio concentration risk is a major menace for the entities, which in effect, leads to high earnings volatility (Ogunsanwo, Abdulai, & Abere, 2020). This is because microfinance banks advance credit without stringent credit policies to a narrow market, inherently increasing default risk in the process. Moreover, the MFIs portfolio at risk is a major driver for business failure if not addressed (Olamide & Osemene, 2016). In essence, most of these studies have focused on the role of portfolio risk in banks' stability without reviewing factors that influence portfolio concentration risk. At the same time, legal reforms have not been adequately examined in discourses on portfolio concentration risk.

In Kenya, microfinance institutions provide financial services to low-income earners. Whilst MFIs offer vital financial services to small-scale business owners, their scope of operations is often narrow because they deal with specific sectors in the economy. This narrow scope creates a concentration risk. For instance, Kenya Women Fund Trust Microfinance bank offers services to women, thus limiting itself to a vast market from men in business. A study done by Ndambiri, Munene and Wanjohi (2017) portrayed that loan portfolio risk is influenced by internal factors that relate to diversification and credit risk management. However, the study looked into credit risk and portfolio risk, while the current study focused on the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in Microfinance Institutions in Kenya.

1.1.2 The 2019 Legal Reforms on Microfinance Institutions in Kenya

The Microfinance sector operates under the tenets of law as stipulated in the Microfinance Act 2019, which promulgated robust legal reforms that seek to stabilise the sector enabling it to contribute more to economic growth. The Act superseded the amendments done in 2013 to the parent Microfinance Act of 2006. In the last decade, the Central Bank of Kenya has undertaken prudent measures to regularise the operations of microfinance entities and, more so, deposit and taking microfinance institutions (Central Bank of Kenya, 2019).In essence, the 2019 legal reforms sought to revitalise the sector, boost innovativeness, and improve the stability of the MFIs by ensuring that they are adequately capitalised. The most critical provision of the Act relates to capital requirements, liquidity, capital-to-assets ratio, and risk management prohibited activities, limits on credit and loans and insider lending (Central Bank of Kenya, 2019). In this study, the focus is to relate the determinants of portfolio concentration risk and how they are moderated by the legal reforms on portfolio risk management.

1.1.3 Microfinance Institutions in Kenya

The microfinance sector in Kenya has been operating since the 1990s, although judicious legislation came into being from the year 2006. In the wake of 2010, a few years after the regulations, the microfinance sector had grown to have more than 1.5 million active borrowers (Ngumo, Collins, & David, 2020). This sector has since exhibited tremendous growth and economic potential. A number of large microfinance entities have grown to become fully-fledged commercial banks. For instance, Equity Bank was once Equity Building Society. This evidences that the microfinance sector in Kenya is robust and has significant potential growth rates. Hence, as it is the case of MFIs in the region, the role of microfinance in Kenya is significant. In addition, microfinance entities in Kenya offer various services that may not be offered by mainstream banks, such as group loans, emergency loans and gender-specific credit. The facilities present opportunities for microfinance banks to attract new customers (Wanjiru, 2016).

Microfinance Institutions offer credit with few requirements as they have flexible eligibility criteria (Kiambati & Mutunga, 2019). For instance, most Kenyan microfinance does not use advanced credit scoring systems but rather adopts relationship banking in credit processing. However, it also exposes the entities to losses because the type of lending adopted is often associated with higher credit risk. It is this situation that has made it necessary to form regulations to govern the entities. Moreover, acceptance of deposits through front-office services indicates that the risk of business collapse must be controlled by a third-party regulator. Whilst there are many microfinance entities, deposit-taking MFIs are most common due to their larger size and formal formation. Deposit-taking microfinance banks are limited by shares.

The Central Bank of Kenya is mandated with the responsibility of implementing the law points contained in the Microfinance Act of 2006. Microfinance regulations were promulgated to ensure good governance and customer protection. These regulations detail licensing requirements, the conduct of business, and credit classification, among other provisions (Chepkutwo, Jagongo, & Okech, 2019) . Whereas these regulations are in place, performance has not been all appealing. In the year ended 31st December 2020, total assets declined by 2 percent to Kenya shillings 74.9 billion from 76.4 billion in the previous year (Central Bank of Kenya, 2021). Moreover, microfinance borrowings rose by were19.6 percent and 15.1 percent in the year 2019 and 2020, respectively (Central Bank of Kenya, 2021). In the year 2021 Microfinance sector reported a decline in total assets from Kshs. 74.9 million to 73.9 million in the year 2020. Also, whilst credit accounted for 54 percent of total assets for microfinance banks, net advances were reduced to Kshs.40.1 billion from Kshs. 44.2 billion reported in the year ending December 2020 (Central Bank of Kenya, 2022).

In Kenya, concentration risk and portfolio concentration risk are considered components of financial risks that influence wellbeing of MFIs. For example, Lelgo and Obwogi (2018) delved into financial risk management and its impact on MFIs financial results. Results showed that portfolio risk is a major driver of firm performance. Portfolio risk is more pronounced in circumstances where financial entities depend on one or a few sector for business. To alleviate this, diversification in risks is considered the best way to control and manage portfolio risks. Nevertheless, the study had a narrow focus as it dealt with financial risks only. The current study deals with firm specific, industry specific and macroeconomic factors.

Microfinance institutions in Kenya operate in rather defined markets and this diminishes their ability to earn sustainable revenue. According to Bitok, Cheboi, and Kemboi (2019) portfolio quality of most MFIs is low because they focus on low income earners and small entities. These entities at time rarely survive their fifth year and this causes massive losses to MFIs. Whilst MFIs enhance financial inclusion by offering banking services to the poor, this exposes them to portfolio risk. The chance of low level start-up businesses to collapse is high and this leads to loss of funds for MFIs that had offered credit to the entities (Ngumo, Kioko, & Shikumo, 2020). These evidences that portfolio concentration may be a single most driver of poor performance. However, there is a need to empirical test the hypothesis by undertaking this study.

1.2 Research Problem

Microfinance institutions in Kenya are key drivers of entrepreneurship for low income households and micro, small and medium entreprises (MSMEs). However, MFIs gradually face portfolio concentration risk due lending in specific sectors (Malla, 2018). Thus, MFIs are vulnerable to portfolio concentration risk which substantially affect their financial stability. In 2019 microfinance act was amended to advance regulatory framework as contained in Microfinance Act of 2008 (Central Bank of Kenya, 2021). The major reforms purposed to instill fairness and apt corporate governance in the MFIs sector thus building confidence, establishing stability which in the end sought to improve financial standings of individual MFIs and the sector at large. Nevertheless, the regulatory requirements in terms of capital adequacy, solvency, activity restrictions and integrity guidelines have not yet achieved desired ends and also some MFIs are still in oblivion and are reporting losses while others have scaled down operation (Ali, 2022; Madialo, 2022). Moreover, in developing countries, legal reforms are passed without accompanying ground evidence which turn out to be futile (IFC, 2019). In Kenya, the MFI sector is small and have stagnated for long which points to an underlying problem. Consequently, this presents compelling reason for undertaking this study in order to substantiate the effect of legal reforms on portfolio concentration risk in the Kenyan microfinance sector.

A study by the Central Bank of Kenya (CBK) on the microfinance sector in Kenya found that MFIs have a high concentration of loans to the agriculture sector (CBK, 2017). Agricultural sector is greatly affected by climate change, A study by Central bank of Kenya on guidance on climate-related risk management (October 2021) found that an appropriate framework for managing climate-related risks should be based on a comprehensive assessment on how and to what extent climate change would affect an institution's portfolios and operations. In view of the unique characteristics of climate change, the financial, reputational and strategic risk implications should be properly considered (Kenya, 2021). This suggests that MFIs may be exposing themselves to sector-specific risks, such as changes in weather patterns or fluctuations in commodity prices. According to Lamichhane (2022), loan delinquency among MFIs is high because they, unlike commercial banks, have narrow markets leading to poor-quality of portfolios. Schulte and Winkler (2019) note that single markets create a poor quality of the loan portfolio, which is a major driver of business failure among MFIs. Portfolio concentration risk is a critical and single most cause of banks' failure (Mihir & Ranjan, 2016). In the past few years and specifically in the wake of the COVID-19 pandemic, MFIs in Kenya exhibited a poor trend in dealing with not only portfolio concentration risk but credit risk in general (Ngumo, Collins, & David, 2020). Also, unfavorable regulatory and supervisory framework has been considered as an impediment towards a stable MFIs sector (Afude, 2017; Kathomi, Maina, & Kariuki, 2017).

Shim (2019) delved into banks' stability as a function of loan portfolio diversification and market concentration and noted that portfolio diversification and market concentration were key drivers of banks' stability in the United States. However, this study did not investigate the determinants of portfolio concentration as endeavoured in this current study. Bulbul, Hakenes and Lambert (2019) focused on credit risk, mitigation and modelling among banks in Germany. The results of the study portrayed that sector concentration affected the portfolio. In the above studies, none of them was done in Kenya, showing that there is a need to bridge the contextual gap. In so doing, this study attempted to find out the determinants of portfolio concentration risk and moderating effect of the 2019 legal reforms on the determinants of portfolio concentration risk in Microfinance Institutions in Kenya.

To account for the moderating effect of the 2019 legal reforms in Kenya, the present study will investigate how these reforms influence the relationship between the determinants and portfolio concentration risk in microfinance institutions. These legal reforms may introduce regulatory changes, governance improvements, or policy shifts that could potentially alter the impact of firm-level, industry-level, and macro-economic factors on portfolio concentration risk. Furthermore, incorporating the moderating effect of the 2019 legal reforms in Kenya, may introduce regulatory changes or policies that influence the relationship between the identified determinants and portfolio concentration risk. By considering these factors holistically, the study will contribute to a deeper understanding of the complexities surrounding portfolio concentration risk in microfinance institutions in the Kenyan context.

1.3 General Objective

To establish the determinants of portfolio concentration risk in Microfinance Institutions in Kenya.

1.3.1 Specific Objectives

This study had the following specific three objectives.

i. To examine the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya.
ii. To examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya.
iii. To examine the effect of macroeconomic determinants on portfolio concentration risk among the microfinance institutions in Kenya.
iv. To investigate the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya.

1.4 Research Questions

This study was developed to provide answers to the following research questions:

i. What is the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya?
ii. What is the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya?

iii. What is the effect of macroeconomic determinants on portfolio concentration risk among the microfinance institutions in Kenya?
iv. Is there a moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya?

1.5 Scope of the Study

This study delved into the MFIs sector in Kenya. In terms of variables, firm-specific variables, industry-level factors, and macro-economic variables were examined. Firm-specific factors are conditions that originate within the firm and are as a result of management decisions, industry-specific factors are conditions that affect an entire industry or sector and are not caused by management decisions while acro-economic factors are conditions that are widespread in the entire economy. Further, the study examined moderating effect of 2019 legal reforms on portfolio concentration risk in Microfinance Institutions in Kenya. The dependent variable was portfolio concertation risk which refers to the risk associated with a financial institution over lending to one sector of the economy instead of balancing the lending to many sectors of the economy. Lastly, in terms of methodological scope, this study adopted an explanatory research design and employ the use of primary data that was sourced through the administration of a structured questionnaire. This study adopted cross-sectional data whereas data was collected a single point in time. The study focused on MFIs in Kenya.

1.6 Significance of the Study

This study contributes to policy, management practice and the advancement of theories in finance discourses. To begin with, the study provides feedback on the 2019 legal reforms in terms of their effectiveness in offering MFIs a robust framework for managing portfolio concentration risk. The results equally infer on whether there is a need to change or alter the regulations in respect to liquidity, asset quality and capital requirements for the MFIs. Secondly, this study immensely creates value for top management and the board of directors of MFIs in Kenya. The findings are beneficial in offering evidence and guidelines for doing routine managerial practices in regard to the legal stipulations and the determinants of portfolio concentration risk. Precisely, this study can guide the management on how to optimise farm level firm-level factors, industry-level factors, and macro-economic factors to mitigate portfolio concentration risk.

This, in turn, can aid in averting the hazardous and inherent detrimental financial risks associated with a poor portfolio. The results offer a subtle framework for dealing with portfolio concentration risk. The research focused specifically on microfinance institutions in Kenya. This will contribute to the existing literature on portfolio concentration risk in microfinance. Future researchers can compare the findings from this study with similar studies conducted in other countries or regions, allowing for cross-country comparisons and identification of commonalities and differences in the determinants of portfolio concentration risk. Lastly, portfolio concentration risk discourse is still growing in emerging economies. This study, therefore, is timely and improves on what has been studied in the field of MFIs.

CHAPTER TWO: LITERATURE REVIEW

This chapter entails a literature review. The chapter begins with theoretical literature, empirical literature, and conceptual framework.

2.1 Theoretical Literature

Theories are postulates that explain phenomenon in terms of why things appear as observed. Moreover, theories are proposition that characterises happenings. In research, theories offer insights on problem in respect to variables and concepts that are studied. The primary of including theories in research is therefore to offer insights and information on expected concepts and how they can be conceptualised and measured. This study is based on the public interest theory of regulation and modern portfolio theory because they offer a fundamental theoretical framework for understanding the essence of legal reforms and portfolio concentration risk, respectively.

2.1.1 Public Interest Theory of Regulation

This theory was founded by Arthur Cecil Pigou (Hantke-Domas, 2003) and is pegged on the idea that if firms are left uncontrolled, they are likely to engage in hazardous activities that significantly harm the public, the economy, or the country at large. The main construct of this theory is that regulations aim at protecting the interest of the public from exploitation, harm, or danger (Syajarul & Rahman, 2020). Thus, regulations seek to offer safety to the general population by creating a robust system that enables the apt allocation of resources between the public and ventures. At the same time, the market is incapable of systematically and, in all fairness, allocating resources optimally, and this makes regulations paramount. Typically, the primary objective of regulations is the public. In the case of financial markets, regulations are instrumental in protecting deposits of customers' interests of shareholders, among others (Manish & Colin, 2018). Regulations are instrumental in firms that deal with the public. In ideal situations, regulations in financial markets are vital in that they increase the public trust in the firms they save funds with. At the same time, financial markets operate in critical sectors. Regulations standardizes activities which ensure that firms operate in a level ground which enhances competition leading to offering of quality products and services in competitive prices.

Although this theory has been widely accepted, it suffers from a number of gridlocks. To begin with, it does not contemplate that public interests change from time to time, and neither does it offer a remedy for situations where public interest has been achieved (Adams, 2016). It thus creates an ambiguity in its application as it does not critically posits when to stop regulations in a certain sector, especially where the objectives of regulations have been achieved. Secondly, regulators may fail to act in the public interest but act on their own interests, thus creating a conflict of interest. Matching the needs of regulators and the public can be tough, and this can result in sub-optimal regulations. (Samaha & Khlif, 2016).

This theory has been considered important in this study for two folds. The study delved into substantiating role of legal reforms in the microfinance sector and how it influenced portfolio concentration risk. As envisioned by the theory, the Central Bank of Kenya issues regulatory guidelines to control the operations of lenders like deposit-taking MFIs and banks to protect the public interest (CBK, 2018). Hence, understanding this theory aids in appreciating the role of regulations on firm and sectoral stability. Again, it provides key information that enriches management practice in adopting the policies. Similarly, the public interest theory of regulation presents arguments for government participation in the economy through policies, price regulations and punishments (Adams, 2016). Violation of any laws by microfinance banks attracts sanctions, and this can be detrimental to its financial health. The government puts up laws to safeguard, protect and achieve optimal resource allocation. In this study, the overall goal is to relate legal reforms and portfolio concentration risk, with the focus being microfinance banks in Kenya.

2.1.2 Modern Portfolio Theory

This theory was proposed by (Markowitz, 1952) and is built on the tenet of a risk-return mix for various assets in order to establish a good return on investments. The modern portfolio theory suggests that it is prudent to invest in various assets as opposed to investing in one asset. Moreover, the theory recommends mixing high-risk assets with low-risk assets in order to mitigate the risk of total losses if one class of assets fails. At the same time, investments should be spread across different sectors of the economy because this reduces systematic risks. Thus, owning various categories of assets is better than owning one class of assets which can lead to major losses if the risk materialises (Delpini, Battiston, Caldarelli, & Riccaboni, 2019).

In practice, modern portfolio theory has immense benefits. For example, it offers guidelines on ways to reduce portfolio risk, which can be obtained by holding a combination of assets. In this aspect, the prevalence of risks is not affected by the loss magnitude is reduced because the assets have different risks and returns associated with them (Koumou, 2020; Dylan, 2021). Moreover, this theory introduces the issue of deviation from expected returns for various assets. In this aspect, therefore, it is possible to structure an optimal portfolio where expected returns are known. Hence, the most optimal structure is that which has the highest returns with the least risks (Luciano, Borestein, Marcelo, & Adiel, 2018).

Modern portfolio theory is useful in this study because it provides an understanding of the concept of portfolio concentration risk. Portfolio concentration risk looks into ways of reducing risks that are inherent in investments by establishing a mix of assets. Microfinance banks in Kenya can adopt the tenets of modern portfolio theory to navigate through the challenges posed by the market they serve. The microfinance sector provides services to low-income earners, which therefore exposes them to risks of high defaults. Low-income earners and small entities are often considered high-risk clients. In essence, therefore, MFIs need to serve other markets in order to reduce the risks of high loan delinquency.

2.2 Empirical Literature

This section entails a discussion of past studies on firm level factors, industry level factors and macroeconomic factors. Empirical review concentrates on past studies that relate to concepts and variables of the current study. Its role is to offer information on what has been done and what has not been addressed. Moreover, the empirical review offers critique of past studies showing their gaps in addressing the problem. In this section, the empirical reviews are presented in respect to independent variables of the study.

2.2.1 Firm Specific Factors and Portfolio Concentration Risk

Udom and Eze (2018) looked into the role of capital adequacy rules on commercial bank executions in Nigeria. The study's findings revealed that capital adequacy had a favourable effect on commercial banks' financial viability. In contrast, Ndegwa (2018) noted that role of capital regulations on firm performance was inferior.

Microfinance institutions operate in competitive sector and offer similar products. Ownership of sufficient resources would improve investment capacity for the firms. Kiambati and Mutunga (2019) were determined to investigate the link between core capital, liquidity, and profitability in Kenyan microfinance organisations. Secondary data was gathered from the Kenyan Central Bank's website. The data collected was analysed using a correlation model. The researchers discovered that core capital and liquidity had no significant relationship with microfinance institution profitability; however, operational efficiency had a large but negative relationship.

Nurhidayat and Syarief (2020) looked into liquidity, and intellectual capital on the financial performance of Islamic microfinance organisations in Indonesia was investigated. This study relied on secondary data. Liquidity had a detrimental role on the stability levels of Islamic microfinance institutions, whereas intellectual capital had a beneficial result. Ngumo, Collins and David (2020) were inspired to investigate the factors that influence the financial success of Kenyan microfinance institutions.

It emerged that capital sufficiency requirement, firm size, and operational efficiency were found to have a positive and significant link with microfinance institutions' financial performance, whereas liquidity risk and credit risk had a negative and negligible relationship. The findings differ from those of Adusei (2021), who delved into liquidity risk on the financial performance of microfinance institutions in developing nations was investigated. A total of 532 microfinance organisations from 73 countries were surveyed. Liquidity risk was found to have a negative but significant impact on microfinance institutions' financial performance, but when credit risk is present, the negative impact transforms into a positive effect.

Njue (2020) was inspired to look at the impact of liquidity management on Kenyan microfinance firms' financial performance. The data was gathered from the Central Bank of Kenya's website, annual supervision reports, and audited financial statements of the institutions. Descriptive and inferential statistics were used to analyse the data. Liquidity management has been demonstrated to have a major impact on the financial performance of microfinance institutions. Assfaw (2018) conducted a study in Ethiopia to ascertain how the performance of private commercial banks is impacted by bank-specific characteristics. The study's data came from a sample of seven banks' annual financial reports.

The data was analysed using multiple linear regression models, descriptive correlation, and Pearson correlation. It was discovered that the financial performance of the banks was significantly influenced by the size of the bank, adequate capital, and management effectiveness, while the financial performance of the banks was significantly impacted negatively by liquidity management. This review show that the internal environment influences various aspects in the firm. In essence, internal environment presents firm specific factors that change from firm to firm. Nevertheless, positive impact is not tenable without robust management decision in dealing with the firm factors.

Microfinance institutions face challenges in dealing with operational efficiencies owing to their small sizes. The firms are unable to enjoy economies of scale which creates opportunities in cost reduction. Management must therefore understand the role of the firm factors in various matters facing their companies. Considering this, it is imperative to examine role of these firms in the Kenyan perspective. In doing this, this will provide information that can be used to promote robust portfolio concentration risk management among MFIs.

2.2.2 Industry-Level Factors and Portfolio Concentration Risk

Belderbos, Faems, Leten and Looy (2016) examined how technological development affected the firms' financial results. In this investigation, secondary data were utilised. According to the study, there was a bad association between a company's market value and its collaborative technical efforts. The firm's financial performance was observed to be significantly and favourably affected by technological improvement. Similarly, Dao (2020) examined the elements influencing the monetary performance of commercial banks in Vietnam and Malaysia. A sample of 27 Malaysian commercial banks' audited financial reports were used to get the data. The two basic models for data analysis were descriptive statistics and inferential statistics. The study showed that macroeconomic factors, bank size, and industry-specific variables all had a small but favorable impact on the profitability of commercial banks.

Wanjiru (2016) delved into restrictions and financial performance of Kenyan microfinance institutions. The financial statements of the individual microfinance banks provided secondary data for this investigation. The SPSS version 20 model was used to analyse the data.

Return on assets was found to have a negative association with asset quality and capital adequacy, while capital adequacy and liquidity showed a positive link. The return on equity was influenced by asset quality. Batten and Vo (2019) studied the factors influencing Vietnamese bank profitability. According to the study, bank size, risk, expense, and capital sufficiency all had significant effects on profitability. Macroeconomic conditions and characteristics of the banking sector were also observed to have an impact on banks' profitability.

In most economies, industry factors cut across an entire segment and firms do not have control over them. Firms must adapt to the industry factors. Firms are exposed to same industrial shocks such as emergence of technology which they must adapt to remain in sustainably competitive. Industry-level factors and portfolio concentration risk are crucial considerations when evaluating investment portfolios. The performance of a portfolio can be significantly impacted by the overall health and dynamics of the industries in which its holdings operate. Industry-level factors such as technological advancements, regulatory changes, market demand, and competitive landscapes can greatly influence the profitability and growth potential of companies within those sectors.

2.2.3 Macro-economic factors and Portfolio Concentration Risk

Egbunike and Okerekeoti (2018) targeted determining the relationship between macroeconomic variables, company attributes, and the financial performance of the Nigerian manufacturing companies listed on the stock exchange. Information was gathered from manufacturing companies that produced consumer items and was listed on the Nigerian Stock Exchange. The data analysis technique used a multiple linear regression model. The analysis showed that while interest rates and currency rates had no discernible influence on return on assets, the rates of inflation and GDP growth did. The importance of firm size, leverage, and liquidity was also noted.

Moyo and Tursoy (2020) studied how inflation and exchange rates affected South African commercial banks' financial performance. Information was gleaned from the four biggest commercial banks in South Africa's audited financial reports. This study showed a substantial inverse relationship between return on equity and the rate of inflation.

Additionally, a shaky correlation between the exchange rate and return on equity was seen. Hooshyari and Moghanloo (2016) assessed how the rate of inflation affects Iranian banks' profitability. Through the use of questionnaires, data was gathered. Using deductive and descriptive statistics, the gathered data was examined. It was discovered that the bank's profitability was significantly impacted by the rate of inflation. The macro economic environment has immense contribution to socio-economic welfare, not only for individuals but for firms too. For instance, an increase in inflation increases prices of commodities and this hampers purchasing power of economic units. Moreover, inflation makes credit expensive which may lead to credit defaults. Also, a hike in interest rates distorts the financial markets leading to high cases of loan delinquencies. Interest rates have a potential impact on portfolio returns because expensive credit is difficult to service for most individuals.

VT OMNES VNVM SINT

2.3 Conceptual Framework

Figure 2.1 has concepts and variables that this study investigates on. On the left are explanatory factors, while the response variable is portfolio concentration risk.

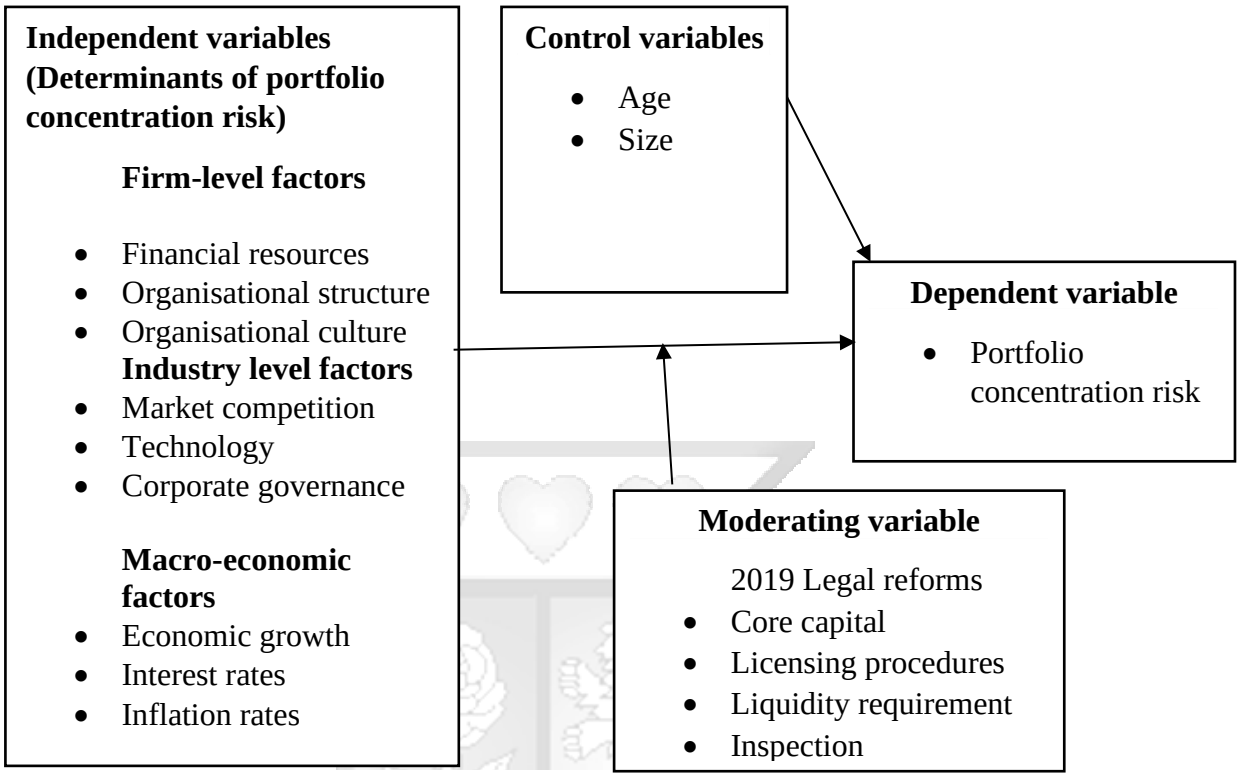

Figure 2: 1 Conceptual Framework

VT OMNES VNVM SINT

2.4 Operationalisation and Measurement of Study Variables

Table 2.1 entails a presentation of variables and their measurement. The table shows variables, definitions and indicators. Also, the measurement scale, supporting literature and supporting theories are indicated on the table.

Table 2: 1 Operationalisation and Measurement of Study Variables

Variable	Definition of Variable	Indicators	Measurement of Variable	Supporting Literature	Supporting Theories
Firm-level factors	These are conditions that are within the discretion of the firms	Financial resources Organisational structure Organisational culture	5-Point Likert's scale	(Assfaw A. , 2018; Siddique, Khan, & Khan, 2022)	Modern portfolio theory
Industry level factors	These are factors that affect the industry as a whole	Market competition Technology	5-Point Likert's scale	(Batten & Vo, Determinants of bank profitability—evidence from Vietnam, 2019; Dao T. B., 2021)	Modern portfolio theory
Macro-economic variables	These are factors that are in the entire economy	Interest rates Inflation rates Economic growth	5-Point Likert's scale	(Egnunike & Okerekeoti, 2018)	Modern portfolio theory
2019 microfinance legal reforms	These are changes in legal reforms	Core capital Licensing procedures Liquidity requirement Inspection Risk management guidelines	5-Point Likert's scale	(Central Bank of Kenya, 2019)	Public interest theory of regulation
Age	This is number of years the MFI had been in operation	Number of years	Number of years	(Wijisiri, Yaron, & Meoli, 2017)	Modern portfolio theory
Size	This is number of years the MFI had been in operation	Loan portfolio diversification, geographical diversification, access to funding and	Portfolio	(Wijisiri, Yaron, & Meoli, 2017)	Modern portfolio theory

		capital, risk management capabilities, and regulatory environment			
Portfolio concentration risk	Risk associated with a financial institution over lending to one sector of the economy	Non-performing loans ratio	5-Point Likert's scale Ratio scale	(Shim, 2019)	Modern portfolio theory

CHAPTER THREE: RESEARCH METHODOLOGY

Chapter three addresses methods and procedures that were undertaken to accomplish the aim of this study. The chapter has research philosophy, research design, population, sample and sample selection, data collection and data analysis.

3.1 Research Philosophy

Research philosophy is a paradigm that shows how a body of knowledge is obtained, stored and transmitted over time. Moreover, it entails the basis that infers the formation of the research problem, data identification and transmission and testing of findings (Mariwilda, 2015). There are various research philosophies. Firstly, there is positivism that is seeks to establish causal or correlate concepts and adopts quantitative methods where data is collected in scales, experiments or tests. Secondly, Interpretism adopts qualitative methods in a naturalistic approach and more often leads to theory creation. In terms of data collection, Interpretism adopts observation, interviews and content analysis. Thirdly, realistic approach is focuses on divergent in concepts and expounds on the existing problem. It contextualises problem in the environment it occurs. The last philosophy is pragmatism which entails focus on problems and utilised mixed methods because it can be quantitative or qualitative in nature in data analysis or collection (Shan, 2022; Mason, Marcjanna, Augustyn, & Arthur, 2022).

This study used positivism research philosophy, which exists where the research world can be objectively scrutinised, void of personal preferences and likes. In positivism, the researchers delve into the research problem, carefully dissociating themselves from the research environment and thus obtaining objective conclusions. This study focuses on establishing the role of 2019 legal reforms on MFIs portfolio concentration risk. Considering positivism does not base arguments on speculations but rather on data and experience, then it is the best pick for this study. At the same time, knowledge obtained through the positivism approach is verifiable as data is measured in quantifiable techniques, follows a systematic data analysis procedure, and interpretations are done objectively (Watjana, 2016).

3.2 Research Design

This study adopted explanatory research design because of two folds. Firstly, an explanatory study delves deep into a phenomenon that has received narrow attention from researchers (Rahl, 2017). The main aim of this study was to find out the role of 2019 legal reforms on MFIs portfolio concentration risk, which has been seldom studied in Kenya. Secondly, explanatory design forms the basis for establishing the interdependence of variables (Ward, Comer, & Stone, 2018). In this study, the output of data analysis was used to interpret and establish the relationship between the 2019 legal reforms and portfolio concentration risk. In this study, data collection was done to find out the role of determinants of credit risk on portfolio concentration risk in MFIs in Kenya.

3.3 Population and Sampling

The target population of this study is 70 senior credit officers from MFIs in Kenya. In each of the 14 MFIs (CBK, 2023). Five questionnaires were issued, giving rise to 70 respondents. Issuance of five questionnaire provided more insights from different respondents in the MFIs which would enhance variability of results giving rise to findings that are suitable for generalisation. Table 3.1 shows the target population.

Table 3: 1 Population

Description	Target Population
Senior credit officers in MFIs	70

The study was a census of all the targeted senior credit officers, and therefore sampling was not done. A census entails collecting data from all units in the target population and is preferred when the target population has a few units that are all reachable for data collection.

3.4 Data Collection Methods

This study adopted a semi-structured questionnaire for collecting data. The data was cross-sectional as it was collected at one point in time. The questionnaire was structured in the form of a Likert scale, where respondents were required to rate the predetermined items representing variables and for the open-ended questions, the respondents were required to write short answers to the questions. A semi-structured questionnaire enables the collection of standardised data and enable collection of data that is not captured by close-ended questions. The questionnaire was issued using Google forms. Online distribution of questionnaires is faster and improves the response rate.

3.5 Data Analysis

In this study, data analysis was done in a three-step procedure. Data analysis commenced with data cleaning, in which questionnaires were checked for correctness and completeness. After data cleaning, data coding was done in order to provide raw data for analysis. The third procedure was to run statistics using SPSS. The results of data analysis were presented in tables. Inferential statistics were used to establish how various determinants of credit risk influence portfolio concentration risk. The ordinal regression model was as specified in equations (i)

$$Portfolio\ concentration\ risk = \beta_0 + \beta_1 firm\text{-}level\ factors + \beta_2 industry\text{-}level\ factors + \beta_3 macroeconomic\ factors + \sum controls + \varepsilon \ldots\ldots\ldots (i)$$

Where: Y is the dependent variable, X(s) are the independent variables, β_0 is the constant term of the model, β (s) are the parameters of the model and ε is the model error term. The moderated model was specified in equation (ii)

$$Portfolio\ concentration\ risk = \beta_0 + \beta_1 firm\text{-}level\ factors*M + \beta_2 industry\text{-}level\ factors*M + \beta_3 macroeconomic\ factors*M + \sum controls + \varepsilon \ldots\ldots\ldots (ii)$$

Where M = 2019 legal reforms on microfinance, firm-level factors*M is the interaction between 2019 legal reforms and firm level factors, industry-level factors*M is the interaction between 2019 legal reforms and industry level factors, macro-economic factors*M is the interaction between 2019 legal reforms and macroeconomic factors. Qualitative content analysis was used in analysing data from open ended questions.

3.5.1 Diagnostic tests

Diagnostic tests entail evaluation of data set and results to examine whether they are in tandem with assumptions that must hold for results of regression analysis to be acceptable. Considering that the study used cross-sectional data, the applicable diagnostic tests include testing for absence of multicollinearity, linearity and heteroskedasticity. Multicollinearity happens where predictors influence each other in a linear way. In other terms, it exists where an independent variable can be predicted linearly by another independent variable or by a set of other independent variables. Regression assumes independence of predictors and thus existence of multicollinearity is a bad thing. In this study, multicollinearity was examined by use of variance inflation factor which essentially tests the extent to which predictors relate to each other. In usual circumstance, variance inflation factor of less than 10 shows low multicollinearity (Kalnins, 2018). Heteroskedasticity exists where residuals do not exhibit constant variance. Hence, this is a situation where non-constant variance exist which tends to inflate the coefficient of determination. This study examined heteroskedasticity by use of Breusch-pagan test in which if it has a p-value of less than 0.05, then variances of residuals are considered to be constant (Halunga, Orme, & Takashi, 2017). The last test was linearity which basically examines of variables relate with other in a linear way. The study used deviation from linearity test whereas if the p-value for the test is more than 0.05, then there exist linear relationship between variables.

3.6 Research Quality

In this study, research quality was ensured by testing the validity and reliability of the structured questionnaire.

3.6.1 Validity

Validity denotes the exactness of items in a tool of data collection to get information on variables (Almeida, Quintão, & Andrade, 2020). In this study, the focus was on content validity that tests the congruency of the questionnaire with the information being sought. In adopting content validity, the constructs and items are tested to meet the informational needs of the research. This was done by asking an expert in the microfinance sector to review and comment on the validity of the questionnaire.

3.6.2 Reliability

Reliability in research denotes consistency in information and data gathering. Moreover, it implies how well items used to represent variables do represent the variables. In this study, the focus was on internal reliability, which tests whether a set of statements or items reliably represent variables. The results are shown on Table 3.3

Table 3: 2 Reliability Statistics

Variable name	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of items
Firm level factors	0.852	0.881	5
Industry Level factors	0.956	0.957	6
Macro-economic factors	0.963	0.963	6
2019 regal reforms	0.920	0.926	8
Portfolio concentration risk	0.919	0.919	5

In this case, internal reliability improves consistency in data for every variable in research. This is because Cronbach's alpha were all more than 0.700 which indicates good internal reliability (Villasis & Miguel, 2018).

3.7 Ethical Considerations

This study was undertaken in cognisant of ethical considerations that principally guide research. Foremost, the respondents participated in this study freely and in an informed consent manner. All participants were recruited freely and voluntarily. Secondly, data and information that was obtained was protected from misuse, and at all times, the confidentiality code of conduct was upheld. Moreover, data collection excise was done upon receipt of a permit from the National Commission for Science, Technology and Innovation. In adherence to these ethical considerations, the study was conducted in an integrity manner, ensuring acceptability and objectivity of the results and findings that were reported (Mohd, 2018)

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1. Introduction

This chapter contains research findings and interpretation derived from results of output of data analysis. In terms of organisation, the chapter commences with response rate, results for respondents profiles, descriptive statistics and ends with inferential statistics.

4.2. Response Rate

The study targeted 70 respondents who were senior credit officers from MFIs in Kenya. Of these, 50 were reached and filled the questionnaire occasioning a response rate of 71 % which is considered. The response rate was excellent. A response rate of between 35 % and 55 % is considered realistic for surveys, while that of more than 70 % is considered excellent (Booker, Austin, & Bijal, 2021). A high response rate is vital because it offers more credibility to research findings where sampling was done. Given these results, data quality was high because the response rate was good. Moreover, the results can be credibly generalised for the target population.

4.3. Respondents' Profile

The first section of the data in instrument collected information about respondents. The information include gender, age, experience and education attained. This data was analysed and the output presented in this section.

4.3.1 Gender

The frequencies indicated that, most of the respondents were male at 66.0 % and the female were 34.0 %. In general therefore, most senior credit officers at MFIs in Kenya are male. This also shows a high disparity in employment and occupancy of top leadership positions among Microfinance Institutions in Kenya.

4.3.2 Age of Respondents

Table 4.1 has output for analysis of age of respondents.

Table 4: 1 Age of Respondents

Age of respondents		Frequency	Percent
Valid	Below 30 years	7	14.0
	Between 31-40 years	20	40.0
	Between 41-50 years	18	36.0
	Above 50 years	5	10.0
	Total	50	100.0

Source: Survey Data (2023)

The results showed that most of the respondents were between the ages of 31-40 years comprising of 40.0 %, those between 41-50 years were 36.0 %, those below 30.0 % were 14.0 % and the least were above 50 years at 10.0 %. In general, this finding indicates that the most respondents were not youths. Hence, senior positions in the microfinance institutions were not occupied by youths.

4.3.3 Level of Work Experience for Respondents

Most of the respondents had worked for the MFIs for a period of 5-10 years at 30.0 %, those between 10-20 years were 26.0 %, those for less than 5 years were 20.0 % and those that had worked for their current MFIs for more than 20 years were 24.0 %. Hence, the respondents had suitable work experience to credibly understand issues relating to MFIs. In essence, a thorough experience is subtle to comprehension of specific information that a survey seeks. The respondents were therefore suitable for the study.

4.3.4 Education for the Respondents

It was evident that most of the respondents had University qualification at 52.0 % while those with postgraduate qualification were 28.0 %. In addition, those with diploma and certificate were 18.0 % and 2.0 % of the total respondents. It means that the respondents had good education. In social science, good education improves data quality.

4.3.5 Age of MFI

Table 4.2 has results of the MFIs that participated in this study.

Table 4: 2 Age of Microfinance Institutions

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
MFI_age	50	4	47	22.40	11.791
Valid N (listwise)	50				

The results showed that the average age for the MFIs was 22.40 years, with a standard deviation of 11.791. The youngest MFI was 4 years old and the oldest was 47 years old. It means that most of the MFIs had been in the sector for some time. Considering that the study also purposed to examine role of 2019 legal reforms on portfolio concentration risk, this mean age made the MFIs appropriate for the study. At the same time, it shows that the MFIs had been in existence before and after promulgation of the 2019 legal reforms.

4.3.6 Size of MFI

The size of an MFI in Kenya can influence portfolio concentration risk through its loan portfolio diversification, geographical diversification, access to funding and capital, risk management capabilities, and regulatory environment. Larger MFIs generally have more resources and capacity to manage and mitigate concentration risk effectively. However, it is important to note that the specific impact of MFI size on portfolio concentration risk may vary depending on the individual MFI's operations, strategies, and risk appetite.

4.4. Findings on Objectives using Descriptive Statistics

This study sought to establish the determinants of portfolio concentration risk for MFIs in Kenya. The specific objectives were to examine the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of macroeconomic determinants on portfolio concentration risk among the microfinance institutions in Kenya and to investigate the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya. Both qualitative and quantitative data was collected. The results are presented as presented in this section.

It emerged that all MFIs indicated that since introduction of 2019 legal reforms, the firms had adopted organisational structure that favoured management concentration risk. Also, findings showed that lending regulations boosted risks associated with insider lending which affected portfolio concentration risk. MFIs predominantly face portfolio concentration risk because of lending specific sectors than dealing with mass market. Hence, portfolio concentration risk is exacerbated by improper deeds such as unregulated insider lending. Moreover, results showed that most MFIs had participated in diversification programs so as to management portfolio concentration risk. Also, most firms had sufficient strategies of dealing with portfolio concentration risks.

4.4.1 Firm Specific Factors

The study sought to examine the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya. The descriptive statistics for the constructs used to proxy firm specific factors are presented on Table 4.3

Table 4: 3 Descriptive Statistics for Firm Specific Factors

Firm Specific factors	N	Mean	Std. Deviation
1. The microfinance bank has sufficient financial resources	50	3.92	.900
2. The microfinance bank has a robust organisational structure	50	4.14	.639
3. Our microfinance bank has reputable organisational culture	50	4.10	.678
4. Our microfinance has sufficient skilled human resources	50	4.12	.659
5. The firm adopts efficient management in costs of doing business	50	4.00	.639
Mean		**4.06**	

Source: Survey Data (2023)

The results on Table 4.3 relate to firm specific factors. Firstly, the mean score microfinance banks' having sufficient resources was 3.92 at a standard deviation of 0.900. This show that MFI did not possess many resources as they deemed fit. Secondly, MFI had a robust organisational structure as signified by the mean of 4.14 whose standard deviation was 0.639. It infers that MFIs had internal processes of management that were versatile and apt. Moreover, it emerged that MFI had reputable organisational culture as evidenced by the mean of 4.10 whose standard deviation was 0.678. Organisational culture refers to ways of doing this which in this case was good and favourable as per the results. At the same time, it emerged that most entities had sufficient human resources as per the mean of 4.12 whose standard deviation was 0.659. Lastly, the firms adopted efficient strategies in managing cost of business as per the mean of 4.00 whose standard deviation was 0.639. These results portray that firm specific factors for the MFIs were in good form except for the issue of having sufficient resources.

4.4.2 Industry Level Factors

The second objective entails examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya. This variable had six constructs whose descriptive statistics are shown on Table 4.4

Table 4: 4 Industry Specific Factors

Industry specific factors	N	Mean	Std. Deviation
1. Our microfinance bank has robust strategies of dealing with market competition	50	4.16	.584
2. We have adopted modern technology in all our operations	50	4.28	.573
3. We have a good share of market in the industry	50	4.28	.573
4. We adapt to industry regulations in good time	50	4.26	.565
5. Our microfinance bank offers better services in comparison to our competitors	50	4.34	.557
6. We are the market leaders in corporate governance	50	4.18	.596
Mean		**4.25**	

Source: Survey Data (2023)

Results on Table 4.4 show that microfinance entities had adopted robust strategies to deal with market competition as per the mean of 4.16 with standard deviation of 0.584. It meant that most MFI had devised strategies to focus on competition that was in the MFI industry. Also, most MFI had adopted modern technology in all operations as per the industrial needs as per the mean of 4.28 with a standard deviation of 0.573. At the same time, the respondents perceived that they had good share of market in the industry as per the mean of 4.258 whose standard deviation was 0.573. This therefore show that market focus was working for most of the firms. Moreover, the results showed that MFI adapted to industry regulations in good time as per the mean of 4.26 whose standard deviation was 0.565. This clearly indicate the MFI dealt well with industrial related factors. Also, MFIs had better services than competitors and perceived themselves as market leaders in corporate governance as per the mean of 4.34, standard deviation of 0.557 and 4.18 standard deviation of 0.596 respectively. In overall, this suggested that firms were well equipped to adapt and deal with industrial challenges in the sector.

4.4.3 Macro-economic Factors

Table 4.5 has results on macro-economic factors. The table has six items that were used to proxy macro-economic factors variable.

Table 4: 5 Descriptive Statistics for Macroeconomic Factors

Macroeconomic factors	N	Mean	Std. Deviation
1. Increase in economic growth increases business level of our microfinance bank	50	4.18	.596
2. A rise in economic growth enlarges market for microfinance banks	50	4.22	.648
3. Low rates of inflation makes credit affordable	50	4.26	.664
4. Low interest rates makes credit affordable	50	4.24	.625
5. Low rates of unemployment increases the market for our financial services	50	4.20	.606
6. Political stability improves financial markets	50	4.22	.648
Mean		**4.22**	

Source: Survey Data (2023)

Drawing from statistics on Table 4.5, increase in economic growth was perceived to lead to increase in business level of microfinance institutions as per the mean of 4.18 whose standard deviation was 0.596. The finding indicate that MFIs benefit from economic growth. Also, a rise in economic growth enlarges market for microfinance banks as per the mean of 4.22 with a standard deviation of 0.648. The results also found out that low rates of inflation rates make credit affordable as per the mean of 4.26 with a standard deviation of 0.664. Inflation rates makes price of commodities high, and this includes that of financial products as the local currency diminishes in terms of purchasing power.

Moreover, low interest rates make credit affordable as per the mean of 4.24 with a standard deviation of 0.625. The finding reveals that interest affected level of business activities for MFIs. Further results show that low rates of unemployment increase the market for our financial services as inferred by the mean of 4.20 whose standard deviation was 0.606. Lastly, it emerged that political stability betters financial markets as inferred by the mean of 4.22 with a standard deviation of 0.648.

The findings in overall suggest that MFIs were cognisant of the macro-economic environment. At the same time, most had structured operations to exploit capacities in the macro-economic environment. Lastly, key defining parameters of macro-economic environment such as inflation rates, interest rates and political stability influences lending business by microfinance institutions.

4.4.4 2019 Legal Reforms

The third aim of the study entailed an assessment of the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya. The descriptive statistics for constructs used to proxy 2019 legal reforms are presented on Table 4.6

Table 4: 6 2019 Legal reforms

2019 Legal reforms	N	Mean	Std. Deviation
1. New regulations on core capital has enhanced the microfinance bank's stability	50	4.12	.521
2. Publication requirements improves corporate governance in the firm	50	4.08	.665
3. Risk management guidelines have improved risk-return for the bank	50	4.02	.714
4. Stringent licensing procedures have safeguarded microfinance bank's assets	50	4.00	.700
5. Limitations in operations for microfinance bank's enhances welfare of depositors	50	3.96	.832
6. A higher liquidity requirement improves portfolio return for microfinance banks	50	4.00	.881
7. Liquidity requirement boosts self-sustainability for microfinance banks	50	4.22	.708
8. Inspection of microfinance institutions by Central Bank of Kenya improves sound management of the institutions	50	4.18	.720
Mean		**4.07**	

Source: Survey Data (2023)

Table 4.6 has output for items for 2019 legal reforms. Firstly, new regulations on core capital has enhanced the microfinance bank's stability as inferred by mean of 4.12 whose standard deviation of 0.521. Core capital entails having more capital against risk weighted assets and this is an important facet in a financial entity.

Also, results showed that publication requirements improve corporate governance in the firm as mean score of 4.08 with a standard deviation of 0.665. This shows that upon promulgation of 2019 legal reforms, corporate governance had improved. Similarly, positive contribution of risk management was noted as the mean score for risk management guidelines have improved risk-return for the bank was 4.02 whose standard deviation was 0.714.

In addition, the results evidenced that stringent licensing procedures have safeguarded microfinance bank's assets as suggested by the mean of 4.00 whose standard deviation was 0.700. The 2019 legal reforms introduced a limitation in terms of operations for MFIs so that expansion strategies are closely monitored. The results showed that this limitation was less influencing as per the mean of 3.96 for whether limitations in operations for microfinance banks enhances welfare of depositors whose standard deviation was 0.832. Moreover, liquidity regulations improved MFI's portfolio returns. This finding is pointed by the high mean of 4.00 whose standard deviation was 0.881. Also, liquidity requirement boosts self-sustainability for microfinance banks as per the mean of 4.22 whose standard deviation of 0.708. Lastly, regulations, controlling and monitoring was welcome by the MFIs. This inference is drawn from the mean score of 4.18 whose standard deviation was 0.720.

4.4.5 Portfolio Concentration Risk

The dependent variable was portfolio concentration risk. This variable was measured in five constructs. The descriptive statistics for the items are presented on Table 4.7

Table 4: 7 Descriptive Statistics for Portfolio Concentration Risk

Portfolio concentration risk	N	Mean	Std. Deviation
1. Lending to one sector of the economy lowers revenue	50	4.04	.605
2. Loan delinquency is high where the MFI lends to once sector of the economy	50	4.18	.720
3. Lending to one sector in the economy has slowed our growth	50	4.16	.738
4. Lending to one sector lowers firm's stability	50	4.20	.728
5. Our performance is dismal due to focusing on one sector of the economy	50	4.22	.764
Mean		**4.16**	

Source: Survey Data (2023)

From statistics on Table 4.7, it is evident that lending to one sector lowered revenue as pegged on the mean score of 4.04 at a standard deviation of 0.605. Also, MFI had poor loan returns due to lending to specific and few sectors. This is inferred by the mean of 4.18 whose standard deviation was 0.720 for loan delinquency is high where the MFI lends to once sector of the economy.

Moreover, results showed that lending to one sector in the economy has slowed growth of MFIs as per the mean of 4.20 with standard deviation of 0.728. Lastly, MFIs' performance was dismal due to focusing on one sector of the economy as per the mean of 4.22, standard deviation of 0.764. In overall, portfolio concentration risk for MFI was high and this hampered returns. Other results from open ended questions revealed that portfolio concentration risk was high for most of the participating MFIs. Also, most entities adopted diversification strategies to manage concentration risk.

4.5. Inferential Statistics

In retrospect, this study had the following specific objectives: to examine the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of macroeconomic determinants on portfolio concentration risk among the microfinance institutions in Kenya and to investigate the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya. The regression analysis results for each of the objective are presented in this section.

4.5.1 Diagnostic tests on Data and Regression Results

A number of diagnostic tests were examined to make sure that credible results for regression analysis were obtained. This included multicollinearity test, linearity test, normality test and autocorrelation test. The study examined existence of multicollinearity. The results were as shown on Table 4.8

Table 4: 8 Multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Firm_specific_factors	.952	1.051
	Industry_Level_factors	.517	1.933
	Macro_economic_factors	.522	1.914
a. Dependent Variable: Portfolio_concentration_risk			

Source: Survey Data (2023).

The variance inflation factors for firm specific factors, industry level factors and macro-economic factors were 1.051, 1.933 and 1.914 respectively. Rule of thumb is that where the variance inflation factor of less than 10 shows low multicollinearity. Therefore, the three independent variables did not influence each other in a linear way. Deviation from linearity was tested by use of deviation from linearity test whereas if the p-value for the test is more than 0.05, then there exists linear relationship between variables. Multicollinearity happens where predictors influence each other in a linear way. In this study, multicollinearity was examined by use of variance inflation factor which essentially tests the extent to which predictors relate to each other. Linearity was also examined in order to establish whether the variables showed linear relationship with the dependent variables. The results are shown on Table 4.9

Table 4: 9 Deviation from Linearity

Variable	Sum of Squares	df	Mean Square	F	Sig.
Firm specific factors	8.519	21	0.406	1.402	0.202
Industry level factors	12.425	21	.592	1.449	0.289
Macroeconomic factors	7.843	21	.373	1.337	0.236

Source: Survey Data (2023)

From the statistics on Table 4.9, the data showed linearity and therefore the dependent variable could be predicted by the predictors. The rule of thumb is that linearity exist where the F- statistic has p-value that is more than 0.05. In this study, firm specific factors, industry level factors and macroeconomic factors had F-statistics of 1.402, 1.449 and 1.337 which had p-values of 0.202, 0.289 and 0.236 respectively. This showed that linearity assumption was not violated.

The data set was also tested for normality. Normality exist where observations for variables show normal distribution. In this study, normality was tested by use of skewness and kurtosis whose results are shown on Table 4.10. The rule of thumb is that where skewness range is -10 to + 10 and kurtosis is within the range of -3 to +3, then normality is presented. In this study, normality was presented as the skewness and kurtosis statistics on Table 4.10 are within the acceptance limits.

Table 4: 10 Normality Test Results

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Firm_specific_factors	50	-.934	.337	2.011	.662
Industry_Level_factors	50	-.132	.337	-.077	.662
Macro_economic_factors	50	-1.130	.337	2.402	.662
Legal_reforms	50	-1.149	.337	2.643	.662
Portfolio_concentration_risk	50	-1.321	.337	2.492	.662

Source: Survey Data (2023)

Lastly, the data set was examined for existence of autocorrelation. Autocorrelations exist where observations for variables influence each other due in successive periods or data points. Considering that this study used cross sectional data, existence of autocorrelation was tested by use of Durbin-Watson statistic. The results are shown on Table 4.11

Table 4: 11 Durbin-Watson test for autocorrelation

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.670[a]	.449	.413	.47446	1.904

a. Predictors: (Constant), Macro_economic_factors, Firm_specific_factors, Industry_Level_factors

b. Dependent Variable: Portfolio_concentration_risk

Source: Survey Data (2023).

Drawing from the result on Table 4.11, the D-W statistic was 1.904 which was close to 2.0 showing non-existence of autocorrelation. Rule of thumb is that a D-W statistic of between 1 and 3 shows absence of strong autocorrelation that could distort model estimates. Hence, the data set did not have serious autocorrelation that would impair on model estimates.

4.5.2 Firm Specific Factors and Portfolio Concentration Risk

The regression output for effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya are shown on Table 4.12. From the results, it is evident that when firm specific factors are considered in isolation, the model is statistically significant as the p-value for analysis of variance was 0.006 which was less than 0.05. Thus, the model linking firm specific factors with portfolio concentration risk was statistically significant. Secondly, drawing from the R^2 it can be seen that 14.7 % of variations in portfolio concentration risk was influenced by changes in firm specific factors. Other factors accounted for 85.3 %. Also, the results showed that there was a positive effect of firm specific factors on portfolio concentration risk as evidenced by the coefficient of 0.422. This index means that an increase in the constructs used to proxy firm specific factors by 1 unit leads to an increase in portfolio concentration risk by 0.422 units. In other words, it means that firm specific factors do not favour portfolio concentration for microfinance institutions in Kenya. Moreover, the relationship between firm specific factors and portfolio concentration risk was noted to be statistically significant as shown by p-value of 0.006 which was less than 0.05.

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Table 4: 12 Linear Regression Results for Firm specific factors and portfolio concentration risk

Linear Regression Results for Firm specific factors and portfolio concentration risk

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.384a	.147	.129	.57797

a Predictors: (Constant), Firm_specific_factors

Analysis of Variance[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.765	1	2.765	8.278	.006b
	Residual	16.035	48	.334		
	Total	18.80049				

a Dependent Variable: Portfolio_concentration_risk

b Predictors: (Constant), Firm_specific_factors

Coefficients[a]

Model		Unstandardized Coefficients			Standardized Coefficients			
		B	Std. Error	Beta	t	sig	Tolerance	VIF
1	(Constant)	2.448	.601		4.076	.000		
	FSF	.422	.147	.384	2.877	.006	1.000	1.000

a Dependent Variable: Portfolio_concentration_risk

Source: Survey Data (2023)

4.5.3 Industry Level Factors and Portfolio Concentration Risk

The second objective sought to examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya. Table 4.13 has these results. From Table 4.13, the coefficient of determination as denoted by R^2 was 0.285 which shows that 28.5 % of variations in portfolio concentration risk was influenced by changes in industry level factors. This means that other factors account for 71.5 % of variations on portfolio concentration risk. From the model significance parameter, it is evidence that the model was statistically significant as the p-value was 0.000 which was less than 0.05. Thus, the null hypothesis for model non-significance was rejected at 95 % confidence interval.

Further results revealed that there was a positive effect of industry level factors on portfolio concentration risk as shown by the beta coefficient of 0.634, which in essence means that an increase in 1 unit of industry level factors that were examined lead to an increase of portfolio concentration risk by 0.634 units. Moreover, the beta coefficient had a t-statistics of 4.370 with a p-value of 0.000 showing that industry level factors had a significant effect on portfolio concentration risk of MFIs in Kenya.

Table 4: 13 Linear Regression for industry level factors with portfolio concentration risk

Results of Linear Regression for industry level factors and dependent variable

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.533a	.285	.270	.52933

a Predictors: (Constant), Industry_Level_factors

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.351	1	5.351	19.097	.000b
	Residual	13.449	48	.280		
	Total	18.800	49			

a Dependent Variable: Portfolio_concentration_risk

b Predictors: (Constant), Industry_Level_factors

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients				
		B	Std. Error	Beta	t	sig	Tolerance	VIF
1	(Constant)	1.463	.622		2.354	.023		
	ILF	.634	.145	.533	4.370	.000	1.000	1.000

a Dependent Variable: Portfolio_concentration_risk

Source: Survey Data (2023)

4.5.4 Macro-economic Factors and Portfolio Concentration Risk

Table 4.14 has regression results for macro-economic factors on portfolio concentration risk.

Table 4: 14 Linear Regression analysis for macroeconomic factors on dependent variable

Linear Regression analysis for macroeconomic factors on dependent variable

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.594a	.353	.340	.50336

a Predictors: (Constant), Macro_economic_factors

Analysis of Variance a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.638	1	6.638	26.199	.000b
	Residual	12.162	48	.253		
	Total	18.800	49			

a Dependent Variable: Portfolio_concentration_risk

b Predictors: (Constant), Macro_economic_factors

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients				
		B	Std. Error	Beta	t	sig	Tolerance	VIF
1	(Constant)	1.485	.527		2.816	.007		
	MEF	.634	.124	.594	5.118	.000	1.000	1.000

a Dependent Variable: Portfolio_concentration_risk

Source: Survey Data (2023)

The coefficient of determination proxied by R^2 was 0.353 which showed that 35.3 % of variations in portfolio concentration was influenced by changes in macroeconomic factors. Other factors accounted for 64.7 % of changes in portfolio concentration risk. The relationship between macroeconomic factors and portfolio concentration was found to be positive and statistically significant as shown by the beta coefficient of 0.634, t-statistic=5.118 whose p-value was 0.000. This shows that an increase in 1 unit of macroeconomic factors led to an increase of 0.634 units in portfolio concentration risk.

Moreover, looking at the analysis of variance, the model linking macroeconomic factors and portfolio concentration risk was statistically significant because the p-value was 0.000 which was less than 0.05 and therefore null hypothesis for model significance was rejected. In turn, it was noted that macro-economic factors had positive and significant effect on portfolio concentration risk.

4.5.5 Overall Regression Model

This study had three independent variables namely firm specific variables, industry level factors and macro-economic variables. The overall model was established as presented on Table 4.15

Table 4: 15 Overall Regression Model

Overall regression model results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.670a	.449	.413	.47446

a Predictors: (Constant), Industry_Level_factors, Firm_specific_factors, Macro_economic_factors

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.445	3	2.815	12.504	.000b
	Residual	10.355	46	.225		
	Total	18.800	49			

a Dependent Variable: Portfolio_concentration_risk

b Predictors: (Constant), Industry_Level_factors, Firm_specific_factors, Macro_economic_factors

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients				
		B	Std. Error	Beta	t	sig	Tolerance	VIF
1	(Constant)	.147	.687		.214	.832		
	MEF	.437	.161	.410	2.707	.009	.522	1.914
	FSF	.292	.123	.265	2.364	.022	.952	1.051
	ILF	.232	.181	.195	1.280	.207	.517	1.933

a Dependent Variable: Portfolio_concentration_risk

Source: Survey Data (2023)

Overall coefficient of determination was 0.449 revealing that 44.9 % of variations in portfolio concentration risk was as a result of changes in firm specific factors, industry level factors and macroeconomic factors. It means that, other factors not included in the mode accounted for 55.1 % of variations in portfolio concentration risk.

Moreover, the model was statistically significant considering that the p-value was 0.000 which was less than 0.05. It also emerged that all three input factors had a positive effect on portfolio concentration risk. The model was established as follows:

Portfolio concentration risk = 0.147+ 0.292firm-level factors + 0.232industry-level factors + 0.437macroeconomic factors

Whereas:

0.147 is portfolio concentration risk in absence of the independent variables, 0.292 is the increase in portfolio concentration risk due to a unit increase in firm level factors, 0.232 is the increase in portfolio concentration risk in response to a single unit increase in industry level factors while 0.437 is the increase in portfolio concentration risk due to an increase in macroeconomic factors. Both macroeconomic factors and firm specific factors had positive and significant effect on portfolio concentration risk as the p-values were 0.009 and 0.022 that were less than 0.05 respectively. Industry level factors did not affect portfolio concentration risk in a statistically significant manner.

4.5.6 Moderated Regression Model (With 2019 Legal reforms)

The fourth objective sought to investigate the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya. The results for moderation are shown on Table 4.16. As observed from Table 4.12, Model 1 which did not have moderators had an R^2 of 0.449 while the moderated equation had an R2 of 0.501. In this aspect, the overall variation in portfolio concentration risk explained by independent variables increased when three more interaction terms were added to the model. Equally, the model was statistically without interaction terms and on moderation too. However, the significance change in significance was 0.232 which shows insignificance. Also, the variance inflation factors for the model were too high which showed that there was need to standard the data before testing for moderating effect of legal reforms on determinants of portfolio concentration risk in microfinance institutions in Kenya.

Table 4: 16 Moderated Regression Model without Standardization

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F
1	.670[a]	.449	.413	.47446	.449	
2	.708[b]	.501	.431	.46714	.052	

a. Predictors: (Constant), Macro_economic_factors, Firm_specific_factors, Industry_Level_factors

b. Predictors: (Constant), Macro_economic_factors, Firm_specific_factors, Industry_Level_factors, Moderated

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.445	3	2.815	12.504	.000[b]
	Residual	10.355	46	.225		
	Total	18.800	49			
2	Regression	9.416	6	1.569	7.192	.000[c]
	Residual	9.384	43	.218		
	Total	18.800	49			

a. Dependent Variable: Portfolio_concentration_risk

b. Predictors: (Constant), Macro_economic_factors, Firm_specific_factors, Industry_Level_factors

c. Predictors: (Constant), Macro_economic_factors, Firm_specific_factors, Industry_Level_factors, ModeratedILF, ModeratedFSF, ModeratedMEF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlation	
		B	Std. Error	Beta			Zero-order	Partia
1	(Constant)	.147	.687		.214	.832		
	Firm_specific_factors	.292	.123	.265	2.364	.022	.384	.329
	Industry_Level_factors	.232	.181	.195	1.280	.207	.533	.185
	Macro_economic_factors	.437	.161	.410	2.707	.009	.594	.371
2	(Constant)	.683	.917		.745	.460		
	Firm_specific_factors	-1.239	1.195	-1.126	-1.037	.305	.384	-.156
	Industry_Level_factors	1.885	2.044	1.585	.922	.362	.533	.139
	Macro_economic_factors	.200	1.299	.188	.154	.878	.594	.024
	ModeratedFSF	.351	.263	2.124	1.335	.189	.362	.199
	ModeratedILF	-.387	.491	-2.284	-.789	.435	.385	-.119
	ModeratedMEF	.033	.316	.199	.105	.917	.426	.016

a. Dependent Variable: Portfolio_concentration_risk

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4.5.7 Standardised Moderated Regression Model (With 2019 Legal reforms)

In order to deal with high collinearity statistics, use of standardised coefficient was followed. The final model was achieved as shown on Table 4.17

Table 4: 17 Standardized Moderated Regression Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.670[a]	.449	.413	.47446	.449	12.504	3	46	.000
2	.706[b]	.498	.428	.46831	.049	1.406	3	43	.254

a. Predictors: (Constant), Zscore(Macro_economic_factors), Zscore(Firm_specific_factors), Zscore(Industry_Level_factors)

b. Predictors: (Constant), Zscore(Macro_economic_factors), Zscore(Firm_specific_factors), Zscore(Industry_Level_factors), InteractionFSF, InteractionMEF, InteractionILF

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.445	3	2.815	12.504	.000[b]
	Residual	10.355	46	.225		
	Total	18.800	49			
2	Regression	9.370	6	1.562	7.120	.000[c]
	Residual	9.430	43	.219		
	Total	18.800	49			

a. Dependent Variable: Portfolio_concentration_risk

b. Predictors: (Constant), Zscore(Macro_economic_factors), Zscore(Firm_specific_factors), Zscore(Industry_Level_factors)

c. Predictors: (Constant), Zscore(Macro_economic_factors), Zscore(Firm_specific_factors), Zscore(Industry_Level_factors), InteractionFSF, InteractionMEF, InteractionILF

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	4.160	.067		61.998	.000		
	Zscore(Firm_specific_factors)	.164	.069	.265	2.364	.022	.952	1.051
	Zscore(Industry_Level_factors)	.121	.094	.195	1.280	.207	.517	1.933
	Zscore(Macro_economic_factors)	.254	.094	.410	2.707	.009	.522	1.914
2	(Constant)	4.169	.071		58.890	.000		
	Zscore(Firm_specific_factors)	.083	.084	.134	.982	.332	.627	1.594
	Zscore(Industry_Level_factors)	.157	.099	.254	1.594	.118	.460	2.176
	Zscore(Macro_economic_factors)	.175	.107	.282	1.634	.109	.392	2.551

InteractionFSF	.127	.087	.221	1.461	.151	.511	1.957
InteractionILF	-.169	.123	-.414	-1.372	.177	.128	7.792
InteractionMEF	.042	.087	.136	.487	.628	.150	6.678

a. Dependent Variable: Portfolio_concentration_risk

Drawing from the regression results on Table 4.17, the coefficient of determination increased from 44.9 % to 49.8 %. Both models were statistically significant as the p-values were less than 0.05. Also, industry level factors exhibited a unique transformation as it ultimately had a negative effect on portfolio concentration risk. All the other factors and their interaction had positive effect on portfolio concentration risk. On moderating none of the factors had statistically significant association with portfolio concentration risk.

The model was established as specified:

*Portfolio concentration risk = 4.169+ 0.083firm-level factors + 0.157industry-level factors + 0.0.175macroeconomic factors+0.127firm-level factors*Legal reforms - 0.169industry-level factors +0.042macroecnomic factors*legal reforms.*

Moreover, the p-value for the coefficients were all more than 0.05 showing that the null hypothesis could not be rejected. As such, legal reforms moderated the relationship between the selected independent variables and portfolio concentration risk.

4.6. Conclusions

This study had purposed to establish determinants of portfolio concentration risk and also examine the effect of the 2019 legal reforms on portfolio concentration risk in Microfinance Institutions in Kenya. The study found out that there was a positive and statistically significant effect of firm specific factors on portfolio concentration risk (β=0.164, p-value=0.022< 0.05).). In this aspect, an increase in firm specific factor increased portfolio concentration among MFIs in Kenya. What this meant is that firm specific factors did not enhance reduction of risks associated with lending to specific sectors of the economy. It also suggests that the structure of internal environment which formed the basis of firm specific factors was not structured in a way that it aided in dealing with portfolio concentration risk. In essence, portfolio concentration risk exist where lenders focus on one sector of the economy other than focusing on mass market.

These results match with the findings of Kiambati and Mutunga (2019) who had sought to investigate role of internal factors that influences MFIs wellness. The result indicated that internal affairs such as core capital, operational efficiency did not enhance MFI returns. Similarly, Udom and Eze (2018) noted that financial resources endownent did not foster returns of lending firms in Nigeria. The overall inference drawn is that internal aspects are only feasible in promoting good performance of MFIs if structured in a robust manner.

The study also sought to establish role of industry level factors on portfolio concentration risk among MFIs in Kenya. The results were that industry level factors had a positive but statistically insignificant effect on portfolio concentration risk among the MFIs (β=0.094, p-value=0.207>0.05). This meant that an increase in the industry level factors increased portfolio concentration risk in MFIs. The factors examined included market competition and technology in which it was revealed that the industry level factors did not enhance firm outcome in terms of portfolio returns. The MFI sector is a competitive and dynamic sector that has many challenges. In addressing these factors MFIs seem to exacebate portfolio concentration risk. The results show that expansion strategies for MFIs did not manage portfolio concentration risk but only increased loan portfolio. This finding is in agreement with the result of the study done by Dao (2020) in Malaysia whose results were that industry-level factors had low influence on banks' overall returns, The results of the study are in contrast to those who found by the study by Belderbos et al., (2016) who realised that technology favoured financial results of lenders.

The third objective was to find out the effect of macroeconomic factors on portfolio concentration risk among MFIs. It emerged that macroeconomuc factors had positive and significant effect on portfolio concentration risk (β=0.254, p-value=0.009<0.05). This mens that the macroeconomic environment in Kenya exacebated portfolio concentration risk among MFIs. The results showed that such factors such as interest rates and inflation rates were detrimental to lending business and this hampered portfolio returns. It means that the economic environment did not favour management efforts in enhancing portfolio performance for the MFIs. The finding are in agreement with those of the study done by Egbunike and Okerekeoti (2018) who noted that interest rates and inflation rates hampered portfolio returns for banks. Moyo and Tursoy (2020) too discovered that inflation impairs returns for lending firms.

The last objective entailed an assessment of moderating effect of 2019 legal reforms on the relationship between determinants of portfolio concentration risk and portfolio concentration risk. The results showed that 2019 legal reforms had a moderating effect on determinants of portfolio concentration risk. This is because, the r-square upon moderation increased to 49.8 % from 44.9 % without moderating. The interaction term for firm specific factors had positive non-significant effect on portfolio concentration risk (β=0.127, p-value=0.121>0.05). Also, interaction term for industry level factors had negative insignificant effect on portfolio concentration risk (β=-0.169, p-value=0.177>0.05). Similar case was noted for the interaction term for macroeconomic variables (β=0.042, p-value=0.628>0.05). Therefore, 2019 legal reforms moderated the relationship between the selected determinants and portfolio concentration risk. The legal reforms lowered the positive effect of firm specific variables and macroeconomic factors. Moreover, the 2019 legal reforms overturned the positive effect of industry level factors to negative effect which indicates that the legal reforms were instrumental in portfolio concentration risk. 2019 legal reforms were instituted by the Central Bank of Kenya in order to stabilise the sector. These reforms included regulations on core capital,licensing procedures, inspection, risk management guidelines and liqudity management guidelines. The outcome of the study showed that the guidelines reduced the portfolio concentration risk.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter dwells on discussion in regard to results detailed on chapter four. The chapter purpose too conclude and make recommendations on the various objectives that were sought by the study.

5.2 Discussion of the Findings

In retrospect, this study had four objectives which were phrased as follows: to examine the effect of firm level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of industry level determinants on portfolio concentration risk among the microfinance institutions in Kenya, to examine the effect of macroeconomic determinants on portfolio concentration risk among the microfinance institutions in Kenya and to investigate the moderating effect of 2019 legal reforms on the determinants of portfolio concentration risk in microfinance institutions in Kenya. The results are summarised as follows:

5.2.1 Firm Specific Factors

The results of descriptive statistics showed that firm specific factors respondents agreed that firm specific factors affected portfolio concentration risk. The firm specific factors that were evaluated include ownership of financial resources, organisational structure and organisational culture. Inferential statistics revealed that firm specific factors had a positive effect on portfolio concentration risk among the microfinance institutions. Moreover, the effect of firm specific factors on portfolio concentration risk was in a statistically significant manner. In this aspect, firm specific factors do not improve portfolio performance as they exacerbate portfolio concentration risk.

5.2.2 Industry Level Factors

The results for descriptive statistics showed that MFIs considered industry level factors as important in their operations. The study also found out that there was a positive but statistically non-significant effect of industry level factors on portfolio concentration risk. These results reveal that an increase in industry level factors increased improve portfolio concentration risk among the MFIs in Kenya. The industry level factors that were examined in this study were market competition, technology and corporate governance.

The findings of this study indicated that the financial sector is a competitive market that has an increasing number of players. In Kenya, MFIs must compete with other established lenders for a small market. Failure to adapt and expand in terms of activities through diversification can occasion huge losses which can partly be attributed to portfolio concentration risks. Most participants indicated that portfolio concentration risk was high and that most of the entities had adopted diversification strategies to deal with the portfolio concentration risk.

5.2.3 Macro-economic Factors

The results showed that macroeconomic factors too had positive and statistically significant effect on portfolio concentration risk. In this aspect, an increase in macroeconomic factors significantly increased portfolio concentration risks. Therefore, the current form of macroeconomic outlook as measured by the study which included inflation rates, interest rates and unemployment had a negative effect on portfolio returns. In Kenya, the macro-economic outlook has a major bearing on many business activities in the economy. For instance, where financial markets are shrinking due to high interest rates and inflation rates, chances of financial institutions lending to narrow markets are high. Considering this therefore, an unfavourable macroeconomic environment hampers efforts to manage portfolio concentration risks.

5.2.4 Moderating effect of 2019 Legal reforms on determinants of portfolio concentration risk

The study results showed that 2019 legal reforms had a moderating effect on the relationship between firm specific factors, industry level factors and macroeconomic factors with improve portfolio concentration risk. The model parameters changed upon moderation. Firstly, the variation in portfolio concentration risk that was explained by changes in firm specific factors, industry level factors and macroeconomic factors was higher for the moderated regression model. At the same time, upon moderation, it emerged that the relationship between industry level factors and portfolio concentration risk was negative. In addition, significance of coefficients reduced showing moderation effect of 2019 legal reforms on determinants of portfolio concentration risk in microfinance institutions in Kenya.

5.3 Conclusions

Drawing from the results, the study concluded as follows:

Firstly, the study concluded that firm specific factors influence portfolio concentration risk among microfinance institutions in Kenya. The relationship between firm specific factors and portfolio was positive and statistically significant. This means that the firm internal environment did not favour portfolio concentration management as it exacerbated portfolio concentration risk. Therefore, there is need for robust and paradigm shifts in addressing organisational resources, culture and structure to effectively deal with portfolio concentration risk. At the same time, the results agree with the proposition of modern portfolio theory that suggest that returns are optimal when diversification is done. The results of the current study too revealed that firm specific factors increased portfolio concentration risk. These results show that the current form these firm specific factors did not improve portfolio concentration risk among MFIs in Kenya.

Secondly, the study concluded that industry level factors influenced portfolio concentration risk among microfinance institutions in Kenya. This influence was positive. This meant that in increase in industry level factors such as market competition exacerbated portfolio concentration in MFIs. However, the relationship was not statistically significant.

Thirdly, the study concluded that there was significant positive effect of macroeconomic factors on portfolio concentration risk. This indicated that an increase in macroeconomic measures such as interest rates and inflation led to an increase in portfolio concentration risk. It meant that the macro-economic environment increases portfolio concentration risk for MFIs in Kenya.

Lastly, the study concluded that 2019 legal reforms had a positive role in addressing the problem of portfolio concentration risk among MFIs in Kenya. The results showed that more variations in portfolio concentration risk was explained by changes in firm specific factors, industry level factors and macroeconomic factors upon moderation. At the same time, the harmful effect of the determinants decreased upon moderation. This meant that 2019 legal reforms are important in lowering portfolio concentration in MFIs in Kenya.

This result is in agreement with the propositions in the public interest theory of regulation that advocates for regulations in order to enhance public trust. The theory posits that regulations enhance stability, returns and performance of firms. The study found out that legal reforms are essential in promoting management of portfolio concentration risk.

5.4 Limitations of the Study

The major limitation for the study is in terms of data collection. The study relied on primary data from issuance of semi-structured questionnaires which were self-administered. As such, the data cannot be fireproof from subjectivity and personal biases. Also, there are other factors that affect portfolio concentration risk other than the three factored in this study. The study was a descriptive analysis and therefore did not experiment the survey area in a post-study manner. If intervention are made, perhaps the results would be different from the ones documented in this study.

5.5 Recommendations and Suggestions for Further Studies

The study recommends that there is a need for MFIs to prudently manage firm specific factors and macroeconomic variables as they were found to have statistically significant effect on portfolio concentration risk. The institutions should check plan operations in such a way that lending business is profitable and that portfolio concentration risk is reduced. This can be done through hedging in investments so that portfolio concentration risk can be reduced.

The study found out that macroeconomic factors exacerbated portfolio concentration risk. Therefore, MFIs need to plan activities in full recognition of prevailing interest rates, economic growth and inflation rates so that they can lower portfolio concentration risk. For instance, MFIs need to diversify their loan portfolio as this can lower portfolio losses. At the same time, MFIs should cease to over-rely on single sectors of the economy for business. For instance, even though MFIs targets small scale borrowers, there is need to geographically diversify lending business. If this is done, portfolio susceptibilities to concentration risk will decline.

It is also recommended that MFIs need to plan, implement and execute well-balanced portfolio that deals with both sector and geographical concentration risk. This is essential as it can help MFIs deal with downturns of in specific sectors and in geographical locations. For instance, an MFI whose target clientele is farmers should offer credit to farmers in different farming practices in different regions such that if one sector is affected by calamities such as drought, the MFIs would not risk all returns.

The study recommends that MFIs need to operate as per the legal stipulations issued in the 2019 legal reforms. The study realised that the 2019 legal reforms played a role on portfolio concentration risk. The legal reforms lowered the significance of the selected determinants in influencing portfolio concentration risk. MFI should adhere to these guidelines as they offer a robust risk management framework for the entities. Moreover, the prudential guidelines attempt to protect all stakeholders' interest while assisting MFIs to remain stable, profitable and realise sustained performance.

In respect to a suggestion for more studies, it is suggested that another study be conducted using secondary data in order to have more insights on role of firm specific factors, industry level factors and macroeconomic factors and moderating effect of 2019 legal reforms in portfolio concentration risks among MFIs in Kenya. Moreover, a similar study can be done with focus being other lending firms such as Savings and Credit Cooperative Societies (SACCOs), commercial banks, insurance companies as this will provide more empirical results on portfolio concentration not only in Kenya but will serve as crucial empirical evidence for concentration risk in Sub-Saharan Africa.

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APPENDICES

Appendix 1: Introduction Letter

Nelly Tanyai

Strathmore University

Dear respondent,

RE: Introduction and Request to Participate in a Study

It is my hope that this letter finds you well. My name is Nelly Tanyai, currently pursuing a Master of Commerce degree at Strathmore University. The intention of this letter is to request you to participate in this study by filling out the attached questionnaire.

In line with the best practices and codes of conduct in research, I pledge that the data and information will be confidential. At the same time, your participation is voluntary, and there will be no compensation for participating in this study.

Yours sincerely,

Nelly Tanyai.

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Appendix 2: Questionnaire to Senior Credit Officers of Microfinance Banks

DETERMINANTS OF PORTFOLIO CONCENTRATION RISK IN MICROFINANCE INSTITUTIONS IN KENYA

Section A: Basic Information

Instruction

Once you pick the appropriate answer, pick a tick alongside.

1. Kindly indicate your gender.
    a) Male ( )
    b) Female ( )

2. Indicate your age bracket.
    a) Below 30 years ( )
    b) Between 31-40 years ( )
    c) Between 41-50 years ( )
    d) Above 50 years ( )

3. How many years have you worked for the microfinance bank?
    a) Less than 5 years ( )
    b) Between 5-10 years ( )
    c) Between 11-20 years ( )
    d) More than 20 years ( ).
4. Education
    a) College certificate ( )
    b) Diploma ( )
    c) University ( )
    d) Post graduate ( )

5. What is the age of the MFI in years?

    ……

6. Since introduction of 2019 legal reforms, did the microfinance bank/institution adopt an organisational structure favour management of concentration risk?

   Yes ( )

   No ( )

7. Is regulations on lending activities in particular insider lending impactful in reducing risks

   Yes ( )

   No ( )

8. (a) Is the microfinance bank undertaking expansion so as to lower portfolio concentration risk?

   Yes ( )

   No ( )

   (b) If your answer in 7(a) above how sufficient are the strategies to lower portfolio concentration risk

   Not sufficient at all ( )

   Not sufficient ( )

   Neutral ( )

   Sufficient ( )

   Very sufficient ( )

9. Kindly list the percentage of loans as per the Sector in the economy?

   (Please specify the sector)

   ……

   ……

   ……

   …….

Below are various statements on firm-level factors. The scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is neutral 4 is agree and lastly, 5 is strongly agree. You are required to rate the statements by ticking in only box.

Firm-level factors	**1**	**2**	**3**	**4**	**5**
1. The microfinance bank has sufficient financial resources					
2. The microfinance bank has a robust organisational structure					
3. Our microfinance bank has reputable organisational culture					
4. Our microfinance has sufficient skilled human resources					
5. The firm adopts efficient management in costs of doing business					

10. Are industry level factor impacting on portfolio concentration risk

Yes ( )

No ( )

11. What is your view on industry level factors?

……

……

……..

12. Does technology used in the banking sector enable you to plan lending businesses so as to lower portfolio concentration risk?

……

……

……

Below are various statements on industry-level factors. The scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is neutral 4 is agree and lastly, 5 is strongly agree. You are required to rate the statements by ticking in only box.

Industry-Level factors	1	2	3	4	5
6. Our microfinance bank has robust strategies of dealing with market competition					
7. We have adopted modern technology in all our operations					
8. We have a good share of market in the industry					
9. We adapt to industry regulations in good time					
10. Our microfinance bank offers better services in comparison to our competitors					
11. We are the market leaders in corporate governance					

13. Does the prevailing macro-economic factors influence portfolio concentration risk?

Yes ( )

No ( )

Please explain

……

……

……

14. How do the following affect portfolio concentration risk?

a) Economic growth
b) Interest rates
c) Inflation rates

Below are various statements on macroeconomic factors. The scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is neutral 4 is agree and lastly, 5 is strongly agree. You are required to rate the statements by ticking in only box.

Macro-Economic Factors	1	2	3	4	5
12. Increase in economic growth increases business level of our microfinance bank					
13. A rise in economic growth enlarges market for microfinance banks					
14. Low rates of inflation makes credit affordable					
15. Low interest rates makes credit affordable					
16. Low rates of unemployment increases the market for our financial services					
17. Political stability improves financial markets					

15. Do you think 2019 legal reforms have been instrumental in MFI wellbeing particularly in respect to portfolio concentration risk?

……

……

……...

16. Does the regulatory framework issued by Central Bank of Kenya improve MFI welfare?

……

……

17. What else do you think should be included in subsequent legal reforms for MFIs in Kenya?

……

……

Below are statements on various statements on 2019 legal reforms in the microfinance bank sector. The scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is neutral 4 is agree and lastly, 5 is strongly agree. You are required to rate the statements by ticking in only box.

Statements on 2019 Legal Reforms	**1**	**2**	**3**	**4**	**5**
18. New regulations on core capital has enhanced the microfinance bank's stability					
19. Publication requirements improves corporate governance in the firm					
20. Risk management guidelines have improved risk-return for the bank					
21. Stringent licensing procedures have safeguarded microfinance bank's assets					
22. Limitations in operations for microfinance bank's enhances welfare of depositors					
23. A higher liquidity requirement improves portfolio return for microfinance banks					
24. Liquidity requirement boosts self-sustainability for microfinance banks					
25. Inspection of microfinance institutions by Central Bank of Kenya improves sound management of the institutions					

18. How would you describe the level of portfolio concentration risk for the MFI?

……

……

19. What is the MFI doing to manage portfolio concentration risk?

……

……

Below are statements on portfolio concentration risk. The scale of 1 to 5 where 1 is strongly disagree, 2 is disagree, 3 is neutral 4 is agree and lastly, 5 is strongly agree. You are required to rate the statements by ticking in only box.

Statements on Portfolio Concentration Risk	**1**	**2**	**3**	**4**	**5**
26. Lending to one sector of the economy lowers revenue					
27. Loan delinquency is high where the MFI lends to once sector of the economy					
28. Lending to one sector in the economy has slowed our growth					
29. Lending to one sector lowers firm's stability					
30. Our performance is dismal due to focusing on one sector of the economy					

-The End-

Appendix 3: List of Microfinance Banks 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 Limited
7	Key Microfinance Bank Limited
8	Maisha Microfinance Bank Limited
9	REMU Microfinance Bank Limited
10	Rafiki Microfinance Bank Limited
11	SMEP Microfinance Bank Limited
12	Sumac Microfinance Bank Limited
13	I&U Microfinance Bank Limited
14	Salaam Microfinance Bank Limited

Source: Central Bank of Kenya (2023)

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Appendix 4: Research Permit

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