

**LOAN PORTFOLIO STRUCTURE AND FINANCIAL
PERFORMANCE OF MICROFINANCE INSTITUTIONS IN
KENYA**

EMMAH WANJIRU CHEGE

**MASTER OF SCIENCE IN
FINANCE AND ACCOUNTING**

**JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY**

2026

**Loan Portfolio Structure and Financial Performance of Microfinance
Institutions in Kenya**

Emmah Wanjiru Chege

**A Research Project Submitted in Partial Fulfilment of the
Requirements for the Degree of Master of Science in Finance and
Accounting of the Jomo Kenyatta University of Agriculture and
Technology**

2026

DECLARATION

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

Signature.....Date.....

Emmah Wanjiru Chege

This research project has been submitted for examination with our approval as the University Supervisors

Signature.....Date.....

Dr. Kalundu Kimanzi, PhD

JKUAT, Kenya

Signature.....Date.....

Dr. Lucy Njogu, PhD

JKUAT, Kenya

DEDICATION

I dedicate this research to my family, colleagues at work and coursemates for constant encouragement

ACKNOWLEDGEMENT

I acknowledge my supervisors for their support. I also acknowledge my family for their unwavering support throughout my academic journey.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS.....	v
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF APPENDICES.....	xiii
ACRONYMS AND ABBREVIATIONS	xiv
DEFINITIONS OF OPERATIONAL TERMS.....	xv
ABSTRACT	xvii
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Global Perspective of the Study.....	2
1.1.2 Regional Perspective of the Study	4
1.1.3 Local Perspective of the study	6

1.1.4 Financial Performance	8
1.1.5 Loan Portfolio Structure for MFIs	10
1.2 Problem Statement.....	11
1.3 Objectives of the Study	13
1.3.1 General Objective	13
1.3.2 Specific Objectives	13
1.4 Research Hypothesis	13
1.5 Justification of the Study.....	14
1.6 Scope of the Study.....	15
CHAPTER TWO.....	16
LITERATURE REVIEW.....	16
2.1 Introduction	16
2.2 Theoretical Review.....	16
2.2.1 Modern Portfolio Theory (MPT)	17
2.2.2 Information Asymmetry Theory	18
2.2.3 Agency Theory.....	21
2.2.4 Resource-Based View (RBV)	23

2.3 Conceptual Framework	24
2.4 Empirical Review	25
2.4.1 Loan Portfolio Size and Financial Performance of Microfinance Institutions	25
2.4.2 Portfolio Diversification on the Financial Performance of Microfinance Institutions	28
2.4.3 Loan Portfolio Quality and Financial Performance of Microfinance Institutions	29
2.4.4 Loan Maturity Structure and Financial Performance of Microfinance Institutions	32
2.5 Research Gap	34
CHAPTER THREE	36
RESEARCH DESIGN AND METHODOLOGY	36
3.1 Introduction	36
3.2 Research Design	36
3.3 Target Population	36
3.4 Sampling Procedure and Sample Size	37
3.5 Data Collection Procedure.....	37
3.6 Diagnostic Tests	37
3.7 Data Analysis and Presentation.....	38

3.7.1 Analytical Model.....	38
3.7.2 Test of Significance	39
3.7.3 Variable Operationalization	40
3.8 Ethical Considerations	43
CHAPTER FOUR	44
RESEARCH FINDINGS AND DISCUSSIONS	44
4.1 Introduction	44
4.2 Descriptive Statistics	44
4.2.1: Measures of Central Tendency	45
4.2.2 Measures of Dispersion.....	47
4.2.3 Measures of Distribution and Shape	50
4.3 Diagnostic Tests	52
4.3.1 Normality Test	52
4.3.2 Multicollinearity Test.....	55
4.3.3 Heteroskedasticity Test.....	57
4.3.4 Linearity Test	58
4.3.5 Autocorrelation Test	60

4.3.6 Stationary Test	61
4.4 Correlation Analysis	63
4.5 Model Specifications	68
4.5.1 Breusch-Pagan Lagrange Multiplier Test	68
4.5.2 Hausman Test.....	70
4.6 FEM Regression Coefficients.....	72
4.7 Discussion of the Findings	75
CHAPTER FIVE.....	79
SUMMARY, CONCLUSION, AND RECOMMENDATIONS.....	79
5.1 Introduction	79
5.2 Summary of Findings	79
5.2.1 Loan Portfolio Size and Financial Performance	79
5.2.2 Portfolio Diversification and Financial Performance	80
5.2.3 Loan Portfolio Quality and Financial Performance	80
5.2.4 Loan Maturity Structure and Financial Performance.....	81
5.3 Conclusion.....	81
5.3.1 Loan Portfolio Size and Financial Performance	81

5.3.2 Portfolio Diversification and Financial Performance	82
5.3.3 Loan Portfolio Quality and Financial Performance	82
5.3.4 Loan Maturity Structure and Financial Performance	83
5.4 Recommendations	83
5.4.1 Loan Portfolio Size	83
5.4.2 Portfolio Diversification	83
5.4.3 Loan Portfolio Quality	84
5.4.4 Loan Maturity Structure.....	84
REFERENCES	85
APPENDICES	96

LIST OF TABLES

Table 3.1: Variable Operationalization	42
Table 4.1: Descriptive Statistics	45
Table 4.2: Tests of Normality.....	53
Table 4.3: Multicollinearity.....	55
Table 4.4: Heteroskedasticity Test	57
Table 4.5: Autocorrelation	60
Table 4.6: Levin-Lin-Chu Unit-Root Test	62
Table 4.7: Correlations	64
Table 4.8: Breusch and Pagan Lagrangian Multiplier Test for Random Effects	69
Table 4.9: Hausman Test.....	70
Table 4.10: Panel Regression Analysis	73

LIST OF FIGURES

Figure 2.1: Conceptual Framework.....	25
Figure 4.1: Linearity Test.....	59

LIST OF APPENDICES

Appendix I: List of Licensed Microfinance Institutions.....	96
--	----

ACRONYMS AND ABBREVIATIONS

GDP	Gross Domestic Product
LPS	Loan Portfolio Size
PD	Portfolio Diversification
LPQ	Loan Portfolio Quality
LMS	Loan Maturity Structure
MFIs	Microfinance institutions
NGO	Non-Governmental Organization
ROA	Return on Asset
ROE	Return on Equity
SACCO	Savings and Credit Cooperative

DEFINITIONS OF OPERATIONAL TERMS

Microfinance Institutions (MFIs)	Financial entities that provide small-scale financial services, including credit, savings, and insurance, to individuals and businesses that lack access to traditional banking services (Mishra et al., 2024)
Financial Performance	A measure of an institution's profitability, stability, and sustainability, often assessed using indicators such as Return on Assets (ROA), Return on Equity (ROE), portfolio at risk (PAR), and operational self-sufficiency (OSS) (Kemunto & Cheluget, 2022).
Loan Portfolio Size	The total value of loans issued by an MFI to borrowers reflects the institution's lending capacity and financial strength (Nyabiba & Kimani, 2023).
Portfolio Diversification	A risk management strategy where MFIs distribute their loans across various sectors, borrower types, and geographic locations to reduce default risks and enhance financial stability (Nyabiba & Kimani, 2023).
Asset Allocation	The distribution of an MFI's financial resources across different investment options and lending products to optimize returns while minimizing risks (Boye & Mithi, 2023)
Return on Assets (ROA)	A financial ratio indicating the profitability of an MFI relative to its total assets, showing how efficiently assets generate earnings (Mulongo & Otinga, 2019)

Loan Portfolio

The actual assets or loans currently held in a portfolio. It refers to the content of the portfolio, specifically the items being held (Muratenyi & Olando, 2022)

Loan Portfolio Structure

The organization, distribution, or management of loan portfolios across various dimensions, including size, sector, maturity, risk, or borrower type. It pertains to the design, structure, or setup of portfolio components, specifically, how loans or assets are classified, managed, and balanced (Ngonyani & Harun, 2019).

ABSTRACT

The financial performance of microfinance institutions is vital to their sustainability and to their ability to promote financial inclusion among low-income groups. Despite their important role in Kenya, many microfinance institutions still face financial challenges that threaten their long-term stability. This study examined how the structure of loan portfolio structure affects the financial performance of microfinance institutions in Kenya. Specifically, it focused on four components: loan portfolio size, diversification, quality, and maturity structure. Guided by theories of financial intermediation and portfolio management, which highlight the importance of efficient resource allocation and management for improving institutional performance, the study employed a quantitative research design using panel data from Kenyan microfinance institutions. Secondary data were collected from the published financial statements of 14 institutions over a 10-year period, yielding 140 observations. Data analysis involved panel-data regression techniques, including pooled ordinary least squares, random-effects, and fixed-effects models. Diagnostic tests, such as the Breusch-Pagan Lagrangean Multiplier test and the Hausman test, were used to select the best-fit model, with results indicating that the fixed-effects model was most appropriate for analyzing the relationships among the variables. The findings indicated that the structure of loan portfolio significantly impacts the financial performance of microfinance institutions in Kenya. All four components, loan portfolio size, diversification, quality, and maturity structure, had positive and statistically significant effects on Return on Assets. Among these, loan portfolio quality had the strongest impact, underscoring that maintaining a high-quality loan portfolio with low non-performing loans is key to increasing profitability. Portfolio diversification also contributed positively by reducing credit risk and stabilizing income, while larger loan portfolios increased interest income and profitability. Proper loan maturity structures improved repayment performance and liquidity management within these institutions. Based on these results, the study concludes that an effective loan portfolio structure is crucial for enhancing the financial performance and sustainability of microfinance institutions in Kenya. It recommends that these institutions strategically expand and diversify their loan portfolios across sectors, strengthen credit risk management to maintain high portfolio quality, and adopt suitable loan maturity structures aligned with borrowers' repayment capacities. These actions are expected to boost profitability, reduce credit risk, and strengthen the financial stability of microfinance institutions in Kenya.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The Loan Portfolio structure is crucial for MFIs, involving the strategic arrangement of loan assets based on features such as loan type, borrower segmentation, sectoral distribution, maturity, and geographic focus. This setup is especially crucial for MFIs, which often face higher credit risks because their clients operate in the informal sector. Proper portfolio structuring can reduce defaults and enhance financial returns (Nyabiba & Kimani, 2023). As Mishra et al. point out, MFIs must manage these challenges by balancing financial performance and social impact through carefully planned portfolio design (Mishra et al., 2024).

In Kenya, MFIs face several challenges, including high portfolio-at-risk levels and regional disparities in loan distribution. Some institutions have experienced high default rates due to poorly diversified portfolios, highlighting the need for effective portfolio management. On the other hand, organizations that adopt strategies such as group lending and diversification of rural lending tend to exhibit greater resilience and better performance (Kitonyi et al., 2019). These varied portfolio strategies reveal notable performance differences among MFIs, prompting an examination of the structural factors that influence their financial outcomes (Kemunto & Cheluget, 2022).

Research in this field highlights the importance of financial innovation as a key strategy for addressing the operational challenges that MFIs face. Developing new products and risk management techniques can greatly improve financial performance and sustainability (Kibugo & Maina, 2016). For example, effective credit risk management is crucial; MFIs must implement comprehensive evaluations to mitigate the risks associated with lending to underserved populations (Ngwah et al., 2023). Additionally, understanding portfolio

diversification not only boosts financial results but also supports broader developmental objectives, demonstrating the link between financial indicators and social impacts within the microfinance industry (Osinde et al., 2021).

1.1.1 Global Perspective of the Study

Microfinance has undergone significant advancements since the 1970s, beginning with the establishment of the Grameen Bank in Bangladesh. It now plays a vital role in reducing global poverty and promoting financial inclusion. Both the World Bank and the IMF recognize its potential and advocate microfinance as a crucial way to bring the unbanked poor into formal financial systems (Ghising, 2022). This innovative financial approach focuses on offering services to people without access to conventional banking, promoting economic empowerment and inclusion (Imai et al., 2010). Nonetheless, the long-term success of microfinance institutions (MFIs) depends mainly on how well they can structure their loan portfolios to manage risks and improve their financial health over time.

MFIs face different challenges depending on geographic, regulatory, and client-specific factors, which shape their loan portfolio strategies. For example, MFIs in Latin America tend to prioritize larger loans to support small businesses, indicating a more commercially oriented portfolio approach (Lassoued, 2017). In contrast, Asian MFIs mainly adopt group lending models, short-term loans, and socially impactful outreach efforts, highlighting regional differences in operational methods (Blanco-Oliver et al., 2021). The unique structural strategies employed by MFIs underscore the need to adapt portfolio strategies to local conditions, demonstrating that well-suited structures improve key performance indicators such as operational self-sufficiency and return on assets (Abdi & Gebissa, 2021).

Maintaining financial sustainability is crucial and requires MFIs to carefully balance risk and return when structuring their portfolios. They need to diversify their loans to prevent overreliance on high-risk segments that could threaten their financial health (Fersi &

Boujelbéne, 2016). The 2020 over-indebtedness crisis in Cambodia, caused by loans heavily focused on rural sectors without sufficient diversification, highlights the importance of robust portfolio management. Such practices are essential for reducing default risk and ensuring organizational stability (Guo, 2022).

Digital financial services have increased the complexity of portfolio management, providing MFIs with data collection and analysis tools that enhance borrower profiling and risk evaluation (Swamy, 2019). In countries such as India and Kenya, fintech solutions facilitate the development of more accurate scoring models and improved client segmentation (Layaoen & Takahashi, 2021). These developments indicate a shift toward data-driven decision-making in loan portfolio management, which can enhance performance and expand outreach to underserved groups (Hussain et al., 2018).

To navigate these complexities, regulators and development partners emphasize comprehensive risk management strategies that treat portfolio quality as a key indicator of institutional health. The Consultative Group to Assist the Poor (CGAP) highlights metrics such as Portfolio at Risk (PAR) and Operational Self-Sufficiency (OSS) as crucial for assessing how effectively MFIs implement their funding strategies (Arsyad, 2013). Consequently, there is an increasing focus on creating resilient portfolio structures that enable institutions to sustain themselves in the face of external shocks. The COVID-19 pandemic underscored this need, serving as a stress test for diversified versus concentrated portfolios (Canales & Greenberg, 2016).

Recent studies on microfinance performance have increasingly examined the structural aspects of loan portfolios and their relationship to financial outcomes. Research from regions such as South Asia and Sub-Saharan Africa suggests that employing strategic segmentation and managing maturity are crucial for reducing risk and enhancing cost efficiency (Modisagae & Ackermann, 2018). Nevertheless, the results show that effective portfolio design depends on factors such as regulations and the specific mission of MFIs

(D’Espallier et al., 2013), highlighting the importance of tailored local approaches in funding strategies.

1.1.2 Regional Perspective of the Study

Microfinance institutions (MFIs) play a crucial role in promoting financial inclusion across sub-Saharan Africa, where many people lack access to traditional banking services. These organizations serve as key intermediaries, providing financial services to informal workers, smallholders, and low-income households who are often unbanked. MFIs can balance social impact with financial viability, indicating a positive relationship between their outreach efforts and financial results (Fadikpe et al., 2022). This dual role highlights the vital importance of MFIs in driving socio-economic progress throughout the region.

However, the sustainability and operational performance of MFIs have been adversely impacted by increasing credit risks and inefficiencies. The environment in which they operate is characterized by rampant economic informality, insufficient credit information infrastructure, and often inadequate regulatory oversight (Kadima et al., 2023).

Such challenges complicate the management of loan portfolios and contribute to high default rates. This notable concern has been exacerbated by suboptimal client vetting, concentration of loan portfolios in specific sectors, and misaligned loan structures.

For instance, regions like Nigeria, Uganda, and the Democratic Republic of the Congo (DRC) have experienced significant challenges. However, the sustainability and operational performance of MFIs have been negatively affected by rising credit risks and inefficiencies. The environment in which they operate is marked by widespread economic informality, limited credit information infrastructure, and often insufficient regulatory oversight (Kadima et al., 2023). These challenges make managing loan portfolios more difficult and lead to high default rates. This significant issue has been worsened by poor client vetting, concentration of loans in certain sectors, and poorly aligned loan structures. For example, regions such as Nigeria, Uganda, and the Democratic

Republic of the Congo have experienced severe outcomes, including liquidity crises and institutional failures, underscoring the urgent need for MFIs to reassess and enhance their loan portfolio management strategies (Newman et al., 2013).

Implementing a strategic approach to diversification is crucial for the success of MFIs. For example, MFIs in Rwanda and Ghana that diversify their loan portfolios across different economic sectors have demonstrated greater resilience to financial shocks than those with concentrated exposures (Nininahazwe & Mutembei, 2023). This approach not only reduces risk but also boosts repayment rates by making institutions less susceptible to sector-specific downturns. Additionally, gender-focused portfolio strategies have proven effective in Malawi and Burkina Faso, where MFIs targeting women entrepreneurs have led to better financial inclusion outcomes (Knewtson & Qi, 2019).

The structure of loan maturities is a key factor affecting MFI performance. In countries such as Tanzania and Ethiopia, short-term microloans are common, mainly because they allow quick liquidity turnover. However, this can jeopardize the long-term sustainability of the businesses financed, as clients might find it difficult to manage repayments within the limited timeframe (Kosasia & Njeru, 2023). Conversely, MFIs offering longer-term loans that match their clients' operational cycles promote better repayment habits and stronger relationships, underscoring the need to align loan terms with borrowers' requirements (Bella, 2011).

The regulatory landscape across African countries differs considerably, influencing how effectively portfolios can be managed.

In heavily regulated countries such as South Africa and Uganda, strict standards promote good practices, whereas in less regulated settings, poor management and increased risks may occur (Gool et al., 2011). This variation highlights the need for research tailored to specific contexts, focusing on strategies and challenges for successful portfolio structuring within MFIs across the continent.

The ongoing digital transformation is fundamentally changing how microfinance institutions (MFIs) handle their loan portfolios. The rise of mobile money platforms and fintech solutions has enhanced access to client data, enabling more precise risk assessments and improved portfolio segmentation. In countries such as Kenya and Nigeria, the adoption of technology enables MFIs to actively monitor client behavior actively, thereby enhancing risk management and allowing them to respond quickly to emerging challenges (Blanco-Oliver et al., 2021). These technological innovations are crucial for improving the efficiency and effectiveness of microfinance operations in Africa, enabling MFIs to remain sustainable and better meet the needs of the communities they serve.

In conclusion, microfinance institutions in Sub-Saharan Africa play a crucial role in promoting financial inclusion and socio-economic development; however, they face significant challenges, including credit risk management, regulatory inconsistencies, and the need for innovative solutions. Implementing diversified portfolio strategies, enhancing loan maturity frameworks, and leveraging technology are crucial steps to boost performance and sustainability in the microfinance sector.

1.1.3 Local Perspective of the study

Microfinance institutions (MFIs) in Kenya play a crucial role in expanding financial inclusion, particularly for marginalized groups such as smallholder farmers, informal traders, women entrepreneurs, and low-income families. The growth of the microfinance sector has been driven by supportive policies, increased government efforts, and the involvement of development partners focused on promoting financial access. Nevertheless, these MFIs face significant challenges, notably in maintaining financial sustainability. These challenges are primarily due to poor loan portfolio management and structural inefficiencies (Akims et al., 2024; Wafula et al., 2023).

Kenyan MFIs operate in a highly competitive environment shaped by rapid technological progress. The rise of mobile lending services, such as M-Shwari and Tala, has dramatically transformed traditional lending methods by offering immediate credit to clients who often lack access to standard banking services (Kariuki & Namusonge, 2024). This development necessitates that MFIs reassess their loan portfolio strategies, including adjustments to loan sizes, terms, client profiles, and product offerings, to remain relevant and competitive (Kebede et al., 2022; Osinde et al., 2021). However, many MFIs face challenges with high non-performing loan (NPL) levels, mainly due to poorly planned loan portfolios that heavily rely on short-term, unsecured loans (Wafula et al., 2023; Joshua et al., 2021).

High NPL ratios can threaten the financial stability of MFIs, leading regulators like the Central Bank of Kenya (CBK) to advocate for enhanced risk management practices. These include improved loan classification and diversification strategies (Wafula et al., 2023; Kitonyi et al., 2019). Research indicates that MFIs often encounter substantial credit risk due to overexposure to particular markets or regions, which increases their vulnerability to local economic shocks such as droughts or political unrest (Boye & Mithi, 2023; Kiai Et Al., 2021). Consequently, strategic portfolio diversification is essential for strengthening resilience against such regional disturbances (Mulongo & Otinga, 2019; Muratenyi & Olando, 2022).

Moreover, client segmentation is becoming an increasingly important strategy for effective portfolio management among MFIs in Kenya. They are developing customized financial products tailored to specific groups, such as women entrepreneurs or seasonal farmers, based on varying cash flows and repayment capacities (Osinde et al., 2021; Ganzallah & Wekesa, 2023). Matching loan structures to client needs is crucial for improving repayment rates, thereby boosting institutional performance metrics such as Return on Assets (ROA) and Operational Self-Sufficiency (OSS) (Kebede et al., 2022; Gatimu, 2014).

On the regulatory front, the CBK enforces strict guidelines for Deposit-Taking Microfinance Institutions (DTMFIs) to promote sound risk management and financial stability within the sector.

While these rules require minimum capital and strict asset classifications, non-deposit-taking MFIs often have more flexibility and thus pose greater risks due to less transparency in their operations (Abdirashid & Jagongo, 2019; Joshua et al., 2021). As a result, the regulatory gap highlights the need for a comprehensive credit management framework across all MFIs in Kenya.

While the microfinance sector in Kenya has great potential, achieving financial sustainability faces challenges related to credit risk management and market changes. The evolving interplay among technology, regulations, and client demands requires a strategic, proactive approach to portfolio management that improves financial results and expands reach. This strategy is essential for MFIs not just to survive, but to prosper in changing market environments.

1.1.4 Financial Performance

Financial performance serves as a vital indicator of the sustainability and effectiveness of microfinance institutions (MFIs). It demonstrates an institution's ability to generate revenue, manage risks, and operate efficiently while achieving its goal of financial inclusion. Important metrics for evaluating economic performance in MFIs include Return on Assets (ROA), Return on Equity (ROE), portfolio at risk (PAR), and operational self-sufficiency (OSS) (Mboe & Kavale, 2023). These measures help determine profitability, risk levels, and whether the institution can cover its operational expenses without external aid. Several factors influence the financial performance of MFIs, such as loan portfolio size, diversification, and asset distribution (Kiambati & Mutunga, 2019).

A larger loan portfolio can boost revenue through higher interest income, assuming that loan repayments are managed well (Huynh & Dang, 2021). Institutions with bigger portfolios often benefit from economies of scale, allowing them to reduce per-unit operational costs and increase profitability (Nkiendem et al., 2024). However, if the portfolio becomes too large without adequate risk controls, MFIs may experience higher default rates, harming their financial health. Consequently, balancing portfolio growth with risk management is crucial for ensuring financial stability.

Diversifying loan portfolios across different sectors, borrower profiles, and geographic locations helps mitigate the impact of sector-specific economic shocks and reduces dependency on a single revenue stream (Ndungu & Muturi, 2019). MFIs that implement effective portfolio diversification strategies tend to exhibit lower non-performing loan ratios and higher financial sustainability. For example, Zamore et al. (2019) found that MFIs with well-diversified loan portfolios experienced improved financial outcomes due to reduced default risks. Consequently, diversification serves as a risk management tool that stabilizes cash flows and ensures long-term institutional viability.

The strategic distribution of assets across different financial instruments, including loans, fixed assets, and liquid investments, determines an institution's ability to generate sustainable returns (Caldecott et al., 2022). MFIs that allocate assets effectively strike a balance between profitability and liquidity, ensuring they have sufficient funds for loan disbursement and operational needs. In Kenya, Maina (2021) noted that MFIs with optimized asset allocation strategies achieved higher financial returns by leveraging both loan revenue and alternative income sources. However, excessive allocation towards risky assets may expose institutions to financial instability, underscoring the importance of prudent asset management in sustaining long-term financial performance.

1.1.5 Loan Portfolio Structure for MFIs

Loan portfolio size, diversification, quality, and maturity structure are significant for microfinance institutions (MFIs) due to their distinct clientele and operational approaches, which differ significantly from those of commercial banks and other financial entities. MFIs primarily serve low-income individuals and small businesses that are often excluded from formal banking. Consequently, the size of an MFI's loan portfolio not only indicates its lending capacity but also reflects its reach and influence in underserved communities. Unlike commercial banks, which generate revenue from various sources such as trade finance, foreign exchange, or investment banking, MFIs rely primarily on loan disbursements and repayments for their sustainability. Thus, the size of their loan portfolio directly signals their institutional viability and social impact.

Portfolio diversification is especially crucial for MFIs. Due to their limited capital and smaller borrower pools, they are more vulnerable to sector shocks and borrower defaults. A concentrated portfolio, whether by location, sector, or borrower group, can increase systemic risk if it is exposed to localized economic downturns, crop failures, or political instability.

Unlike commercial banks, which typically have stronger risk management and diversified loan portfolios across regions and sectors, MFIs lack this broad protection. Therefore, implementing effective diversification strategies helps MFIs build resilience, mitigate risks, and support financial stability.

The quality of an MFI's loan portfolio is crucial for its sustainability, as it reflects the institution's ability to manage credit risk effectively in challenging environments. Many MFI clients lack formal credit histories and collateral, rendering traditional credit scoring less effective. As a result, MFIs face higher default risks compared to commercial banks. The Portfolio at Risk (PAR > 30) ratio is a crucial tool for assessing credit risk, spotting early repayment issues, and guiding timely actions. Unlike banks, which may utilize credit

bureaus and secured lending, MFIs rely more on community trust and strong client relationships, making the maintenance of portfolio quality a key operational focus.

Finally, the structure of loan maturities is crucial for MFIs, influencing cash flow timing and the ability to fulfill obligations in the short and long term. Microfinance institutions usually prefer shorter-term loans due to clients' irregular and seasonal income. If the loan maturity does not align with clients' repayment capacity, it can cause liquidity issues and higher delinquency rates. Unlike commercial banks, which often use interbank markets and complex liquidity tools to manage maturity mismatches, MFIs typically operate in cash-constrained environments, where the loan term significantly affects portfolio turnover, liquidity management, and overall performance. Consequently, designing loan terms carefully to meet client needs is vital for operational efficiency and client satisfaction.

1.2 Problem Statement

Microfinance institutions (MFIs) have played a crucial role in Kenya by providing services to individuals lacking access to traditional banking; nonetheless, their financial performance has deteriorated in recent years. The Central Bank of Kenya (2021) reports that microfinance institutions incurred losses amounting to Kshs. 1.4 billion in 2018, prompting significant concerns regarding their long-term financial viability and sustainability. This persistent underperformance jeopardizes MFIs' capacity to achieve their objective of delivering financial services to low-income individuals.

This financial underperformance can be attributed to several factors, including inadequate portfolio management, insufficient risk mitigation methods, and poor asset allocation (Okwaro, 2022). Previous studies have investigated various determinants of financial performance, including board governance (Tchakoute & Tchuigoua, 2014), social capital (Chmelíková, Krauss, & Dvoulity, 2019), and portfolio diversification (Nkiendem et al., 2024). Nonetheless, these studies often focus on individual variables, specific institutional

characteristics, or localized settings. As a result, they hinder the understanding of the aggregate effects of loan portfolio management practices on financial outcomes.

In Kenya, the microfinance sector faces challenges such as high non-performing loans (NPLs), low asset returns, and occasional institutional failures. These problems are often due to poorly structured portfolios, including excessive exposure to high-risk borrower groups, sectoral concentration, and loan terms that do not align with clients' cash flow cycles (Kahihu et al., 2021). Additionally, many MFIs lack effective frameworks for managing portfolio risks or optimizing their asset mix in response to economic shocks and borrower behavior. Consequently, financial sustainability remains a significant challenge for many institutions, restricting their capacity to expand and reach more clients.

Although the Central Bank of Kenya has established risk-based guidelines for Deposit-Taking MFIs, many non-deposit-taking MFIs operate outside this formal regulation. These institutions often lack the technical skills needed to effectively organize and oversee their portfolios. Furthermore, the growth of digital lending and greater competition from fintech platforms put additional pressure on traditional MFIs to enhance their portfolio efficiency and results. Despite this, there is limited empirical evidence on how specific portfolio-structuring strategies affect financial outcomes in the Kenyan context.

This study aims to address the knowledge gap by examining the relationship between loan portfolio structure and financial performance among microfinance institutions in Kenya. It focuses on critical structural factors, including loan portfolio size, diversification, quality, and maturity profiles, to identify best practices for enhancing financial outcomes. The results will offer important insights for MFI managers, regulators, and policymakers on how to align portfolio strategies with institutional sustainability objectives in a rapidly changing economic environment.

1.3 Objectives of the Study

1.3.1 General Objective

The primary objective of this study was to investigate the effect of loan portfolio structure on the financial performance of microfinance institutions (MFIs) in Kenya.

1.3.2 Specific Objectives

- i. To assess the effect of loan portfolio size on the financial performance of microfinance institutions in Kenya.
- ii. To examine the effect of portfolio diversification on the financial performance of microfinance institutions in Kenya.
- iii. To analyze the effect of Loan Portfolio Quality on the financial performance of microfinance institutions in Kenya.
- iv. To determine the effect of loan maturity structure on the financial performance of microfinance institutions in Kenya.

1.4 Research Hypothesis

H0₁ - The size of the loan portfolio does not have a significant effect on the financial performance of microfinance institutions in Kenya.

H0₂ - Portfolio diversification does not have a significant effect on the financial performance of microfinance institutions in Kenya.

H0₃ - Loan Portfolio Quality has no significant effect on the financial performance of microfinance institutions in Kenya.

H0₄ - The loan maturity structure has no significant effect on the financial performance of microfinance institutions in Kenya.

1.5 Justification of the Study

The Kenyan microfinance sector plays a crucial role in promoting financial inclusion, particularly for underserved groups like small traders, women entrepreneurs, and rural households. Nevertheless, the long-term viability of microfinance institutions (MFIs) is increasingly threatened by poor financial performance, often due to ineffective portfolio management and risk concentration. This research is justified by the need to provide empirical evidence on how portfolio structure influences financial performance within Kenya. Gaining insights into how portfolio elements—such as diversification, loan durations, sectoral exposure, and client segmentation—impact profitability and stability can enable MFIs to make better strategic choices.

This study will be beneficial for managers and boards of microfinance institutions, who are responsible for setting credit policies and managing assets. By using insights from this research, they can better assess their current portfolio strategies, reorganize non-performing assets, and improve their loan product options. Effective portfolio management will enhance profitability, reduce default risks, and foster long-term stability, particularly in a competitive financial market that is rapidly adopting digital platforms.

Policy makers and regulators, such as the Central Bank of Kenya and the Microfinance Institutions Regulatory Authority (MIRA), will benefit from the findings of this study. It can guide the creation of regulatory frameworks and risk-based supervision by emphasizing the structural features of loan portfolios that support institutional resilience. Additionally, the study could help develop industry-wide standards for portfolio quality, diversification, and performance metrics, which are crucial for protecting depositors' funds and improving consumer safeguards.

Development partners and investors, such as donor agencies, impact investors, and microfinance funds, also benefit from this. They depend on accurate data to make informed decisions about funding, technical support, and capacity building. By

highlighting portfolio strategies that lead to better financial results, this study enables them to direct their support more effectively, ensuring the institutions they fund are both mission-focused and financially sustainable.

Ultimately, the academic and research communities will benefit from this study by enriching the scarce empirical literature on portfolio structuring in microfinance, particularly in the African and Kenyan contexts. Most current research emphasizes financial performance related to credit risk or outreach, with limited focus on the portfolio structure itself. This study helps address a crucial gap and provides a foundation for future investigations into risk-adjusted returns, optimal loan mixes, and financial sustainability in inclusive finance.

1.6 Scope of the Study

The scope of this study includes microfinance institutions (MFIs) operating within Kenya's financial sector. It will focus on MFIs that offer a range of financial services, including microloans, micro insurance, savings accounts, and related products, to underserved communities and small businesses. Specifically, the research will examine MFIs in Kenya, considering their operational and financial aspects. The study's timeframe spans from 2015 to 2024.

In terms of geographical coverage, this study will extend its scope to different regions of Kenya, including urban and rural areas, to capture the diversity of MFIs' clientele and portfolio strategies. The selected MFIs will be representative of the various players in Kenya's microfinance sector, including credit-only institutions and microfinance banks. This broad scope will enable the study to generate valuable insights into the loan portfolio and financial performance trends among MFIs in Kenya, offering comprehensive recommendations for stakeholders.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section contains a review of existing studies on the variables of this study. The literature review is structured around the study's objectives and analyzes how loan portfolio structure influences the financial performance of microfinance institutions (MFIs) in Kenya. The section also presents a theoretical and conceptual framework. Finally, the review concludes with a summary of the existing knowledge and identifies research gaps that this study seeks to address, providing a clear rationale for the current investigation.

2.2 Theoretical Review

This study relies on four key theories that shed light on how portfolio structure affects the financial performance of microfinance institutions. Modern Portfolio Theory (MPT) offers a fundamental framework for analyzing loan diversification and optimizing risk and return, highlighting the importance of balanced portfolios in enhancing institutional resilience. The Information Asymmetry Theory highlights the challenges MFIs face in assessing borrowers' creditworthiness, underscoring the importance of well-structured portfolios in mitigating default risk arising from adverse selection and moral hazard. Agency Theory examines how internal governance and the interests of MFI managers versus stakeholders influence decisions regarding portfolio composition, risk levels, and credit policies. Lastly, the Pecking Order Theory explains how financing constraints shape the lending behaviors of MFIs, often leading them to prioritize internal capital over risk management. Together, these theories establish the study's framework, enabling an understanding of how strategic portfolio choices affect financial outcomes in the microfinance sector.

2.2.1 Modern Portfolio Theory (MPT)

Harry Markowitz introduced Modern Portfolio Theory (MPT) in 1952. The theory suggests that diversification enables investors to increase returns while reducing risks (Li, 2024). It is based on the idea that investors are generally risk-averse and aim to create portfolios that offer the highest returns for a given level of risk, usually measured by variance or standard deviation (Mangram, 2013). This theory is especially relevant when analyzing how microfinance institutions (MFIs) manage their portfolios and financial performance.

MPT emphasizes that spreading investments across different asset classes can help lower unsystematic risk, which is crucial for MFIs operating in unpredictable markets (Jarunde, 2021). Since MFIs lend to low-income borrowers, applying MPT principles can help them balance their loan portfolios, reduce the likelihood of non-performing loans (NPLs), and still achieve good returns (Muindi & Jagongo, 2023).

At its core, Modern Portfolio Theory (MPT) suggests that rational, risk-averse investors can maximize expected returns for a given level of risk by carefully choosing a mix of assets that do not move in perfect sync. It highlights diversification as a fundamental strategy to reduce unsystematic risk. By combining assets with imperfect correlation, investors can lower the overall portfolio volatility without necessarily reducing expected returns. MPT also introduces the efficient frontier, a set of optimal portfolios that deliver the highest expected return for each level of risk. This idea remains essential in portfolio management today.

This theory is crucial for the current study, which investigates the link between portfolio structure and financial performance in Kenyan microfinance institutions (MFIs). MFIs often serve a diverse range of clients across multiple sectors and regions. Using the principles of MPT helps MFIs understand how to structure their loan portfolios to balance risk and return. For instance, focusing on a single sector, such as agriculture, can expose

an MFI to sector-specific risks, whereas diversifying across different client groups, industries, and loan durations can improve financial stability. Therefore, MPT offers a solid theoretical foundation for analyzing how loan-asset configurations affect the financial health of these institutions.

However, Modern Portfolio Theory (MPT) has its shortcomings. A key critique is its dependence on assumptions such as rational investor behavior, efficient markets, and normally distributed returns, which seldom occur in reality. In microfinance, particularly in developing countries like Kenya, market imperfections, incomplete information, and behavioral factors, such as trust and social dynamics, significantly influence credit decisions and repayment patterns. Furthermore, the data used to estimate expected returns and risks is often unreliable or limited in microfinance contexts, which can compromise the accuracy of MPT-based strategies.

Despite some limitations, Modern Portfolio Theory (MPT) remains highly relevant and adaptable for the microfinance sector. Even if MFIs don't operate in perfectly efficient markets or have access to flawless data, the concept that diversified loan portfolios can enhance stability and financial outcomes is both practical and theoretically grounded. This study utilizes MPT to investigate how decisions regarding portfolio structure, such as client mix, sectoral focus, and credit exposure, can be optimized to enhance the financial performance of microfinance institutions in Kenya.

2.2.2 Information Asymmetry Theory

The Information Asymmetry Theory was initially formulated through the combined efforts of economists like George Akerlof, Michael Spence, and Joseph Stiglitz, each making key contributions in the 1970s. Akerlof's 1970 paper - The Market for Lemons, highlighted market failures caused by sellers knowing more than buyers, exemplified by the used-car market. Spence introduced the signaling concept in 1973, and Stiglitz developed screening as a response to information asymmetry in 1981. Collectively, their

work forms the foundation of the theory, which has been broadly applied in various economic and financial fields.

Information Asymmetry Theory emerged at a time when traditional economic models often assumed perfect information for all market participants. Such assumptions overlook real-world issues, such as adverse selection and moral hazard, which arise when one party has more or better information than the other. In financial markets and institutions, this imbalance can lead to inefficiencies, mispricing, and market failures. The theory was innovative in showing how disparities in information access can influence market behavior, leading lenders and borrowers to make suboptimal or even detrimental decisions.

Adverse selection occurs when lenders cannot distinguish between high- and low-risk borrowers, increasing the likelihood of loan defaults because the lender cannot accurately assess risk (Noglo & Androuais, 2015). Stiglitz and Weiss's seminal work showed that raising interest rates to cover risk might push healthy borrowers out of the market, leaving only high-risk ones (Noglo & Androuais, 2015). This not only lowers the overall quality of loans but can also threaten the stability of financial institutions. Studies also indicate that microfinance institutions, facing varying degrees of information asymmetry, often experience higher default rates due to adverse selection and moral hazard, where borrowers misuse funds or lack the incentive to repay when not closely monitored (Kono & Takahashi, 2010; Lee et al., 2015).

These phenomena have implications that go well beyond individual market transactions, posing significant systemic risks to financial infrastructure. Information asymmetry affects not only market behaviors but also undermines the financial sustainability of institutions, particularly in the microfinance sector, which supports vulnerable populations (Kono & Takahashi, 2010). For example, improved financial reporting can reduce these frictions by providing better information, enabling more effective monitoring of borrowers, and fostering a healthier financial environment (Biddle et al., 2009). If these

information gaps remain unaddressed, institutions may incur higher operating costs due to inefficiencies and defaults, ultimately reducing financial inclusion for disadvantaged groups (Kono & Takahashi, 2010; Suratini, 2018).

The core idea is that when lenders lack sufficient information to assess potential borrowers' risk, they may inadvertently lend to high-risk individuals (adverse selection) or encourage reckless behavior after the loan is made (moral hazard). In microfinance institutions, these problems are particularly critical because many borrowers operate informally without verifiable income, credit history, or collateral. Consequently, MFIs must decide on lending in an environment where borrower behavior and creditworthiness are difficult to observe or predict.

This theory is highly pertinent to this study on the portfolio structures and financial performance of MFIs in Kenya. Information asymmetry affects how MFIs organize their portfolios, prompting them to adopt strategies to reduce lending risks in environments with limited information. Diversifying investments across different industries, regions, or borrower types can be viewed as a strategic way to lower exposure to borrowers with uncertain repayment abilities. Additionally, MFIs often adopt group lending models, require joint liability, or invest in borrower education and monitoring, all of which are guided by the principles of information asymmetry.

The theory, despite its relevance, is limited. It often generalizes borrowers' behavior and treats information gaps as inherently harmful, neglecting social factors that support lending, such as local knowledge and social cohesion in Kenyan communities. It also overlooks technological advances, such as digital credit scoring, which help close information gaps. Overall, the Information Asymmetry Theory provides valuable insights into credit risks and portfolio decisions for microfinance institutions, emphasizing the importance of careful portfolio structuring, borrower screening, and diversification to manage information asymmetries and ensure sustainability and profitability.

2.2.3 Agency Theory

Agency Theory, proposed by Jensen and Meckling in 1976, examines the relationship between principals (owners/shareholders) and agents (managers/executives). It explores how managers make decisions for owners and how governance structures reduce conflicts of interest, called agency costs (Seth, 2016). While its ideas date back to the 1960s, Jensen and Meckling's work clarified the impact of the principal-agent relationship on corporate governance, financial management, and organizational control. Their research highlighted conflicts of interest when agents are expected to act in the best interests of their principals, shaping modern finance and economics.

Agency Theory emerged amid growing concerns among economists about organizational inefficiencies caused by the separation of ownership and control. It explains a scenario in which a principal, such as a shareholder or lender, entrusts decision-making to an agent, such as a manager or borrower. Since agents often have more information and may pursue their own interests rather than those of the principal, agency costs, expenses related to monitoring, incentivizing, or controlling the agent, can arise. These issues are prevalent in financial institutions, where decisions regarding credit, risk, and reporting have a significant impact on performance.

Agency Theory highlights the primary issue of misaligned interests between principals and agents, which is often exacerbated by information asymmetry that favors the agent. Asante-Darko et al. (2018) note that the agency problem arises from conflicts of interest, where managers may prioritize personal gains over shareholder interests, thereby highlighting the importance of mechanisms to mitigate agency costs. Similarly, Duong et al. (2023) note that institutional investors, with their vested interests and resources, can effectively monitor the actions of agents, helping to reduce risky behaviors that could threaten firm stability. This situation illustrates how agency costs arise from managerial choices that deviate from the principal's objectives, potentially resulting in inefficient outcomes that threaten the financial stability of institutions.

This theory is relevant to this study because the board of directors serves as an oversight body that monitors managers' actions on behalf of stakeholders (Ishak, Manaf, & Abdullah, 2016).

Moreover, loan portfolio and risk management are key aspects of MFI operations. Given the high-risk nature of microfinance, managers may take excessive risk to maximize short-term profits. However, strong governance mechanisms, such as board supervision and risk management policies, play a vital role in preventing moral hazard and adverse selection in portfolio management (Elnahass, 2022).

This theory is especially relevant for examining how MFIs in Kenya structure their portfolios and their financial outcomes. The composition of a loan portfolio, including the mix of borrowers and credit types, reflects institutional efforts to manage agency risks. For instance, MFIs might diversify their portfolios or implement group lending to promote discipline and peer oversight. Agency Theory suggests that portfolio design is motivated not only by market demand but also by strategic risk management aimed at mitigating opportunistic or concealed actions by agents. As a result, institutions that effectively manage agency relationships tend to achieve better financial results.

Corporate governance mechanisms also help align the interests of managers with those of stakeholders. Internal controls, audits, and incentive-based pay are tools that regulate managerial actions and curb opportunistic decisions (Hussain, Azhar, & Abdul Rahman, 2021). However, the limitations of Agency Theory are notable. One key issue is the assumption that managers prioritize their interests over those of the organization. In a stewardship-focused environment, managers may be driven by the organization's long-term success rather than personal benefits (Bendickson et al., 2016). Moreover, the theory primarily emphasizes principal-agent conflicts and often neglects other crucial stakeholders, such as customers, employees, and regulators, who also influence an MFI's financial outcomes (Abdul Rahman, Hussain, & Hossin, 2019).

In conclusion, Agency Theory provides a valuable framework for understanding the actions of various participants in microfinance and how misaligned incentives can jeopardize financial sustainability. It emphasizes the importance of designing portfolio structures and institutional policies that address agency issues through effective borrower selection, incentives, and monitoring.

When examining how portfolio composition affects financial outcomes, this theory clarifies why some MFIs outperform others in comparable settings. It highlights the necessity of aligning institutional objectives with the behaviors of all agents involved in the lending process.

2.2.4 Resource-Based View (RBV)

Barney's (1991) Resource-Based View (RBV) posits that a company's internal resources, encompassing both tangible and intangible assets, are essential for attaining a competitive advantage and enhancing performance. Among these, VRIN resources, those deemed 'valuable, rare, unique, and irreplaceable', can facilitate the development of sustainable competitive benefits, as organizations should undertake deliberate efforts to allocate resources efficiently. This theory underscores the notion that the allocation of assets significantly influences the financial performance of microfinance institutions in Kenya. Decisions regarding resource utilization, particularly human and financial assets across diverse loan products and customer segments, may substantially affect the economic outcomes of microfinance institutions (MFIs). Strategic investment in underdeveloped or high-performing markets enables MFIs to attain improved financial returns and operational efficiency.

The RBV underscores the significance of internal capabilities like risk analytics, technical infrastructure, and employee training in improving asset allocation and portfolio quality. This approach aims to optimize resource use. Microfinance institutions (MFIs) can boost their financial results by strengthening skills in loan supervision, credit risk assessment,

and customer relationship management, leveraging their internal resources effectively. Although the RBV provides a valuable framework for analyzing strategic decisions, it is often criticized for its limited focus on external factors such as market dynamics and regulatory changes, which can also influence MFIs' financial outcomes.

2.3 Conceptual Framework

This study's conceptual framework demonstrates how portfolio structure relates to the financial results of microfinance institutions (MFIs) in Kenya. It focuses on four key independent variables: loan portfolio size, diversification, quality, and maturity structure. These components highlight essential aspects of how MFIs manage and allocate lending resources to balance risk with return.

The dependent variable, financial performance, is measured using indicators like return on assets, operational self-sufficiency, loan repayment rates, and portfolio at risk. The framework aims to explore how different portfolio management strategies employed by Kenyan MFIs affect their financial viability and their ability to provide effective lending services in a complex and evolving economic environment. According to Creswell & Creswell (2017), a conceptual framework serves as the skeleton of a study, providing structure, support, and clarity. It helps researchers organize and interpret their findings. In this research, the framework illustrates the relationship between the dependent and independent variables, as shown in Figure 2.1.

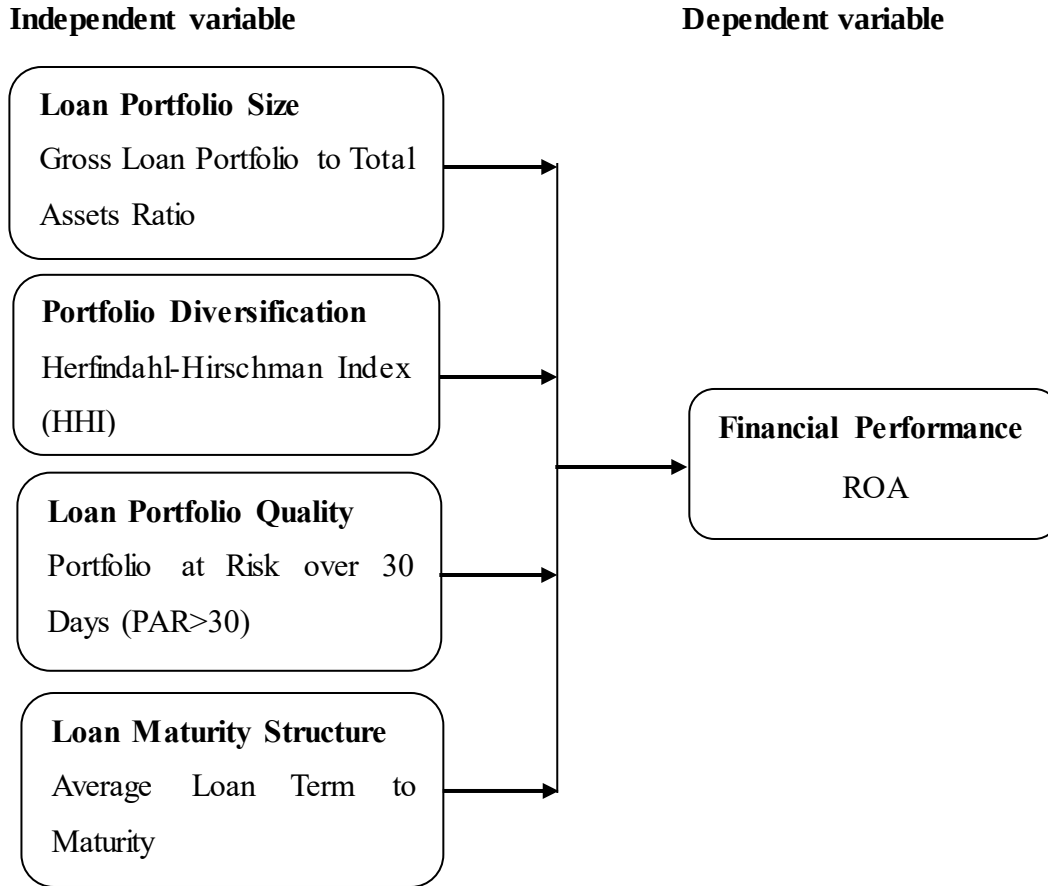


Figure 2.1: Conceptual Framework

2.4 Empirical Review

2.4.1 Loan Portfolio Size and Financial Performance of Microfinance Institutions

Harkat et al. (2023) investigated the impact of loan portfolio features on the financial performance of microfinance institutions (MFIs) in Morocco. They analyzed data from the Mix Market dataset, covering the years 2003 to 2018, and used fixed and random panel regression models in their research. The study showed that MFIs become more profitable and sustainable with an increase in outstanding loans, a larger gross loan portfolio for enterprise financing, and a strong portfolio at risk (within 90 days). However, financial performance suffered when loans had to be written off, when there were many borrowers

per staff member, and when loan officers handled too many loans. The research focused only on Moroccan MFIs, suggesting the need for similar studies in other regions, such as Kenya, to determine whether these findings also apply there.

Thangarajan et al. (2024) analyzed how microfinance institutions (MFIs) in Tamilnadu, India, are performing financially. They focused on assessing how feasible, stable, and sustainable these organizations are by examining their annual financial statements. Their research found both positive and negative findings regarding how these MFIs manage their loans. Specifically, they discovered that using the earnings at risk (EAR) measure greatly benefited the institutions, while a high debt-to-loan ratio (DLR) was harmful. The study emphasizes the crucial need for MFIs to balance profitability with risk management. However, since the research was limited to Tamilnadu, additional studies are necessary to determine if these results apply to MFIs in Kenya, which operates under different regulatory and economic environments.

Mwatati and Wekesa (2024) investigated the impact of credit portfolio management on loan performance in Microfinance Institutions (MFIs) in Mombasa County, Kenya. They gathered information by giving structured questionnaires to managers in six licensed deposit-taking MFIs. The research employed theories such as Modern Portfolio Theory, Moral Hazard Theory, Value-Based Portfolio Theory, and Loanable Funds Theory. Their findings showed that good planning of credit portfolios, careful screening of clients, reducing loan limits, and strong control over credit portfolios had a positive impact on the performance of loans. Analyzing the data revealed that screening clients, reducing loan limits, and controlling credit portfolios had a moderate positive link to better loan results.

Additionally, MFIs that regularly monitored their loans, requested collateral from high-risk clients, and had solid follow-up plans experienced better loan success. The study recommended that MFI managers adopt the most effective strategies for loan pricing to increase repayment rates. They should also decide on suitable loan recovery times before issuing loans. Although this research offers valuable insights into loan portfolio

management in Kenyan MFIs, it does not address how these factors influence overall financial performance, leaving a gap for future research to explore further.

Thiong'o et al. (2024) studied the impact of loan portfolio growth on the financial performance of commercial banks in Kenya. They analyzed data from 31 commercial banks between 2011 and 2015 using a regression research design. The study found that although growing assets is beneficial for banks, rapid increases in loan portfolios can harm financial performance. Banks with fast-growing loan portfolios had higher levels of non-performing loans, which negatively affected their financial results in later years. Conversely, having high-quality assets and sufficient capital improved financial performance. The researchers recommended that banks carefully plan their loan portfolio expansion to lower the risk of loan defaults. However, the study primarily focused on commercial banks, and further research is needed to examine how loan portfolio size affects the financial performance of microfinance institutions in Kenya.

Onchomba (2020) explored the influence of loan portfolios on the financial performance of commercial banks in Kenya. The study aimed to investigate the impact of various loan types, personal loans, real estate loans, SME loans, and insider loans, on financial performance. Using an explanatory cross-sectional design and panel data covering 42 commercial banks over ten years (2006 - 2015), the study employed multiple regression analysis to examine the relationship between loan portfolio components and financial performance metrics, such as return on assets (ROA), return on equity (ROE), and liquidity ratios. The study found that loan portfolios significantly influenced commercial banks' financial performance, with varying impacts across loan types. Introducing bank size as a moderating variable improved the model's predictive power, suggesting that larger banks manage loan portfolios more effectively than smaller banks. The study recommended enhanced risk assessment measures and restructuring of loan portfolios to improve financial outcomes.

However, while the research provides valuable insights into commercial banks, its findings may not be directly applicable to microfinance institutions, indicating a gap for further studies to explore how loan portfolio characteristics influence financial performance in the microfinance sector.

2.4.2 Portfolio Diversification on the Financial Performance of Microfinance Institutions

Nkiendem, Huboh, and Ayankeng (2024) examined the impact of various loan types on the financial performance of microfinance institutions (MFIs) in Cameroon. They reviewed 32 MFIs across multiple regions at a single point in time, focusing on numerical data. They used indicators such as return on assets (ROA) and return on equity (ROE) to assess the outcomes. They discovered that MFIs with a variety of loans did better financially and had lower risk. This shows that having different types of loans helps keep these institutions stable and profitable.

A study by Nyabiba and Maina (2023) explored the effects of portfolio diversification on the financial performance of microfinance institutions (MFIs) in Nairobi County, Kenya. They examined how diversifying investments across asset classes, managing different levels of risk, having varied income streams, and expanding operational locations might enhance financial success. The researchers employed a descriptive method, focusing on 57 MFIs that were part of the Association of Microfinance Institutions, and gathered data from 171 senior managers. The findings showed that diversifying asset classes, effectively understanding and managing risks, and having multiple income sources significantly boosted financial performance, with beta values of 0.318, 0.288, and 0.498, respectively. On the other hand, branching out into different locations had a positive effect, although it was not statistically significant. The study recommended that MFI management should concentrate on diversifying asset types and income streams to strengthen financial sustainability.

In a study by Githaiga and Nderitu (2021) different income sources that impact the stability of Microfinance Institutions worldwide were examined. The study used data from 443 MFIs across 108 countries, covering the years 2013 to 2018, and applied a specific analytical method to study the data. Their findings indicated that having multiple sources of income is crucial for MFIs to remain financially stable. The study emphasized the importance of income diversity in reducing dependence on external funding, such as government aid and donations. They advised policymakers and MFI managers to focus on creating varied income streams to ensure ongoing financial health.

Another study by Nyabera, Otinga, and Miroga (2024) examined the impact of various types of investment on the financial performance of microfinance banks in Kenya. The researchers analyzed four investment types: fixed deposits, shares, government bonds, and real estate. Using a causal research approach, they examined data from 13 microfinance banks over five years, from 2017 to 2021, employing panel regression models. The study discovered that investments in fixed deposits, shares, and real estate significantly boosted financial performance. While investments in government bonds also showed a positive link, their impact was not substantial. The study recommended that microfinance banks enhance their investment strategies by selecting fixed deposits carefully and diversifying their investments into government securities and bonds to maximize returns.

2.4.3 Loan Portfolio Quality and Financial Performance of Microfinance Institutions

The quality of loan portfolios in Microfinance Institutions (MFIs) has a significant impact on their financial performance. Karim et al. analyze bank efficiency and non-performing loans (NPLs) in Malaysia and Singapore, finding that higher financial efficiency is associated with fewer non-performing loans. Their findings support the hypothesis of poor management, suggesting that inadequate management practices lead to declining loan quality (Karim et al., 2010). They emphasize that effective management of loan portfolios is vital for the operational success and financial health of MFIs, highlighting the

importance of sound management strategies to reduce defaults and improve the overall quality of the portfolio.

Leja and Ibrahim (2022) emphasize the significance of credit risk management in determining the quality of a loan portfolio. Their research examines the complexities of the microfinance sector, including the lack of collateral and socio-economic factors that influence borrowers, which pose challenges to the development of effective credit management strategies. They argue that a financial institution's loan portfolio quality indicates its success in controlling delinquency rates and predicting income, ultimately affecting its outreach and financial results.

Charles and Mori (2017) analyze repayment behaviors in informal lending groups, arguing that frequent borrowing can negatively affect repayment performance and increase portfolio at risk (PAR) levels. Their results show that strong support networks for borrowers can enhance repayment success and improve the overall quality of loan portfolios. This highlights the connection between borrower actions and the financial stability of MFIs.

Siwale (2016) emphasizes the crucial role of loan officers in maintaining portfolio quality in MFIs, particularly in group-based lending models. She points out that regular interaction and monitoring by loan officers help build stronger borrower relationships and improve training and support systems, which are vital for timely loan repayments. The documented interactions between loan officers and clients suggest that improving service delivery through better personnel management can significantly enhance loan portfolio performance.

Aluodo and Musau (2024) further explore market challenges and operational strategies to reduce NPLs, emphasizing the critical role of liquidity management in determining the financial results of MFIs. Their research indicates that maintaining a favorable NPL ratio is crucial for assessing loan quality and ensuring operational efficiency. They recommend

adopting strategic liquidity management to enhance portfolio quality, emphasizing the impact of sound financial practices on loan performance.

Bitok et al. (2020) explore how portfolio quality relates to financial sustainability in Kenya's MFIs, advising the adoption of improved collection policies to enhance borrower reliability. They conclude that better portfolio quality increases profitability and builds investor confidence, acting as a key driver for stronger financial performance. This highlights the intricate effects of lender management strategies on the long-term sustainability of institutions.

Kar and Swain (2013) analyze how interest rates influence MFI financial performance. They offer a detailed view, emphasizing that interest charges impact operational sustainability and may cause mission drift as MFIs face growing market competition. Therefore, the effects of interest rates on loan portfolio performance require careful evaluation, as they are crucial for balancing client needs with the institution's long-term sustainability.

Kasoga and Tegambwage (2021) examine the dangers of over-indebtedness, pointing out that too much borrowing can threaten MFI stability. They highlight that widespread over-indebtedness among borrowers may cause portfolio deterioration, negatively impacting both financial outcomes and clients' socio-economic conditions. The authors emphasize the need for effective oversight and strict credit policies to reduce these risks, underscoring the importance of MFIs implementing preventive measures to maintain loan quality.

Ngonyani and Harun (2019) further examine the operational challenges affecting loan portfolio quality, focusing on credit collection policies and their impact on portfolio risk in Tanzania's MFIs. They conclude that implementing effective collection strategies is crucial for reducing risks and improving portfolio health, highlighting the importance of personalized collection approaches that address the specific needs of borrowers to significantly boost overall financial performance.

Lamichhane (2022) examines loan delinquency in Nepali MFIs and advocates for robust governance and monitoring systems to improve loan quality. His findings suggest that utilizing integrated client assessment methods, combined with comprehensive training and follow-up, can decrease delinquency rates and enhance the financial stability of MFIs. This research highlights the importance of adopting proactive strategies that directly improve portfolio quality and the overall financial resilience of microfinance institutions.

2.4.4 Loan Maturity Structure and Financial Performance of Microfinance Institutions

The loan maturity structure is vital when assessing the financial health of Microfinance Institutions (MFIs). Kaua and Mutune (2021) examine how climate variability affects clients' ability to repay and, in turn, the operations of MFIs. Their study reveals that an MFI's loan portfolio is influenced by client vulnerability, which in turn affects the loan maturity structure. Longer repayment periods can exacerbate the effects of external stressors, such as climate change, and negatively impact overall financial performance. Clearly, MFIs need to adjust their loan maturities based on their clients' socio-economic conditions to stay operationally effective.

Malik et al. (2020) analyze how major shocks, such as the COVID-19 pandemic, affect microfinance demand and operational changes. They highlight that MFIs should make their loan maturity structures adaptable to evolving economic conditions. Their research suggests that, particularly in times of crisis, MFIs may need to adjust their standard loan flexibility to maintain repayment rates and sustainability. Therefore, the ability to adapt loan maturities is crucial for the financial stability of MFIs during unexpected economic events.

Shahale and Ibrahim (2022) examine liquidity management, highlighting how the characteristics of microfinance loans impact financial performance. They note that microfinance loans often face illiquidity because of regulatory limits and operational

challenges, which makes it crucial for MFIs to adopt strategies that boost liquidity without compromising their financial results. This approach is vital for MFIs to ensure steady cash flows, operational stability, and ongoing client interaction.

Dahal et al. (2023) examine how women entrepreneurs in Nepal engage with loan maturity frameworks in microfinance. Their findings show that women, who tend to prefer shorter loan terms, often face restrictions due to inflexible loan structures that don't match their business requirements. This mismatch can negatively impact financial performance, as institutions might experience increased delinquency rates if borrowers struggle to meet repayment schedules. Therefore, designing loan maturity structures that account for gender-specific needs can improve repayment rates and overall financial stability inclusivity.

Narwal and Yadav (2015) discuss how microfinance institutions need to balance short-term and long-term financing to optimize their operations. They highlight that loan maturities greatly affect the total borrowing cost for clients, which can influence their enthusiasm and repayment habits. A well-structured loan maturity schedule helps MFIs achieve economies of scale, improving financial results. Therefore, understanding operational efficiencies allows MFIs to design loan maturities that attract more clients and reduce defaults.

Ngonyani and Harun (2019) highlight how credit collection policies and loan durations impact the financial stability of MFIs in Tanzania. They find that longer loan terms may increase portfolio risks and non-repayment rates if clients' economic conditions worsen. This indicates that MFIs should develop flexible loan arrangements with integrated risk evaluations to protect their financial health. Thus, designing loan maturities that consider clients' ability to repay is essential for reducing financial risks.

Worku and Muchie (2019) examine how borrowers' experiences with loan maturity affect their financial well-being in four African countries. They find that MFIs providing flexible

loan terms increase borrower loyalty and decrease dropout rates. This shows that loan maturity structure can improve financial outcomes by maintaining client engagement and reducing default risks. Well-designed loan maturity strategies can remove access barriers and boost the financial stability of MFIs.

Leja and Ibrahim (2022) highlight that the quality of loan portfolios plays a crucial role in the profitability of MFIs. They suggest that focusing too much on short-term loans may increase credit risk and threaten financial stability. A balanced approach that considers both short- and long-term objectives is essential for a healthy loan portfolio. With such a balanced mix of loans, MFIs can better withstand periods of economic uncertainty and maturities.

Weber and Muhoff (2013) suggest that traditional lending approaches by MFIs often fail to meet the unique needs of agricultural borrowers, whose income fluctuates seasonally. They recommend that introducing flexible loan options with suitable maturity periods could improve credit availability and repayment success among these clients. This emphasizes the importance for MFIs to develop innovative loan maturity products that better accommodate clients with fluctuating income sources.

2.5 Research Gap

Studies about microfinance institutions have looked into how different factors like loan sizes, investment types, influence their financial performance. However, research specifically focusing on MFIs in Kenya is not as common. It is crucial to understand more about how the size of a loan can impact long-term success and the reduction of risks in Kenya.

Additionally, it's important to understand how the way these institutions are governed can affect their financial outcomes. A lot of current studies use methods that capture data from one single moment in time, alongside basic statistical models. Moreover, many

investigations rely heavily on data reported by the institutions themselves and do not take advantage of methods that track changes over time. Using studies that follow data over extended periods, such as panel data analysis, could provide a much clearer picture of what elements lead to financial success for MFIs.

In terms of theory, there is a noticeable gap because many previous studies have used broad financial theories like agency theory and resource-based view without adapting them specifically to fit the microfinance sector.

We need more refined theoretical frameworks that combine ideas from microfinance with models of financial sustainability. This would help to better explain how MFIs perform financially. The majority of studies focus on regions like South Asia and Latin America, which leaves a gap in research centered on Kenya and other African nations. Kenya, in particular, has its own unique regulatory environment, economic conditions, and challenges related to financial inclusion. Therefore, there is a significant need for more localized research to provide valuable insights for policymakers, practitioners, and financial regulators in Africa. This localized approach could help identify what strategies work best within the African context.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter describes the approach the researcher will use to achieve the research goal and address the research questions. It specifically covers the research design, study population, sampling frame, sample size, sampling method, data collection tools, data collection process, pilot testing, and data analysis chapter.

3.2 Research Design

A research design serves as a framework for collecting and analyzing data, thereby helping to address the research questions. It outlines the approach the researcher will use to collect, measure, and analyze the data (Saunders, Lewis, & Thornhill, 2009). According to Creswell (2014), a research design refers to the set of conditions for data collection and analysis, aiming to align the study's objectives with methodological efficiency. This study employed a descriptive research design to investigate the effects of loan portfolio structure and financial performance on microfinance institutions (MFIs) in Kenya. The research design enabled the collection of numerical data and facilitated statistical analysis to draw objective conclusions.

3.3 Target Population

The population is defined as the entire group of individuals, events, or objects from which the researcher intends to draw conclusions or generalize the study's findings (Willie, 2024). The target population for this study comprised the 14 licensed Microfinance Institutions (MFIs) in Nairobi (see the attached list, Appendix 1). These institutions play a significant role in providing financial services to individuals and small businesses, especially in underserved areas.

3.4 Sampling Procedure and Sample Size

The study adopted a census sampling approach, considering all 14 licensed Microfinance Institutions (MFIs) in Kenya. Since the target population consists of a manageable number of institutions, all 14 MFIs were included in the study. This method is suitable for the research because it enables the collection of comprehensive data from all institutions, ensuring that the findings are representative of the entire microfinance sector in the study's context.

3.5 Data Collection Procedure

The study focused solely on secondary data, gathered using a specially crafted data collection sheet tailored to microfinance banks in Kenya. This secondary data was sourced from the financial reports of these banks, available through the Central Bank of Kenya (CBK). Our analysis will cover a decade, from 2015 to 2024. The financial reports provided by the Central Bank of Kenya offer in-depth insights into how these microfinance institutions have performed, operated, and maintained their financial stability over this period. These reports featured essential financial metrics, such as loan portfolios, savings growth, profit margins, and other key indicators, that helped in understanding the factors affecting these institutions' performance.

3.6 Diagnostic Tests

The study employed various diagnostic tests to ensure the data is valid and appropriate for analysis. This study assessed multicollinearity by examining the Variance Inflation Factor (VIF), which indicates the presence of high correlations among independent variables that may distort regression outcomes. The normality of the data was evaluated using the Kolmogorov-Smirnov and Shapiro-Wilk tests to ascertain adherence to a normal distribution, which is essential for most parametric statistical techniques. The study used the Durbin-Watson test to assess autocorrelation, determining whether the residuals are

independent over time and confirming the absence of a connection between successive errors. The investigation employed the Breusch-Pagan or White test to assess heteroscedasticity, examining whether the error variance remains constant across the data. By conducting these diagnostic tests, we aim to ensure that our outcomes are robust and dependable, thereby meeting the necessary assumptions for precise data analysis.

3.7 Data Analysis and Presentation

This study employed a combination of descriptive and inferential statistics to analyze the data. Descriptive statistics facilitated the organization and summarization of data in an easily comprehensible manner, emphasizing essential metrics such as the mean, maximum, minimum, and standard deviation. These statistics elucidated the distribution of the data. Conversely, inferential statistics facilitate the derivation of conclusions and the formulation of informed hypotheses about the broader population from the study sample.

The researcher conducted a correlation analysis to examine the degree and type of relationships among various variables, thereby determining their connections. Additionally, the researcher employed panel regression analysis to test hypotheses about correlations between independent and dependent variables, thereby facilitating the examination of potential causal relationships and the prediction of outcomes based on our findings.

3.7.1 Analytical Model

The panel regression model was the analytical model of the study and is formulated as follows

$$Y_t = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \varepsilon$$

Where

Y = Financial performance

X_1 = Loan Portfolio Size

X_2 = Portfolio Diversification

X_3 = Loan Portfolio Quality

X_4 = Loan Maturity Structure

β_0 = Constant

$\beta_1 - \beta_4$ = Regression coefficients

ε = Error term

3.7.2 Test of Significance

To test the statistical significance of the research, t-tests and F-tests were used. The F-test was used to assess the overall importance of the regression model by comparing the variance explained by the regression equation to the residual error variance. The t-test was used to evaluate the relevance of the individual regression coefficients, determining whether each independent variable had a statistically significant effect on the financial performance of microfinance institutions in Kenya. These tests helped establish the reliability and validity of the regression model and the relationships it suggests between the independent variables and the dependent variable.

3.7.3 Variable Operationalization

1. Loan Portfolio Size:

Was measured by Gross Loan Portfolio to Total Assets Ratio

$$\text{Loan Portfolio Size Ratio} = \frac{\text{Gross Loan Portfolio}}{\text{Total Assets}} \times 100$$

This ratio shows the portion of an institution's total assets dedicated to lending. A higher ratio indicates a stronger focus on issuing loans, implying that the institution prioritizes credit provision over other asset uses. This metric helps evaluate the size and strategic significance of the loan portfolio within the institution's overall financial structure.

2. Portfolio Diversification

Portfolio Diversification was assessed using the Herfindahl-Hirschman Index (HHI), which sums the squared proportions of the loan portfolio across sectors or borrower groups.

Ratio: Herfindahl-Hirschman Index (HHI)

$$\text{HHI} = \sum_{i=1}^n s_i^2$$

Where:

- s_i is the share of the portfolio in sector or borrower group i (expressed as a decimal),
- n is the number of sectors or borrower groups.

A lower HHI value signals a more diversified portfolio, with credit risk spread across various sectors. Conversely, a higher HHI indicates greater concentration, which could

mean increased exposure to sector-specific risks. This metric helps assess how effectively an institution distributes its lending activities to reduce vulnerabilities.

3. Loan Portfolio Quality

Ratio: Portfolio at Risk over 30 Days (PAR > 30)

$$PAR> \frac{\text{Outstanding balance of loans overdue} > 30 \text{ Days}}{\text{Gross Loan Portfolio}} \times 100$$

This ratio shows the percentage of the total loan portfolio at risk of default due to payment delays over 30 days. A higher PAR > 30 value suggests an increased risk of default, indicating possible weaknesses in credit assessment, monitoring, or collection efforts. This metric helps evaluate the overall health and quality of the loan portfolio, as well as its potential impact on financial stability.

4. Loan Maturity Structure

Ratio: Average Loan Term to Maturity

$$\text{Average Loan Maturity} = \frac{\sum(\text{Loan Amount} \times \text{Loan Term})}{\sum(\text{Loan Amount})}$$

This ratio shows the weighted-average duration of all outstanding loans, indicating how long, on average, the institution's funds are committed under loan contracts. A longer average maturity might suggest higher liquidity risk and increased exposure to long-term default risks. Conversely, shorter maturities could imply quicker portfolio turnover and lower risk. This metric helps illuminate the institution's lending horizon and the potential impact on cash flow management and financial performance.

5. Financial Performance

Ratio: Return on Assets (ROA)

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \times 100$$

This provides a weighted average of the time it takes for loans to mature, indicating the institution's exposure to long-term versus short-term loans.

Table 3.1: Variable Operationalization

Variable Type	Variable Name	Indicator / Measure	Measurement / Ratio	Operational Definition
Independent	Loan Portfolio Size	Loan portfolio relative to total assets	Gross Loan Portfolio ÷ Total Assets × 100	Measures the proportion of the MFI's resources committed to lending activities.
Independent	Portfolio Diversification	Sectoral or borrower group concentration	Herfindahl-Hirschman Index (HHI): $\sum(s_i^2)$	Assesses the spread of the loan portfolio across sectors or borrower types.
Independent	Loan Portfolio Quality	Portfolio at Risk (PAR)	$PAR > 30 = \frac{\text{Overdue loans} > 30 \text{ days}}{\text{Gross Loan Portfolio}} \times 100$	Evaluates credit risk by assessing the quality of outstanding loans.
Independent	Loan Maturity Structure	Average term of issued loans	Weighted average loan term = $\frac{\sum(\text{Loan Amount} \times \text{Term})}{\sum(\text{Loan Amount})}$	Captures the average duration of loans issued by the MFI.
Dependent	Financial Performance	Return on Assets	Return on Assets (ROA) = $\frac{\text{Net Income}}{\text{Total Assets}} \times 100$	Indicates how efficiently the MFI uses its assets to generate earnings.

3.8 Ethical Considerations

The researcher is dedicated to maintaining the highest ethical standards throughout the research process. Before beginning data collection, the researcher obtained a letter from the University Ethics Committee and a permit from the National Commission for Science, Technology, and Innovation (NACOSTI) to confirm compliance with ethical and legal requirements. Informed consent will be obtained from all stakeholders, ensuring that participants understand the study's purpose, their role in it, and the potential risks. The researcher also prioritized strict confidentiality and anonymity, making sure no personal identifiers are linked to participant data.

Furthermore, the study ensured that all data were managed and reported honestly and transparently, without manipulation or misrepresentation, and that the rights and dignity of all individuals and institutions involved were respected.

Regarding secondary data, the researcher adhered to all applicable legal and ethical standards, sourcing data from reputable sources and obtaining the necessary permissions. By adhering to these guidelines, the research aims to make a positive contribution to both the academic community and the field of microfinance.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter offers a detailed analysis of data collected from 14 microfinance institutions operating in Kenya over the decade from 2015 to December 2024. The study is designed to systematically explore the relationship between loan portfolio structures and the financial performance of these institutions. It begins with descriptive statistics that provide insights into the central tendencies, variability, and distribution patterns of key variables, including portfolio composition, loan portfolio size, diversification, quality, maturity structure, and financial performance metrics across the sampled MFIs. After this, diagnostic tests are performed to assess data quality, verify the assumptions underlying the statistical models, and identify potential issues such as multicollinearity, heteroscedasticity, and non-normality of residuals. The chapter then proceeds to inferential statistical analysis, employing appropriate econometric techniques to investigate the hypothesized relationships between loan portfolio structure variables and financial performance measures. Finally, a comprehensive discussion of the findings is presented, interpreting the statistical results in the context of microfinance institutions in Kenya, connecting them to existing literature, and highlighting practical implications for microfinance management and policy development.

4.2 Descriptive Statistics

This section presents the descriptive statistical analysis of the key variables examined in the study, providing a comprehensive overview of the loan portfolio structure and financial performance characteristics of the fourteen microfinance institutions over the 2015-2024 period. The descriptive statistics include measures of central tendency (mean, median), dispersion (standard deviation, variance, range), and distributional shape

(skewness, kurtosis) for all variables of interest. The analysis encompasses portfolio structure variables alongside financial performance indicators, including return on assets (ROA). Additionally, this section examines temporal trends and cross-sectional variation among the sampled MFIs, highlighting notable patterns, outliers, and distributional characteristics that may influence subsequent inferential analyses. The descriptive statistics serve as a foundation for understanding the data structure and inform the selection of appropriate statistical techniques for hypothesis testing, while also providing initial insights into the nature and extent of relationships between loan portfolio structure and financial performance outcomes in the Kenyan microfinance sector. The findings are summarized in Table 4.1.

Table 4.1: Descriptive Statistics

	LPS	PD	LPQ	LMS	ROA
Mean	0.059108	0.019179	0.038623	0.533796	0.009486
Standard Error	0.004031	0.002237	0.00271	0.01257	0.012657
Median	0.047921	0.007817	0.02896	0.542688	0.002453
Standard Deviation	0.047694	0.026473	0.032062	0.14873	0.149756
Sample Variance	0.002275	0.000701	0.001028	0.022121	0.022427
Kurtosis	4.701876	6.027595	2.558109	-1.21142	-1.11652
Skewness	1.705807	2.395365	1.629896	-0.06121	0.080904
Range	0.300095	0.132887	0.155948	0.525068	0.534491
Minimum	0.007535	0.000393	0.003926	0.257981	-0.25398
Maximum	0.30763	0.13328	0.159874	0.78305	0.280515

4.2.1: Measures of Central Tendency

The loan portfolio size (LPS) demonstrates a mean of 5.91%, indicating that, on average, the sampled microfinance institutions allocate approximately 6% of their total resources to loan portfolios. The median of 4.79% indicates that half of the institutions maintain

loan portfolio sizes below this threshold. The relationship between these measures shows that the mean exceeds the median by 1.12 percentage points, suggesting a positively skewed distribution. This indicates that while the typical MFI operates with a loan portfolio size of around 4.8%, a subset of institutions with substantially larger portfolio allocations pulls the average upward to nearly 6%, reflecting varying institutional strategies for managing portfolio size across the sector.

Portfolio diversification (PD) has a mean of 1.92%, indicating that, on average, MFIs achieve modest portfolio diversification across sectors or loan types. The median of 0.78% shows that half of the institutions have diversification levels below this relatively low threshold. The substantial difference between the mean and the median, with the mean nearly 2.5 times the median, indicates significant positive skewness in diversification strategies.

This relationship reveals that while most institutions maintain limited diversification with levels clustering around 0.8%, a few highly diversified MFIs with extensive cross-sector lending portfolios significantly elevate the average, highlighting considerable heterogeneity in diversification approaches within the Kenyan microfinance sector.

Loan portfolio quality (LPQ) shows a mean of 3.86%, indicating that, on average, MFIs experience portfolio quality issues affecting approximately 4% of their loan books. The median value of 2.90% indicates that half of the institutions maintain better portfolio quality, with issues affecting less than 3% of their portfolios. The relationship between these measures, in which the mean exceeds the median by nearly 1 percentage point, suggests positive skewness in the distribution of portfolio quality indicators. This pattern reveals that while the typical MFI maintains relatively good portfolio quality around 3%, some institutions experiencing significantly higher default rates, non-performing loans, or other portfolio deterioration issues drive the average upward, indicating that portfolio quality challenges are concentrated among a subset of institutions rather than uniformly distributed across the sector.

The loan maturity structure (LMS) presents a mean of 53.38%, indicating that, on average, approximately 53% of loan portfolios across the sampled MFIs consist of medium to long-term loans. The median of 54.27% indicates that half of the institutions structure their portfolios so that more than 54% of their assets are longer-term loans. The relationship between these measures is unique among the variables, with the median slightly exceeding the mean by 0.89 percentage points, suggesting a mild negative skew in the distribution. This indicates that most institutions tend to favour longer-term lending structures around 54%. At the same time, a few MFIs with higher proportions of short-term loans pull the average slightly downward, reflecting relatively consistent maturity strategies across the sector, with limited variation in loan term structuring.

Return on assets (ROA), a financial performance indicator, averages 0.95%, indicating that, on average, MFIs achieve less than 1% return on their total assets. However, the median of 0.25% reveals that half of the institutions achieve returns below this modest threshold. The dramatic difference between the mean and median, with the mean being nearly four times higher than the median, indicates extreme positive skewness in the distribution of financial performance. This relationship reveals significant performance heterogeneity within the sector, with the median suggesting that the typical MFI operates with very low profitability, at around 0.25%. At the same time, a small number of exceptionally high-performing institutions with substantially superior asset utilization efficiency dramatically elevate the sector average, creating a pronounced performance divide between top-performing and typical microfinance institutions in Kenya.

4.2.2 Measures of Dispersion

The loan portfolio size (LPS) exhibits a standard deviation of 4.77%, indicating moderate variability in portfolio sizes across the sampled microfinance institutions. The sample variance of 0.23% quantifies the spread of portfolio sizes around the mean, while the range of 30.01% demonstrates the substantial difference between the smallest and largest portfolio allocations. The relationship between these measures reveals considerable

heterogeneity in portfolio size strategies, with the standard deviation accounting for nearly 81% of the mean, indicating high relative variability. The wide range, spanning from 0.75% to 30.76%, coupled with the substantial standard deviation, suggests that MFIs employ markedly different approaches to portfolio sizing, with some institutions maintaining minimal loan portfolios while others allocate nearly one-third of their resources to lending activities.

Portfolio diversification (PD) demonstrates a standard deviation of 2.65%, showing significant variation in diversification strategies across institutions. The sample variance of 0.0007 and the 13.29% range further illustrate the dispersion in diversification approaches within the sector. The relationship between these measures is particularly striking, as the standard deviation exceeds the mean (2.65% vs. 1.92%), indicating extremely high relative variability with a coefficient of variation exceeding 100%. The range spans from 0.04% to 13.33%, indicating that while some MFIs maintain highly concentrated portfolios with minimal diversification, others achieve extensive diversification across multiple sectors or loan types. This extreme variability suggests fundamentally different strategic approaches to risk management and market penetration among Kenyan microfinance institutions.

Loan portfolio quality (LPQ) shows a standard deviation of 3.21%, indicating substantial variation in portfolio quality management across the sampled MFIs. The sample variance of 0.001028 and the 15.59% range demonstrate considerable dispersion in quality outcomes.

The relationship between these measures indicates that the standard deviation is approximately 83% of the mean, suggesting high relative variability in portfolio quality performance. The range extends from a minimum of 0.39% to a maximum of 15.99%, indicating that while some institutions achieve excellent portfolio quality with minimal problems affecting less than 0.4% of their loans, others experience severe quality issues affecting nearly 16% of their portfolios. This substantial variation highlights significant

differences in credit assessment capabilities, risk management practices, and collection effectiveness across the microfinance sector.

The loan maturity structure (LMS) exhibits a standard deviation of 14.87%, showing moderate variation in maturity composition strategies among institutions. The sample variance of 0.022121 and the 52.51% range indicate meaningful differences in how MFIs structure their loan terms. The relationship between these measures shows that the standard deviation accounts for approximately 28% of the mean, indicating moderate relative variability compared to other variables in the study. The range spans from a minimum of 25.8% to a maximum of 78.3%, revealing that while some institutions focus heavily on short-term lending (with only 26% of portfolios in longer terms), others emphasize long-term lending strategies (with nearly 78% in longer-term loans). This variation suggests different institutional philosophies regarding optimal loan term structures and risk-return trade-offs in the microfinance sector.

Return on assets (ROA) demonstrates a standard deviation of 14.98%, indicating extreme variability in financial performance across the sampled microfinance institutions. The sample variance of 0.022427 and range of 53.45% further emphasize the substantial dispersion in profitability outcomes. The relationship between these measures is remarkable, with the standard deviation being approximately 15.8 times larger than the mean, representing the highest relative variability among all studied variables. The range extends from a minimum of -25.4% to a maximum of 28.1%, revealing that while some institutions experience substantial losses (negative ROA of over 25%), others achieve exceptional profitability (positive ROA exceeding 28%). This extreme variation underscores the heterogeneous nature of financial performance in the Kenyan microfinance sector, where institutional capabilities, management effectiveness, and operational efficiency vary dramatically, resulting in vastly different financial outcomes across the industry.

4.2.3 Measures of Distribution and Shape

The loan portfolio size (LPS) exhibits a skewness value of 1.71, indicating a strongly positively skewed distribution where the tail extends significantly toward higher values. The kurtosis value of 4.70 demonstrates a leptokurtic distribution with heavier tails and a more peaked center compared to a normal distribution. The relationship between these measures reveals that while most MFIs cluster around smaller portfolio sizes (consistent with the positive skew), the distribution has substantial outliers and extreme values that create both the rightward tail and the heavy-tailed characteristic. The high positive skewness confirms that a majority of institutions maintain relatively modest loan portfolio sizes, while a few institutions with extensive portfolios create the pronounced rightward skew. The elevated kurtosis suggests that extreme portfolio size values, both large and small, occur more frequently than would be expected in a normal distribution, indicating that portfolio sizing strategies tend toward either conservative or aggressive extremes rather than moderate middle-ground approaches.

Portfolio diversification (PD) demonstrates a skewness value of 2.40, representing the highest positive skewness among all variables and indicating a severely right-skewed distribution. The kurtosis value of 6.03 shows extreme leptokurtosis, representing the most peaked and heavy-tailed distribution in the dataset. The relationship between these measures reveals a highly uneven distribution where the vast majority of MFIs maintain very low diversification levels. At the same time, a small number of highly diversified institutions create a pronounced rightward tail. The exceptionally high skewness indicates that most institutions operate with minimal portfolio diversification, clustering near the lower end of the distribution, while only a few MFIs pursue extensive diversification strategies. The extreme kurtosis suggests that both very low and very high diversification levels occur more frequently than expected, while fewer institutions adopt moderate diversification, indicating polarized strategic choices in portfolio diversification within the sector.

Loan portfolio quality (LPQ) shows a skewness of 1.63, indicating strong positive skewness, with the distribution's tail extending toward higher-quality problem levels. The kurtosis value of 2.56 indicates moderate leptokurtosis, with a distribution that is more peaked than usual but less extreme than that of other variables. The relationship between these measures suggests that while most MFIs maintain relatively good portfolio quality with lower problem rates, some institutions with significantly higher default rates or quality issues create the rightward skew. The positive skewness confirms that the majority of institutions cluster around lower portfolio quality problem levels (better quality), while institutions experiencing severe quality deterioration form the extended right tail. The moderate kurtosis indicates that extreme values in portfolio quality, both very good and very poor, occur somewhat more frequently than in a normal distribution. Still, the concentration around the mean is less pronounced than observed in other portfolio structure variables.

The loan maturity structure (LMS) exhibits a skewness value of -0.06, indicating an almost perfectly symmetrical distribution with minimal skewness in either direction. The kurtosis value of -1.21 indicates a platykurtic distribution, meaning it is flatter and has lighter tails than a normal distribution. The relationship between these measures reveals that maturity-structure strategies are relatively evenly distributed across institutions, with no strong tendency toward either short-term or long-term portfolio concentration. The near-zero skewness suggests that institutions are relatively evenly split between those favoring shorter-term lending and those emphasizing longer-term loans, creating a balanced distribution around the mean. The negative kurtosis indicates that extreme maturity structures (either very short-term-focused or very long-term-focused) occur less frequently than expected under a normal distribution, suggesting that most MFIs adopt moderate, balanced approaches to loan term structuring rather than pursuing extreme maturity strategies.

Return on assets (ROA) shows a skewness of 0.08, indicating an almost perfectly symmetrical distribution with minimal rightward skewness. A kurtosis value of -1.12

reflects a platykurtic distribution, meaning it has flatter peaks and lighter tails than a normal distribution. These measures reveal that financial performance outcomes are generally evenly spread around the mean, despite the earlier observed difference between the mean and median. The very slight skewness suggests that, although there may be some high-performing outliers, the overall distribution of returns is relatively balanced, with no strong asymmetry. The negative kurtosis indicates that extreme financial performance values, both very high returns and significant losses, are less common than expected in a normal distribution. This suggests that most institutions tend to achieve moderate performance rather than experience dramatic success or failure, indicating a relatively stable yet varied performance landscape across the microfinance sector.

4.3 Diagnostic Tests

To ensure the reliability and precision of the regression analysis, several diagnostic tests were conducted. The normality test verified if the residuals followed a normal distribution, which is essential for proper hypothesis testing. The multicollinearity assessment among independent variables was performed to confirm that the estimated coefficients remain stable and interpretable. A heteroskedasticity test checked whether the variance of the error terms was consistent across observations, crucial for estimator efficiency. The linearity test determined if the relationship between dependent and independent variables was accurately modeled as linear. Autocorrelation tests searched for any correlation among residuals over time, which could affect the accuracy of regression results. Additionally, a stationarity test was carried out to confirm whether the data series had a stable mean and variance over time, a vital assumption in time-series and panel-data regression analysis.

4.3.1 Normality Test

The normality test is crucial in regression analysis to verify if residuals are normally distributed. This assumption is vital for parametric tests such as t-tests and F-tests, which

underpin accurate and reliable conclusions. Normally distributed residuals imply unbiased and efficient coefficient estimates. The study employed the Shapiro-Wilk and Kolmogorov-Smirnov tests to assess normality. The Shapiro-Wilk test is preferred for small to medium samples because of its high power; it indicates normality when the p-value exceeds 0.05. A p-value below 0.05 suggests non-normality. Conversely, the Kolmogorov-Smirnov test compares the sample to a theoretical distribution and is more suitable for larger samples. As with the Shapiro-Wilk test, a p-value over 0.05 indicates no significant deviation from normality, whereas a p-value under 0.05 indicates a violation. The K-S test is sensitive to differences in the center of the distribution and can be affected by sample size. The findings were summarized in Table 4.2 below

Table 4.2: Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
LPS	.068	140	.200*	.988	140	.282
PD	.047	140	.200*	.993	140	.687
LPQ	.072	140	.071	.983	140	.080
LMS	.055	140	.200*	.986	140	.158
ROA	.056	140	.200*	.989	140	.374

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4.2 presents the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests used to assess the normality of the study variables, namely Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), Loan Maturity Structure (LMS), and Return on Assets (ROA). The null hypothesis for both tests states that the data are normally distributed. A significance value greater than 0.05 implies that the null hypothesis cannot be rejected, indicating that the variable follows a normal distribution.

Given the sample size of 140 observations, the Shapiro-Wilk test is particularly reliable, although both tests are reported for completeness.

For Loan Portfolio Size (LPS), the Kolmogorov-Smirnov statistic is 0.068 with a significance value of 0.200, while the Shapiro-Wilk statistic is 0.988 with a p-value of 0.282. Since both p-values exceed the 0.05 threshold, there is no statistical evidence to suggest deviation from normality. The Shapiro-Wilk statistic being very close to one further indicates that the distribution of loan portfolio size closely approximates a normal distribution. This suggests that the data on loan portfolio size are symmetrically distributed around the mean.

Portfolio Diversification (PD) also satisfies the assumption of normality. The Kolmogorov-Smirnov test reports a significance value of 0.200, and the Shapiro-Wilk test yields a significance value of 0.687, both of which are substantially above 0.05. The Shapiro-Wilk statistic of 0.993 is very close to unity, implying minimal deviation from normality.

These findings indicate that the distribution of portfolio diversification across the sampled institutions is approximately normal, supporting its suitability for parametric statistical analysis.

With respect to Loan Portfolio Quality (LPQ), the Kolmogorov-Smirnov test produces a significance value of 0.071, while the Shapiro-Wilk test reports a p-value of 0.080. Although these values are closer to the 0.05 threshold compared to the other variables, they remain above it. Consequently, the null hypothesis of normality cannot be rejected. This indicates that loan portfolio quality is normally distributed, albeit with slightly more variation compared to the other explanatory variables, though not to a statistically significant extent.

Loan Maturity Structure (LMS) and Return on Assets (ROA) both meet the normality assumption. LMS records Kolmogorov-Smirnov and Shapiro-Wilk significance values of 0.200 and 0.158 respectively, while ROA shows corresponding values of 0.200 and 0.374. In each case, the p-values exceed 0.05, confirming that the distributions do not significantly differ from normality. Overall, the results demonstrate that all study variables are approximately normally distributed, thereby justifying the application of parametric techniques such as Pearson correlation and multiple regression analysis in examining the relationship between portfolio characteristics and financial performance.

4.3.2 Multicollinearity Test

Multicollinearity occurs when two or more independent variables in a regression are highly correlated, leading to unreliable and inconsistent estimates of regression coefficients. This issue raises the standard errors of these coefficients, making it harder to assess each predictor's effect on the dependent variable. Usually, multicollinearity is identified through the Variance Inflation Factor (VIF), which shows how much the variance of an estimated coefficient is increased by multicollinearity. The Tolerance value, which is the reciprocal of VIF, also serves as an indicator. Typically, a VIF above 10 indicates severe multicollinearity, although some prefer a lower threshold of 5. The findings for this study are shown in Table 4.3.

Table 4.3: Multicollinearity

Model	Collinearity Statistics	
	Tolerance	VIF
LPS	.985	1.015
PD	.989	1.011
LPQ	.992	1.008
LMS	.987	1.013

a. Dependent Variable: ROA

Table 4.3 displays the multicollinearity diagnostics for the independent variables in the regression model with Return on Assets (ROA) as the dependent variable. Multicollinearity occurs when independent variables are highly correlated, leading to inflated standard errors and unreliable regression coefficients. To evaluate this, the study used two common metrics: Tolerance and Variance Inflation Factor (VIF). A Tolerance below 0.10 (or sometimes 0.20) or a VIF above 10 signals problematic multicollinearity.

The results indicate that Loan Portfolio Size (LPS) has a tolerance of 0.985 and a VIF of 1.015, both within acceptable ranges. A tolerance near 1 show that LPS has minimal shared variance with other independent variables. Likewise, a VIF close to 1 means that the variance of LPS's estimated coefficient isn't inflated by linear relationships with other predictors, signifying that LPS provides unique explanatory value to the model.

Portfolio Diversification (PD) shows very strong diagnostic results, with a tolerance of 0.989 and a VIF of 1.011. These figures suggest there is almost no linear dependence between PD and other explanatory variables. The VIF close to 1 confirms that the standard error of PD's coefficient isn't artificially inflated. Consequently, Portfolio Diversification can be confidently interpreted in the regression analysis without worries about redundancy or overlap.

Loan Portfolio Quality (LPQ) and Loan Maturity Structure (LMS) exhibit similar tolerance values of 0.992 and 0.987, respectively, along with VIF scores of 1.008 and 1.013, respectively. These figures are very close to the ideal tolerance of 1 and VIF of 1, indicating minimal multicollinearity among these variables.

The results suggest that LPQ and LMS operate independently within the model and are not associated with harmful linear correlations with other predictors.

The multicollinearity diagnostics, therefore, confirm that all independent variables satisfy the assumption of no multicollinearity. Since all tolerance values are substantially greater

than 0.10 and all VIF values are far below the critical threshold of 5 or 10, the regression model is stable and reliable. This implies that the estimated coefficients for Loan Portfolio Size, Portfolio Diversification, Loan Portfolio Quality, and Loan Maturity Structure can be interpreted with confidence in explaining variations in Return on Assets (ROA).

4.3.3 Heteroskedasticity Test

Heteroskedasticity happens when the variance of error terms varies across observations, violating a key assumption of ordinary least squares regression. This problem is especially common in panel data, where variability can differ between cross-sections or over time. When heteroskedasticity is present, the estimator becomes less efficient, and the standard errors of coefficients may be biased, risking incorrect conclusions. The Breusch-Pagan-Godfrey test was used to detect this issue. A typical interpretation is: if the p-value is above 0.05, we do not reject the null hypothesis of homoskedasticity, suggesting heteroskedasticity is unlikely. If the p-value is below 0.05, heteroskedasticity is probable. The results are shown in Table 4.4.

Table 4.4: Heteroskedasticity Test

Breusch-Pagan-Godfrey Heteroskedasticity Test			
F-statistic	0.355842	Prob. F(2,930)	0.8758
Obs*R-squared	5.915122	Prob. Chi-Square(8)	0.8267

The findings in Table 4.4 report the results of the Breusch-Pagan-Godfrey heteroskedasticity test, which assesses whether the variance of the regression residuals remains constant. Detecting heteroskedasticity violates a core assumption of the classical linear regression model, potentially leading to inefficient estimates and biased standard errors. The null hypothesis of the test claims that residuals are homoscedastic, meaning they have consistent variance, whereas the alternative indicates heteroskedasticity is present.

The F-statistic is 0.355842 with a p-value of 0.8758. Since this p-value is above the typical 5% significance level, we cannot reject the null hypothesis of homoskedasticity. This indicates there is no significant evidence of heteroskedasticity in the model according to the F-test, implying the residuals have consistent variance across observations. Likewise, the Obs*R-squared is 5.915122 with a p-value of 0.8267. The p-value for the Chi-square test also exceeds 0.05, supporting the conclusion from the F-test. Together, these results confirm that the regression model is not heteroskedastic, and the agreement between both test statistics increases the confidence in this conclusion.

The Breusch-Pagan-Godfrey test indicates that the homoskedasticity assumption holds. With no signs of heteroskedasticity, the regression coefficients are efficient, and their standard errors remain unbiased and dependable for hypothesis testing. Therefore, there is no requirement for corrective measures such as robust standard errors, and the model is suitable for accurate statistical inference.

4.3.4 Linearity Test

Linearity is a core assumption of the classical linear regression model, which presumes a straight-line relationship between the dependent variable and each independent variable. This means that changes in explanatory variables should lead to proportional and consistent changes in the outcome. If the relationship is non-linear, the coefficients might be biased, and the model could fail to accurately reflect the true association among variables. In this study, linearity was checked using scatterplots, visually illustrating the relationship between each independent variable and Return on Assets (ROA). By analyzing the pattern and spread of data points, we can determine if the relationships are approximately linear, validating the use of linear regression in the subsequent analysis. Figure 4.1 below shows the findings.

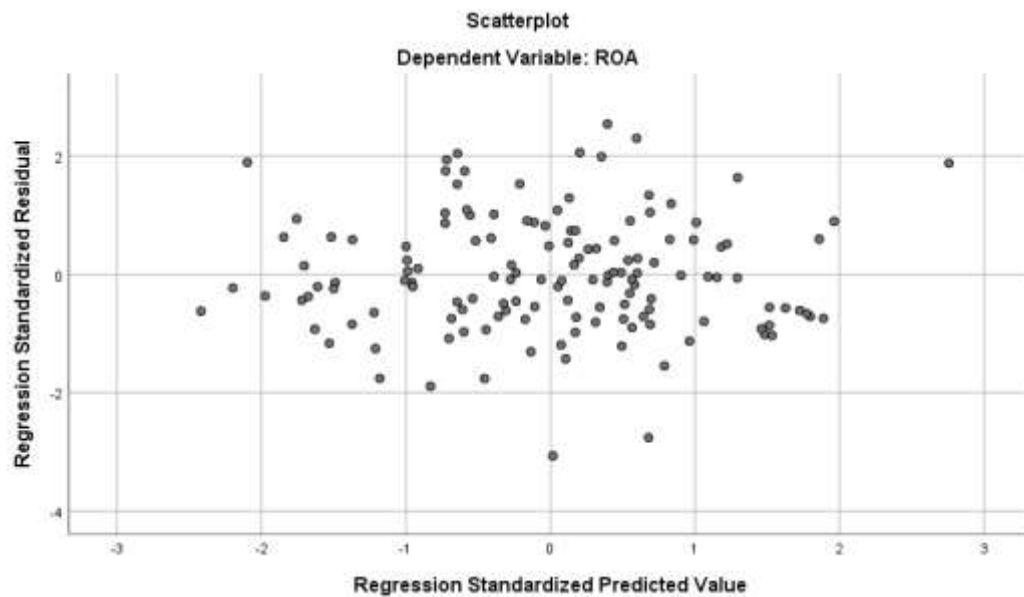


Figure 4.1: Linearity Test

The scatterplot shows the distribution of regression-standardized residuals versus the predicted values for the dependent variable, Return on Assets (ROA). In this model, ROA is predicted by independent variables such as Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), and Loan Maturity Structure (LMS). The residual plot assesses whether the regression model's linearity assumption holds. A linear relationship means that the combined influence of LPS, PD, LPQ, and LMS on ROA can be accurately represented with a straight line. Visual inspection of the scatterplot shows that the residuals are randomly spread around the zero line. There are no clear curved patterns, systematic clusters, or wave-like shapes that would indicate a nonlinear connection between the independent variables (LPS, PD, LPQ, and LMS) and ROA. The points are fairly evenly distributed across positive and negative residuals, suggesting that the linear model adequately captures the relationship between the predictors and financial performance. Although some data points are slightly outside the main cluster, they do not form a pattern that indicates model misspecification. The residuals' spread remains fairly consistent across the predicted values, reinforcing the linearity assumption. Overall, the

scatterplot confirms that the relationships among Loan Portfolio Size, Portfolio Diversification, Loan Portfolio Quality, Loan Maturity Structure, and Return on Assets can be adequately modeled using linear regression.

4.3.5 Autocorrelation Test

Autocorrelation, or serial correlation, refers to a variable's correlation with its previous values. In regression analysis, this issue typically arises when the residuals exhibit correlation over time or across panel units, thereby violating the independence assumption of the error terms. Autocorrelation can result in inefficient estimates and underestimated standard errors, thereby skewing statistical conclusions. The Durbin-Watson statistic was used to test autocorrelation. According to the Durbin-Watson test, a value around 2 indicates no autocorrelation. Values significantly lower than 2 suggest positive autocorrelation, while values exceeding 2 indicate negative autocorrelation. The findings were summarized in Table 4.5

Table 4.5: Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.789 ^a	.623	.034	.9935837	1.992

a. Predictors: (Constant), LMS, PD, LPQ, LPS

b. Dependent Variable: ROA

Table 4.5 presents the model summary statistics together with the Durbin-Watson test for autocorrelation in the regression model where Return on Assets (ROA) is the dependent variable and Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), and Loan Maturity Structure (LMS) are the predictors. The correlation coefficient ($R = 0.789$) indicates a strong positive association between the combined independent variables and ROA. The R Square value of 0.623 suggests that approximately 62.3 percent of the variation in ROA is explained by LPS, PD, LPQ, and LMS collectively, indicating substantial explanatory power of the model. The Adjusted R-Square is reported

as 0.034, which adjusts the explanatory power of the model for the number of predictors included. Although this value appears considerably lower than the R-squared, the primary diagnostic focus in this table is the Durbin-Watson statistic. The standard error of the estimate (0.9935837) reflects the average distance between the observed values and the regression line, indicating the model's typical prediction error. Most importantly, the Durbin-Watson statistic is 1.992. The Durbin-Watson test evaluates the presence of first-order autocorrelation in the residuals, where values close to 2 indicate no autocorrelation, values below 2 suggest positive autocorrelation, and values above 2 suggest negative autocorrelation. Since the reported value of 1.992 is very close to 2, there is no evidence of serial correlation in the residuals. Therefore, the assumption of independence of errors is satisfied, and the regression estimates can be considered reliable for statistical inference.

4.3.6 Stationary Test

Stationarity is a characteristic of time series in which the statistical properties, such as the mean, variance, and autocorrelation, remain constant over time. Non-stationary data can lead to misleading regression results due to unit roots, creating false associations among variables. Thus, it is crucial to test for stationarity in panel data analysis to accurately model long-term relationships. This study employed the Levin-Lin-Chu (LLC) Unit Root Test. Typically, a p-value below 0.05 indicates the rejection of the null hypothesis of a unit root, suggesting that the series is stationary. In contrast, a p-value exceeding 0.05 indicates non-stationarity, which may require differencing the data or applying transformation techniques before further analysis can proceed. The findings are summarized in Table 4.7 below.

Table 4.6: Levin-Lin-Chu Unit-Root Test

. xtunitroot llc LPS, PD, LPQ, LMS, lags (4)		
Levin-Lin-Chu unit-root test for_LPS, PD, LPQ, LMS		
Ho: Panels contain unit roots	Number of panels	14
Ha: Panels are stationary	Number of periods	10
AR parameter: Common	Asymptotics: N/T -> 0	
Panel means:	Included	
Time trend:	Not included	
ADF regressions:	1 lag	
LR variance:	Bartlett kernel, 6.00 lags average (chosen by LLC)	
	Statistic	p-value
Unadjusted t	-11.7727	
Adjusted t*	-6.2481	0.0000

Table 4.6 shows the results of the Levin-Lin-Chu (LLC) panel unit root test, used to assess the stationarity of the independent variables: Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), and Loan Maturity Structure (LMS). The LLC test is a common panel unit root test that assumes a shared autoregressive parameter across units and is especially appropriate when the time dimension is smaller than the cross-sectional dimension. In this case, the test was applied to data from 14 panels over 10 time periods. The analysis included panel means to account for individual-specific effects, with no deterministic time trend added. The augmented Dickey-Fuller (ADF) regressions used one lag to manage serial correlation, and the long-run variance was estimated with the Bartlett kernel, averaging six lags based on the LLC procedure.

The test results show an unadjusted t-statistic of -11.7727 and a more relevant adjusted t-statistic (t*) of -6.2481, with a p-value of 0.0000. The adjusted t-statistic is used for inference because it accounts for serial correlation and heteroskedasticity across panels. Since the p-value is much lower than the 5 percent significance level, we reject the null hypothesis that the panels contain unit roots. This indicates that variables LPS, PD, LPQ, and LMS are stationary in their level form. Practically, this means these variables do not

follow persistent stochastic trends over time, and any shocks to them are temporary rather than permanent.

The stationarity of these independent variables holds significant econometric importance for the upcoming panel regression analysis. When variables are stationary, their statistical attributes-such as mean and variance-stay constant over time, and their covariance structure remains unaffected by time. This mitigates the risk of spurious regression results, which are common when non-stationary series are used without proper adjustment. Since LPS, PD, LPQ, and LMS are stationary at their levels, they can be directly incorporated into the panel regression model explaining Return on Assets (ROA) without needing first differencing or cointegration tests. Consequently, the LLC results verify that the dataset meets the stationarity requirement, ensuring reliable and valid panel data analysis.

4.4 Correlation Analysis

A correlation analysis was performed to explore the nature, strength, and direction of the relationships between the independent variables-Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), and Loan Maturity Structure (LMS)-and the dependent variable, Return on Assets (ROA). Pearson's Product-Moment Correlation Coefficient was used to assess the linear relationships among these variables. This method is suitable for continuous variables that are approximately normally distributed, as confirmed by previous diagnostic tests. The main goal of this analysis is to identify whether changes in a financial institution's portfolio characteristics are linked to changes in financial performance. These preliminary findings offer initial empirical insights, guiding further regression analysis and highlighting potential relationships for deeper examination.

Pearson's correlation coefficient (r) varies from -1 to +1. A positive value signifies a direct relationship, where increases in one variable correspond to increases in the other, while a negative value indicates an inverse relationship. A result near zero suggests little to no

linear link. Typically, correlation values from 0.00 to 0.29 (or -0.29) represent a weak relationship, 0.30 to 0.49 a moderate one, 0.50 to 0.69 a strong link, and 0.70 or higher a very strong connection. In addition to the strength of the correlation, p-values assess statistical significance, helping determine whether the observed relationships are likely not due to chance.

Additionally, correlation analysis acts as a crucial diagnostic tool for detecting potential multicollinearity among independent variables. Very high correlations between LPS, PD, LPQ, and LMS may indicate redundancy and could compromise the stability of regression estimates. As a result, the relationships among explanatory variables are evaluated alongside their connection to ROA. Overall, the correlation matrix offers essential insights into how portfolio structure aspects relate to profitability and provides a foundation for further multivariate analysis to explain variations in Return on Assets. The findings are summarized in Table 4.7 below

Table 4.7: Correlations

		ROA	LPS	PD	LPQ	LMS
ROA	Pearson Correlation	1	.748**	.717**	.795**	.806**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	140	140	140	140	140
LPS	Pearson Correlation	.748**	1	.736	.764	.671
	Sig. (2-tailed)	.000		.000	.000	.000
	N	140	140	140	140	140
PD	Pearson Correlation	.717**	.736	1	.773	.681
	Sig. (2-tailed)	.000	.000		.000	.000
	N	140	140	140	140	140
LPQ	Pearson Correlation	.795**	.764	.773	1	.733
	Sig. (2-tailed)	.000	.000	.000		.000
	N	140	140	140	140	140
LMS	Pearson Correlation	.806**	.671	.681	.733	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	140	140	140	140	140

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

Table 4.7 shows the Pearson correlation coefficients analyzing the linear relationships between independent variables-Loan Portfolio Size (LPS), Portfolio Diversification (PD), Loan Portfolio Quality (LPQ), and Loan Maturity Structure (LMS)-and the dependent variable, Return on Assets (ROA). The findings indicate that all four portfolio-related variables have strong, positive, and statistically significant correlations with ROA at the 1 percent level ($p < 0.01$). Specifically, the correlation between Loan Portfolio Size and ROA is 0.748, reflecting a strong positive link. This suggests that institutions with larger loan portfolios tend to achieve higher asset returns. Financially, this relationship suggests that expanding the loan portfolio may boost interest income, benefit from economies of scale, and enhance asset productivity, ultimately increasing profitability. The statistical significance indicates that this relationship is reliable and unlikely to be due to random chance in the data.

Portfolio Diversification (PD) is strongly positively correlated with ROA ($r = 0.717$, $p = 0.000$). This high coefficient indicates that increasing diversification across sectors, borrower groups, or product lines is associated with improved financial performance. This aligns with modern portfolio theory, which states that diversification reduces unsystematic risk and tempers returns. In practice, financial institutions that diversify their lending across various segments can mitigate concentration risk, decrease sector-specific shocks, and achieve more stable revenue streams. The significance of this link at the 1 percent level further emphasizes that diversification strategies play a key role in enhancing institutional profitability.

Loan Portfolio Quality (LPQ) is strongly positively correlated with ROA ($r = 0.795$, $p = 0.000$), emphasizing the critical importance of credit risk management in determining financial performance. A high-quality loan portfolio, characterized by lower default rates and fewer non-performing loans, enhances earnings by reducing loan-loss provisions and write-offs. This robust relationship underscores that sound underwriting practices, effective credit oversight, and cautious risk evaluation are essential for improving financial outcomes. The data clearly indicate that better loan portfolio quality is associated

with higher return on assets, reinforcing the idea that asset quality significantly influences profitability in financial institutions.

The Loan Maturity Structure (LMS) demonstrates the strongest positive correlation with ROA among all independent variables ($r = 0.806$, $p = 0.000$). This robust relationship suggests that loan structure plays a crucial role in shaping financial performance. An effectively managed maturity structure can improve liquidity management, align cash inflows with funding requirements, and reduce refinancing risks. Organizations that successfully balance short-term and long-term lending commitments may experience more stable income and lower interest rate exposure. The consistently high and statistically significant correlations across all variables indicate that portfolio management practices collectively have a significant impact on profitability. Overall, these results provide strong initial evidence that enhancing loan portfolio size, diversification, quality, and maturity structure is closely associated with increased Return on Assets, justifying further regression analysis to examine causal relationships more thoroughly.

The positive and statistically significant relationship between Loan Portfolio Size (LPS) and Return on Assets (ROA) observed in this study is consistent with prior empirical literature linking bank size and loan expansion to improved financial performance.

Larger loan portfolios increase interest income, enable economies of scale, and improve asset utilization efficiency, thereby strengthening profitability. Studies such as Athanasoglou, Brissimis, and Delis (2008) find that bank-specific factors, particularly size and asset growth, exert a positive and significant effect on profitability. Similarly, Goddard, Molyneux, and Wilson (2004) report that larger banks tend to achieve higher returns due to efficiency gains and improved cost management. These findings support the argument that an expansion of the loan portfolio size contributes positively to ROA, consistent with the strong positive correlation identified in the present analysis.

The significant positive association between Portfolio Diversification (PD) and ROA also concurs with established theoretical and empirical research. Portfolio diversification reduces concentration risk and stabilizes income streams, thereby enhancing financial performance. According to Berger, Hasan, and Zhou (2010), diversification in banking activities can improve profitability by spreading risk across different sectors and products. Sanya and Wolfe (2011) further demonstrate that revenue and portfolio diversification positively influence bank performance, particularly in emerging markets where income volatility is higher. These findings reinforce the view that diversification strategies meaningfully improve returns on assets, supporting the strong positive correlation observed between PD and ROA in this study.

The strong positive relationship between Loan Portfolio Quality (LPQ) and ROA is well supported in the credit risk literature. High loan portfolio quality, often reflected in lower levels of non-performing loans, reduces loan loss provisions and credit-related expenses, thereby improving net income and asset returns. Empirical studies by Louzis, Vouldis, and Metaxas (2012) show that deteriorating loan quality significantly undermines bank profitability, implying that improved asset quality enhances performance. Similarly, Abreu and Mendes (2002) argue that effective credit risk management is fundamental to sustaining profitability in banking institutions. These findings substantiate the observed positive correlation between LPQ and ROA, highlighting the critical importance of prudent lending and credit monitoring practices.

Finally, the strong positive link between Loan Maturity Structure (LMS) and ROA aligns with the asset-liability management (ALM) literature, which highlights the importance of maturity matching in boosting profitability. Proper management of loan maturities helps lower liquidity risk, cut refinancing costs, and stabilize interest income, thus supporting higher returns. Saunders and Cornett (2014) argue that effective maturity transformation and interest rate risk management are key to bank performance. Additionally, studies examining interest rate risk exposure and maturity mismatches, such as Albertazzi and Gambacorta (2009), show that good maturity structuring improves profitability by

reducing exposure to unfavorable interest-rate changes. These results offer both theoretical and empirical support for the strong positive correlation between LMS and ROA noted in this study.

4.5 Model Specifications

The study performed a model specification process to select the most suitable estimation method that accurately captures the short-term relationship between independent variables, Loan Portfolio size, Portfolio Diversification, Loan portfolio quality and Loan maturity structure, and the dependent variable, financial performance, measured by Return on Assets (ROA). It evaluated three panel data estimation models: Pooled Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM). The selection was based on statistical tests, including the F-test for fixed effects, the Breusch-Pagan Lagrange Multiplier test for random effects, and the Hausman test to assess model consistency and efficiency. By thoroughly analyzing each model's assumptions and performance, the study aimed to ensure that the regression results are robust and reliable in representing how microfinance institutions' financial performance evolves over time.

4.5.1 Breusch-Pagan Lagrange Multiplier Test

The study utilizes the Breusch-Pagan Lagrange Multiplier (LM) Test for Random Effects to assess if the Random Effects (RE) model is superior to the Pooled Ordinary Least Squares (Pooled OLS) model. This test highlights significant differences among cross-sectional units, supporting the use of a Random Effects estimator. The LM test evaluates the null hypothesis, which posits that there is no variance among these entities, suggesting that the Pooled OLS model could be adequate without considering any panel effects. Upon reviewing the results of the Breusch-Pagan LM test, a p-value under 0.05 leads us to reject the null hypothesis, indicating strong panel effects and favouring the Random Effects model over the Pooled OLS model. In contrast, if the p-value exceeds 0.05, we do not

have sufficient evidence to prefer the Random Effects model; thus, the Pooled OLS model is more suitable.

This approach guarantees that the selected model accurately reflects the data structure, thereby improving the reliability of our regression findings. The findings were shown in Table 4.8.

Table 4.8: Breusch and Pagan Lagrangian Multiplier Test for Random Effects

Breusch and Pagan Lagrangian multiplier test for random effects			
$ROA[Panel,t] = Xb + u[Panel] + e[Panel,t]$			
Estimated results:			
		Var	sd = sqrt(Var)
ROA		1.021911	1.010896
e		1.003535	1.001766
u		0	0
Test: $Var(u) = 0$			
		chibar2(01) =	0.00
		Prob > chibar2 =	0.0002

The Breusch-Pagan Lagrange Multiplier (LM) test assesses whether a random-effects model is more appropriate than a pooled Ordinary Least Squares (OLS) regression for panel data analysis. The null hypothesis asserts that the variance of the panel-specific error is zero, implying no significant differences across microfinance institutions. If this is true, the pooled OLS model would suffice because the panel units are similar. The results show a variance of 1.021911 for Return on Assets (ROA) and 1.003535 for the idiosyncratic error, with a standard deviation of 1.001766. The variance attributable to panel-specific effects is reported as zero, suggesting minimal variation due to differences between panels.

The LM test statistic shows $\chi^2(01) = 0.00$ with a p-value of 0.0002, which is below the typical significance level of 0.05.

This indicates a statistically significant result, leading to the rejection of the null hypothesis that $\text{Var}(u) = 0$. Rejecting this null implies there are notable panel effects in the data, meaning unobserved characteristics that vary across microfinance institutions. Consequently, the pooled OLS model cannot adequately capture these variations, as it assumes uniformity across panels. Instead, the random effects model is more suitable, as it accounts for panel-specific differences and yields more accurate estimates of the relationships among the study variables.

4.5.2 Hausman Test

The Hausman test was employed to select between Fixed Effects Models (FEM) and Random Effects Models (REM) for the panel data analysis. This test is key to assessing whether individual-specific effects are correlated with the explanatory variables, which could bias the results and render REM estimators inconsistent. By statistically comparing the estimators from both models, the Hausman test guides the decision to use FEM, which captures time-invariant heterogeneity, or REM, which assumes no such correlation. The test results allowed the researcher to make a more informed choice, improving the accuracy and reliability of the estimated coefficients, as shown in Table 4.9.

Table 4.9: Hausman Test

Variable	Fixed Effect Model (b)	Random Effect Model (B)	Difference (b-B)	S.E. (diag(V_b-V_B))	Sqrt
Loan Portfolio Size	0.197389	0.045638	0.151751	0.063764	
Portfolio Diversification	0.148877	0.090387	0.05849	0.063773	
Loan Portfolio Quality	0.056373	0.037826	0.018547	-	
Loan Maturity Structure	0.017837	0.005678	0.012159	-	

b = consistent under H_0 and H_a ; obtained from xtreg

B = inconsistent under H_a , efficient under H_0 ; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned}\chi^2(4) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 12.67\end{aligned}$$

Prob > χ^2 = 0.0053

(V_b-V_B is not positive definite)

The Hausman test was conducted to decide whether the Fixed Effects Model (FEM) or the Random Effects Model (REM) better estimates the relationship between the study variables and financial performance. The test evaluates whether the coefficients from both models differ systematically. Under the null hypothesis, any differences are treated as random, favoring the more efficient random-effects model. Table 4.9 displays the estimated coefficients for each variable for both models. For instance, the coefficient for Loan Portfolio Size is 0.197389 in the fixed-effects model and 0.045638 in the random-effects model. Similarly, Portfolio Diversification has coefficients of 0.148877 and 0.090387, respectively. These outcomes illustrate the variation in coefficient magnitudes between the two estimation methods.

The table also presents the differences between the coefficients of the two models ($b-B$), with the most significant being in Loan Portfolio Size at 0.151751, and Portfolio Diversification next at 0.05849. Smaller differences are observed in Loan Portfolio Quality (0.018547) and Loan Maturity Structure (0.012159). These variations indicate that the fixed-effects and random-effects models yield different estimates, suggesting that the assumptions underlying the random-effects model may not be entirely valid. In particular, the differences could point to a correlation between unobserved panel-specific effects and the explanatory variables.

The Hausman test statistic is $\chi^2 = 12.67$ with a p-value of 0.0053, which is below the standard significance threshold of 0.05. This indicates that we should reject the null hypothesis that the differences in coefficients are not systematic. Consequently, the fixed effects model is favored over the random effects model because it yields consistent estimates even when unobserved individual effects correlate with the explanatory variables. The findings imply that unobserved firm-specific traits may affect the link between loan portfolio management variables and financial performance. Therefore, the fixed effects model is more appropriate for the analysis.

4.6 FEM Regression Coefficients

This section presents the regression coefficients from the Fixed Effects Model (FEM) used to examine the relationships between the independent variables and the dependent variable in the study. After the Hausman test indicated that the fixed effects model is more appropriate than the random effects model, FEM was chosen for its ability to produce consistent and reliable estimates. The FEM accounts for unobserved heterogeneity among panel units by including individual-specific traits that remain constant over time. This approach is especially useful in panel data analysis because it reduces bias from omitted variables that differ across firms but stay constant over time. As a result, the FEM coefficients shown here illustrate how Loan Portfolio Size, Portfolio Diversification, Loan Quality, and Loan Maturity Structure affect the financial performance of microfinance institutions, measured by Return on Assets (ROA). The results reveal the direction and strength of these relationships, accounting for firm-specific effects, as shown in Table 4.10.

Table 4.10: Panel Regression Analysis

```
. xtreg ROA LPS PD LPQ LMS, fe
```

Fixed-effects (within) regression	Number of obs	=	140
Group variable: Panel	Number of groups	=	14
R-sq:	Obs per group:		
within = 0.9110	min =		10
between = 0.9115	avg =		10.0
overall = 0.9106	max =		10
corr(u_i, Xb) = -0.0753	F(4,122)	=	312.33
	Prob > F	=	0.0000

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
LPS	.342882	.0598416	5.73	0.000	.2244195 .4613445
PD	.3036228	.0600342	5.06	0.000	.1847791 .4224665
LPQ	.4435295	.0616157	7.20	0.000	.3215552 .5655039
LMS	.2751772	.0570126	4.83	0.000	.1623151 .3880394
_cons	.0152119	.0296039	0.51	0.608	-.0433919 .0738157
sigma_u	.09533335				
sigma_e	.34235886				
rho	.07196033	(fraction of variance due to u_i)			

F test that all u_i=0: F(13, 122) = 0.77	Prob > F = 0.6915
--	-------------------

The Fixed Effects Model (FEM) regression was used to analyze how variables related to loan portfolio structure impact the financial performance of microfinance institutions in Kenya, as measured by Return on Assets (ROA). The model incorporated 140 observations from 14 panels, indicating that multiple microfinance institutions were tracked over several years. Employing the fixed effects approach helps account for unobserved, time-invariant factors specific to each institution, such as managerial practices, policies, or operational setups.

By controlling for these individual differences, the model yields more accurate estimates of the relationship between portfolio structure and financial performance.

The model's explanatory power is demonstrated by the R-squared values, which indicate that the independent variables account for a significant portion of the variation in financial performance. The within R-squared of 0.9110 indicates that approximately 91.10% of the

variation in ROA across microfinance institutions over time is explained by the portfolio-holding-structure variables included in the model. Similarly, the between R-squared of 0.9115 and the overall R-squared of 0.9106 suggest that the model provides an excellent fit to the data. These high R-squared values indicate that the loan portfolio structure variables are key factors in explaining changes in the financial performance of microfinance institutions in Kenya.

The ANOVA results, indicated by the F-statistic, confirm the model's overall significance. An F-statistic of 312.33 with a p-value of 0.0000 demonstrates a highly significant result, well below the 0.05 threshold. This suggests that the independent variables collectively have a statistically significant impact on financial performance. In essence, the loan portfolio structure variables together account for a significant share of the differences in the financial performance of microfinance institutions in Kenya.

The findings demonstrate that Loan Portfolio Size (LPS) has a positive and statistically significant effect on financial performance. The coefficient of 0.342882 and p-value of 0.000 indicate that each one-unit increase in loan portfolio size is associated with a roughly 0.3429-unit increase in ROA, assuming other factors are held constant. This implies that microfinance institutions that grow their loan portfolios are likely to earn more interest income and lending revenues, thereby improving their profitability and overall financial results.

The findings also show that Portfolio Diversification (PD) positively and significantly relates to financial performance. The coefficient of 0.3036228 and a p-value of 0.000 suggest that a one-unit increase in portfolio diversification is associated with an approximately 0.3036-unit increase in ROA, holding all other factors constant. This indicates that microfinance institutions that diversify their loans across sectors, borrower groups, or loan types can reduce risk and promote income stability, thereby enhancing their financial outcomes.

The results further reveal that Loan Portfolio Quality (LPQ) has the most significant positive impact on financial performance among all variables examined. The coefficient of 0.4435295, along with a p-value of 0.000, indicates that a one-unit increase in loan portfolio quality is associated with an increase in ROA of about 0.4435 units, holding other factors constant. This indicates that microfinance institutions with high-quality loan portfolios, marked by lower non-performing loans and better repayment rates, are more likely to achieve higher profitability.

The Loan Maturity Structure (LMS) also has a positive and significant effect on financial performance. Its coefficient is 0.2751772, and its p-value is 0.000, indicating that a one-unit increase in loan maturity structure is associated with approximately a 0.2752-unit increase in ROA, all else equal. This demonstrates that aligning loan maturities with borrowers' repayment capacity and the institution's liquidity needs can improve repayment rates and interest income, thereby enhancing the financial performance of microfinance institutions in Kenya.

4.7 Discussion of the Findings

This study demonstrates that the way microfinance institutions in Kenya organize their portfolios significantly influences their financial performance. The findings indicate that key aspects of portfolio structure, such as Loan Portfolio Size, Portfolio Diversification, Loan Portfolio Quality, and Loan Maturity Structure, have positive and significant effects on Return on Assets (ROA). These results highlight how the structure and management of these institutions' portfolios are vital to their profitability and sustainability, and, by extension, their financial performance. Portfolio structure affects both income generation and risk levels, ultimately shaping financial outcomes. The findings support the financial intermediation theory, which argues that financial institutions perform more effectively when they allocate resources efficiently and manage risks well. In microfinance, portfolio structure determines how credit is distributed across borrowers, sectors, and repayment terms, thereby influencing income stability and overall financial performance.

The data indicate that Loan Portfolio Size (LPS) positively and significantly influences microfinance institutions' financial performance. Companies that expand their lending activities and maintain larger loan portfolios are more likely to achieve higher profitability. Since lending is their primary source of income, growing loan portfolios directly increases interest income and financial returns.

Larger portfolios also enable institutions to serve more clients and broaden their reach, further boosting performance. These results support findings by Cull et al. (2007), who reported that microfinance institutions with larger portfolios generally perform better financially due to increased lending revenue. Similarly, Ngumo et al. (2020) found that expanding lending activities significantly enhances financial performance in Kenyan microfinance institutions by raising interest income and promoting operational sustainability.

The positive relationship between the size of a loan portfolio and financial performance can also be understood through economies of scale. As microfinance institutions expand their lending, their operational and administrative costs for loan processing, monitoring, and recovery are spread across more loans. This improves operational efficiency and boosts profitability. Moreover, a larger loan portfolio may indicate higher demand for financial services and greater market penetration by the institution. Ledgerwood (2013) notes that microfinance institutions that expand their loan portfolios successfully while maintaining sound credit management are more likely to achieve financial sustainability and institutional growth. Thus, increasing the loan portfolio size not only raises revenue but also strengthens the financial stability of microfinance organizations.

The results indicate that Portfolio Diversification (PD) positively and significantly influences the financial performance of microfinance institutions. This strategy involves allocating loans across multiple sectors, borrower groups, and economic ventures. Diversification reduces risk by preventing reliance on a single sector or borrower group. When loans are diversified, defaults in one sector can be offset by better performance in

others. As a result, diversification contributes to income stability and decreases the overall credit risk for microfinance institutions.

These results align with Kimani (2023), who showed that portfolio diversification notably boosts the financial performance of microfinance institutions in Kenya by reducing credit concentration risk. Likewise, Winton (1999) suggests that diversifying lending activities helps financial institutions better manage risk and sustain stable income streams. By diversifying their portfolios, financial institutions can shield themselves from sector-specific shocks and economic changes. As a result, diversified portfolios strengthen institutional resilience and contribute positively to financial outcomes.

The results also indicate that Loan Portfolio Quality (LPQ) has the most significant positive influence on financial performance among all the variables examined. LPQ assesses the proportion of performing loans compared to non-performing loans within a company's portfolio. A high-quality portfolio reflects robust credit assessments, careful monitoring, and efficient recovery procedures. When borrowers pay on time, microfinance institutions experience fewer loan losses and enjoy more stable cash flows, significantly boosting profitability and long-term financial stability.

These results support Bassem (2014), who found that portfolio quality significantly impacts the financial success of microfinance institutions. Institutions with fewer non-performing loans tend to perform better because they incur fewer credit losses and earn more interest income. Likewise, Ledgerwood et al. (2013) emphasize that effective credit risk management, such as thorough borrower screening and ongoing loan monitoring, substantially enhances portfolio quality and helps ensure the financial stability of microfinance organizations. Consequently, maintaining high portfolio quality is vital for increasing profitability and reducing financial risks.

The study also revealed that the Loan Maturity Structure (LMS) has a positive and significant impact on the financial performance of microfinance institutions. LMS pertains

to the duration and repayment plans of loans extended to borrowers. Appropriately structured loan maturities ensure repayment schedules align with borrowers' income and business cycles. When loan terms are tailored to borrowers' financial ability, repayment performance sees improvement, and default rates decline. This, in turn, enhances the overall financial health of microfinance institutions.

Armendáriz and Morduch (2010) support these findings, emphasizing that well-designed loan structures are vital to the success of microfinance institutions because many borrowers operate small businesses with unpredictable income. Proper loan maturities increase repayment rates and reduce credit risk. Similarly, Ledgerwood et al. (2013) note that matching repayment schedules with borrowers' cash flow patterns improves loan recovery and boosts institutional profits. Consequently, suitable loan maturity structures are key to enhancing the financial performance of microfinance institutions.

This study shows that the composition of loan portfolio structure greatly affects the financial success of microfinance institutions in Kenya.

Those with larger, diversified, high-quality loan portfolios and well-structured loan maturities tend to be more profitable and sustainable. The findings emphasize the importance of effective portfolio management in improving operational efficiency and financial results. By adopting strong portfolio strategies, microfinance institutions can increase income, manage risks better, and achieve long-term financial stability.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

The chapter introduces the summary, conclusions, and recommendations.

5.2 Summary of Findings

This section summarizes the main findings of the study according to its objectives. The results stem from panel data analysis, exploring the link between loan portfolio structure and the financial performance of microfinance institutions in Kenya. The summary emphasizes the key outcomes of the regression analysis and describes how each independent variable influences the financial performance, measured by Return on Assets (ROA).

5.2.1 Loan Portfolio Size and Financial Performance

The research shows that Loan Portfolio Size (LPS) positively correlates with the financial performance of microfinance institutions in Kenya, and this correlation is statistically significant. Results from the regression analysis reveal that increasing the loan portfolio leads to higher Return on Assets. This suggests that microfinance institutions that expand their lending and maintain larger loan portfolios tend to achieve better financial results. Since lending is their main source of income, increasing the size of the loan portfolio enables these institutions to earn more from interest and service charges.

The results also reveal that expanding a microfinance institution's loan portfolio helps reach more clients and increases revenue. As the volume and value of loans rise, institutions can distribute operational costs across more loans, improving efficiency and

profitability. Thus, enlarging the loan portfolio is a vital strategy for strengthening the financial performance and sustainability of microfinance institutions in Kenya.

5.2.2 Portfolio Diversification and Financial Performance

The study revealed that Portfolio Diversification (PD) significantly and positively influences the financial performance of microfinance institutions in Kenya. It indicates that institutions that spread their loan portfolios across different sectors, borrower categories, and economic activities generally achieve higher profitability. Diversification reduces the risks linked to concentrating lending in a single sector or borrower group, which enhances financial stability.

The findings also show that diversification enables microfinance institutions to more effectively manage credit risk by distributing potential losses across various sectors. When loans are assigned to different economic activities, a default in one sector has a reduced impact due to better results in other sectors. As a result, having diversified portfolios fosters stable income streams and improves the financial performance of microfinance institutions.

5.2.3 Loan Portfolio Quality and Financial Performance

The study revealed a strong, positive, and statistically significant correlation between Loan Portfolio Quality (LPQ) and the financial performance of microfinance institutions in Kenya. The findings demonstrate that improved loan portfolio quality leads to higher Return on Assets, suggesting that microfinance institutions with high-quality loan portfolios, characterized by lower non-performing loans, generally achieve better financial outcomes.

The findings indicate that maintaining high-quality portfolios aids microfinance institutions in recovering loans and maintaining stable cash flows. Effective credit evaluation, ongoing monitoring, and efficient loan recovery practices enhance portfolio

quality by ensuring borrowers repay on time. Consequently, institutions experience fewer loan losses and generate consistent income from lending activities, thereby increasing their overall profitability.

5.2.4 Loan Maturity Structure and Financial Performance

The study also revealed that the Loan Maturity Structure (LMS) significantly and positively influences the financial performance of microfinance institutions in Kenya. This indicates that designing loan repayment periods effectively can boost profitability. When loan maturity structures align with borrowers' repayment abilities, institutions can improve repayment rates and reduce default risks.

The findings also show that having appropriate loan maturity structures enables microfinance institutions to better manage liquidity. When repayment schedules align with borrowers' cash flow patterns, institutions experience steady inflows of funds that can be used for further lending. Consequently, effective loan maturity planning improves financial outcomes and helps ensure the long-term sustainability of microfinance institutions in Kenya.

5.3 Conclusion

5.3.1 Loan Portfolio Size and Financial Performance

The study shows that the size of a microfinance institution's loan portfolio is vital for improving its financial performance in Kenya. Data indicate that expanding the loan portfolio yields better financial outcomes, especially in terms of Return on Assets. This is because lending is the primary source of income for microfinance institutions, and a larger loan portfolio yields more interest income from borrowers. As these institutions increase their lending capacity, they can serve more clients and reach a broader market, thus increasing revenue. However, the study underscores that growing the loan portfolio must be complemented by effective credit management to prevent loan defaults. Therefore,

microfinance institutions should aim to grow strategic lending while maintaining robust credit evaluation and monitoring systems to boost profitability and ensure financial stability.

5.3.2 Portfolio Diversification and Financial Performance

The study underscores how microfinance institutions in Kenya can enhance their financial stability through portfolio diversification. By distributing loans across different sectors, economic activities, and borrower groups, these institutions can reduce risks tied to reliance on a single sector. A focus on one sector exposes them to economic shocks specific to that sector. Diversification spreads credit risk more evenly, reducing potential losses and promoting consistent income. Consequently, institutions with diversified portfolios are more resilient to economic fluctuations and better able to sustain financial stability. The study stresses that portfolio diversification is a crucial risk management approach that can boost profitability and overall robustness.

5.3.3 Loan Portfolio Quality and Financial Performance

The study concludes that loan portfolio quality is one of the most important determinants of the financial performance of microfinance institutions in Kenya. The findings indicate that institutions with high-quality loan portfolios, characterized by low levels of non-performing loans, tend to experience better financial performance. High portfolio quality reflects effective credit risk management practices, including proper borrower screening, loan monitoring, and recovery procedures. When loans are repaid on time, institutions experience fewer loan losses and maintain steady cash flows, which contribute positively to profitability. On the other hand, poor loan portfolio quality can significantly reduce profitability due to increased loan defaults and higher recovery costs. Therefore, microfinance institutions must prioritize maintaining high portfolio quality by strengthening their credit management systems and implementing effective monitoring and recovery mechanisms in order to sustain financial performance.

5.3.4 Loan Maturity Structure and Financial Performance

The study also indicates that the structure of microfinance loans significantly influences their financial outcomes in Kenya. Effective repayment schedules enable borrowers to pay back loans in line with their income and business activities. When loan terms match borrowers' repayment capacity, default risk declines and collection rates increase. This allows microfinance institutions to maintain stable cash flows for reinvestment into new loans. Moreover, appropriate loan maturity arrangements help institutions better manage liquidity by ensuring funds are available when needed. Overall, the study emphasizes the crucial role of designing loan maturity structures aligned with borrowers' financial situations to improve repayment rates, reduce credit risk, and strengthen financial stability.

5.4 Recommendations

5.4.1 Loan Portfolio Size

The study suggests that microfinance institutions in Kenya should strategically grow their loan portfolios to enhance financial performance. This involves reaching more borrowers, launching innovative loan products, and improving access to credit for underserved groups. Nonetheless, such expansion must be backed by robust credit assessment and monitoring systems to mitigate credit risks. By balancing growth with sound risk management, microfinance institutions can increase interest income while preserving loan quality, ultimately boosting profitability and financial stability.

5.4.2 Portfolio Diversification

The study recommends that microfinance institutions adopt effective portfolio diversification strategies by allocating their lending across sectors, economic activities, and borrower groups. Such diversification minimizes risks associated with over-reliance on a single sector or borrower group, which can be vulnerable to economic fluctuations. By providing credit to diverse sectors such as agriculture, small businesses, and trade,

these institutions can mitigate the impact of loan defaults in any one sector, ensuring steadier income streams. Consequently, embedding portfolio diversification into their strategic lending policies can enhance financial stability and improve overall performance.

5.4.3 Loan Portfolio Quality

The study recommends that microfinance institutions improve their credit risk management systems to maintain high-quality loans. This involves thorough borrower screening, precise loan evaluations, ongoing loan performance monitoring, and effective recovery strategies. Additionally, institutions should invest in credit information systems and staff training to better assess borrowers' repayment capacity. By minimizing non-performing loans and ensuring on-time repayments, microfinance institutions can safeguard their financial resources, sustain stable cash flows, and enhance profitability and long-term sustainability.

5.4.4 Loan Maturity Structure

The study suggests that microfinance institutions should tailor their loan maturity structures to align with borrowers' income cycles and repayment capacity. Loan schedules need to give borrowers enough time to earn income from their activities before payments are due. Using flexible and well-planned loan terms can increase repayment rates, lower default risks, and boost borrower satisfaction. Additionally, institutions should routinely review their loan products to ensure repayment terms suit the specific businesses and economic activities of their clients. Properly designed loan maturities help microfinance institutions maintain consistent cash flow and enhance overall financial stability.

REFERENCES

- Abdi, A. & Gebissa, B. (2021). Analyzing the determinants of financial performance of micro financial companies: a case study. *IJFIRM*, 11(Issue 1), 15-23. <https://doi.org/10.35808/ijfirm/246>
- Abdirashid, A. & Jagongo, A. (2019). Group lending and loans performance in micro-finance institutions in Nairobi City County, Kenya: case of Kenya Women Microfinance Bank Limited. *International Journal of Current Aspects*, 3(III), 96-110. <https://doi.org/10.35942/ijcab.v3iii.33>
- Abreu, M., & Mendes, V. (2002). Commercial bank interest margins and profitability: Evidence from E.U. countries. *Porto Working Paper Series*, 122.
- Akims, M., Akims, K., Mukweyi, O., & Oboo, E. (2024). Capital Adequacy and Financial Performance of Microfinance Banks in Kenya. *RJFA*. <https://doi.org/10.7176/rjfa/15-4-05>
- Albertazzi, U., & Gambacorta, L. (2009). Bank profitability and the business cycle. *Journal of Financial Stability*, 5(4), 393–409. <https://doi.org/10.1016/j.jfs.2008.10.002>
- Aluodo, F. and Musau, S. (2024). Liquidity management practices and financial performance of microfinance banks in Nairobi City County, Kenya. *International Journal of Current Aspects in Finance Banking and Accounting*, 6(2), 55-70. <https://doi.org/10.35942/s8dz3y62>
- Armendáriz, B., & Morduch, J. (2010). *The economics of microfinance* (2nd ed.). MIT Press.

- Arsyad, L. (2013). Assessing Factors Affecting the Repayment Rate of Microfinance Institutions: A Case Study of Village Credit Institutions in Gianyar, Bali. *Gadjah Mada International Journal of Business*, 8(2), 247. <https://doi.org/10.22146/gamaijb.5618>
- Asante-Darko, D., Bonsu, B. A., Famiyeh, S., Kwarteng, A., & Goka, Y. (2018). Governance structures, cash holdings, and firm value on the Ghana stock exchange. *Corporate Governance: The International Journal of Business in Society*, 18(4), 671-685. <https://doi.org/10.1108/cg-07-2017-0148>
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121–136. <https://doi.org/10.1016/j.intfin.2006.07.001>
- Bassem, B. S. (2014). Total factor productivity change of microfinance institutions in the MENA region. *Annals of Public and Cooperative Economics*, 85(4), 549–570. <https://doi.org/10.1111/apce.12046>
- Berger, A. N., Hasan, I., & Zhou, M. (2010). The effects of focus versus diversification on bank performance: Evidence from Chinese banks. *Journal of Banking & Finance*, 34(7), 1417–1435. <https://doi.org/10.1016/j.jbankfin.2009.12.010>
- Biddle, G., Hilary, G., & Verdi, R. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48(2-3), 112-131. <https://doi.org/10.1016/j.jacceco.2009.09.001>
- Bitok, S., Cheboi, J., & Kemboi, A. (2020). Does portfolio quality influence financial sustainability? A Case Study of Microfinance Institutions in Kenya. *Journal of Business Economics and Environmental Studies*, 10(1), 37-43. <https://doi.org/10.13106/jbees.2020.vol10.no1.37>

- Blanco-Oliver, A., Alvarado, N., & Veronesi, G. (2021). Credit Risk in the Microfinance Industry: The Role of Gender Affinity. *Journal of Small Business Management*, 59(2), 280-311. <https://doi.org/10.1080/00472778.2020.1844487>
- Boye, H. and Mithi, F. (2023). Firm characteristics and non-performing loans of microfinance banks in Kenya. *strategicjournals.com*, 10(4). <https://doi.org/10.61426/sjbcm.v10i4.2762>
- Canales, R. and Greenberg, J. (2016). A matter of (relational) style: loan officer consistency and exchange continuity in microfinance. *Management Science*, 62(4), 1202-1224. <https://doi.org/10.1287/mnsc.2015.2167>
- Charles, G. and Mori, N. (2017). Loan repayment performance of clients of informal lending institutions. *International Journal of Development Issues*, 16(3), 260-275. <https://doi.org/10.1108/ijdi-04-2017-0039>
- Cull, R., Demirgüç-Kunt, A., & Morduch, J. (2007). Financial performance and outreach: A global analysis of leading microbanks. *The Economic Journal*, 117(517), F107–F133. <https://doi.org/10.1111/j.1468-0297.2007.02017.x>
- D’Espallier, B., Guérin, I., & Mersland, R. (2013). Focus on women in microfinance institutions. *The Journal of Development Studies*, 49(5), 589-608. <https://doi.org/10.1080/00220388.2012.720364>
- Dahal, A., Bhattarai, G., & Budhathoki, P. (2023). Effect of gender participation on determining the maturity of cross-due loans: evidence from microfinance companies of Nepal. *Banks and Bank Systems*, 18(1), 184-195. [https://doi.org/10.21511/bbs.18\(1\).2023.16](https://doi.org/10.21511/bbs.18(1).2023.16)
- Duong, K. D., Le, A. N. N., Nguyen, D. V., & Le, H. T. P. (2023). The Impact of Ownership Structure and Business Diversification on the Risk-Taking Behaviors of Insurance

Companies in Vietnam. Sage Open, 13(3).
<https://doi.org/10.1177/21582440231187575>

Fersi, M. and Boujelbéne, M. (2016). The determinants of the performance and the sustainability of conventional and Islamic microfinance institutions. *Economics World*, 4(5). <https://doi.org/10.17265/2328-7144/2016.05.001>

Ganzallah, F., and Wekesa, M. (2023). Debt recovery techniques on loan performance of deposit-taking microfinance institutions in Mombasa County. *strategicjournals.com*, 10(2). <https://doi.org/10.61426/sjbc.v10i2.2651>

Gatimu, E. (2014). Assessing institutional factors contributing to loan defaulting in microfinance institutions in Kenya. *Iosr Journal of Humanities and Social Science*, 19(5), 105-123. <https://doi.org/10.9790/0837-1952105123>

Ghising, T. (2022). Social performance management and sustainability of microfinance institutions. *International Research Journal of MMC*, 3(4), 17-20. <https://doi.org/10.3126/irjmmc.v3i4.48858>

Goddard, J., Molyneux, P., & Wilson, J. O. S. (2004). The profitability of European banks: A cross-sectional and dynamic panel analysis. *The Manchester School*, 72(3), 363–381. <https://doi.org/10.1111/j.1467-9957.2004.00397.x>

Guo, X. (2022). A study on the performance evaluation system of microfinance companies under dual objectives. *Scientific and Social Research*, 4(1), 67-79. <https://doi.org/10.36922/ssr.v4i1.1316>

Hussain, J., Mahmood, S., & Scott, J. (2018). Gender, Microcredit, and Poverty Alleviation in a Developing Country: The Case of Women Entrepreneurs in Pakistan. *Journal of International Development*, 31(3), 247-270. <https://doi.org/10.1002/jid.3403>

- Imai, K., Arun, T., & Annim, S. (2010). Microfinance and household poverty reduction: new evidence from india. *World Development*, 38(12), 1760-1774. <https://doi.org/10.1016/j.worlddev.2010.04.006>
- Joshua, A., Olweny, T., & Oloko, M. (2021). The Influence of Credit Risk on the Financial Performance of Deposit-Taking Microfinance Banks in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 11(4). <https://doi.org/10.6007/ijarafms/v11-i4/11706>
- Kahihu, P. K., Wachira, D. M., & Muathe, S. (2021). Managing market risk for financial performance: experience from a microfinance institution in Kenya. *Journal of Financial Regulation and Compliance*, 29(5), 561-579. <https://doi.org/10.1108/jfrc-02-2021-0014>
- Kar, A. and Swain, R. (2013). Interest Rates and Financial Performance of Microfinance Institutions: Recent Global Evidence. *European Journal of Development Research*, 26(1), 87-106. <https://doi.org/10.1057/ejdr.2013.33>
- Karim, M., Chan, S., & Hassan, S. (2010). Bank efficiency and non-performing loans: evidence from Malaysia and Singapore. *Prague Economic Papers*, 19(2), 118-132. <https://doi.org/10.18267/j.pep.367>
- Kariuki, P. and Namusonge, M. (2024). Multi-borrowing practices and loan repayment of micro and small enterprises in the trade sector in Meru County, Kenya. *International Journal of Business Management Entrepreneurship and Innovation*, 6(3), 169-191. <https://doi.org/10.35942/01jrc668>
- Kasoga, P. and Tegambwage, A. (2021). An Assessment of Over-indebtedness among Microfinance Institutions' Borrowers: The Tanzanian Perspective. *Cogent Business & Management*, 8(1). <https://doi.org/10.1080/23311975.2021.1930499>

- Kaua, C. and Mutune, T. (2021). Analyzing effects of climate variability in the nexus of informal microfinance institutions: a case study of Tharaka South Subcounty, Kenya. *Challenges in Sustainability*, 9(1), 1-15. <https://doi.org/10.12924/cis2021.09010001>
- Kebede, J., Tawiah, V., & Gyapong, E. (2022). The effect of corruption on microfinance loan portfolio: a semiparametric analysis. *Economics of Transition and Institutional Change*, 31(1), 241-268. <https://doi.org/10.1111/ecot.12332>
- Kemunto, D. and Cheluget, J. (2022). Budgetary Controls and Financial Performance of Microfinance Institutions (MFIs) in Kenya. *Journal of Finance and Accounting*, 6(4), 123-145. <https://doi.org/10.53819/81018102t6045>
- Kiai, A., Kimonge, D., & Githinji, M. (2021). The Influence of Institutional Characteristics on the Financial Performance of Licensed Microfinance Institutions in Kenya. *strategicjournals.com*, 8(4). <https://doi.org/10.61426/sjbcm.v8i4.2123>
- Kibugo, M. and Maina, K. (2016). The Effect of Financial Innovations on the Performance of Microfinance Institutions in Nakuru Town, Kenya. *Iosr Journal of Business and Management*, 18(10), 43-49. <https://doi.org/10.9790/487x-1810044349>
- Kimani, E. M. (2023). Portfolio diversification and financial performance of microfinance institutions in Kenya. *International Journal of Finance*, 8(2), 45–59.
- Kitonyi, J., Sang, W., & Muriithi, D. (2019). Non-performing loans and financial performance of microfinance institutions in Kenya. *strategicjournals.com*, 6(3). <https://doi.org/10.61426/sjbcm.v6i3.1361>

- Kitonyi, J., Sang, W., & Muriithi, D. (2019). Non-performing loans and financial performance of microfinance institutions in Kenya. *strategicjournals.com*, 6(3). <https://doi.org/10.61426/sjbcm.v6i3.1361>
- Kono, H. and Takahashi, K. (2010). Microfinance revolution: its effects, innovations, and challenges. *The Developing Economies*, 48(1), 15-73. <https://doi.org/10.1111/j.1746-1049.2010.00098.x>
- Lamichhane, B. (2022). Loan delinquency in microfinance institutions (MFIs): ways to overcome the problem. *Nepalese Journal of Management Research*, 2(1), 37-43. <https://doi.org/10.3126/njmgtr.v2i1.48264>
- Lassoued, N. (2017). What drives the credit risk of microfinance institutions? International evidence. *International Journal of Managerial Finance*, 13(5), 541-559. <https://doi.org/10.1108/ijmf-03-2017-0042>
- Layaoen, C. and Takahashi, K. (2021). Can microfinance lending crowd out informal lenders? Evidence from the Philippines. *Journal of International Development*, 34(2), 379-414. <https://doi.org/10.1002/jid.3604>
- Ledgerwood, J. (2013). *The new microfinance handbook: A financial market system perspective*. World Bank.
- Ledgerwood, J., Earne, J., & Nelson, C. (2013). *The new microfinance handbook*. World Bank.
- Lee, J., Jusup, M., Podobnik, B., & Iwasa, Y. (2015). Agent-Based Mapping of Credit Risk for Sustainable Microfinance *Plos One*, 10(5), e0126447. <https://doi.org/10.1371/journal.pone.0126447>

- Leja, C. and Ibrahim, D. (2022). Credit risk management on the financial performance of deposit-taking micro-financial institutions in Mombasa County. *strategicjournals.com*, 9(4). <https://doi.org/10.61426/sjbcm.v9i4.2400>
- Leja, C. and Ibrahim, D. (2022). Credit risk management on the financial performance of deposit-taking micro-financial institutions in Mombasa County. *strategicjournals.com*, 9(4). <https://doi.org/10.61426/sjbcm.v9i4.2400>
- Louzis, D. P., Vouldis, A. T., & Metaxas, V. L. (2012). Macroeconomic and bank-specific determinants of non-performing loans in Greece. *Journal of Banking & Finance*, 36(4), 1012–1027. <https://doi.org/10.1016/j.jbankfin.2011.10.012>
- Malik, K., Meki, M., Morduch, J., Ogden, T., Quinn, S., & Said, F. (2020). COVID-19 and the future of microfinance: evidence and insights from Pakistan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3615077>
- Mishra, A., Rathore, R., Pandey, M., Singh, M., & Katiyar, M. (2024). Evaluating the role of microfinance institutions in supporting financial inclusion and economic development. *eatp*. <https://doi.org/10.53555/kuey.v30i5.4956>
- Modisagae, K. and Ackermann, C. (2018). Determinants of defaulting by collateral lending groups in microfinancing: a probit regression approach. *Acta Commercii*, 18(1). <https://doi.org/10.4102/ac.v18i1.562>
- Mulongo, C., and Otinga, D. (2019). Influence of Working Capital Management and Loan Portfolio Management on the Profitability of Microfinance Institutions in Busia County, Kenya. *strategicjournals.com*, 6(2). <https://doi.org/10.61426/sjbcm.v6i2.1170>
- Muratenyi, T. and Olando, C. (2022). Assessment of Loan Portfolio Quality on the Financial Performance of Commercial Banks in Kenya. *Asian Journal of*

Economics, Business and Accounting, 387-401.
<https://doi.org/10.9734/ajebe/2022/v22i23882>

Narwal, K. and Yadav, M. (2015). Microfinance institutions' operational infrastructure in India: assessing the efficiencies through the OLS model. *Management Studies and Economic Systems*, 2(2), 85-93. <https://doi.org/10.12816/0019394>

Ngonyani, D. and Harun, M. (2019). The Effect of Credit Collection Policy on the Portfolio at Risk for Microfinance Institutions in Tanzania. *Studies in Business and Economics*, 14(3), 131-144. <https://doi.org/10.2478/sbe-2019-0049>

Ngonyani, D. and Harun, M. (2019). The Effect of Credit Collection Policy on the Portfolio at Risk for Microfinance Institutions in Tanzania. *Studies in Business and Economics*, 14(3), 131-144. <https://doi.org/10.2478/sbe-2019-0049>

Ngumo, K. S., Collins, K. W., & Shikumo, H. D. (2020). Determinants of financial performance of microfinance banks in Kenya. *International Journal of Finance and Banking Research*, 6(2), 31–40.

Ngwah, C., Ndamsa, D., & Mongo, E. (2023). Credit Risk Management and Financial Performance of Microfinance Institutions in Cameroon: The Case of Bamenda Police Cooperative Credit Union Limited (BAPCCUL) and Other Microfinance Institutions. *strategicjournals.com*, 10(1).
<https://doi.org/10.61426/sjbcm.v10i1.2577>

Noglo, Y. A. and Androuais, A. (2015). The determinants of group lending repayment performance: evidence from togo. *Canadian Journal of Development Studies / Revue Canadienne d'Études Du Développement*, 36(4), 536-554.
<https://doi.org/10.1080/02255189.2015.1046372>

- Nyabiba, J. and Kimani, E. (2023). Portfolio diversification and financial performance of microfinance institutions in Nairobi County, Kenya. *International Journal of Finance*, 8(2), 90-113. <https://doi.org/10.47941/ijf.1270>
- Osinde, C., Singoro, D., & Fwamba, D. (2021). Loan risk diversification and financial performance of microfinance institutions in the Western Region, Kenya. *strategicjournals.com*, 8(2). <https://doi.org/10.61426/sjbcm.v8i2.1981>
- Osinde, C., Singoro, D., & Fwamba, D. (2021). Loan risk diversification and financial performance of microfinance institutions in the Western Region, Kenya. *strategicjournals.com*, 8(2). <https://doi.org/10.61426/sjbcm.v8i2.1981>
- Sanya, S., & Wolfe, S. (2011). Can banks in emerging economies benefit from revenue diversification? *Journal of Financial Services Research*, 40(1–2), 79–101. <https://doi.org/10.1007/s10693-010-0098-z>
- Saunders, A., & Cornett, M. M. (2014). *Financial institutions management: A risk management approach* (8th ed.). McGraw-Hill.
- SHAHALE, D. and IBRAHIM, D. (2022). Effect of liquidity management on financial performance of non-deposit taking microfinance institutions in Mombasa, Kenya. *strategicjournals.com*, 9(2). <https://doi.org/10.61426/sjbcm.v9i2.2294>
- Siwale, J. (2016). Microfinance and loan officers' work experiences: perspectives from Zambia. *The Journal of Development Studies*, 52(9), 1289-1305. <https://doi.org/10.1080/00220388.2016.1139692>
- Suratini, S. (2018). Microloans and Household Economies: Evidence from Indonesia. *Signifikan Jurnal Ilmu Ekonomi*, 7(1), 91-102. <https://doi.org/10.15408/sjie.v7i1.5954>

- Swamy, V. (2019). Macroeconomic significance of transaction costs in microfinance intermediation. *Management Decision*, 57(9), 2307-2324. <https://doi.org/10.1108/md-01-2018-0073>
- Wafula, J., Maingi, M., & Bulla, D. (2023). Effect of Credit Monitoring Practices on Loan Nonperformance among Microfinance Institutions in Nairobi County, Kenya. *African Journal of Empirical Research*, 4(2), 32-40. <https://doi.org/10.51867/ajernet.4.2.4>
- Weber, R. and Muhoff, O. (2013). Can flexible microfinance loans improve credit access for farmers?. *Agricultural Finance Review*, 73(2), 255-271. <https://doi.org/10.1108/afr-09-2012-0050>
- Winton, A. (1999). Don't put all your eggs in one basket? Diversification and specialization in lending. *University of Minnesota Working Paper*.
- Worku, Y. and Muchie, M. (2019). The Survival of Business Enterprises and Access to Finance: The Case of Four African Countries. *Problems and Perspectives in Management*, 17(1), 326-338. [https://doi.org/10.21511/ppm.17\(1\).2019.28](https://doi.org/10.21511/ppm.17(1).2019.28)

APPENDICES

Appendix I: List of Licensed Microfinance Institutions

No.	Institution Name
1	Faulu Microfinance Bank Limited
2	Kenya Women Microfinance Bank PLC
3	Salaam Microfinance Bank Limited
4	SMEP Microfinance Bank PLC
5	LOLC Kenya Microfinance Bank PLC
6	Rafiki Microfinance Bank Limited
7	Branch Microfinance Bank Limited
8	Sumac Microfinance Bank Limited
9	U & I Microfinance Bank Limited
10	Umba Microfinance Bank Limited
11	Choice Microfinance Bank Limited
12	Caritas Microfinance Bank Limited
13	On It Microfinance Bank Limited
14	Muongano Microfinance Bank PLC

Source: Central Bank of Kenya (2025)