FIRM CHARACTERISTICS AND NON-PERFORMING LOANS OF MICROFINANCE BANKS IN KENYA

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D53/CTY/PT/39603/2016

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (FINANCE), KENYATTA UNIVERSITY

JUNE, 2023
DECLARATION

Declaration by student

This research project is my own work, and to my knowledge, it has never been submitted for a grant to any university.

Signature…………………………………………………..Date……………………………………

LEONARD MUKURU

D53/CTY/PT/39603/2016

Declaration by supervisor

The research project has been submitted for examination with my approval as the University Supervisor

Signature…………………………………………………..Date……………………………………

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DEDICATION

This research project is dedicated to my mother Eunice.
ACKNOWLEDGEMENT

I thank Almighty God for granting me the chance and strength to work on this research project and for the far I have come. Mr. Anthony Thuo, my supervisor, deserves special recognition for his assistance and advice in completing the project. For their moral and spiritual support and encouragement, I am grateful to my entire family. For all of their help during the project and studies, I am grateful to my classmates and friends. Finally, I appreciate the opportunity to study at Kenyatta University. My instructors and the library staff deserve special thanks for guiding me through the course modules and providing technical assistance during the development of the research project.
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## ABBREVIATIONS AND ACRONYMS

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<thead>
<tr>
<th>Abbr.</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AMFI</td>
<td>Association of Microfinance Institutions</td>
</tr>
<tr>
<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CBN</td>
<td>Central Bank of Nigeria</td>
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<tr>
<td>CDS</td>
<td>Credit Default Swap</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>MFB</td>
<td>Micro Finance Banks</td>
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<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
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<tr>
<td>NPL</td>
<td>Non-Performing Loans</td>
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<tr>
<td>PAR</td>
<td>Performance and accountability reporting</td>
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<tr>
<td>ROA</td>
<td>Return on Assets</td>
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<td>ROSCA</td>
<td>Rotating Savings and Credit Association</td>
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<td>SMEP</td>
<td>Small and Micro Enterprise Programme</td>
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<td>USA</td>
<td>United States of America</td>
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OPERATIONAL DEFINITION OF TERMS

**Capital Adequacy** is the proportion of total equity to earning assets, which shows how well-equipped the company is to handle crises and withstand non-performing loans. It was measured by the equity to asset ratio.

**Firm Characteristics** are elements that can be easily controlled by banking entrepreneurs. In the case of microfinance banks, they include leverage, firm size, liquidity and capital adequacy.

**Firm Size** is the scale of the volume of operation turned out by a firm. It was measured by total assets.

**Leverage** is the use of debt (borrowed capital) to boost the returns on a project or venture. It was measured by the debt-equity ratio.

**Liquidity** The sum of money that can be utilized to support a project or institution's capacity to increase assets and make timely payments to creditors. The cash ratio was used to assess it.

**Microfinance Banks** are financial institutions that provide credit to borrowers on interest, and where some borrowers may fail to repay the loan leading to non-performing loans.

**Non-Performing Loans** are advances that are not repaid within the specified period of 90 days past due. It was calculated as a percentage of total loans with non-performing debts.
ABSTRACT

Microfinance banks in Kenya have continued to experience challenges of loan defaults which negatively impact their asset quality and performance. As a result of loan default, many of these institutions have suffered significant losses. The goal of this study was to see how firm factors affect non-performing loans at Kenyan microfinance institutions. One of the specific goals was to examine the effect of leverage, business size, liquidity, and capital sufficiency on non-performing loans. Institutional theory, credit crunch theory, and liquidity preference theory inform the study. The research design was descriptive. The study's intended audience consisted of 13 Kenyan microfinance institutions. Secondary data was gathered for six years, from 2016 to 2021. The information was gathered from the respective microfinance institutions' annual records as well as the Kenyan Central Bank. Diagnostic tests including normality, multicollinearity, heteroskedasticity, autocorrelation, and Hausman tests were conducted. The analysis was premised on descriptive and inferential analyses. Descriptive analysis was undertaken first to give general research variables characteristics. These range from minimum, maximum values, standard deviation and mean. Correlation analysis was conducted to ascertain the direction as well as the extent of association among the research variables. Multiple regression model was used to establish the effect of firm characteristics on non-performing loans in Kenyan microfinance banks. The researcher acknowledged all sources from where information used was borrowed. The researcher sought approval letters from relevant authorities before undertaking data collection. The findings showed that leverage significantly and favorably affected non-performing loans. Non-performing loans were negatively and significantly affected by firm size. Microfinance banks' non-performing loans were not significantly affected by liquidity or capital adequacy. The study's conclusions suggest that lowering the debt ratio of microfinance banks will undoubtedly lead to a reduction in non-performing loans. By expanding the asset base, there is a greater chance that the non-performing loans of the microfinance banks will be reduced. Increasing liquidity and capital adequacy would not have a substantial effect on the non-performing loans of the microfinance banks. The management of the microfinance banks should review the debt policies with aim of reducing over reliance on debts, should strengthen the equity policy that will lead to low leverage, should develop strategic plans aimed at strengthening and growing the asset base. The management should particularly channel most of the payoffs from investment in asset acquisition. The policymakers in the financial sector especially central bank of Kenya should streamlining policy implementation toward loan defaulters. Academicians and researchers should review the empirical findings of this study in building their research work on related topics.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Microfinance banks have done a good job of addressing the lack of access to financial services, which is one of the main barriers to private sector development in Kenya, along with other developing countries (Joseph & Kibera, 2019). Their primary function is to offer business loans on a large and small scale and ensure their sustainability (Kiarie, 2017). By providing microcredit and reimbursing funds for start-up and expanding enterprises, microfinance banks work to eliminate poverty among the poor (Muturi, 2016). Financial institutions are essential because of the roles they play in the allocation of economic wealth in countries. This encourages further spending and stimulates economic growth. Bank loans are used to carry out the intermediation role of connecting surplus spending entities with deficit spending operatives. Hence, the amount of NPLs affects the mediation positions of commercial banks (Ngungu & Abdul, 2020).

Nonetheless, reports suggest that the microfinance sector has faced a number of difficulties, such as inadequate funding and a rise in loan defaults. To prevent serious crimes, managing information asymmetry to spot those who may violate the law early on is crucial (Muturi, 2016). Empirical evidence points out that there is a link between NPLs and firm characteristics. Some firm features have been shown to have a significant, insignificant, positive while others indicate a negative relationship. According to Awuor (2015), bank size, asset quality, and bank size of non-performing loans all have a negative association.
Ngungu and Abdul (2020) show that liquidity and interest rates do not affect commercial bank NPLs. Banks’ non-performing loans in Kenya are determined by their capitalization and size. According to Atem (2017), interest rates have a substantial impact on NPL at KCB Bank, although loan size, bank size, gender, and age have little impact. Olarewaju (2020) shows that company characteristics (including loan interest rates, capital adequacy, loan growth, cost-benefit ratios, and real interest rates) are significant factors that influence NPLs in the middle to lower banking sector. It is critical to look into how non-performing loans in Kenyan microfinance banks relate to company characteristics.

Globally, banking, as well as microfinance institutions, have concentrated on invigorating the benefit of capital and liquidity standards of the banking institutions for the past decade. According to the World Bank, Taiwanese banks had a non-performing loan rate of 7.7% by the end of 2001, while local financial institutions had a rate of 16.37 percent. Non-performing loans made up 16.81 percent of the entire loan portfolio in the Philippines as of July 15, 2001, compared to 16.76 percent the previous month. However, the ratio has been steadily managed ever since and it has shown a positive decline from the year 2009 to 2019 (3.489% to 1.979%). The same has been the case in the USA with a positive decline from the year 2009 to 2019 (4.96% to 0.855%). In Italy, the bank’s nonperforming loans to total gross loans have been rising since 2007 from 5.778% to 18.064% in 2015 (The World Bank Group, 2021).

In India, the main cause of non-performing loans in the microfinance industry is governance failure (Fianto et al., 2019). Microfinance institutions sometimes fail to manage certain factors under their control. The outside world is not directly under the control of microfinance institutions. As a result, it is less likely that these outside variables may cause an increase in
NPLs. Effective and systematic management of NPLs should place more of an emphasis on internal factors because microfinance organizations have control over these problems.

Due to their crucial role in lending, non-performing loans have been identified in Ghana as a significant credit risk for microfinance banks (Afolabi et al., 2020). For example, the Central Bank of Nigeria (CBN) found that credit risk limits lending to individuals and companies in the country (CBN, 2017). In particular, Apex Bank reports that many IFACs have large amounts of bad loans, which in turn increases their loan loss provisions (CBN, 2018). NPLs in South Africa increased from 2.8442% in 2017 to 3.882% in 2019 as a proportion of all gross loans (The World Bank Group, 2021).

The risk of default is increasing, as seen by the volume of non-performing loans in Malawi's microfinance sector (Phiri, 2020). Non-performing loans, which describe the asset quality of a microfinance institution, are a performance measure and therefore affect the Microfinance Institutions (MFIs) overall financial stability. Bad loans freeze funds in unproductive industries, hampering economic growth and lowering economic efficiency. The causes of loan defaults in Rwandan microfinance organizations were examined by Twesige et al. (2021). The author finds that credit delays, credit defaults, credit variances, interest rates, mismanagement, and business environment have a significant impact on defaults.

In Kenya, non-performing loans have been fluctuating with a worrying trend in the past decade. For instance, from 4.421% in 2011 to 11.621% in 2018, the percentage of bank NPLs to total gross loans increased (The World Bank Group, 2021). This is largely due to poor risk assessment and management, soft/weak credit conditions, poor credit monitoring and payment mechanisms. For instance, from 4.421% in 2011 to 11.621% in 2018, the percentage of bank NPLs to total
gross loans increased (The World Bank Group, 2021). difficult economic conditions such as high-interest rates, business organization, and guarantees for customers to get credit, recurring borrowing by customers, overdrafting by customers with little or no capacity for loan repayments and making notional loans by loan officers (Atem, 2017). The trends in the performance of NPLs show that there is a dire need to focus on how to optimize the performance of bank loans and improve the asset quality to facilitate the growth of the microfinance industry.

According to Njue (2020), Kenyan MFIs have experienced a rapid increase in non-performing loan rates, which has led to liquidity problems. Liquidity issues have resulted in performance problems for MFIs in Kenya such as Deposits being rejected. A risky asset with bad credit is one that doesn't provide income and hasn't been paid back in at least 90 days. Several studies have found that non-performing loans cause financial organizations to go into liquidation, which in turn affects all assets (Ntoiti & Jagongo, 2021). In essence, the financial crisis occurred because bad loans were left unresolved. Financial institutions must establish methods to monitor borrower behavior and identify and understand the reasons of non-performing loans in order to control this problem (Gautam, 2018).

1.1.1 Firm Characteristics

Company characteristics are elements that can be easily controlled by banking entrepreneurs. These characteristics include liquidity, capital adequacy, and size. Liquidity refers to a bank’s capacity to meet its financial obligations as they fall due, particularly short-term obligations like depositors’ payments. In this instance, the bank’s total assets serve as a proxy for its size (Ngungu & Abdul, 2020).
Company characteristics, according to Mothibi (2015), include managerial competency, educational qualifications, job experience, location, company size, a period in operation, and industry, all of which have been demonstrated to have a major impact. Positive productivity impact. Egbunike and Okerekeoti (2018) state that firm characteristics can be measured in terms of firm size, leverage, and liquidity. Buvanendra et al. (2017) categorize firm-specific characteristics into the size of the firm. Larger enterprises, for example, find it easier to raise fresh financing or stock, therefore there is a positive association between size and speed of adjustment. In Bangladesh's state-owned banks, Al Masud (2019) studies the connection between firm-specific characteristics and NPLs. The corporate factors considered included board size, board independence with relation to the amount of NPLs, the credit cycle, management quality, moral hazard from excessive lending, and board size. The study demonstrates that board independence is highly associated to the loan default rate, while the qualities of a credit cycle, moral hazard, and corporate governance are related to board size.

Company factors like as loan interest rates, capital sufficiency, loan growth, cost-income ratio, and real interest rates, according to Olarewaju (2020), have a substantial impact on non-performing loans in middle-income nations. Too and Simiyu (2019) look into the elements that influence Kenyan general insurance businesses' financial performance. According to the findings, capital structure has the greatest impact on insurance businesses' financial performance in Kenya, followed by company age, size, and ownership. Atem (2017) indicated that interest rate, credit size, bank size, gender, and age are firm characteristics that influence non-performing loans.

The performance of non-performing loans in financial institutions is significantly influenced by entity characteristics, as the preceding context has shown. As a result, the goal of this study was
to see how leverage, company size, liquidity, and capital adequacy affect non-performing loan performance in Kenyan microfinance banks.

The use of external resources (loaned cash) to boost the return on an investment or project is known as leverage. The use of debt capital as a source of investment finance to increase a company's asset base and earn returns on venture capital is known as leverage. Leverage is a strategy used by investors to improve their purchasing power in the market. Companies use debt to fund their assets rather than stock to raise funds, allowing them to engage in operations and thereby enhance firm value (Saleem et al., 2013). The debt/equity ratio is used to calculate leverage in this study. Company size is the scope of the volume of activities realized by a company. It can be evaluated based on assets, sales value, and invested capital, which can then lead to the classification of large or small companies. Due to their size, large companies enjoy the accumulated benefits of scale and outperform small companies in terms of financial performance (O'Sullivan et al., 2009). In this study, company size was measured by total assets.

Capital adequacy is the ratio of total equity to earning assets that demonstrates a company's ability to stay afloat in the event of non-performing loans, as well as its resilience and stability during a crisis (Mutumira, 2019). To be successful, firms must maintain a certain capital ratio (Makri & Papadatos, 2014). Every financial institution is required to adhere to the minimum equity ratio. When the minimum capital ratio is raised, portfolio risk increases. The term "liquidity" refers to the availability of funds for projects or the capacity of institutions to improve their assets and meet their financial obligations on schedule (Adrian & Shin, 2010). It also refers to the ability to pay back debts within a set period of time. The following ideas can be used to calculate it: monetary surplus, price difference, nominal monetary difference, and real money
difference (Polleit & Gerdesmeier, 2005). In this study, liquidity was measured using the cash ratio.

1.1.2 Non-Performing Loans

Credit risk, also known as credit default, is the loss brought on by a borrower’s failure to fulfill the agreed-upon payments. This causes bad credit. Therefore, NPL is a loan that is payable after ninety days (Demirgunes, 2016). According to Hammami and Ouhibi (2015), NPLs result in riskier loans, lower-quality assets, and inefficient resource allocation to productive industries.

According to Awuor (2015), the value of bank non-performing loans can be used to examine non-performing loans. When examining how business characteristics impacted the performance of non-performing loans to Kenyan commercial banks, Ngungu and Abdul (2020) used the ratio of non-performing loans to total loans to measure non-performing loans. Budiarto (2021) examines how empathy is impacted by credit risk in addition to how non-performing loans influence the financial health of rural banks in Central Java. The non-performing loan percentage from the survey is used to determine non-performing loans. In his investigation into the effects of firm-specific determinants on non-performing loans, Al Masud (2019) discovered a substantial correlation between firm characteristics and non-performing loan ratios. In this study, non-performing loans were measured using the non-performing loan ratio.

In the study by Akampurira (2018) non-performing loans in Pride Microfinance Limited were measured in terms of the NPL ratio. In this case, NPL is mainly caused by poor risk assessment and management, soft credit conditions, poor credit monitoring, and recovery mechanisms, difficult economic conditions such as high-interest rates, business organization, guarantees for customers to borrow from customers, excess customer funds with little or no ability to repay
loans and making fake loans by loan officers. Mitai (2017) shows that profitability can be measured by the rate of return of an asset, while NPLs are measured by the proportion of NPLs.

Failing to repay loans causes defaulters to lose opportunities to access more credit in the future, while lenders increase losses and bad debts, which then reduces funds to go into more businesses and jeopardizes the sustainability of the institution (Asfaw et al., 2016). Due to the widespread impact of escalating non-performing microfinance bank lending on bank profitability, this research attempts to determine the impact of business characteristics on non-performing microfinance bank lending in Kenya.

1.1.3 Microfinance Banks

According to the International Finance Corporation (IFC), one of the most significant hurdles to private sector development in developing nations is a lack of access to financial services. Closing this gap requires new institutions to be created from the start, and operational and managerial capacities to be built. Microfinance banks/institutions have proven useful in bridging the gap in this situation (IFC, 2019).

Microfinance is a form of financial system that assists individuals and small businesses who do not have access to traditional banking and financial services. Savings and current accounts, microinsurance, and payment systems are all examples of this. Microfinance programs are intended to reach out to disadvantaged consumers, who are often wealthier, economically vulnerable, or physically separated, and assist them in being self-sufficient (Joseph & Kibera, 2019).

The Microfinance Bank (MFB) has a long history in Africa, starting as a Yoruba revolving savings and lending institution in the 16th century (ROSCA). Its roots can be traced back to
rotating unions when labor was amassed as a rare resource and delivered to one member at a time (IFC, 2019). When non-governmental organizations set up test projects to provide donor-funded financial services in Kenya in the late 1960s, microfinance got its start there. With more than 100,000 residents, a number of organizations have developed into profitable, independent businesses. These MFIs are governed by the Microfinance Act, which became effective in 2008, and the Kenyan Central Bank. In 2010, there were 24 prominent microfinance organizations in Kenya that provided $1.5 billion in loans to more than 1.5 million active clients. There are twelve licensed MFBs in Kenya. One of the organizations is Choice Microfinance Bank. Other organizations are Faulu, Kenya Women Microfinance Bank Limited, SMEP, REMU, Rafiki, Uwezo, Century, Sumac, U&I, Daraja, and Caritas (CBK, 2018).

Governments or assistance organizations initially provided loans to MFBs, which were then able to expand and start providing additional financial services like loans, life, health, crop, and property insurance. Additionally, they could issue securities backed by microcredit to securitize their loans. Their principal job is to provide big and small-scale company loans, such as farm loans, school loans, and loans for any other reason (CBK, 2018).

Tier 1 and Tier 2 MFBs are the two types of MFBs. Tier 1 institutions are those that service a diverse customer base, create long-term revenue, and have management experience. Level 2, on the other hand, is a much newer MFB that has successfully established a viable economic strategy. The capital market actively promotes microfinance institutions in their usage of loans and equity at the highest level (CBK, 2019). New microfinance organizations have been established, with the potential to promote transparency and lower the cost of financial services. Figure 1.1 shows the Net NPLs of Microfinance banks in Kenya from 2011 to 2020.
Figure 1.1: Net NPLs of Microfinance banks in Kenya from 2011 to 2020

Source: CBK Report (2020)

Figure 1.1 shows the Net NPLs as measured in Kenya shillings. From the graph, microfinance banks recorded a high NPL of 6,565 million in 2017 and a low of 574 million in 2011. Generally, the graph shows an increasing trend in Net NPLs throughout the measurement period.

1.2 Statement of the Problem

The Kenyan microfinance banks face numerous challenges of loan defaults which negatively impact their asset quality and thus poor performance. As a result of loan default, many of these institutions have suffered significant losses. According to CBK data, nonperforming loans (NPLs) increased by 27.7% (KES 63.8 billion) in June 2018 compared to June 2017, owing to delayed payments by government agencies and the private sector, as well as a poor uptake of produced dwellings in the real estate industry (CBK, 2018). Banks now have a higher percentage of gross loans that are non-performing than they had in 2011, which grew to 11.621 percent in 2018 (World Bank Group, 2021). According to the survey, some of these microfinance institutions, including Rafiki DTM (30.8%), Milano Financial Service Ltd (17.2%), SMEP
(17.2%), and Jamii Bora (15.8%), have had high PARs of 30 over the past three years (Ngungu & Abdul, 2020). This trend results in the devaluation of the banking institutions’ asset quality and reduces their effectiveness and sustainable capacity.

Previous studies have been done on non-performing loans. Atem (2017) investigates the factors that influence NPL at Kenya's KCB Bank and discovers that interest rates have a substantial impact on NPL, whereas loan size, bank size, gender, and age have little impact. This study's empirical gap is the lack of a relevant relationship between loan size, bank size, and non-performing loans. Ngungu and Abdul (2020) investigated the features of Kenyan commercial banks as well as non-performing loans, discovering that capital sufficiency has a substantial impact on non-performing loans. Because it focused on commercial banks rather than microfinance banks, the study exposes a contextual gap.

Al Masud (2019) investigated the non-performing loans, company characteristics, and corporate governance of Bangladesh's state-owned commercial banks. It found that cyclicality of credit and board size were significantly associated with NPL. The results from Bangladeshi commercial banks, however, do not apply to Kenyan microfinance institutions. The identified gaps, therefore, informed the current study, and thus, it was worthwhile to investigate the influence of firm attributes on NPLs of microfinance banking firms in Kenya.

1.3 Objectives of the Study

1.3.1 General Objective

The general goal of this research was to determine the effect of firm attributes on non-performing loans of microfinance banking firms in Kenya.
1.3.2 Specific Objectives

i. To determine the effect of leverage on non-performing loans of microfinance banks in Kenya.

ii. To establish the effect of firm size on non-performing loans of microfinance banks in Kenya.

iii. To evaluate the effect of liquidity on non-performing loans of microfinance banks in Kenya.

iv. To determine the effect of capital adequacy on non-performing loans of microfinance banks in Kenya.

1.4 Research Hypotheses

\( \text{H}_01 \): Leverage has no significant effect on non-performing loans of microfinance banks in Kenya

\( \text{H}_02 \): Firm size has no significant effect on non-performing loans of microfinance banks in Kenya

\( \text{H}_03 \): Liquidity has no significant effect on non-performing loans of microfinance banks in Kenya

\( \text{H}_04 \): Capital adequacy has no significant effect on NPLs of microfinance banks in Kenya

1.5 Significance of the Study

The research is expected to help CBK policymakers in the financial sector as they help them in streamlining policy implementation toward loan defaulters. The study's conclusions are also significant for Kenya's regulatory authorities, who will find the recommendations helpful in assisting MFBs in managing their NPLs and enhancing profitability. They are be able to understand the modern applicable and effective measures to apply regarding monitoring and formulating policies around NPLs even amidst uncertainties such as the COVID-19 pandemic.
The findings of the study are useful to the management of Kenyan MFBs in advising them of the best ways to adopt in raising the quality of their assets and reducing non-performing loans. The study findings provide useful recommendations on various appropriate firm characteristics that help MFBs to minimize the risk of accumulation.

Scholars and researchers may find the study useful for future instructional studies in bridging the gap between firm characteristics and NPLs. Researchers and academics may benefit from the wealth of knowledge gathered in this study and be able to contribute to the body of knowledge in the field. The research is also beneficial to the public who are the main borrowers. Minimizing the level of non-performing loans ensures that more funds are available for lending to potential borrowers.

1.6 Scope of the Study
The study covered Kenyan microfinance banks. The purpose of this research is to see how business characteristics affect non-performing loans in microfinance banks. It covered the following firm characteristics: Leverage, firm size, liquidity, capital adequacy, and NPL. An explanatory research design was employed in the study. The financial records of the respective MFBs and the Kenyan Central Bank were used to collect secondary annual statistics. The study period was 2016 to 2021. MFBs reported increase in NPLs during this period.

1.7 Limitations of the Study
Secondary data is historical and may not represent the current situation of the firms. The researcher mitigated this challenge by using the most current data depending on availability. In this research, data from 2016 to 2021 was utilized. Further, the research had no control over data quality. The researcher mitigated this challenge by collecting the data from reliable sources.
1.8 Organization of the Study

Chapter one presents the background, study problem, research objectives, and hypotheses. Chapter two presents theoretical and empirical review. Chapter three discusses study methodology. Chapter four presents the research findings and discussion, while chapter five outlines the study's summary, conclusion, and recommendations.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction
This chapter provides a conceptual framework, a theoretical framework, an empirical review of pertinent studies, and an overview of the empirical literature.

2.2 Theoretical Framework
It relates to an in-depth review of theories put across in the past that provide a set of knowledge in regards to the study topic. The study is informed by institutional theory, credit crunch theory and liquidity preference theory.

2.2.1 Institutional Theory
Meyer and Rowan (1977) developed the institutional hypothesis, which is based on the notion that businesses embrace ethical business practices and develop more consistent conduct over time. This allows the firm to adapt to environmental changes, which is crucial for achieving profitability, which is the overall corporate goal. Banks compete with one another for clients, market share, and profitability in a competitive economy. Banks are under pressure to follow regulations in order to engage in fair competition and carry out legal business. This might save the bank a ton of money that would otherwise be spent on penalties and fines for engaging in unethical business practices like unfair competition. The bank could incur significant expenses as a result, which would hurt its profits. Companies establish credibility by adhering to the standards and conduct that govern how they conduct business in a certain sector. By doing this, banks may operate their operations with little disturbance from breaking the rules.
Profitable businesses follow the established norms and regulations, according to Mezias (1990), which fosters an environment where the company can develop and prosper. In order for businesses to operate effectively, they must comply with regulatory standards that take into account environmental issues like competition and technological change (DiMaggio & Powell, 1991). Haveman (1999) asserts that huge companies are lucrative if they can adjust to environmental changes and successfully compete in the market. Coercive pressures are formal or informal constraints placed on businesses by other organizations who depend on them (DiMaggio & Powell 1991). In a market where there is competition, banks compete for assets, knowledgeable personnel, and the use of information technology to innovate and create goods and services that are special to the clients. As a result, the bank is able to provide value-added services in comparison to its rivals. Companies have been encouraged by this institutional strategy to reevaluate their methods and long-term plans in order to attain profitability (Burns & Wholey, 1999).

The institutional theory, which is supported by research, contends that the size of a corporation has an impact on its profitability. The theory takes into account developments in the financial market, antitrust laws, the legal system, market size, and patent protection. Because they have a solid reputation as providers, a better grasp of the market structure, and more robust patent protection, large, stable businesses are regarded to have an easier time satisfying institutional needs and regulatory requirements. This makes it simpler for businesses to adhere to rules and concentrate on their operations with little disturbance. The company size variable in this study is consequently supported by the hypothesis.
2.2.2 The Credit Crunch Theory

Hyman Philip Minsky proposed the credit crunch theory in 1992. According to the hypothesis, supply and demand are the primary factors influencing the contraction of bank credit. When economic development slows, demand for credit is expected to be further disrupted as borrowers become more cautious about borrowing. Furthermore, banks contributed to the drop in lending by allowing borrowers' credit quality to deteriorate amid poor economic growth, resulting in collateral depreciation and increased bad debts. As a result, banks' willingness to lend has decreased. The tightening of non-permanent loan conditions, such as exacerbates this. Higher credit margins, collateral requirements, and stricter lending rules are all necessary. Because both the bank and the borrower were in serious financial trouble, this sharp fall in bank lending resulted in a slower monetary expansion.

Banking authorities implemented higher statutory capital ratios during the credit crisis, which caused banks in some countries to raise relative borrowing costs as a result of cyclical credit losses, declining borrower quality, and the implementation of these new requirements. The demand for loans decreased as a result. Bank reluctance to lend decreases as the economy expands and banks implement stricter lending guidelines (Saunders, 2012). It demonstrates how the worth of the collateral affects the condition, behavior, and lending decisions of banks, which in turn affects the bank's financial performance. This idea is pertinent to this study. Therefore, the theory is the core of the leverage variable in this study.

2.2.3 Liquidity Preference Theory

John Maynard Keynes introduced the theory in the early 1930s following the Great Depression, which witnessed sustained unemployment and left the quantitative theory of money with no
answers to society's economic difficulties. Ogiriki and Andabai (2014) argues that the theory put forth in his 1936 book General Theory of Employment, Interest, and Money contradicts the idea that firms and families want to maintain a constant income. Several complex elements influence money. Interest rates, liquidity preferences, income variations, expected cost levels, cash substitute availability, and the number of non-bank financial institutions, are all factors that influence income variability.

Keynes (1936) distinguished three motives for holding money: the transactional motive, which is intended to fill the gap between planned income and expenditure; the precautionary motive provides a purchasing power tank to fund unexpected expenses; and speculative motives, namely to satisfy the desire to retain wealth in its most liquid form when interest rates on alternative assets announce that they will rise, namely capital losses. The need for cash balances and to cover existing assets and business transactions drives the demand for money in transactions (Okpara 2010).

The principle is applicable to this research as it explains the concept of retaining or holding money in liquid form. According to the theory, firms hold money for three reasons, that is, transaction, precautionary and speculative motives. The theory emphasizes the importance of holding money or rather the importance of having liquidity. Therefore, the study underpins the liquidity variable in this study.

2.3 Empirical Review

The empirical work that is pertinent to the objectives of the current study is summarized in this part. Research gaps were found in the review, which is what this study set out to do. The next section lists the areas of research that need to be done.
2.3.1 Leverage and Non-Performing Loans

Valipour et al. (2015) used a panel data approach to investigate the influence of macroeconomic variables on NPLs in a few Tehran Stock Exchange banks from 2008 to 2013. The findings suggest that financial leverage has a favorable impact on NPLs while economic growth has a negative impact. However, leverage was not included in the analysis as a significant factor determining nonperforming loans.

Li (2020) investigates the impact of regulation on commercial bank leverage ratios, lending expansion, and credit risk. Data was gathered from 16 China-registered commercial banks between 2013 and 2018. The empirical findings suggest that limiting commercial bank credit expansion while increasing commercial bank credit risk. However, the study only operationalized the leverage ratio, without illustrating how to leverage ratio affects non-performing loans.

Oketch, Namusonge, and Sakwa (2018) investigated how financial leverage affected Kenyan commercial banks' performance between 2010 and 2016. They used data from commercial banks registered on the Nairobi Stock Exchange. The results imply that the idea of a leverage premium has significant financial ramifications for the performance of Indonesian commercial banks. Kenya. This study, on the other hand, examines commercial banks that are listed on the Nairobi Stock Exchange and focuses on how financial leverage affects the performance of Kenyan commercial banks. Because this study concentrated on leverage and non-performing loans, there are contextual differences.

The connection between corporate leverage and NPLs is examined by Ghosh (2015). The results reveal that debt reduction is a key factor of poor bank lending in India from 1993 to 2004 based
on data from the manufacturing sector. When comparing one-period lag loans to ten-period lag loans, a ten-percentage-point rise in firm leverage was associated with a 1.3-percentage-point increase in volatile borrowing. The research shows that the leverage ratio might be a good predictor of asset quality, as well as the need for more corporate data collection. However, the research focused on corporate leverage in India whose operational business environment and regulations on operations vary from NPL banks in Kenya hence the need to undertake this research.

2.3.2 Firm Size and Non-Performing Loans

Muriithi and Waweru (2017) investigate commercial banks' financial performance dependent on their size. The study examined 42 commercial banks in Kenya using a causal research methodology. Secondary data was gathered from individual commercial bank financial files, as well as pulp and paper factory records. The data was analyzed with Stata 14.0, which produced descriptive findings and panel models. The results showed that a bank's size has a positive and significant impact on its financial performance. The focus of this study is on the financial performance of Kenyan commercial banks as opposed to non-perfume leasing companies, which operate in a different operational and regulatory framework.

In Kenya, Mwangi (2016) examined the impact of firm size on microfinance bank profitability. The potential correlations between variables were discovered using a descriptive research design. Thirteen microfinance banks with operating licenses in Kenya made up the study's sample. Nine Microfinance Banks that were open and operating between 2011 and 2015 were included in the study's sample size. According to the study, there is a strong correlation between bank size, liquidity, capital adequacy, and the effectiveness of microfinance banks. However,
while the previous study focused on the impact of firm size on microfinance bank profitability, this one focused on non-performing loans.

The effect of firm size on the financial performance of Kenyan commercial banks was examined by Muhindi and Ngaba (2018). The 42 recognized commercial banks in Kenya, which are broken down into large, medium, and small banks, are all included in the study. For the five years from 2012 to 2016, the data comes from bank financial reports and central bank regulator reports. The survey reveals that banks with many branches, sizable customer deposits, sizable capital bases, and sizable loan portfolios have positive and high ROA in comparison to banks with fewer branches, smaller customer deposits, smaller capital bases, and smaller loan portfolios. The study's emphasis on the financial performance of Kenyan commercial banks leaves a gap in the background, though. The NPLs were the only subject of the recent analysis.

At Nigerian deposit banks, Angahar and Mejabi (2014) examined how corporate governance factors affected non-performing loans. Loans to eight Nigerian banks with cash deposits, based on 88 observations between 2006 and 2016. According to the findings, board size is the only factor that significantly and positively affects non-performing loans, whereas business size has a huge negative 5% influence. The significance level of 10% has a substantial effect. However, this study focuses on corporate governance of NPLs, while the current study is interested in linking firm size to non-performing loans, thereby revealing conceptual gaps.

2.3.3 Liquidity and Non-Performing Loans

The impact of liquidity restrictions on the risk appetite of US banks is examined by Bosshardt and Kakhbod (2020). Using the percentage of non-performing loans to total loans and the credit default swap spread, the effects of the two liquidity requirements on bank risk appetite were
examined (CDS). The study's use of regression fraction methods revealed no proof that reserve restrictions had a substantial effect on the ratio of non-performing loans. By adopting the margin specification, there is no evidence that the liquidity coverage ratio significantly affects the non-performing loan ratio or CDS spread. However, the research focused liquidity regulation on US Bank Risk-Taking whose operational business environment and regulations are different from non-performing loan firms in the Kenyan economy.

Amir (2019) examines the impact of bank excess liquidity on non-performing loans in a study of the Bangladesh economy. This study performs a simple linear regression analysis where the beta ratio of excess liquidity of banks is -0.435, which clearly shows the inverse movement of the two variables that support the real banking system. By lowering the amount of non-performing loans and raising each bank's liquidity, the equation model maintains the economic relationship between excessive bank liquidity and non-performing loans. However, the study focused on non-performing loan firms in the Bangladesh economy whose operational business environment and regulations may be differing from non-performing loan firms in the Kenyan economy hence the need to undertake this study.

Businge (2017) looks into how liquidity management affects the performance of commercial banks. For Stanbic Bank bank/credit/loan staff and clients, the researcher used a simple random sample, as well as a targeted sample of branch managers and department heads. 70 people were chosen as research samples by the researchers. Some of Stanbic Bank Limited's liquidity management practices are as follows: Examples of storing cash, delivering cash, or withdrawing cash include daily analysis and careful review of the quantity and timing of inflows and outflows, as well as delivering cash or withdrawing cash in accordance with the desired level of reserve money from the market. However, the study focused on a commercial bank which is a
loan-performing firm, unlike this study that focuses on non-performing loans thus presenting a contextual gap.

Njue (2020) examines how liquidity management affects the financial performance of Kenyan microfinance enterprises. The audited yearly accounts of the relevant MFIs provide secondary data on the variables under review. Data was acquired from the CBK website, the CBK Annual Monitoring Report, and the AMFI Annual Report from 2012 to 2016. The AMFI-member MFIs in Kenya, which can be located on the CBK website, make up the target research population. The results demonstrate that liquidity management methods have the greatest impact on MFIs’ financial success in Kenya. However, there is a conceptual flaw in this research. It looks into MFIs’ operational performance in Kenya, whereas this study is focused on liquidity and non-performing loans.

2.3.4 Capital Adequacy and Non-Performing Loans

In Indonesian commercial banks from 2012 to 2016, Julianti et al. (2018) looked at the correlations between capital adequacy, bank size, and non-performing loans. Bank Indonesia's financial filings provided secondary data for this investigation. The investigation's final sample included 81 samples gathered utilizing a targeted sampling method. According to the research, the equity ratio has an effect on non-performing loans. These findings suggest that the equity ratio affects non-performing loans favorably, at least in part. Nonetheless, the research focused on capital adequacy in Indonesia whose operational business environment and regulations may be different from capital adequacy in Kenya hence the need to undertake this research.

Ngumo et al. (2020) looked at how much capital microfinance banks in Kenya needed to perform financially. The research uses a descriptive research design, with thirteen microfinance
banks in Kenya as the target group. Because secondary data were only available for five years, they were only gathered for eight microfinance banks. The information shows a strong and positive relationship between capital sufficiency and ROA. The study did not, however, demonstrate how much capital adequacy affected non-performing loans.

Malimi (2017) assessed the effect of capital adequacy on NPLs using the Tanzanian banking system. According to banking sector indicators, Tanzanian commercial banks have a strong equity ratio of more than 10%, as mandated by the Bank of Tanzania. The banking sector, on the other hand, fell short of the 5% benchmark for non-performing loans. When employing regression analysis to examine the effects, it is discovered that capital adequacy has little effect on NPLs, however, the loan-to-asset ratio and interest margin have a substantial impact. Due to differences in the internal operations of Kenyan microfinance banks, the study's emphasis on capital sufficiency on NPLs in the Tanzanian banking industry leaves a gap in its analysis.

Ngungu and Abdul (2020) looked into the connection between company traits and NPLs in Kenyan commercial banks. Between 2013 and 2017, 40 banks made up the target population. This survey takes the form of a census. Secondary data is gathered from these banks’ audited financial records. Multicollinearity, stationarity, and Houseman tests were used to diagnose the problem. Capital sufficiency has a significant impact on non-performing loans for commercial banks in Kenya. However, the study focused on commercial banks that have relatively robust performing loans compared to deposit-taking non-performing loans hence the need to undertake this study.

2.4 Summary of Empirical Literature and Research Gaps

The gaps identified in the literature review are summarized in Table 2.1.
Table 2.1: Summary of Empirical Literature and Research Gaps

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Results</th>
<th>Gaps</th>
<th>Focus of current research</th>
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<tbody>
<tr>
<td>Ngumo, Collins, and David</td>
<td>The impact of adequate capital on Kenyan microfinance institutions'</td>
<td>ROA and capital sufficiency have a positive and significant link.</td>
<td>The study did not show the extent to in capital adequacy influenced non-performing loans.</td>
<td>The effect of capital adequacy on non-performing loans of microfinance banks in Kenya</td>
</tr>
<tr>
<td>Bosshardt and Kakhbod</td>
<td>Effect of Liquidity Regulation on US Bank Risk-Taking</td>
<td>There was no evidence that the liquidity coverage ratio influenced non-performing loan ratios or CDS spreads substantially.</td>
<td>The research focused liquidity regulation on US Bank Risk-Taking whose operational business environment and regulations are different from non-performing loan firms of the Kenyan economy.</td>
<td>Liquidity's impact on non-performing loans at Kenyan microfinance institutions</td>
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<tr>
<td>(2020)</td>
<td></td>
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<tr>
<td>Ngungu and Abdul</td>
<td>Effect of firm Characteristics and Non-Performing Loans of Commercial</td>
<td>In Kenya, capital sufficiency had a substantial impact on commercial banks' NPLs</td>
<td>The study focused on commercial banks that have relatively robust performing loans compared to deposit-taking non-performing loans hence the need to undertake this study.</td>
<td>The effect of capital adequacy on non-performing loans of microfinance banks in Kenya</td>
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<tr>
<td>(2020)</td>
<td>Banks in Kenya</td>
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<tr>
<td>Njue (2020)</td>
<td>The impact of liquidity management on financial performance of MFIs in</td>
<td>The financial success of MFIs in Kenya was largely driven by liquidity management methods.</td>
<td>The study revealed a conceptual chasm. The previous study looked at the operational performance of</td>
<td>Liquidity's impact on non-performing loans at Kenyan microfinance institutions</td>
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<td></td>
<td>Kenya</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Authors</td>
<td>Title</td>
<td>Summary</td>
<td>Reference</td>
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<td></td>
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<tr>
<td>Li (2020)</td>
<td>Regulation of commercial banks' leverage levels, lending expansion, and credit risk</td>
<td>The study only operationalized the leverage ratio, without illustrating how to leverage ratio affects non-performing loans.</td>
<td>Effect of leverage on NPL of microfinance banks in Kenya</td>
<td></td>
</tr>
<tr>
<td>Amir (2019)</td>
<td>A case study of Bangladesh's non-performing loans and the impact of excessive bank liquidity</td>
<td>Because loan recovery entails reducing non-performing loan (NPL) amounts and increasing bank liquidity, the model equation indicated an economic relationship between excess bank liquidity and non-performing loan (NPL).</td>
<td>Liquidity's impact on non-performing loans at Kenyan microfinance institutions</td>
<td></td>
</tr>
<tr>
<td>Oketch, Namusonge, Sakwa (2018)</td>
<td>The effect of financial leverage on Commercial Bank Performance in Kenya using listed commercial banks in the Nairobi</td>
<td>Leverage premium have important implications for financials of commercial banks in Kenya.</td>
<td>The impact of leverage on microfinance banks' non-performing loans in Kenya</td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Title</td>
<td>Description</td>
<td>Context</td>
<td>Research Focus</td>
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<tr>
<td>Muhindi and Ngaba (2018)</td>
<td>The effect of firm size on financial performance of commercial banks in Kenya</td>
<td>When compared to banks with fewer branches, lower client deposits, a smaller capital base, and a smaller loan book, banks with these characteristics have a higher and more favorable return on assets (ROA).</td>
<td>There is contextual gap as the study focused on financial performance of commercial banks in Kenya. While the current study focused on only non-performing loans.</td>
<td>The impact of firm size on default rates in Kenyan microfinance institutions.</td>
</tr>
<tr>
<td>Yulianti, Aliamin and Ibrahim (2018)</td>
<td>Nonperforming loans in Indonesian public banks: the impact of capital sufficiency and bank size</td>
<td>Non-performing loans are helped by a high capital adequacy ratio.</td>
<td>The research focused on capital adequacy in Indonesia whose operational business environment and regulations may be different from capital adequacy in Kenya hence the need to undertake this research.</td>
<td>The effect of capital adequacy on non-performing loans of microfinance banks in Kenya.</td>
</tr>
<tr>
<td><strong>Businge (2017)</strong></td>
<td><strong>Liquidity management's impact on commercial bank performance</strong></td>
<td><strong>Among the services provided by Stanbic Bank are cash management, the provision of or withdrawals of liquidity consistent with the anticipated level of reserve currency from the market, and daily assessments of liquidity conditions.</strong></td>
<td><strong>The study focused on the commercial bank which is a loan-performing firm, unlike this study that focuses on non-performing loans thus presenting a contextual gap.</strong></td>
<td><strong>Liquidity's impact on non-performing loans at Kenyan microfinance institutions</strong></td>
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<tr>
<td><strong>Malimi (2017)</strong></td>
<td><strong>The influence of capital adequacy on non-performing loans a case of Tanzanian banking sector.</strong></td>
<td><strong>Non-performing loans were not affected by capital adequacy, but they were affected by loan to asset ratio and interest margin.</strong></td>
<td><strong>Due to differences in the internal operations of Kenyan microfinance banks, the study's emphasis on capital sufficiency on non-performing loans in the Tanzanian banking industry leaves a gap in its analysis.</strong></td>
<td><strong>The effect of capital adequacy on non-performing loans of microfinance banks in Kenya</strong></td>
</tr>
<tr>
<td>Author(s)</td>
<td>Title</td>
<td>Summary</td>
<td>Implications</td>
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<td>-----------------------------------</td>
<td>------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Mwangi (2016)</td>
<td>The effect of company size on Kenyan microfinance bank profitability.</td>
<td>The research's conclusions showed a strong correlation between a microfinance bank's size and efficiency.</td>
<td>In contrast to the earlier study, which emphasized on the impact of firm size on microfinance bank profitability, the current study focused on the impact of firm size on the profitability of non-performing loans.</td>
<td></td>
</tr>
<tr>
<td>Ghosh (2015)</td>
<td>The association between corporate leverage and banks' non-performing loans. Using data on manufacturing sector in India</td>
<td>The leverage ratio can be a good indicator of asset quality, and the study also shows that corporate data collection needs to be improved.</td>
<td>Since the operational business climate and operating norms differ between India and Kenya, the study focuses on the variations between corporate leverage in India and non-performing loans banks in Kenya.</td>
<td></td>
</tr>
<tr>
<td>Valipour, Pasha and Bastanzad (2015)</td>
<td>The effect of macroeconomic parameters on non-performing loans for Tehran Stock Exchange listed banks</td>
<td>Financial leverage had a favorable impact on non-performing loans, whereas economic growth had a negative impact.</td>
<td>However, the study did not include leverage as an important variable affecting nonperforming loans.</td>
<td></td>
</tr>
<tr>
<td>Angahar and Mejabi (2014)</td>
<td>Non-performing loans in Nigerian deposit money banks: the influence of corporate</td>
<td>At a 10% level of significance, the size of the business had a substantial negative impact.</td>
<td>The study focused on corporate governance of non-performing loans while the</td>
<td></td>
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</tbody>
</table>

The impact of firm size on microfinance bank non-performing loans in Kenya.
2.5 Conceptual Framework

As shown in Figure 2.1, the study uses a conceptual framework to show a link between independent factors (leverage, business size, liquidity, and capital adequacy) and the dependent variable (non-performing loans).
Leverage
  • Debt ratio

Firm size
  • Total assets

Liquidity
  • Cash ratio

Capital adequacy
  • Total equity/earning assets

Non-performing loans
  • Ratio of non-performing loans to total loans

Figure 2.1: Conceptual Framework

Source: Researcher (2023)
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
The research's methodology is described in this chapter. They include the following: the research design, the study population, the sample design, empirical models, the measurement of research variables, data tool, data analysis and ethical standards.

3.2 Research Design
Kothari (2014) put forward that design is the structure for measuring, gathering, and estimating data in an investigation. An explanatory research design was used in this investigation. Design aids in the understanding of causal linkages between variables (Rahi, 2017). The goal of this study was to ascertain how firm factors affected non-performing loans from Kenyan microfinance institutions. Thus, an explanatory research design was appropriate.

3.3 Study Population
Kothari (2014) is of the view that population means the total elements that a researcher seeks to cover in a research study. The study's intended audience was Kenya's 13 microfinance institutions (see Appendix I). From 2016 to 2021, secondary data was collected for a six-year period. The information was gathered from the respective microfinance institutions' annual records as well as the Kenyan Central Bank.
3.4 Sampling Design

The 13 microfinance banks in Kenya were all included in the study's target population. This study employed a census approach. Mugenda and Mugenda (2003) put forward that census studies are employed in the case of a small population.

3.5 Empirical Model

Regression model (panel) was expressed as follows:

\[ Y_{1it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \alpha_{it} \]…………………………………………………………………………………………………….1

Where:

\( Y_{1it} = \) Non-Performing Loans

\( \beta_0 = \) Constant

\( X_{1it} = \) Leverage

\( X_{2it} = \) Firm size

\( X_{3it} = \) Liquidity

\( X_{4it} = \) Capital adequacy

\( \beta_1 \) to \( \beta_4 = \) Regression coefficients

\( \epsilon_{it} = \) Error term
3.6 Operationalization and Measurement of Variables

Table 3.1: Operationalization and Measurement of Variables

<table>
<thead>
<tr>
<th>Construct</th>
<th>Type</th>
<th>Indicators</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPLs</td>
<td>Dependent</td>
<td>The ratio of NPLs to Total Loans</td>
<td>Ratio</td>
</tr>
<tr>
<td>Leverage</td>
<td>Independent</td>
<td>Debt ratio (Debt/equity)</td>
<td>Ratio</td>
</tr>
<tr>
<td>Firm Size</td>
<td>Independent</td>
<td>Total assets (Natural logarithm)</td>
<td>Ratio</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Independent</td>
<td>Cash ratio (Short term investments /current liabilities)</td>
<td>Ratio</td>
</tr>
<tr>
<td>Capital adequacy</td>
<td>Independent</td>
<td>Total equity/earning assets</td>
<td>Ratio</td>
</tr>
</tbody>
</table>

Source: Author (2023)

3.7 Data Collection

Secondary data was gathered from individual microfinance organizations' annual records as well as the Kenyan Central Bank. Data on the study variables was collected as follows: NPLs (Ratio of NPL to total loans), leverage (Debt ratio (Debt/equity), firm size (Total assets (Natural logarithm), liquidity (cash ratio), and capital adequacy (total equity/earning assets). The study covered a period of six years from 2016 to 2021. A secondary data collection schedule (see appendix II) was used to summarize the data.
3.8 Data Analysis and Presentation

The collected data was input to an excel sheet for transferring to analysis software (STATA) for purposes of analysis. The data was checked for possible errors and cleaned. The analysis was premised on descriptive, correlation, and inferential analyses. Descriptive analysis was undertaken first to give general research variables characteristics. The minimum, maximum, standard deviation, and mean are among them. Correlation analysis was done to ascertain the direction and degree of the link between the research variables. Panel regression analysis was used to study the impact of company characteristics on non-performing loans at Kenyan microfinance banks. Data was captured using graphs and tables.

3.8.1 Diagnostic Tests

The study conducted diagnostic tests including Hausman tests, normality, multicollinearity, heteroscedasticity and autocorrelation to ascertain if the data was appropriate for use in analysis.

3.8.1.1 Hausman Test

The appropriateness of a fixed or random effect model is assessed using Hausman's test. It is used to see if the regressor is linked to the unique error (ui) (Raharjo et al., 2014). When the significance value is greater than 0.05, it is acknowledged that apparent error (ui) is unrelated to regression and that the random-effects model is a better fit.

3.8.1.2 Normality Test

Research data was expected to be normally aligned. Shapiro Wilk check was applied in assessing normally, where a null hypothesis of a normal distribution was used. Probability value greater than 0.5 denoted acceptance of null hypothesis. In a situation of abnormality of the data, this was ignored or non-parametric tests used (Wooldridge, 2013).
3.8.1.3 Multicollinearity Test

When independent variables have a strong association, multicollinearity occurs, affecting the relevance of individual variables. This leads to inefficient estimates by increasing p-values. When the VIF value exceeds 10, a multicollinearity problem arises, but not when the VIF value is less than 10. Strong correlation between the independent variables is also indicated by a tolerance value larger than 0.2.

3.8.1.4 Heteroscedasticity Test

It detects whether some portions of the population have different or unequal variability through a range of values of a subsequent predictor variable. According to the null hypothesis, the error element's variance is constant. Acceptance of the null hypothesis results from a probability value larger than 5%, which means that the error element's variance will remain constant. Heteroscedasticity was checked using the Breusch-Pagan test.

3.8.1.5 Autocorrelation Test

To find out if the residuals are associated over time, an autocorrelation test was run. We employed the Wooldridge autocorrelation test. The null hypothesis that there is no autocorrelation is accepted, if the probability value is greater than 0.05.

3.9 Ethical Considerations

The current study ensured that ethical considerations are followed. The researcher acknowledged all sources from where information used was borrowed. In conclusion, ethical considerations governing research in Kenya as stipulated by the University commission was
followed. Graduate School of Kenyatta University provided research approval and NACOSTI provided the research permit for this research.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

Data analysis, interpretation, and debate are topics covered in this chapter. The data analysis is in line with the precise goals, and patterns are examined through descriptive, correlational, and regression analysis before being evaluated and having conclusions drawn about them. The goal of the study was to ascertain how business characteristics affected the non-performing loans of Kenyan microfinance banks.

4.2 Descriptive Analysis

The descriptive summary findings for the study variables are presented in this section. The study specifically lists each variable’s mean, standard deviation, minimum and maximum values. The results are displayed in Table 4.1.

Table 4.1: Descriptive Analysis

<table>
<thead>
<tr>
<th>Construct</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-performing loans</td>
<td>78</td>
<td>0.662</td>
<td>1.896</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Leverage</td>
<td>78</td>
<td>2.837</td>
<td>2.838</td>
<td>-2.92308</td>
<td>17.25</td>
</tr>
<tr>
<td>Firm size</td>
<td>78</td>
<td>5588.108</td>
<td>10035.630</td>
<td>9</td>
<td>32153</td>
</tr>
<tr>
<td>Liquidity</td>
<td>78</td>
<td>0.442</td>
<td>0.817</td>
<td>0.02</td>
<td>7.2</td>
</tr>
<tr>
<td>Capital adequacy</td>
<td>78</td>
<td>9.369</td>
<td>14.989</td>
<td>-7</td>
<td>80.09259</td>
</tr>
</tbody>
</table>

Source: Research data (2023)
Table 4.1 shows that the average annual non-performing loan ratio of the microfinance banks during the study period was 0.662. The results indicated a positive value of non-performing loans by microfinance banks. The minimum and maximum values of non-performing loan ratio were 0 and 15 respectively.

The results indicated that the average leverage (debt ratio) of the microfinance banks during the study period was 2.837. The results imply a high debt to equity ratio. This indicated that the microfinance banks were highly leveraged. Debt ratio ranged from -2.92308 to 17.25, with those numbers being the minimum and maximum.

The findings indicated that the average firm size (total assets) of the microfinance banks during the study period was KES. 5,588.108 million. The values of firm size ranged from KES. 9 to KES. 32,153 million, respectively.

The findings indicated that the average liquidity (cash ratio) of the microfinance banks during the study period was 0.442. This indicated that the microfinance banks had a strong liquidity. Liquidity had values as low as 0.02 and as high as 7.2, respectively.

The findings showed that the average capital adequacy (total equity/earning assets) of the microfinance banks during the study period was 9.369. This indicated that the microfinance banks had a strong capital adequacy. The capital adequacy values ranged from -7 to 80.09259, respectively.

4.3 Diagnostic Tests

To confirm that the findings were valid and dependable, diagnostics were run on the study's data.
4.3.1 Normality Testing

To establish normality, the Shapiro-Wilk test was employed. Data is assumed to be regularly distributed when the Asymp. Sig. (2-tailed) is greater than 0.05. Results are indicated in Table 4.2.

Table 4.2: Normality Test using Shapiro-Wilk

<table>
<thead>
<tr>
<th>Variables</th>
<th>Shapiro-Wilk Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-performing loans</td>
<td>0.372</td>
<td>77</td>
<td>0.065</td>
</tr>
<tr>
<td>Leverage</td>
<td>0.888</td>
<td>77</td>
<td>0.193</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.91</td>
<td>77</td>
<td>0.051</td>
</tr>
<tr>
<td>Liquidity</td>
<td>0.295</td>
<td>77</td>
<td>0.063</td>
</tr>
<tr>
<td>Capital adequacy</td>
<td>0.624</td>
<td>77</td>
<td>0.159</td>
</tr>
</tbody>
</table>

Source: Research data (2023)

All of the variables had significance values (sig.) more than 0.05, as shown in Table 4.2. This implies that the study data was regularly distributed because the null hypothesis of normal distribution was accepted.

4.3.2 Multicollinearity Test

Multicollinearity among the independent variables was conducted using VIF test, and the results are shown in Table 4.3.

Table 4.3: Multicollinearity Test using VIF

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital adequacy</td>
<td>5.7</td>
<td>0.175358</td>
</tr>
<tr>
<td>Firm size</td>
<td>2.95</td>
<td>0.338914</td>
</tr>
<tr>
<td>Liquidity</td>
<td>2.75</td>
<td>0.362993</td>
</tr>
<tr>
<td>Leverage</td>
<td>1.11</td>
<td>0.902772</td>
</tr>
<tr>
<td>Mean VIF</td>
<td><strong>3.13</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Data (2023)
Table 4.3 shows a mean VIF value of 3.13 overall, which is under 10. This indicates that the independent variables were not significantly correlated, indicating that there was no multicollinearity issue.

### 4.3.3 Heteroscedasticity Test

To determine if the error term in the data was related to the observations, the heteroscedasticity was tested using Breusch-Pagan tests.

**Table 4.4: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity**

<table>
<thead>
<tr>
<th>Breusch-Pagan / Cook-Weisberg test for heteroskedasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho: Constant variance</td>
</tr>
<tr>
<td>Variables: fitted values of non-performing loans</td>
</tr>
<tr>
<td>chi2(1) = 267.64</td>
</tr>
<tr>
<td>Prob &gt; chi2 = 0.071</td>
</tr>
</tbody>
</table>

**Source:** Research data (2023)

Table 4.4's results showed a probability value of 0.071, which is higher than 0.05. In other words, the null hypothesis that the variance of the error terms is constant was accepted. As a result, there was no issue with heteroscedasticity in the study's data.

### 4.3.4 Test of Autocorrelation

The autocorrelation testing was based on Wooldridge test. Results are shown in Table 4.5.

**Table 4.5: Wooldridge test for autocorrelation**

<table>
<thead>
<tr>
<th>Wooldridge test for autocorrelation in panel data</th>
</tr>
</thead>
<tbody>
<tr>
<td>H0: no first order autocorrelation</td>
</tr>
<tr>
<td>F(1, 12) = 4.228</td>
</tr>
<tr>
<td>Prob &gt; F = 0.0622</td>
</tr>
</tbody>
</table>

**Source:** Research data (2023)
The probability value in Table 4.5 was 0.622, which is greater than 0.05. As a result, it was determined that there is no autocorrelation. Therefore, there was no autocorrelation problem in the study data.

4.4 Correlation Analysis

This section provides results on the correlation between firm attributes and NPLs of microfinance banks. Results are illustrated in Table 4.6.

Table 4.6: Correlation between Firm characteristics and Non-performing loans

<table>
<thead>
<tr>
<th></th>
<th>Non-performing loans</th>
<th>Leverage</th>
<th>Firm size</th>
<th>Liquidit *</th>
<th>Capital adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-performing loans</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.665*</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>-0.473*</td>
<td>-0.032</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>-0.138</td>
<td>0.099</td>
<td>0.464*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Capital adequacy</td>
<td>-0.250*</td>
<td>0.158</td>
<td>0.769*</td>
<td>0.769*</td>
<td>1</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed)

Source: Research data (2023)

Table 4.6 indicates that there was a positive and substantial association between leverage and NPLs (r=0.665*). The findings imply that a rise in microfinance banks' leverage (debt ratio) is associated by a rise in their non-performing loans. The findings agree with those of Valipour, Pasha, and Bastanzad (2015) who established that leverage has a favorable impact on problematic loans.

The findings showed a weak and negative correlation (r= -0.473*) between business size and NPLs. The conclusion suggests that a decline in non-performing loans at microfinance banks coincides with an increase in firm size (total assets). The findings corroborate those of Angahar and Mejabi (2014), who discovered that firm size significantly worsens the risk of NPLs.
The findings showed that there was a weak but negative link (r = -0.138) between liquidity and NPLs. The conclusion suggests that a decrease in microfinance banks' non-performing loans coincides with an increase in liquidity (cash ratio). The decrease in NPLs, however, is minuscule. The results mirror those of Bosshardt and Kakhbod (2020) who established that liquidity coverage ratio had no substantial impact on the non-performing loan ratio.

The results showed that capital adequacy and non-performing loans had a substantial negative connection (r = -0.250*). The conclusion suggests that a decrease in non-performing loans at microfinance banks coincides with an increase in capital adequacy (total equity/earning assets). The outcomes are in line with Julianti, Aliamin, and Ibrahim's (2018) findings, which indicated that capital adequacy had an impact on non-performing loans.

4.5 Hausman Test

Hausman's test was used to determine whether a fixed or random effect model was appropriate, and the results are shown below.

Table 4.7: Hausman Test

<table>
<thead>
<tr>
<th>Source: Research data (2023)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(b)</th>
<th>(B)</th>
<th>(b-B)</th>
<th>sqrt(diag(V_b-V_B))</th>
<th>S.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>fixed</td>
<td>Random</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>0.4063208</td>
<td>0.3175189</td>
<td>0.088802</td>
<td>0.023802</td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>-1.465777</td>
<td>-0.5701613</td>
<td>-0.89562</td>
<td>0.993324</td>
<td></td>
</tr>
<tr>
<td>Liquidity</td>
<td>-0.0672178</td>
<td>0.0184696</td>
<td>-0.08569</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital adequacy</td>
<td>0.0241171</td>
<td>0.0005657</td>
<td>0.023551</td>
<td>0.005179</td>
<td></td>
</tr>
<tr>
<td>chi2(4)</td>
<td>77.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob&gt;chi2</td>
<td>0.097</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.7 indicated p value of 0.097 > 0.05, and this implied that the random effects model was appropriate for this study.
4.6 Random-effects Regression Model

This section proposes a random-effects regression model that examines how firm characteristics affect microfinance banks' nonperforming loans (NPLs). The results are depicted in Table 4.8

Table 4.8: Random-Effects Model

| Non-performing loans | Coef.   | Std. Err. | z     | P>|z|   | 95% Conf. Interval |
|----------------------|---------|-----------|-------|-------|-------------------|
| Leverage             | 0.3175189 | 0.030743  | 10.33 | 0.000 | 0.257264 0.377774 |
| Firm size            | -0.5701613 | 0.2161861 | -2.64 | 0.008 | -0.99388 -0.14644 |
| Liquidity            | 0.0184696  | 0.1079318 | 0.17  | 0.864 | -0.19307 0.230012 |
| Capital adequacy     | 0.0005657  | 0.0119005 | 0.05  | 0.962 | -0.02276 0.02389 |
| _cons                | 1.311752   | 0.6366472 | 2.06  | 0.039 | 0.063947 2.559558 |

Source: Research data (2023)

Model

Non-Performing Loans= 1.311752 + 0.3175189Leverage - 0.5701613 Firm size+0.0184696 Liquidilty+0.0005657 Capital adequacy

According to Table 4.9's R squared value of 0.6205, the business characteristics together accounted for 62.1% of variations in non-performing loans held by microfinance banks. Other elements outside the scope of this study's model are responsible for the remaining 37.9%. Furthermore, the model successfully predicted the relationship between the independent and dependent variables, as shown by the F value of 125.9 and a p value of 0.000<0.05.

The findings indicated that leverage had a favorable and significant impact on microfinance banks' non-performing loans (β =0.3175189, p value=0.000<0.05). The findings suggested that a one unit increase in leverage would result in a 0.3175189 unit rise in non-performing loans.
The H01, which claimed that leverage had no discernible effect on the NPLs of Kenyan microfinance banks, was found to be false. The results agree with those of Valipour, Pasha, and Bastanzad (2015) who established that financial leverage has a positive impact on non-performing loans. Similarly, the results concur with Ghosh (2015) argument that debt reduction is a key factor of reducing NPLs.

The findings demonstrated that firm size had a negative and substantial influence on non-performing loans ($\beta = -0.5701613$, p value=0.008<0.05). The findings suggested that a one-unit increase in business size would result in a 0.5701613-unit decrease in NPLs. The H02 that firm size has no appreciable impact on non-performing loans of microfinance banks in Kenya was disproved in light of the data. The findings corroborate those of Angahar and Mejabi (2014), who discovered that firm size significantly affected the amount of non-performing loans.

The findings demonstrated that liquidity had no discernible impact on microfinance banks’ non-performing loans (p value=0.864>0.05). The findings suggested that the non-performing loans were not significantly influenced by the microfinance institutions' liquidity. The H03, which states that liquidity has no discernible impact on the NPLs of Kenyan microfinance banks, was accepted in light of the data. The outcome agrees with Bosshardt and Kakhbod (2020) observation that liquidity coverage ratio had no substantial impact on the NPL ratio.

According to the findings (p value=0.962>0.05), capital sufficiency had no discernible impact on the non-performing loans of microfinance banks. According to the findings, the capital sufficiency of microfinance banks did not substantially determine NPLs. Based on the results, it was decided to adopt the H04, capital sufficiency has no discernible influence on the NPLs of Kenyan microfinance banks. These findings support those of Malimi (2017), who discovered
that capital adequacy had little bearing on non-performing loans. The results, however, contradict a study by Ngungu and Abdul (2020), which found that capital sufficiency significantly affects non-performing loans.
CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction
The findings, conclusions, and recommendations from this chapter are summarized, along with ideas for additional research. According to the goals of the study, this is done. The goal of the study was to ascertain how business characteristics affected the non-performing loans of Kenyan microfinance institutions.

5.2 Summary
Microfinance banks in Kenya have continued to experience challenges of loan defaults which negatively impact their asset quality and performance. The goal of the study was to ascertain how business characteristics affected the non-performing loans of Kenyan microfinance institutions. The specific objectives were to ascertain the effects of leverage, company size, liquidity, and capital adequacy on non-performing loans of microfinance banks in Kenya. The research design was descriptive. Thirteen Kenyan microfinance banks were the study's target population. From 2016 to 2021, secondary data was collected for six years. The analysis was premised on descriptive and inferential analyses.

5.2.1 Leverage and Non-Performing Loans
The study's primary goal was to ascertain how leverage affected Kenyan microfinance banks' non-performing loans. From the descriptive analysis, the study established that microfinance banks were highly leveraged. Leverage had a beneficial and significant impact on the non-performing loans of microfinance banks, according to the results of the regression study.
Leverage does not substantially affect the non-performing loans of Kenyan microfinance banks, contrary to the null hypothesis.

5.2.2 Firm Size and Non-Performing Loans

The study's second goal was to determine how business size affected the NPLs of Kenyan microfinance institutions. The study determined that microfinance banks had a substantial asset base from the descriptive analysis. Regression analysis results showed that firm size has a negative and significant impact on microfinance banks' non-performing loans. It was found that firm size does not substantially affect the non-performing loans of Kenyan microfinance banks, contrary to the null hypothesis.

5.2.3 Liquidity and Non-Performing Loans

The third goal of the study was to assess how liquidity affected the non-performing loans of Kenyan microfinance institutions. The study found that the microfinance banks had a high liquidity level based on the descriptive analysis. The findings of the regression analysis showed that there was no discernable effect of liquidity on the non-performing loans held by microfinance banks. The null hypothesis, which states that there is no discernible relationship between liquidity and the non-performing loans of Kenya's microfinance institutions, was accepted.

5.2.4 Capital Adequacy and Non-Performing Loans

The fourth objective of the study was to determine the effect of capital adequacy on non-performing loans of microfinance banks in Kenya. From the descriptive analysis, the study established that microfinance banks had a strong capital adequacy. According to the regression study's findings, capital adequacy had little to no effect on the non-performing loans held by
microfinance banks. The conclusion that capital sufficiency has little to no effect on the non-performing loans of Kenyan microfinance banks was accepted as the null hypothesis.

5.3 Conclusion
The research concludes that leverage has a favorable and substantial effect on problem loans from Kenyan microfinance banks. The bottom line is that lowering the debt ratio should reduce bad loans from microfinance banks.

This study also concludes that company size has a negative and significant effect on non-performing loans from microfinance banks in Kenya. On balance, an increase in the asset base will reduce the NPLs of microfinance banks.

The study further concluded that liquidity and capital adequacy did not have a significant impact on the bad loans of microfinance banks in Kenya. It was concluded that the increase in liquidity and capital adequacy would have a negligible effect on the non-performing loans of banks.

5.4 Recommendations
Microfinance bank management should review debt policies to reduce excessive dependence on debt. Microfinance bank management should strengthen equity policies, which will result in low leverage.

The management of the microfinance banks should develop strategic plans aimed at strengthening and growing the asset base. The management should particularly channel most of the payoffs from investment in asset acquisition.
The policymakers in the financial sector especially CBK should streamlining policy implementation toward loan defaulters. Academicians and researchers should review the empirical findings of this study in building their research work on related topics.

5.5 Areas for Further Research

This study investigates how firm characteristics affect NPLs at Kenyan microfinance institutions. This study focused on leverage, firm size, liquidity and capital adequacy which explained 62.1 percent of the variations in the NPLs of microfinance banks. Future research should be conducted on other firm characteristics that can further predict the non-performing loans. This includes asset quality, management efficiency and earnings ability. Future studies could also be conducted in other financial sub sectors including commercial banks, SACCOs, and insurance firms for the purposes of comparison.
REFERENCES


### Appendix I: List of Microfinance Banks

<table>
<thead>
<tr>
<th></th>
<th>Bank Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kenya Women Microfinance Bank Limited</td>
</tr>
<tr>
<td>2</td>
<td>Faulu Microfinance Bank Limited</td>
</tr>
<tr>
<td>3</td>
<td>SMEP Microfinance Bank Limited</td>
</tr>
<tr>
<td>4</td>
<td>Rafiki Microfinance Bank Limited</td>
</tr>
<tr>
<td>5</td>
<td>KEY Microfinance Bank Limited</td>
</tr>
<tr>
<td>6</td>
<td>Century Microfinance Bank Limited</td>
</tr>
<tr>
<td>7</td>
<td>U &amp; I Microfinance Bank Limited</td>
</tr>
<tr>
<td>8</td>
<td>Uwezo Microfinance Bank Limited</td>
</tr>
<tr>
<td>9</td>
<td>Sumac Microfinance Bank Limited</td>
</tr>
<tr>
<td>10</td>
<td>Caritas Microfinance Bank Limited</td>
</tr>
<tr>
<td>11</td>
<td>Choice Microfinance Bank Limited</td>
</tr>
<tr>
<td>12</td>
<td>Daraja Microfinance Bank Limited</td>
</tr>
<tr>
<td>13</td>
<td>Maisha Microfinance Bank Ltd</td>
</tr>
</tbody>
</table>

**Source:** CBK (2022)
## Appendix II: Raw Data

<table>
<thead>
<tr>
<th>MFBs</th>
<th>NPL</th>
<th>Leverage</th>
<th>Firm size</th>
<th>Liquidity</th>
<th>Capital adequacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>KENYA WOMEN</td>
<td>2016</td>
<td>0.17</td>
<td>4.67</td>
<td>4.51</td>
<td>0.28</td>
</tr>
<tr>
<td>KENYA WOMEN</td>
<td>2017</td>
<td>0.21</td>
<td>4.12</td>
<td>4.46</td>
<td>0.29</td>
</tr>
<tr>
<td>KENYA WOMEN</td>
<td>2018</td>
<td>0.22</td>
<td>4.91</td>
<td>4.47</td>
<td>0.21</td>
</tr>
<tr>
<td>KENYA WOMEN</td>
<td>2019</td>
<td>0.21</td>
<td>4.93</td>
<td>4.49</td>
<td>0.24</td>
</tr>
<tr>
<td>KENYA WOMEN</td>
<td>2020</td>
<td>0.29</td>
<td>7.09</td>
<td>4.45</td>
<td>0.2</td>
</tr>
<tr>
<td>KENYA WOMEN</td>
<td>2021</td>
<td>0.33</td>
<td>5.90</td>
<td>4.43</td>
<td>0.26</td>
</tr>
<tr>
<td>FAULU</td>
<td>2016</td>
<td>0.09</td>
<td>4.14</td>
<td>4.44</td>
<td>0.30</td>
</tr>
<tr>
<td>FAULU</td>
<td>2017</td>
<td>0.17</td>
<td>3.78</td>
<td>4.40</td>
<td>0.26</td>
</tr>
<tr>
<td>FAULU</td>
<td>2018</td>
<td>0.15</td>
<td>4.89</td>
<td>4.43</td>
<td>0.27</td>
</tr>
<tr>
<td>FAULU</td>
<td>2019</td>
<td>0.13</td>
<td>5.24</td>
<td>4.47</td>
<td>0.26</td>
</tr>
<tr>
<td>FAULU</td>
<td>2020</td>
<td>0.23</td>
<td>6.04</td>
<td>4.47</td>
<td>0.29</td>
</tr>
<tr>
<td>FAULU</td>
<td>2021</td>
<td>0.25</td>
<td>4.33</td>
<td>5.90</td>
<td>4.43</td>
</tr>
<tr>
<td>RAFIKI</td>
<td>2016</td>
<td>0.35</td>
<td>4.91</td>
<td>3.86</td>
<td>0.12</td>
</tr>
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Appendix III: Authorization Letter from Kenyatta University

KENYATTA UNIVERSITY
GRADUATE SCHOOL

I-mail: dean-graduate@ku.ac.ke  F.O. Box 43844, 00100
Website: www.ku.ac.ke  HABROH, KENYA
Tel. 8710001 Ext. 57530

Our Ref: DSS/CTY/PT/39603/2016  DATE: 7th December, 2022

Director General,
National Commission for Science, Technology
and Innovation
F.O. Box 30425-00100
HABROH

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR LEONARD MUKURU — KEG. NO.
DSS/CTY/PT/39603/2016.

I write to introduce Leonard Mukuru who is a Postgraduate Student of this University. The student is registered for M.B.A degree programme in the Department of Accounting and Finance.

Leonard intends to conduct research for a M.B.A Project Proposal entitled, “Firm Characteristics and Non-Performing Loans of Microfinance Banks in Kenya”.

Any assistance given will be highly appreciated.

Yours faithfully,

[Signature]

PROF. ELISABETA KIMAN
EXECUTIVE DEAN, GRADUATE SCHOOL
Appendix IV: Research Permit