RELATIONSHIP BETWEEN LOAN DEFAULT AND PROFITABILITY OF DEPOSIT TAKING MICROFINANCE BANKS IN KENYA

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A RESEARCH PROJECT IS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION IN FINANCE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCE, UNIVERSITY OF NAIROBI

NOVEMBER, 2023

DECLARATION

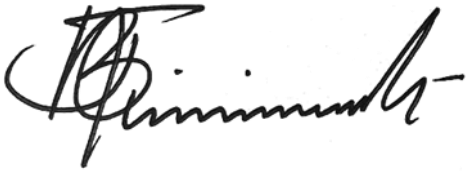
This research project is my work and has not been presented for a degree or in any other institution of higher learning.

Signed …… Date 16th November 2023

RAKIEL KAOKA

D61/35448/2019

This research project has been presented for examination with my approval as university supervisor.



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DEDICATION

I dedicate this project to my family. My daughter Chloe, my husband and my sister Lilian Tintira and my parents. God bless you so much for your support.

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AKI	Association of Kenya Insurers
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
GDP	Gross Domestic Product
IRA	Insurance Regulatory Authority
KBA	Kenya Bankers Association
LTD	Loan to Deposit ratio
MENA	Middle East and North Africa
MFB	Microfinance Bank
NPAs	Non-performing Assets
NPLR	Non-Performing Loan Ratio
NPLs	Non-performing loans
PLS	Partial Least Squares
ROA	Return on Assets
ROC	Return on Capital
ROE	Return on Equity
ROI	Return on Investment
SACCOs	Saving and Credit Cooperative Organizations
SEM	Structural Equation Modeling
SPSS	Statistical Package for Social Sciences

SUR	Seemingly Unrelated Regression

ABSTRACT

The study sought to establish the relationship between loan default and profitability of deposit taking microfinance banks in Kenya. This study was based on the bad management hypothesis and loanable fund theory. The study adopted a correlational research design targeting fourteen microfinance banks in Kenya between 2018 and 2022. The researcher assumed a data collection sheet in collecting the data. The data was secondary in nature and gathered from the bank supervision reports got from the CBK website. The data was in absolute form and collected using data collection sheet. The study was analyzed through descriptive and inferential statistics. The study was based on panel regression model. The statistics were generated with the assistance of SPSS version 26. The significance of the model was checked through F-statistics. From the findings, loan defaults had an insignificant negative effect on profitability. On the other hand, liquidity had a positive insignificant effect on profitability. Nevertheless, firm size and capital adequacy had a positive effect on profitability. This study concludes that loan default has no significant effect on profitability of deposit taking microfinance banks in Kenya. Similarly, liquidity has no significant effect on profitability of deposit taking microfinance banks in Kenya. However, firm size and capital adequacy have a positive effect on profitability of deposit taking microfinance banks in Kenya. From the findings, the study recommends that management of deposit taking microfinance banks in Kenya reduce the loan defaults levels by recruiting debt collectors and streamlining the loan collection procedures. It also recommends that the management increase their current assets and reduce the current liabilities within their banks for increased profitability. They also need to purchase more assets and/or revalue their assets for an increased profitability. The management of deposit taking microfinance banks in Kenya also need to increase their capital adequacy ratio through increased core capital and reduced total weighted assets for increased profitability. Future studies can look a similar research based on other factors influencing the profitability; different measures of loan default and profitability; other financial institutions other than deposit taking microfinance banks; primary data; and semi-annual or quarterly data.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

An efficient and well-functioning financial sector is critical for development of an economy and the achievement of high and sustainable growth of any country (Abdelaziz, Rim & Helmi, 2022). One of the indicators of financial sector health is loan defaults. Most unsound financial sector shows high level of loan defaults within a country (Singh, Basuki & Setiawan, 2021). Loan defaults lead to reduced profitability among banks. When loans are defaulted, banks experience reduction in their loanable funds leading to reduction in interest income (Karanja, 2019). This in turn reduce the profitability of the banks.

This study was anchored on bad management hypothesis and loanable fund theory. Bad management theory, by Berger and De Young (1997), states that in response to increased loans defaulting, the managers in a bank allocate more funds and resources in the management and monitoring of such loans. This increases operational expenses which in turn increase operating ratio, hence, reduction in profitability. Loanable fund theory, Robertson and Ohlin, is a dynamic augmenting theory of bank operation that integrates insights of production theory, financial intermediation and portfolio theories.

Deposit taking microfinance banks play a key role in the provision of financial services to the low income. Deposit taking microfinance banks have been showing challenges related to their performance. Majority of them have shown reduced profits (World Bank, 2022). They have also shown increase in their loan defaulting levels in the previous years (CBK, 2022). Theoretically, profits reduction and volatility can result from increased loan defaulting within a financial institution. This created the need to research on the relationship between the profitability and loan default levels within the banks.

1.1.1 Loan Default

The failure of an applicant to pay back a loan by the scheduled date is known as loan default (Balogun & Alimi, 1990). Considering substantial lending default rates might have unforeseen negative effects on financial performance, legislators in emerging economies ought to be very concerned about them (Milani, 2014). According to Chen, Zhang, and Ng (2018), a few consequences of default include the incapacity to repurpose funds for other debtors, the reluctance of other lenders to meet the demands of smaller borrowers, and the development of mistrust.

Financial institutions become insolvent as a result of loan defaults, which eventually harms the economy as a whole by making banks reluctant to extend credit (Hou, 2007). When loan default rates are high, banks are more likely to internally consolidate in order to enhance asset quality and reduce the amount of loans they offer. High loan default rates force banks to increase their provisions for defaulted loans, which lowers bank earnings and money available for new loans, hurting the business sector as it becomes more difficult for them to develop working capital (Oganda & Mogwambo, 2019).

The NPLs ratio and NPL coverage ratio are two popular measures of loan default. The NPL coverage ratio is calculated by dividing the provision for expected losses on NPLs by the total number of NPLs. Skorburg and Shenai (2021) measured loan default through non-performing loan ratio. Appietu (2020), on the other hand, measured loan default in terms of Loan to Deposit ratio (LTD). However, Karadima and Louri (2021) measured loan default in terms of Net non-performing assets which relates to Gross NPAs less provisions for loss. This research measured loan default in terms of non-performing loans ratio.

1.1.2 Profitability

Profitability relates to a firm's capability to generate profit through their core business (Muya & Gathogo, 2016). On the other hand, Ball, Gerakos, Linnainmaa and Nikolaev (2015) define profitability as the returns got by an investor based on his or her efforts. Alarussi and Alhaderi, (2018) defined profitability as a company's propensity to make money. According to Otley (2002), profitability measures an organization's profit relative to its expenses.

There are various indicators of firm profitability relating to return on assets (ROA); Return on equity (ROE); return on investment (ROI) and profit margin (Mrindoko, Macha and Gwahula, 2020). However, Beca (2020) adopted Return on capital (ROC) as a measure of profitability. On the other hand, Singh, Basuki and Setiawan (2021) measured profitability in terms of ROA. In addition, Shanko, Timbula and Mengesha (2019) adopted ROA and net profit margin to measure profitability. However, Nadyayani and Suarjaya (2021) involved return on investment (ROI) in measuring profitability.

1.1.3 Loan Default and Profitability

In broad terms, banking involves gathering idle cash and putting it to use in the economic system. This method involves one party depositing idle funds in a bank, while another person borrows the funds from the banking institution (Chen, Zhang & Ng, 2018). On the funds in savings, savers receive interest, and borrowing must pay interest on the sum of money they borrowed. The bank acts as a middleman of both parties and does not possess any of the funds; therefore, in the event that the borrowing party is unable to repay the loan, the bank will use its profits to reimburse those who made deposits (Oganda & Mogwambo, 2019). As a result, there always exists a chance that a loan won't be returned to the institution. Whenever the borrowing party stops making payments according to the conditions stipulated by the loan, bad debts result. Such hurts the financial institution's bottom line and may result in financial losses or, in

the worst case scenario, default. In other words, a bank's equity may be reduced by a high volume of poor loans, which would make it more challenging to provide fresh funding (Kingu, Macha & Gwahula, 2018).

Empirically, the relationship linking loan default and profitability has produced mixed results. Kitonyi, Sang and Muriithi (2019) established that profitability (ROA) was positively affected by non-performing loans. Skorburg and Shenai (2021) found that loan default and bank profitability related negatively. This was supported by Do, Ngo and Phung (2020); and Kingu, Macha and Gwahula (2018) who found that loan default had negative impact on the bank's profitability. However, Bismark (2021) and Alshebmi et al (2020) found an insignificant relationship linking loan default and profitability. This was similar to the findings of Anggriani and Muniarty (2020); and Ngungu and Abdul (2020).

1.1.4 Deposit Taking Microfinance Banks in Kenya

Offering a wide range of financial services, such as loans, deposits, payment processing, money transfers, and insurance for low-income households and their microbusinesses, is known as microfinance. According to Christen and Rosenberg (2000), such financial products include bank deposits, loans, investments, microsavings, and insurance policies..

There are a total of 14 microfinance banks in Kenya (CBK, 2022). Microfinance banks in Kenya have been showing increased in the level of defaulted loans in the loan portfolios. This has been reflected in high NPL ratio. Further, the sector has shown high and increasing losses in the recent years. There is need for effective management of loan defaults to reduce the negative effects that come with loan defaults and maximize on the positive impacts of loan defaults to profitability of the banks.

1.2 Research Problem

Theoretically, non-performing loans reduce the level of profitability of banking institutions (Kingu, Macha & Gwahula, 2018). This has been accrued to the fact that non-performing loans reduce the interest income, operating profits and loanable funds within financial institutions. The banking institutions get their income from the loans and advances that are disbursed and if these loans are not repaid then it is not possible for them to receive profits (Kiran & Jones, 2016). When borrowers fail to repay their loans, financial institutions suffer financial losses, limiting funds for business operations and lending to other borrowers.

On the relationship between loan default and profitability, empirical studies have shown that the relationship is ambiguous. Some studies have shown positive relationship with some showing negative or insignificant relationships. Mrindoko, Macha and Gwahula (2020) found a positive relationship between loan default and profitability. However, Nwosu, Okedigba and Anih (2020); and Abdelaziz, Rim and Helmi (2022) found a negative relationship. On the other hand, Ngunguni, Misango and Onsiro (2020) indicated that loan defaults had an insignificant relationship with profitability.

Deposit Taking Microfinance Banks in Kenya have been experiencing an increase in the loan defaults in the last five years. Between 2018 and 2022, the banks showed an increase in loan defaulted from 5.6% in 2018 to 7.1% in 2022. The firms have also been experiencing profitability issues in the recent years. According to Central Bank of Kenya [CBK], in 2022, microfinance banks (MFBs) reported a total pre-tax loss of Ksh. 980 million. This represents an increase from the loss of Ksh. 877 million in 2021. Individual banks have also shown increased losses with more than 50% experiencing increased losses or reduced profitability levels.

From the empirical studies, research gaps exist. They include conceptual, contextual and methodological gaps. Conceptually, Karanja (2019) looked at determinants of loan repayment defaults other than relating loan defaults to profitability while Moseti (2021) looked at financial performance other than profitability. Further, Ngunguni, Misango and Onsiro (2020) examined financial factors other than loan defaults in relation to profitability. Contextually, Ngunguni, Misango and Onsiro (2020) involved general insurance companies; Moseti (2021) involved commercial banks; while Salaton, Gudda and Rukaria (2020) involved Savings and Credit Cooperative Societies. This led to the question: what is the relationship between loan default and profitability of deposit taking microfinance banks in Kenya?

1.3 Research Objective

To establish the relationship between loan default and profitability of deposit taking microfinance banks in Kenya.

1.4 Value of the study

Results from this study will be of interest to commercial banking managers because they will get an understanding on the relationship between loan defaults and profitability. This would guide them in coming up with the strategies that would enable their firms improve profitability through management of loan defaults. The recommendations made in the paper can also be adopted by the managers for improved profitability. Other firms in Kenya's financial sector, such as microfinance institutions, savings and cooperative societies, insurers, and pension fund companies, will get benefits from the results because they will be able to define aspects that may affect their profitability in the same way that commercial banks do.

The outcomes of the research will be useful to numerous policy-making institutions in Kenya, including the CBK, KBA among other agencies, in developing guidelines that will help the banking industry in Kenya increase profitability and achieve its commercial goals. Financial

Consultants may utilize results from this paper to find out the susceptibility of profits to NPLs and then offer monetary guidance to bankers. Research outcomes should help give further material to reinforce current theories assertions together with upcoming studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is a review of the theories related to loan defaults and profitability. It also presented the empirical review of the studies related to loan defaults and profitability as well as microfinance banks. The conceptualization of variables was also done within the chapter with determinants of profitability discussed within the same chapter.

2.2 Theoretical Framework

This study was based on the bad management hypothesis and loanable fund theory. These theories formed the theoretical foundation of the study between loan defaults and profitability.

2.2.1 Bad Management Hypothesis

According to the Bad Management Hypothesis, which was put forth by Berger and De Young (1997), inadequate management inside the banking system results in low-quality loans and lower earnings, which in turn raises the amount of nonperforming loans. This suggests that the worth of problematic debts would decrease and profits would rise if proper investigation was performed in loan administration. The theory states that inept management typically devote additional funds to underwriting and keeping track of defaulted loans in an attempt to reduce the increasing rate of defaulting on loans. This raise running costs relative to interest revenue, which eventually results in a greater cost-to-income ratio (low-cost effectiveness).

Several authors have criticised this theory. Murphy (2019) pointed out that although financial institutions rely on managers to make wise choices regarding loan defaults, this is not guaranteed to happen every time. However, Ozili and Outa (2017) pointed out that every bank along with additional financial companies would've shut down if poor defaults on loans management had been a widespread problem. Because the management is keen to increase

profits and lower the expenses associated with defaulting on loans, this argument is not workable.

This provided insight for the research project, which found that higher loan management expenses result from loan defaults, which lower bank profitability. As a result, banks must effectively handle loan defaults to prevent significant expenses from being incurred, which could lower the returns on extended loans. This demonstrated the applicability of the theory in understanding the connection involving defaulted loans and microfinance institutions' profits.

2.2.2 Loanable Fund Theory

Ohlin and Robertson developed the loanable funds concepts in the 1930s. The loanable fund theory combines concepts from the theories of portfolios, monetary intermediary, and production framework to create an evolving, optimal explanation of bank operations. The connection underlying asset portfolio risk and a financial institution's rendered services is made clearer by the integrated model. The rate of return on credit and bank borrowing is determined by portfolio risk, which also affects the discount rate employed to calculate the present value of future profits, some of them are produced by banking services.

It has been said that the loanable funds theory mixes real and monetary variables. It is incorrect to mix monetary variables like bank credit and stockpiling with actual variables like saving and investing without accounting for shifts in income levels (Bertocco, 2009). The foundation of loanable money theory is the presumption that the amount of national revenue will not alter. In actuality, as investments fluctuate, so does the income level (Bibow, 2001). As a result, the idea is implausible.

This idea provided the student with information regarding how loan defaults lower loanable funds, which in turn affects bank performance. A high rate of loan default means that the bank

has fewer resources available to provide loans to borrowers. As loans to consumers are the banks' primary source of income, this consequently affects the banks' profitability.

2.2 Determinants of profitability in Microfinance banks

This section made a discussion of the key factors influencing the profitability of microfinance banks. For this study, the key factors included loan defaults, firm size, bank liquidity and capital adequacy.

2.3.1 Loan default

Loan defaults, also known as NPLs, impact on financial institutions' profitability is significant (Oudat & Ali, 2020). The attention given to NPLs has increased due to their potential to trigger a bank run and serve as an indicator of an economic downturn. This is because profitability and loan defaults have an inverse effect on the bottom line of financial institutions, as provisions need to be made to address the loan defaults, affecting profitability (Patwary & Tasneem, 2019).

The measurement of loan defaults is done using various ratios such as the loan loss provision ratio, non-performing loans ratio and NPL to total assets ratio (Nugroho, Arif & Halik, 2021). Empirical research has shown ambiguous results regarding the relationship between loan defaults and profitability. Musengamana (2019) found a direct link between loan defaults and profitability. However, Gabriel, Victor, and Innocent (2019) identified an inverse effect of loan defaults on profitability, while Akbar (2021) observed no significant effect of loan defaults on profitability.

2.3.2 Firm Liquidity

Liquidity, then, results from management's capacity for meeting their financial responsibilities to lenders minus having to liquidate other assets. According to Kabui (2020), liquidity is the degree to which a bank is able to satisfy its debts paying in a time frame of a year employing cash and alternatives.

According to Liargovas and Skandalis (2008), in situations where external finance is not accessible, having a sufficient percentage of liquid assets aids businesses in funding their operations and investments. High liquidity companies are better equipped to handle unforeseen events and approaching deadlines. As per et al. (2012), banks' liquidity has a significant influence on the quantity of credit they offer to customers. As a result, they should strive to increase their liquid assets and reduce their short-term liabilities. Ramlan (2020) pointed out that boosting bank liquidity might have the opposite effect of what is intended.

2.3.3 Bank Size

Bank size usually determines how much it is affected by legal and financial issues. Since huge banks can typically obtain capital at a low cost and turn a significant profit, there is a clear correlation between bank size and capital sufficiency. Furthermore, there is a positive correlation between bank size and financial success, indicating that larger banks can achieve economies of scale to lower operating costs and increase loan volumes (Gyeke-Dako et al, 2018). According to Magweva and Marime (2016), there is a positive correlation between a bank's size and the amount of loan defaults, suggesting that as a bank grows, so does the amount of non-performing loans (NPLs).

Amato and Burson (2007) state that an organization's asset count is the main factor in determining its size. One could argue that, relative to smaller organisations with less assets, a larger firm's potential to take on a greater number of projects with higher returns increases with its asset size. Furthermore, in contrast to their smaller rivals, larger companies are able to pledge larger amounts of collateral in order to get credit facilities (Chodorow-Reich et al., 2021).

Firm profits is statistically impacted by firm size (Abeyrathna & Priyadarshana, 2019; Opeyemi, 2019). Opeyemi (2019) proved that there was a favourable correlation between

profitability and business size. Ozcan, Unal, and Yener (2017), nevertheless, proved that there was no correlation between company size and performance. On the other hand, Kumar and Kaur (2016) had demonstrated an adverse connection. Studying firm size and its connection to commercial banks' performance became necessary as a result.

2.3.4 Capital adequacy

The capital adequacy ratio (CAR), which measures a bank's capital compared to its weighted assets and current liabilities, is a requirement for banks. Central banks and bank regulators make the decisions to stop commercial banks from taking on too much leverage and going bankrupt in the process. According to Kadam (2018) demonetization affects the balance sheet of commercial banks and the decline in currency circulating in the economy because of demonetization causes a surge in bank deposits. This study used capital adequacy ratio as the measure of capital adequacy. Ramadhanti and Hidayati (2019) found a positive effect of capital adequacy on profitability. Nguyen (2020) also found a positive effect. However, Syafrizal, Ilham and Muchtar (2023) found that capital adequacy had an insignificant effect on profitability.

2.4 Empirical Review

In the MENA region, Abdelaziz, Rim, and Helmi (2022) examined the interplay amongst credit risk, liquidity risk, and bank profitability. Using the Seemingly Unrelated Regression (SUR) approach, the investigators analysed data pertaining to an assortment of traditional banks collected between 2004 and 2015. In general, the findings point to a negative and significant relationship between bank profitability and rising credit and/or liquidity issues. The independent or combined consequences of the two risks both supported this detrimental effect. In addition, the results showed that bank profitability considerably reduces the amount of

credit and liquidity levels. Additionally, they discovered that while institutional quality raises the profit margins of MENA banks, it lowers credit and liquidity.

A study on the impact of non-performing loans on profitability of Nepalese commercial banks was conducted in 2021 by Singh, Basuki, and Setiawan. The population being studied consists of Nepal's largest commercial banks, and the data used in it came from 2015 to 2019. The annual reports of each bank, as well as GDP and inflation figures retrieved from the World Bank database, provided the secondary data used in this study. Multiple regression analysis is the strategy employed in the present investigation for evaluating the data. According to the study's findings, NPL is significantly impacted by ROA, bank size, GDP, and inflation, however bank profitability is not significantly impacted by CAR.

Nwosu, Okedigba, and Anih (2020) investigated the profitability of Nigerian commercial banks as well as non-performing loans. The first quarter of 2014 to the fourth quarter of 2018 data on a sample of eighteen commercial banks were analysed using auto-regressive distributed lag and panel fixed effect models. According to empirical findings, nonperforming loans have a statistically significant adverse impact on banks' profitability. The majority of the other bank profitability determinants' coefficients agreed with earlier predictions. The study demonstrated that higher non-performing loan volumes, higher liquidity ratios, and inflation may all be used to explain poorer bank profitability, whereas higher profitability may be attributable to larger banks and higher capital adequacy ratios.

Mrindoko, Macha, and Gwahula (2020) investigated Tanzanian commercial banks' financial performance and nonperforming loans. The researcher adopted panel data from 41 Tanzanian commercial banks and macroeconomic data (from 2006 to 2019) as part of a longitudinal explanatory research approach. PLSSEM and fixed and random effect regression models were used to analyse the data. The study's findings showed that NPLR had a favourable association with Return on Asset (ROA) but a negative and non-significant relationship with ROE.

In 2019, Shanko, Timbula, and Mengesha conducted an empirical study on the determinants influencing profitability in the Ethiopian banking industry. In order to evaluate profitability, which was determined by return on asset as a function of balance sheet, industry-specific, and macroeconomic explanatory variables, the study used a quantitative research approach and statistical tools. The results demonstrated a significant and positive association between banks' profitability and loan advances, current deposit, other liabilities, and GDP. However, there was a statistically significant negative correlation between market concentration and fixed deposit rates and bank profitability. Statistical analysis reveals that the correlation between inflation, savings deposits, investments made overall, and deposits with other banks is negligible.

The factors influencing loan payback defaults in Kenyan microfinance banks were examined by Karanja (2019). In Kenyan microfinance banks, a descriptive research design was employed to check on the variables that lead to loan repayment default. Thirteen Kenyan licenced microfinance banks made up the group's target demographic. There were 26 credit officers and 26 borrowers in the sample, for a total of 52 people. By using questionnaires, the researcher collected primary data from credit officers and borrowers. The investigation's data was analysed using descriptive statistics. To analyse the data, a regression model and SPSS were used. According to the study, loan repayment default in Kenyan microfinance banks was significantly positively correlated with institutional, borrower, and loan variables.

Ngunguni, Misango, and Onsiro (2020) investigated how financial variables affected Kenyan general insurance businesses' profitability. The present investigation employed a combination of referential analysis and descriptive research design. The research project focused on all 28 general insurance businesses and used a census approach to examine every member of the 28 businesses' workforce. For five years, from 2013 to 2017, secondary data was gathered from each of the 28 general insurance companies yearly published financial statements. The pertinent data was gathered using a collection data sheet and subjected to referential analysis,

also known as multiple regression analysis. Software called SPSS (Version 20) helped with this. According to the investigation, loan defaults had a small but unfavourable impact on profitability.

Moseti (2021) looked at the effect of loan defaults on financial performance of commercial banks. This research utilized the descriptive research design to determine the effect of loan defaults on financial performance of 42 commercial banks in Kenya between 2016 and 2020. He utilized secondary data from annual reports got from the Central bank of Kenya. Data analysis was done through descriptive statistics and regression analysis with the use of SPSS 25. From the analysis, loan defaults produced a positive but insignificant effect on financial performances.

A research investigation on the impact of loan default rates on the financial performance of Saccos in Narok County was conducted by Salaton, Gudda, and Rukaria (2020). In the present investigation, a cross-sectional research design was used. Twenty SACCOs in Narok County that were authorised to operate made up the intended population. Just seventeen of the SACCOs that had been operational for the six years of the research project were chosen by purposeful sampling. For the purpose of the evaluation, secondary data from audited financial reports from 2013 to 2018 was gathered. With SPSS, the data were analysed using both descriptive and inferential statistics. The results showed that the loan default rate positively statistically significantly impacted the SACCOs' financial performance.

2.5 Conceptual Framework

The variables were conceptualized as indicated by figure 2.1. The independent variable was loan default with profitability being the dependent variable. The relationship between the two was controlled by liquidity, firm size and capital adequacy.

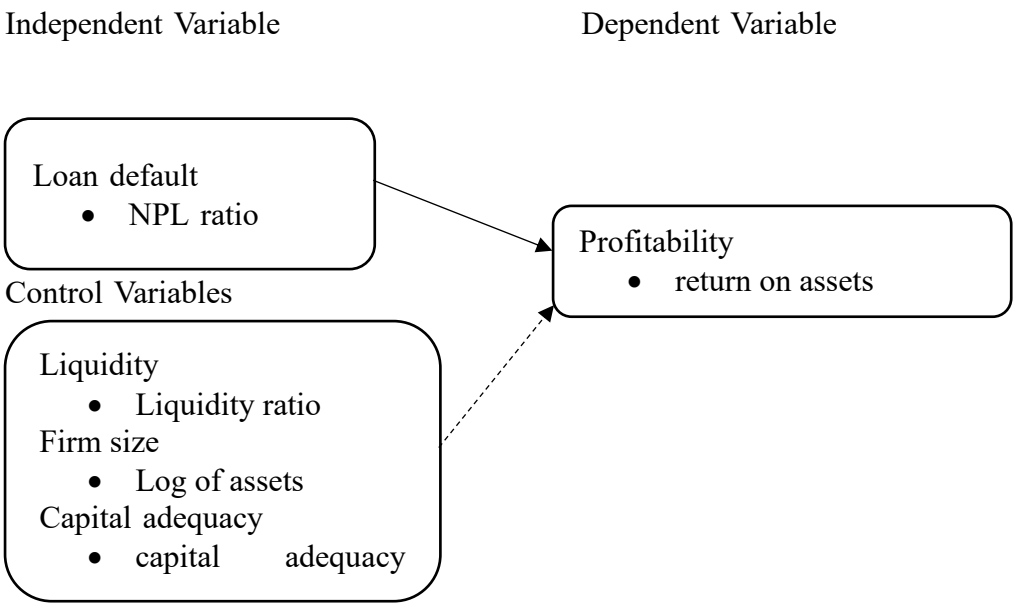

Figure 2.1: Conceptual Framework

2.6 Summary of Literature

The bad management hypothesis and the modern portfolio theory supports the theoretical assumption that loan defaults and profitability relate negatively. Empirical studies had, however, shown inconclusiveness in the relationship. For example, Mrindoko, Macha and Gwahula (2020) found a positive relationship between loan default and profitability. Nevertheless, Nwosu, Okedigba and Anih (2020); and Abdelaziz, Rim and Helmi (2022) found a negative relationship. On the other hand, Ngunguni, Misango and Onsiro (2020) indicated that loan defaults had an insignificant relationship with profitability. The empirical review also showed that research gaps existed. Some studies looked at different concepts with others adopting different methodologies in their research. Further, the studies had shown contextual gaps in that they had based their studies in different sectors other than microfinance banks.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presented the methods adopted in this research. This included research design, population, data collection and data analysis.

3.2 Research design

The research used a correlational researching design which enabled the researcher establish the relationship between loan default and profitability. The correlational research design sought to identify variables that had a relationship in which a change in one creates a change in the other. This indicates that correlational design guided the researcher in establishing the relationship among variables in a study. This study fitted this research in that it enabled the researcher to establish the relationship between loan default and profitability of deposit taking microfinance banks in Kenya.

3.3 Population

The study targeted microfinance banks in Kenya between 2018 and 2022. According to CBK (2022), there were fourteen (14) deposit taking microfinance banks in Kenya between 2018 and 2022. This period saw an increase in the loan default levels within the microfinance banks. The sector also saw an increase in losses within the period which makes the period best for this research.

3.4 Data collection

The researcher assumed a data collection sheet in collecting the data (Appendix II). The data was secondary in nature and gathered from the bank supervision reports got from the CBK website. The data was annual and based on 14 microfinance banks for the period between 2018 and 2022. This period gave most recent data with a total of 68 data points. The data was in

absolute form. The sheet had data related to loan defaults (non-performing loans, gross total loans) as well as profitability (profit after tax and total assets).

3.5 Data Analysis

The was analyzed through descriptive and inferential statistics. Descriptive statistics related to mean and standard deviation. Inferential statistics were done based on correlation and regression analysis. The study was based on panel regression model. The statistics were generated with the assistance of SPSS version 26. This made it easy for the researcher to generate the statistics for analysis. Data cleaning and editing was done before coding and entry into SPSS.

3.5.1 Analytical model

The analytical model took the form of:

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

Where;

Y_{it} = profitability of firm i at time t

β_0 = regression constant

$\beta_1 - \beta_4$ = regression coefficients

X_{1it} = loan default of firm i at time t

X_{2it} = liquidity of firm i at time t

X_{3it} = Bank size of firm i at time t

X_{4it} = capital adequacy of firm i at time t

3.5.2 Diagnostic tests

Diagnostic tests were done in relation to normality, Multicollinearity and heteroscedasticity. Normality was tested through Shapiro Wilk statistics. The test's null hypothesis is that the data follows a normal distribution. Multicollinearity was checked through Variance inflation factor. The null hypothesis is that there is no Multicollinearity in the data. Heteroscedasticity was checked through Breush-Pagan statistics. The test assumes that there is no heteroscedasticity in the data.

3.5.3 Significance of the Model

The significance of the model was checked through F-statistics. These was generated through Analysis of Variance. An F-value with a pvalue of less than 0.05 shows a significant model. However, an F-value with a pvalue greater than 0.05 shows that the model is not significant and does not fit the data.

3.5.4 Operational Measurement of Variables

Table 3.1: Operationalization of Variables

Variable	Variable Type	Indicators	Measurement
Profitability	Dependent	Return on Assets	$\frac{\text{Profit after tax}}{\text{Total Assets}}$
Loan default	Independent	Non-performing loans ratio	$\frac{\text{Non-performing loans}}{\text{Gross total loans}}$
Liquidity	Control	Liquidity ratio	$\frac{\text{Liquid assets}}{\text{Liquid liabilities}}$
Firm size	Control	Total assets	Natural log of assets
Capital adequacy	Control	Capital adequacy ratio	$\frac{\text{core capital}}{\text{total risk weighted assets}}$

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This study sought to establish the relationship between loan default and profitability of deposit taking microfinance banks in Kenya. To address this objective, research adopted descriptive and regression statistics for analysis of the data from 14 microfinance banks in Kenya. From the collected data, the analysis was based on 68 data points based on unbalanced panel data.

4.2 Descriptive statistics

Table 4.2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Profitability	68	-58.38	3.90	-8.94	14.12
Loan default	68	0.00	1500.00	77.88	202.10
Liquidity	68	0.02	12.69	1.21	1.69
Firm size	68	17.62	24.14	20.90	1.82
Capital adequacy	68	-257.45	256.25	32.97	69.82

From the results displayed in the descriptive statistics table, profitability (return on assets) averaged at -8.94% indicating that the deposit taking microfinance banks in Kenya had negative returns on assets between 2018 and 2022. The standard deviation for profitability was 14.12% with a minimum of -58.38% and a maximum return of 3.90%. For loan default, the mean was 77.88%. This indicated that the microfinance banks had a loan default level of 78% which was high between the years 2018 and 2022. The standard deviation was 202.1% with the loan default ranging between 0 and 1500%. Within the period, the banks had a mean liquidity ratio of 1.21. The standard deviation was 1.69 indicating some volatility in liquidity

among the banks within the period. It ranged between 0.02 and 12.69. For firm size, the banks had a mean log of 20.90 between 2018 and 2022. This indicated that the size of the microfinance banks within the period averaged at more than Ksh. 1 billion (log 20.72) in term of assets. The standard deviation was 1.82 ranging between 17.62 and 24.14 indicating that the microfinance banks were almost the same size in terms of assets. Capital adequacy reflected a mean ratio of 32.97% indicating a 33% core capital in relation to weighted assets. The standard deviation was 69.82 showing a high volatility of capital adequacy within the period. The minimum ratio was -257.45% with a maximum ratio of 256.25%.

4.3 Diagnostic tests

Table 4.3: Normality

	Statistic	df	Sig.
Profitability	.722	65	.000
Loan default	.318	65	.000
Liquidity	.415	65	.000
Firm size	.950	65	.011
Capital adequacy	.857	65	.000

Normality test was done through Shapiro Wilk test. The test showed that profitability, loan default, liquidity, firm size and capital adequacy had Shapiro Wilk statistics with p values below 0.05. This showed that the null hypothesis that the data follows normal distribution should be rejected. Hence, variable data did not follow a normal distribution.

Table 4.4: Multicollinearity

	Tolerance	VIF
Loan default	.899	1.112
Liquidity	.893	1.119
Firm size	.879	1.137
Capital adequacy	.895	1.117

Multicollinearity was checked through VIF. The results showed that the VIF values were below 2. Therefore, the null hypothesis that there is no Multicollinearity in the data was not rejected. Hence, the study concludes that Multicollinearity was not a problem in the variable data.

Table 4.5: Heteroscedasticity

Chi-Square	df	Sig.
2.353	1	.125

Breusch-Pagan Test was done to check on heteroscedasticity. The test assumes that there is no heteroscedasticity in the data. The findings showed that the Chi-square had a significance value of 0.125>0.05. Therefore, null hypothesis was not rejected and there was no heteroscedasticity in the variable data.

4.4 Regression Analysis

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.675[a]	.456	.420	10.99383

a. Predictors: (Constant), Capital adequacy, Firm size, Loan default, Liquidity

The model showed an R (correlation) value of 0.675. This was a stipulation that a strong relationship existed between the predicting factors (loan default, liquidity, firm size and capital adequacy) and profitability. The model further displayed an R square of 0.456. This was a stipulation that predicting factors made a contribution of 45.6% to the profitability of microfinance banks. The remaining 54.4% was as a result of other factors other than loan default, liquidity, firm size and capital adequacy.

Table 4.7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6082.697	4	1520.674	12.582	.000[b]
	Residual	7251.863	60	120.864		
	Total	13334.560	64			

a. Dependent Variable: Profitability
b. Predictors: (Constant), Capital adequacy, Firm size, Loan default, Liquidity

From the analysis of variance, the F-statistics showed a pvalue of 0.000 which fell below 0.05. This showed that the statistic was significant indicating a significant model. Therefore, the predicting factors had a significant effect on profitability.

Table 4.8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-42.306	6.251		-6.768	.000
	Loan default	-.008	.007	-.121	-1.201	.234
	Liquidity	.630	.916	.069	.688	.494
	Firm size	4.492	.796	.573	5.642	.000
	Capital adequacy	.042	.021	.204	2.023	.048

a. Dependent Variable: Profitability

From the analysis, the fitted model was:

Y_{it}= -42.306 -0.008X_{1it}+0.630X_{2it}+ 4.492X_{3it} +0.042X_{4it}

From the fitted model, holding all predicting factors constant, profitability would stand at -42.306 (p=0.000). Further, a unit increase in loan default would reduce profitability by 0.008 (p=0.234). However, the increase was insignificant. Nevertheless, a unit increase in liquidity would increase profitability by 0.630 (p=0.494). The increase would be insignificant as the pvalue was above 0.05. A unit increment in firm size would lead to increased profitability by 4.492 (p=0.000) while unit increase in capital adequacy would lead to an increase profitability by 0.042 (p=0.048).

4.5 Discussions

From the findings, an increase in loan default would reduce profitability insignificantly. This depicts that loan default showed a negative but insignificant effect on profitability. This shows that despite negative effect of loan defaults, there was no significant reduction in profitability. The are same as Akbar (2021) who observed no significant effect of loan defaults on profitability. However, they were different from those of Musengamana (2019) who found a direct link between loan defaults and profitability; and Gabriel et al (2019) who identified a significantly inverse effect of loan defaults on profitability.

On the other hand, an increase in liquidity was found to increase profitability. However, the increase was found to be insignificant. Therefore, liquidity had an insignificant positive effect on profitability. This depicts that liquidity is not a significant factor influencing profitability. The findings concur with those of Ramlan (2020) who found that increasing bank liquidity negatively influenced profitability. They, however, differed with the findings of Kabui (2020) who found that liquidity improved profitability.

The results also showed that an increase in firm size increased profitability significantly. The findings stipulate that firm size had a positive effect on profitability. This shows that firm size was a key factor influencing profitability of the banks. The findings are the same as those of Opeyemi (2019) who found that firm size had a positive relationship with profitability. Nevertheless, they differed with Ozcan, Unal and Yener (2017) that firm size and performance had no significant relationship.

The findings, in addition, showed that an increase in capital adequacy increased profitability significantly. This depicted that capital adequacy had a positive effect on profitability. Therefore, capital adequacy was a significant factor influencing profitability of the banks same as to Ramadhanti and Hidayati (2019) who found positive effect of capital adequacy on

profitability. They also align to Nguyen (2020) who found a positive effect. However, they were different with those of Syafrizal, Ilham and Muchtar (2023) who found that capital adequacy had an insignificant effect on profitability.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the findings while making conclusions based on the findings. The chapter also presents the recommendations for policy as well as future studies. The limitations faced in the study were also included in the chapter.

5.2 Summary of Findings

From the descriptive statistics, profitability (return on assets) averaged at -8.94% indicating negative returns on assets between 2018 and 2022. For loan default, the mean was 77.88% while the mean liquidity was 1.21. For firm size, the banks had a mean log of 20.90 between 2018 and 2022. On the other hand, capital adequacy averaged at a ratio of 32.97% within the period of research.

From the regression analysis, the R (correlation) value of 0.675 indicated a strong relationship existed between the predicting factors (loan default, liquidity, firm size and capital adequacy) and profitability. The R square of 0.456 indicated that predicting factors contributed 45.6% to the profitability of microfinance banks. From the analysis of variance, the F-statistics showed a pvalue that fell below the 0.05 indicating that the predicting factors had significant effect on profitability. From the regression coefficients, an increase in loan default would reduce profitability insignificantly. This shows that loan defaults had an insignificant effect on profitability. On the other hand, an increase in liquidity was found to increase profitability insignificantly. Further, an increase in firm size was found to increase profitability significantly similar to increased capital adequacy.

5.3 Conclusions

From the findings, increased loan default would reduce profitability insignificantly. This showed that loan defaults had an insignificant effect on profitability. This study, therefore concludes that loan default has an insignificant effect on profitability of deposit taking microfinance banks in Kenya. This means that despite the negative effect, loan defaults would cause no significant change in profitability of deposit taking microfinance banks in Kenya. This prints the picture that deposit taking microfinance banks in Kenya with high loan defaults don't show any significant difference in their profitability compared to those with low loan default levels.

On the other hand, an increase in liquidity was found to increase profitability insignificantly. This showed that liquidity had a positive insignificant effect on profitability. This study concludes that liquidity has insignificant effect on profitability of deposit taking microfinance banks in Kenya. Therefore, an increased liquidity among the deposit taking microfinance banks in Kenya would not show any significant effect on their profitability.

Further, an increase in firm size was found to increase profitability significantly. This depicts that firm size had a positive effect on profitability. This study concludes that firm size has a positive effect on profitability of deposit taking microfinance banks in Kenya. This shows that bigger deposit taking microfinance banks in Kenya in terms of assets perform better compared to those with low levels of assets. Hence, firm size plays a key role in the profitability of deposit taking microfinance banks in Kenya.

The findings also showed that increased capital adequacy led to increased profitability. This stipulates that capital adequacy had a positive effect on profitability. This study concludes that capital adequacy has a positive effect on profitability of deposit taking microfinance banks in

Kenya. This depicts that a high capital adequacy among deposit taking microfinance banks in Kenya improves their profitability in terms of returns on assets.

5.4 Policy Recommendations

From the findings, loan default has an insignificant negative effect on profitability of deposit taking microfinance banks in Kenya. This prints the picture that deposit taking microfinance banks in Kenya with high loan defaults don't show any significant difference in their profitability compared to those with low loan default levels. However, the negative sign should not be assumed. There is need for the management of deposit taking microfinance banks in Kenya to reduce the loan defaults levels within their banks to avoid any negative change in profitability. This can be done by recruiting debt collectors which would enable the management to reduce the expenses of loan recovery by their banks. They can also streamline the loan collection procedures which would enable the banks to reduce cases of loan defaults in their loan portfolio.

Further, liquidity has a positive but insignificant effect on profitability of deposit taking microfinance banks in Kenya. Therefore, an increased liquidity would increase the profitability of deposit taking microfinance banks though insignificantly. In order to make the effect significant, there is need for the management of deposit taking microfinance banks in Kenya to increase their current assets for increased liquidity levels. The management also need to reduce the current liabilities within their banks which would in turn increase the liquidity ratio leading to increased profitability.

Further, firm size has a positive effect on profitability of deposit taking microfinance banks in Kenya. This shows that deposit taking microfinance banks that increase their size in terms of assets perform better compared to those with constant or reducing assets. This study recommends that management of deposit taking microfinance banks in Kenya increase the size

of their firms in terms of assets. This can be done through purchasing more assets and/or revaluing their assets for an increased profitability. The management can also replace low value assets which would increase their profitability levels.

The findings also showed that capital adequacy has a positive effect on profitability of deposit taking microfinance banks in Kenya. This depicts that deposit taking microfinance banks improves their profitability in terms of returns on assets through increased capital adequacy. This study recommends that the management of deposit taking microfinance banks in Kenya increase capital adequacy levels for increased profitability. Increased core capital through capital injection by existing or new investors is crucial. It can also be done through reduction in the total weighted assets which would increase the capital adequacy ratio leading to increased profitability among deposit taking microfinance banks in Kenya.

5.5 Limitations of Study

This study experienced a number of limitations. This study was limited to loan defaults and profitability. This limited the scope where other influencing factors of profitability were left out. The measures of these variables were limited to NPL ratio and return on assets. Other measures may show differing outcomes. There was also the limiting to deposit taking microfinance banks in Kenya. Other financial institutions like commercial banks and non-deposit taking microfinance banks were left out. Further, the study was limited to the period between 2018 and 2022 with other periods expected to produce differing results. The study was also limited by the data adopted. The study adopted annual secondary data which created a limitation.

5.6 Recommendations for Future Studies

From the limitations, this study recommends key areas that future studies can focus on. The studies can undertake same research based on other factors influencing profitability. They can

also adopt different measures of loan default and profitability in their future studies. There is also the need for other researcher to undertake a similar research based on other financial institutions other than deposit taking microfinance banks. Further research is also needed based on primary data for comparison of results. Semi-annual or quarterly data should be adopted in similar studies in the future.

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APPENDICES

Appendix I: List of Deposit Taking Microfinance Banks in Kenya

1. Branch Microfinance Bank
2. Caritas Microfinance Bank
3. Choice Microfinance Bank
4. Daraja Microfinance Bank
5. Faulu Microfinance Bank
6. KWFT Microfinance Bank
7. LOLC Microfinance Bank
8. Maisha Microfinance Bank
9. Muungano Microfinance Bank
10. Rafiki Microfinance Bank
11. Salaam Microfinance Bank
12. SMEP Microfinance Bank
13. Sumac Microfinance Bank
14. U & I Microfinance Bank

Appendix II: Data Collection Sheet

Year	Gross total loans	Gross Non-performing loans	Total Assets	Liquid assets	Liquid liabilities	profits after tax	core capital	total risk weighted assets
2018								
2019								
2020								
2021								
2022								