# Prudential Regulatory Framework and Financial Performance of Microfinance Institutions in Kenya

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**Abstract:** *The rising number of non-performing loans and insufficient cash among Micro Financial Institutions have been ongoing issues despite prudential regulations being in place to enable the Central Bank of Kenya to supervise them. Therefore, the objective of this investigation was to ascertain how the prudential regulatory environment affected Kenya's micro financial organizations financial performance. The study's specific goal was to investigate how credit risk, liquidity requirements, capital requirements, and microfinance size affect financial performance. Liability management theory, the buffer theory of capital adequacy, agency theory, and the shiftability theory of liquidity served as the study's pillars. In this study, causal research design was adopted. As of December 31, 2019, the 13 microfinance institutions in Kenya that were officially listed on the website of the Central Bank of Kenya constituted the population of this study. Document reviews of information found in publicly available financial statements and annual reports for the preceding five years, from 2016 to 2020, were employed as secondary data for the study. Return on Assets was used to gauge the financial success of Micro Institutions. Data analysis was performed using both descriptive and inferential analyses. The findings of the investigation indicated that, while the size of Kenyan microfinance institutions had no statistically significant effect on their performance, the capital and liquidity criteria had a significant effect. Furthermore, Microfinance institutions in Kenya were not found to have a statistically significant relationship with credit risk and profitability. The study came to the conclusion that an MFI's need for liquidity decides whether it can meet its short-term loan obligations and whether it can use its current or liquid assets to pay its current liabilities. Since lowering overhead has a direct influence on profitability, the study advised that the micro financial institutions examine their overhead costs and look for possibilities to do so. The microfinance organizations should raise their capital requirements by increasing profits, selling long-term assets for cash, acquiring funds through the issuance of preferred or common stock in return for cash; obtaining long-term financing, and doing all of the above. Lending should be done by microfinance organizations to a variety of clients, including consumers, small enterprises, and big businesses.*

**Keywords:** *Prudential regulatory framework, financial performance, micro finance institutions, return on assets, credit risks, profitability and financial performance.*

## 1. INTRODUCTION

### 1.1. Background to the Study

Typically, each monetary sector faces problems such as globalization, financial crises and government regulations. Siciliani (2019) describes regulation as an organization with particular requirements or permitted conduct, implemented by a government or other external entities or placed on itself through an explicit or implicit arrangement within the industry that curtails the activities of a financial institution's business activity. According to Gallardo, Ouattara, Randhawa and Steel (2018) the core aim of bank regulation aim to keep the financial environment secure and healthy as well as safeguard deposits from the public. Therefore, the prudential regulation seeks to reduce the rate of risks that bank creditors face.

According to Olweny and Shipho (2015), strong bank earnings and profitability results in a stable and lucrative finance industry in addition toa financially sound structure with the best probability of success withstanding adverse disturbance. Molefe and Muzindutsi (2015), on the other hand, note that poor performance leads to bank runs, crises, and significant financial crises. Therefore, the main goal of bank rules is to maintain a healthy and successful banking industry. Molefe and Muzindutsi (2015)

and Gatauwa (2014) point out further that while recommendations are actions that have been deemed to be the most effective in generating high results and improving future firm performance, regulations are a set of instructions that every person or organization must follow. Failing to do so will result in negative consequences.

The necessity for the financial sector's regulation and oversight framework has become a top concern for a stable economy as a result of the global banking crises (Sentero, 2013). Beltratti and Stulz (2015) assert that because of the distinct function that banks perform within the financial system, they should be closely regulated and overseen in order to safeguard depositors and buyers, in addition to keeping the whole system stable. Therefore, it may be claimed that regulation imposes requirements, limitations, and guidelines on financial institutions to guarantee the stability of and expansion in the financial systems of a nation.

According to Ganioğlu (2017), capital regulations contribute significantly in averting crises in the Turkish financial industry. The author advocates strongly for recommendations that increase capital requirements. However, it appears that stricter capital regulations have no effect on the detrimental effects of the moral hazard issue caused by the bountiful bank deposit system. Additionally, Ganiolu (2017) notes that although inflation plays a substantial role in the onset of crises, its importance is substantially diminished when regulatory and supervisory factors are also present. Therefore, the importance of the banking system's regulatory and supervisory framework is once more validated.

According to Wangari and Mutswenje (2020), commercial banks' financial performance in Kenya is impacted by the regulation of their capital adequacy, liquidity, and credit risk. To better balance the correlation between banks' total assets and core capital, they advise CBK to strengthen regulations on financial sufficiency. By doing this, the significant disparity between banks with high total asset and capital ratios and those with low total asset and core capital ratios would be closed. The Kenyan Central Bank has to do more to control the sector's liquidity, Wangari and Mutswenje (2020) add, in order to reduce the enormous liquidity gaps and encourage equal industry growth.

Prudential rules went into effect on January 1st, 2013. These rules were designed to manage systemic risks, safeguard consumer savings, and improve the financial performance of the banking industry (Mabeya, Nyakundi, & Abuga, 2016). However, several recent issues in the banking industry, according to Kipruto, Osodo, and Wepukhulu (2017), have been mostly linked to weak liquidity, adequate capital, credit risk management, high-quality assets, and effective management. As an example, Dubai Bank Kenya was placed by the Central Bank of Kenya into receivership in 2015 as a consequence of what it described as severe capital and liquidity issues.

A core feature of Kenya's Micro Finance Institutions (MFIs) regulation is to ensure responsible management of the businesses working in the sector. The goal is to safeguard the companies themselves, the consumers and the economy by enforcing laws to insure that the organizations have adequate resources (Gatauwa, 2020; Gatauwa, 2022; Polizatto, 2015). Performance is a significant feature of every company like MFIs. Borio (2017) observe that regulations levied on organizations, thereby impacting efficiency and their activities. Prudential law restricts the degree to which MFIs are willing to threaten their creditors and this affects their performance. The regulations thus build a healthy and effective system that can endure any unforeseeable withdrawals of fear from MFIs and thus investor trust.

## 1.2. Statement of the Problem

Establishment of Kenyan's Microfinance Organizations was driven by the objective of providing credit facilities to individuals with low incomes. This objective is effectively achieved due to the widespread availability and extensive network of MFIs, which surpasses that of commercial banks.As of 2009, when the Central Bank of Kenya gave its first license to a micro organization, a significant number of micro-credit institutions in the country encountered financial losses. For instance, four out of the nine regulated institutions reported losses in the Central Bank of Kenya's 2015 report. According to a (2019) CBK report, only two of the 13 regulated institutions did not experience any losses between 2016 and 2019. Microfinance institutions must abide by strict capital, legislative, operational, and financial reporting requirements, per the regulatory framework.

It is concerning that Kenyan microfinance organizations' performance is deteriorating. From 2013 to 2017, this decline remained constant. For the year ending December 31st, 2017, for instance, the microfinance institutions recorded a total loss before tax of Ksh. 622 million, reflecting a general decline in efficiency. December 31, 2016, saw the microfinance industry document a loss before taxes amounting to Ksh. 377 million. This figure represents a decrease in performance compared to the previous year. The decrease in financial income, which was down 7.0% to Ksh. 1.0 billion, was substantially responsible for the loss in the profitability sector.

Return on equity and assets ratio both fell in the industry from their pre-downturn highs of 3.2 and 5.5%, respectively. The amount of money deposited by customers decreased by 3.2%, from Ksh 40.2bn in 2016 to Ksh 38.9bn in 2017. With clients demanding better interest rates and commercial banks experiencing more competition due to the new interest rate cap regulation, deposit levels have fallen. A portion of the loan book reduction was ascribed to the strategic decision made by the majority of institutions to reduce lending activity. As a consequence, in part, of the unpredictability surrounding the election period and the imposition of interest rate caps, clientele opted for more affordable facilities offered by commercial banks.

The risk-weighted asset coverage by core capital of the MFB experienced a decrease from 20 percent to 19.2 percent as of 2017, remaining above the bare minimum threshold of 10 percent. For the quarter ending in December 2017, the ratio of cash on hand to risk-weighted assets was 21.4%, down from 22.6%, and far above the statutory minimum of 12.0%. Losses in the sector have eaten away at both its core and total capital levels, despite the fact that Ksh. 456 million was added to the sector's total capital in 2017.

The study done by Mulyungi and Musengimana (2016) examined the relationship between regulatory prudence and financial outcomes of Rwandan financial institutions and found a correlation between the two. They, however, concentrated on Rwandan commercial banks. The loan provisioning requirement had the biggest impact on how wellKenyan SACCOs are doing financially, according to Mutinda (2016) who looked at what impact prudential regulation has on deposit-accepting Kenyan SACCOs. Based on their research, Kiplagat and Kalui (2018) concluded that prudential regulations significantly affect Kenyan commercial banks' financial performance. That being the case, this study looked into how Kenya's microfinance institutions' financial performance was affected by their prudential regulatory environment.

### 1.3. Specific Objectives

    i. To look into how Kenyan microfinance institutions' financial performance is affected by their liquidity restrictions.

    ii. To determine how Kenyan microfinance institutions' financial performance is impacted by the capital requirement.

    iii. To ascertain how credit risk affects Kenya's microfinance institutions' financial performance.

    iv. To determine how microfinance size affects Kenyan microfinance institutions' financial performance.

### 1.4. Organization of the Study

The project is organized into five chapters including introduction, theoretical review, research methodology, research results and discussions, and conclusions and recommendations.

## 2. THEORETICAL REVIEW

### 2.1. The Shift Ability Theory of Liquidity

By Moulton (1918), the notion pertaining to bank liquidness shiftability had been developed. This concept is predicated on the assumption that banks will sell the assets they manage to other investors, lenders, or the central bank. A commercial bank can provide the necessary funds if there are liquid assets to sell. If a commercial bank has a large quantity of bank-owned assets that can be liquidated for a profit and sold to other financial institutions, then it can forego relying on maturities, as argued by Moulton (1918). According to this school of thought, an asset can be considered fully fungible if and only if it can be sold quickly and with no loss in value.

Self-liquidating bills and other open-market movable assets, such as government securities, are recommended by this idea. A bank's liquidity is contingent on its capacity to liquidate its holdings to an outside entity at a predetermined price, according to the main argument of the shiftability theory. Therefore, it is appropriate for a bank to include open market assets with a short duration in their asset portfolio (Belém & Gartner, 2016).The notion states that in order for a bank to remain liquid, its holdings must be easily sold, traded, or otherwise disposed of. According to this hypothesis, banks' holdings of easily liquid securities can serve as a reliable supply of liquidity.

The shiftability idea states that holding liquid short-term assets can assist guarantee a bank's liquidity. In theory, a less liquid bank may sell its holdings to a more liquid institution. Thus, the hypothesis predicts that the banking system will work better with savings and long-term investments in assets. Osuka and Osadume (2013) claim that in order to avoid liquidity crises, the banking system ensures that banks can always sell at prices in their favor. In other words, banks have liquid assets whose market value cannot be ignored. The idea is underpinned to this investigation because it postulates that the economic success of commercial Banks is influenced by their potential to decrease their risk exposure by retaining highly sought-after, liquid assets.

## 2.2. Agency Theory

In 1976, Jensen and Meckling blossomed this hypothesis as a thorough explanation of a corporation with agency relationships. Agency theory, in accordance with Jensen and Meckling (1976), elucidates the relationship between top-level players like members and agents. According to the theory, Sacco's proprietors or directors hire by choosing the management board to act as their representative. The management board, which is appointed by the principals, is given the responsibility of hiring and appointing the managers. According to Santos (2016), agency theory clarifies how to make the most of principal-agent relationships for the benefit of a company's operations and its goals. Owing to the division of ownership and control and the ensuing agency problems, capital owners who are too busy or don't have the requisite skills to run their companies efficiently instead give agents daily operations and control.

Davidson, Goodwin-Stuart and Kent (2015) observe that an agency typical example can be applied in a situation whereby the employer being the principal and the employee as the agent. In this case the employer may want employees to work according to its interests which the employees may feel uncomfortable in complying due to their unsatisfying interest. The employer will expect its interest to be fulfilled and as a result conflict with the employees as they are not ready to comply. However, if the interests of both parties are solved and work in line with each other agency relationship can be fulfilled.

The idea is relevant to the research because the members (the principles) deposit funds that the managers (the agents) then use to provide loans to the members (the principals). Managers must follow the loan provisioning regulation requirement set forth by the Sacco Societies regulation Authority (SASRA) to ensure that loan repayments and, by extension, profits, are maximized at all times. Share capital is a component of core capital provided by members of the Savings and Credit Cooperative Organization (SACCO), who act as principals and whose funds are managed by the board of directors via the employed managers, agents, making agency theory relevant to this research.

## 2.3. Buffer Theory of Capital Adequacy

In 1996, Rob and Calem developed this concept. Based on the concept, a bank that is about to fall below the required capital ratio may feel pressure to increase its capital and mitigate peril as a means of circumventing the regulatory repercussions associated with non-compliance to capital standards. Since the capital adequacy ratio can be quite volatile, Calem and Rob (1996) suggested that banks keep some extra capital on hand as a buffer in case they fail to meet the minimum legal requirement. Moreover, banks with inadequate financial resources may be inclined to assume greater levels of risk with the anticipation that projected higher profits could facilitate the acquisition of additional capital. To avoid regulatory compliance penalties, Milne and Wiley (2001) state that it is advisable for banks that have capital ratios marginally exceeding the statutory minimums to supplement their capital and mitigate risk. Mahakud and Dash (2013) claim that the capital requirements outlined by the capital adequacy buffer theory may not be effective in preventing managers from engaging in careless the use of bank funds. So, a financial institution with poor management may find itself in a worse situation than it was before receiving new funding.

Buffer, as defined by Milne and Wiley (2012), is the amount of capital above and beyond what is required by law that a bank has on hand. This means that as a bank's capital ratio approaches the minimal level, it must increase. Berger and Emilia (2016) argue that banks may hoard huge sums of money in order to investigate novel investment prospects. Financial institutions can reduce the likelihood that their capital will drop below the required level by keeping a capital buffer, especially if the ratio tends to fluctuate widely.

Capital standards are necessary because this theory demonstrates that microfinance firms may aggressively expand their loan book without also expanding their capital base. Most institutions have taken the precaution of setting a prudential benchmark above the minimum required by the regulator in order to protect themselves from this threat. When operations grow with the help of the extra resources, the company's financial success gets better. The idea also works for the study because it allows for keeping extra money. With more capital, costs can be cut, which could keep people who break the law from getting fined, and support businesses can improve financial performance.

### 2.4. Liability Management Theory

The liability management theory, put forth by Markowitz in 1952, will serve as the foundation for this study. This theory states that financial institutions can create a market for extra money to cover loans and deposit withdrawals in order to meet their liquidity demands. The potential requirement for funds can be met by asset liquidity and liability liquidity. Markowitz (1952) makes the additional observation that the company can finance its operations and investments using these liquid assets when external finance is not available. Asset-Liability Management addresses the risks arising due to mismatch in asset liability structure emanating from either difference in liquidity or changes in interest.

Modern risk management follows an integrated risk management approach for managing enterprise-wide risks assuming that different risks like interest rate risk, market risk, and liquidity risk are all interrelated (Rajan & Nallari, 2014). According to Choudhry (2016) liability management theory helps to determine a long-term configuration of assets for repaying liabilities in future, whether as a single cash outflow or a series of cash outflows over multiple periods. Due to the fact that it captures the company's overall strategy, this hypothesis is pertinent to the study in terms of its liabilities, the quantification of risks and risk preferences, better preparation and handling of future uncertainties and increased efficiency and better overall performance.

### 3. EMPIRICAL LITERATURE REVIEW

### 3.1. Liquidity Requirement and Financial Performance

Using empirical data from Indian pharmaceutical enterprises, Yameen, Farhan, and Tabash's (2019) study looked at how liquidity affects the success of a business. Prowess IQ is the source for this data. Ten years' worth of panel data from eighty-two different drug manufacturers (from 2008 to 2017) are used in the analysis. According to the findings, profitability in the pharmaceutical industry is evaluated using ROA with controls for company age, size, and leverage all have a negative effect on ROI, while there is a sizable and favorable influence from the quick ratio and the current liquidity ratio.

The study conducted by Chukwuani, Onyeka, and Onyekwelu (2018) investigated the impact of liquidity on the operational effectiveness of deposit money institutions in Nigeria. Five financial institutions made up the study's sample. From 2007 to 2016, secondary data were gathered from the businesses. Utilizing multiple regression analysis, the data were examined. Based on the research outcomes, it is evident that liquidity exerts a favorable and noteworthy impact on the profitability metrics of banks, particularly in relation to return on capital employed.

Akenga's (2017) study looked at how liquidity affects the Nairobi Securities Exchange stock prices of Kenyan companies listed. The causal research approach was used. The approach of intentional sampling was employed to choose 30 businesses. The research employed secondary data. The facts were looked at using statistics that can both describe and draw conclusions from them. Return on Assets (ROA) was found to be significantly affected by the current ratio and cash assets (p 0.05). It was discovered that the debt ratio had no discernible impact on ROA.

Using a sample of five companies, Mukras, Oima, and Waswa (2018) investigated the impact of liquidity on the Kenyan sugar industry's financial performance between 2005 and 2016.It was estimated with a random effects regression model that liquidity management is negatively related to company performance. According to the study, planning carefully and thinking about how to handle funding and cash flow is one way to improve financial performance. The sugar industry enterprises should therefore boost their operating cash flow in order to make a positive difference in how well they do financially.

In their (2019) study, Sile, Olweny, and Sakwa investigated liquidity as a factor in Kenyan commercial banks' financial performance. The study's participants included each of Kenya's 43 active commercial banks between the years of 2012 and 2016. The research utilized supplementary information gleaned from the institutions' certified financial statements for the respective years under investigation. The inquiry made use of both a regression analysis and descriptive statistics. The research identified an inverse correlation between the liquidity management practices of Kenyan commercial banks and their financial achievements.

## 3.2. Capital Requirement and Financial Performance

In a study undertaken by Janaki (2016), an investigation was carried out to examine the relationship betwixt capital requirements and the economic success of manufacturing entities in Sri Lanka. This present investigation employed a research design based on descriptive statistics, employing secondary data. Based on the research findings, it has been determined that a higher Cash Ratio is associated with a detrimental impact on equity return (ROE). The impact of Return on Assets bears similarity to that of the Cash Ratio, since it has a negative correlation. The Cash Ratio has a negative impact on both the Return on Equity and Return on Assets. The Cash Turnover Ratio, in contrast, exhibited less significance in comparison to the returns on equity and assets.

Udom and Onyekachi (2018) looked into how Nigerian commercial banks' profits were impacted by capital adequacy laws. The NDIC, CBN, and Bank Supervision Reports provided the secondary time series data used in the analysis. An Ordinary Least Squares (OLS) regression model was used to evaluate the data. The results also show that commercial banks in Nigeria fare better when they have sufficient capital on hand. According to this, commercial banks' financial performance is significantly enhanced by having appropriate capital, and adequate capital and management can also lead to increased performance.

According to Mwai (2017) capital requirements affect Kenyan commercial banks' profitability. This author examined the interrelationships between the components using a descriptive research approach. All 43 Kenyan commercial banks were considered potential customers. Analysis of the data included the use of regression, correlation analysis, and descriptive statistics. According to this study, capital requirements and Kenyan commercial banks' financial performance have a linearly positive relationship. Both Return on Equity and Return on Assets were shown to have positive relevance, but Net Interest Margin was found to have no significance at all. Since capital needs were increasing, this indicated that financial performance will improve.

Mutua (2016) looked at how commercial banks in Kenya's capital structure affected their bottom lines. Descriptive research methods were employed. The target demographic consisted of Kenya's 43 commercial banks. The researchers employed a panel data model to examine all accessible data from 34 operational commercial banks spanning the entire ten-year study period (2005-2014). Stocks and interbank borrowing were observed to have a substantial favorable impact on profits. Lucrativeness is unaffected by either a high or low level of debt-to-assets ratio.

**Conceptual Framework**
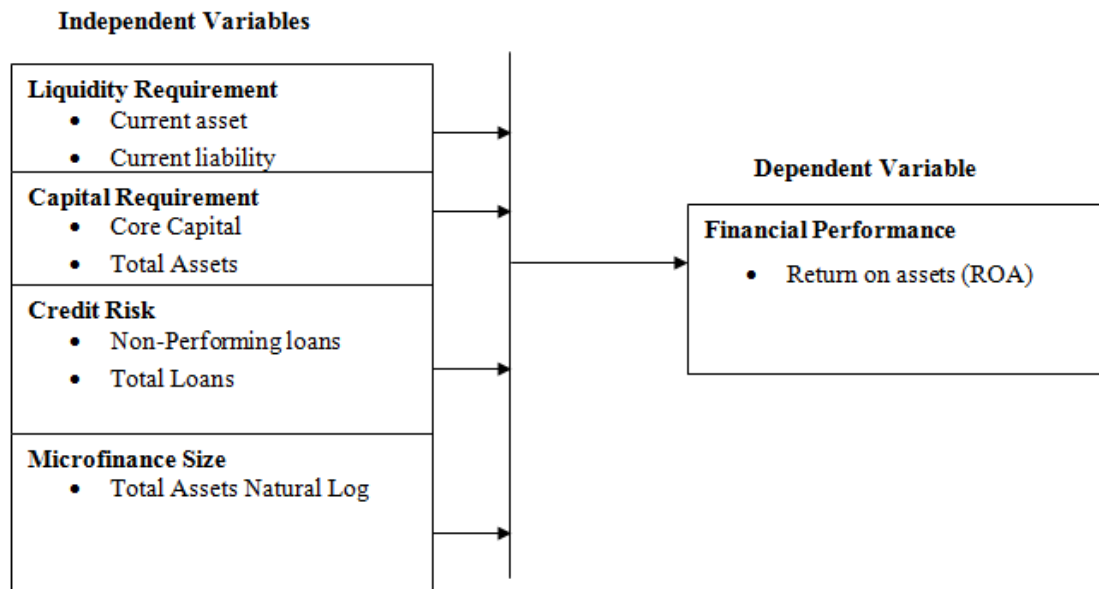


**Figure1.** *Conceptual Framework (Analysist, 2023)*

The correlation between financial performances (the dependent variable) is illustrated in Figure 1 and the other four factors (the independent ones) of liquidity need, capital need, credit risk, and microfinance size.

## 4. RESEARCH METHODOLOGY

Causal research design aided in gathering data regarding the present state of the association between Kenya's microfinance institutions' financial performance and the prudential regulatory system. The study's population consisted of the thirteen microfinance institutions active in Kenya as of December 31, 2020 and published on the Central Bank of Kenya website. A census of all microfinance institutions was adopted since the size of the sample population is small. The study analyzed data from annual reports and financial statements published between 2016 and 2020 using secondary data gathering sheets. To evaluate the success of Micro Institutions' investments, return on assets (ROA) were calculated.A meeting with each microfinance institution's management was required before the researcher could view their financial records. In addition to the university's letter of approval and a study permit, additionally, they furnished a research authorization and study permit issued by NACOSTI.The analysis of quantitative data was conducted utilizing STATA software to compute descriptive statistics such as mean and standard deviation. These statistics were subsequently presented in tabular form, if deemed suitable. To ascertain the association between the variables, the study also used inferential statistics, which included panel data regression modeling and correlation analysis.

## 5. DATA ANALYSIS

### 5.1. Descriptive Analysis

Results for descriptive data can be seen in Table 1 pertaining to the size of microfinance, credit risk, liquidity demand, and capital requirement.

**Table1.** *Descriptive Analysis Results*

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Microfinance Size | 65 | 13.8779 | 1.85557 | 10.8967 | 17.286 |
| Liquidity Requirement | 65 | 1.25505 | 0.80447 | 0.12605 | 5.52778 |
| CreditRisk | 65 | 13.0999 | 102.169 | -4.5 | 824.105 |
| Capital Requirement | 65 | 0.16828 | 0.20909 | 0.00187 | 1.11111 |
| Return On Assets | 65 | -0.0883 | 0.12485 | -0.4815 | 0.03904 |

**Source:** *Survey Data (2023)*

Results for microfinance institutions in Kenya for the years 2016 to 2020 are shown in table 4.1 above. Microfinance size had a mean of 13.8779, a range of 17.286 to 10.8967, and a maximum value of 17.286. These numbers show that the enterprises had increased their asset base during the study period when the microfinance value was calculated taking the natural log of the companies' whole assets. The mean figure for the microfinance current ratio, as shown in the table, was 1.25505, with a range of 0.1261 to 5.5278. These low values are a sign that these microfinance companies had trouble liquidating themselves, which made it impossible for them to pay off their short-term liabilities. The average credit risk for these companies was 13.0999, with a minimum value of -4.5 and a high value of 824.105. Credit risk is the risk involved in lending money to consumers, and the lending criteria used by different microfinances are what caused the risks to vary. The firm's capital need ranged from a low of 0.0019 to a maximum of 1.1111, with a mean value of 0.16828. The low capital requirement values suggest that the majority of these microfinance organizations did not keep the liquid capital they were required to have in relation to a specific amount of assets. Last but not least, the company's ROA mean was -0.0883 with a least amount of -0.4815 and as high a value as 0.039. This indicated that these companies were having problems generating a return on their investment.

## 5.2. Inferential Analysis

**Multicollinearity Test**

Multicollinearity was investigated using the variance inflation factor (VIF).The VIF values for capital need 2.65, credit risk 1.07, liquidity requirement 1.11, and microfinance size 2.79 were all less than 10, showing the absence of multicollinearity.

**Table2.** *Multicollinearity Test*

| Variable | VIF | 1/VIF |
|---|---|---|
| Microfinance Size | 2.79 | 0.35847 |
| Capital Requirement | 2.65 | 0.37781 |
| Liquidity Requirement | 1.11 | 0.90439 |
| CreditRisk | 1.07 | 0.93587 |
| Mean VIF | 1.9 | |

**Source:** *Survey Data (2023)*

## 5.3. Heteroscedasticity test

The outcomes of a Breusch-Pagan test for heteroscedasticity are shown in Table 3. The test statistic is 16.82, and the researcher rejects the null hypothesis of homoscedasticity because it has a P-value of 0.0021. Therefore there is no problem of heteroscedasticity.

**Table3.** *Heteroscedasticity*

| Cook-Weisberg /Breusch-Pagantest | for heteroskedasticity | |
|---|---|---|
| Ho: Constant variance | | |
| Parameters: Liquidity Requirement Microfinance Size | CreditRisk Capital Requirement | |
| | | |
| chi2(4) = 16.82 | | |
| Prob > chi2 = 0.0021 | | |

**Source:** *Survey Data (2023)*

## 5.4. Unit Root Test

The unit root test in this study was tested using the Dickey-Fuller Test, and the findings are displayed in Table 4below. As observed the 10% critical value is less than -3.489, at -2.594 to the left. The unit root hypothesis is not rejected because our sequence does not satisfy certain stationaries. Therefore, we anticipate value changes if mean values increase over time.

**Table4.** *Dickey-Fuller Test for Unit Root*

| Dickey-Fuller test for unit root | | Number of obs  =      64 | | | |
|---|---|---|---|---|---|
| | | | | | |
| ---------- Interpolated Dickey-Fuller --------- | | | | | |
| Test      1% Critical     5% Critical     10% Critical | | | | | |
| Statistic       Value       Value       Value | | | | | |
| | | | | | |
| Z(t)         -3.489         -3.560         -2.919         -2.594 | | | | | |
| | | | | | |
| MacKinnon approximate p-value for Z(t) = 0.0083 | | | | | |
| | | | | | |
| ROA     Coef.  Std. Err.    t   P>t   [95% Conf. Interval] | | | | | |
| | | | | | |
| ROA | | | | | |
| L1.  -.3284846  .0941469   -3.49  0.001   -.5166816  -.1402877 | | | | | |
| | | | | | |
| _cons  -.0288448  .0143461   -2.01  0.049   -.0575222  -.0001674 | | | | | |

**Source:** *Survey Data (2023)*

## 5.5. Analysis of Autocorrelation

Table 5 displays the results of the Durbin-Watson test, which shows that the data are not auto correlated (Durbin-Watson test statistic = 1.324135).

**Table5.** *Cochrane-Orcutt AR (1) regression -- Iterated Estimates*

| Source       SS      df      MS | | Number of obs | 64 | |
|---|---|---|---|---|
| | | | F(  4,   59) | 40.69 |
| Model  .490560418    4  .122640105 | | Prob > F | 0 | |
| Residual  .177826987   59  .003014017 | | R-squared | 0.7339 | |
| | | | Adj R-squared | 0.7159 |
| Total  .668387405   63  .010609324 | | Root MSE | 0.0549 | |
| | | | | |
| | | | | |
| ROA     Coef.  Std. Err.     t | | P>t | [95% Conf. | Interval] |
| | | | | |
| Capital Requirement -.4246932  .0649553   -6.54 | | 0 | -0.5547 | -0.2947 |
| CreditRisk  -.0000335  .0000643   -0.52 | | 0.604 | -0.0002 | 9.5E-05 |
| Liquidity Requirement  .0440913  .0102676    4.29 | | 0 | 0.02355 | 0.06464 |
| Microfinance Size   .0093038  .0076766    1.21 | | 0.23 | -0.0061 | 0.02466 |
| _cons  -.1984814  .1196004   -1.66 | | 0.102 | -0.4378 | 0.04084 |
| | | | | |
| rho  .3223753 | | | | |
| | | | | |
| Durbin-Watson | | statistic (original)    1.324136 | | |
| Durbin-Watson | | statistic (transformed) 1.906315 | | |

**Source:** *Survey Data (2023)*

## 5.6. Model Specification Test

This study aimed to determine whether the fixed or random effect model is more appropriate, with the latter serving as the null hypothesis. Based on the 0.0061 P-value in Table 6, we may infer that this inquiry is suitable for the fixed effects model.

**Table6.** *Hausman Specification T*

| | ---- Coefficients ---- | | | |
|---|---|---|---|---|
| | (b) | (B) | (b-B) | sqrt(diag(V_b-V_B)) |
| | fe | re | Difference | S.E. |
| Capital Requirement | -.0896455 | -.3333922 | .2437467 | .0666573 |
| CreditRisk | -.0000174 | -.0000325 | .0000151 | . |
| Liquidity Requirement | .0484356 | .0457636 | .002672 | .0062088 |
| Microfinance Size | .0898322 | .021132 | .0687002 | .0204538 |
| | | | | |
| | b = consistent under Ho and Ha; obtained from xtreg | | | |
| B = | inconsistent under Ha, efficient under Ho; obtained from xtreg | | | |
| | | | | |
| Test: Ho: | difference in coefficients not systematic | | | |
| | | | | |
| | chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) | | | |
| | 14.42 | | | |
| | Prob>chi2 = 0.0061 | | | |
| | (V_b-V_B is not positive definite) | | | |

**Source:** *Survey Data (2023)*

## 5.7. Panel Regression Analysis

The correlations between the study's parameters were determined by regression analysis, the results of which are detailed below.

**Table7.** *Correlation Analysis*

| Source | SS | df    MS | | Number of obs | 65 |
|---|---|---|---|---|---|
| | | | | F( 4,   60) | 57.72 |
| Model | 0.79184 | 4 .197959874 | | Prob > F | 0 |
| Residual | 0.20576 | 60 .003429365 | | R-squared | 0.7937 |
| | | | | Adj R-squared | 0.78 |
| Total | 0.9976 | 64 .015587522 | | Root MSE | 0.05856 |
| **ROA** | **Coef.** | **Std. Err.    t** | **P>t** | **[95% Conf.** | **Interval]** |
| | | | | | |
| Microfinance Size | 0.00872 | .0065889    1.32 | 0.191 | -0.0045 | 0.0219 |
| Liquidity Requirement | 0.04315 | .0095681    4.51 | 0 | 0.02401 | 0.06229 |
| CreditRisk | -0.00004 | .0000741    -0.53 | 0.599 | -0.0002 | 0.00011 |
| Capital Requirement | -0.4379 | .0569576    -7.69 | 0 | -0.5518 | -0.324 |
| _cons | -0.1893 | .103447    -1.83 | 0.072 | -0.3962 | 0.01767 |

**Source:** *Survey Data (2023)*

The summary of the model and the coefficients for the panel data regression for the microfinance institutions are presented in Table 8. The correlation between microfinance institutions' capital requirements and ROA was found to be -0.4379, which was negative and statistically significant. Capital requirements have a positive, linear association with the financial performance of commercial banks, as found by the research conducted by Mwai (2017), who examined this link for commercial banks in Kenya., which is consistent with this study's findings. Similar to this, Nyanyuki, Nyang'u, and Onwonga (2022) assessed how capital adequacy affected the financial performance of Kenyan commercial banks. The study came to the conclusion that the financial performance of commercial banks in Kenya was negatively but significantly impacted by capital adequacy.

There was a positive connection of 0.04315 between the liquidity ratio and ROA at microfinance organizations. This conclusion is backed up by a study by Yameen, Farhan, and Tabash (2019) that looked at how liquidity affects the performance of businesses and data from Indian pharmaceutical companies. The results show that the current liquidity ratio and the quick ratio have a positive and statistically significant effect on the return on assets-based profitability of pharmaceutical companies. In a similar investigation, Ochingo and Muturi (2018) found a significant correlation between firm characteristics and the performance of Kenyan SACCOs.

Microfinance institution size was found to have a positive and statistically insignificant connection with ROA (r=0.00872). Meiryani et al. (2020) examination of the impact of firm size on financial performance showed no statistically significant relationship between firm size and return-on-assets, which is in line with the results of the present study. This research contradicts the findings of a previous study by Kamau, Gatauwa & Mwambia (2018) and Tipis (2022) that aimed to determine the impact that company size has on the profitability of Kenyan commercial banks. A significant positive correlation between company size and banks' return on assets was discovered using multivariate regression analysis.

The -0.00004 negative connection between the credit risk ratio of microfinance organizations and their return on assets was statistically insignificant. The study's results were consistent with those of Ekinci and Poyraz (2019), who looked at how credit risk affected the bottom lines of Turkish deposit institutions. Credit risk was found to be inversely related to both ROA and ROE in the research. Credit risk, and more especially nonperforming loans, was investigated by Angela, Samuel, and Enock (2022) in order to ascertain its impact on the profitability of Ghanaian commercial banks. The results of the random effect estimate method show that nonperforming loans lower both indicators of financial health.

## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1. Conclusions

The author was motivated to conduct a study to look into how these prudential guidelines in this study affected returns on investment for microfinance institutions in Kenya because they play a critical role in the regulation of financial institutions and in ensuring a healthy financial market for customers. The study came to the conclusion that an MFI's need for liquidity decides whether it can meet its short-term loan obligations and whether it can use its current or liquid assets to pay its current liabilities. Assets may be quickly and affordably converted into cash because to liquidity. Liquidity ratios are most helpful when utilized in comparison contexts, which might be an internal or external analysis. In order to determine whether the company is financially stable and worth their investment, investors will evaluate the company using stock ratings.

Additionally, the research ascertained that capital requirements guarantee microfinance institutions adequate capital to support withdrawals while preventing investments that escalate the risk of default from dominating their portfolios. Capital requirements seek to maintain the stability of the entire financial system, ensure that depositors have access to funds, establish industry standards, and offer a means to compare and evaluate institutions.

Despite the fact that financial institutions have faced difficulties for a variety of reasons over the years, it was found that lax credit standards for borrowers and counterparties, insufficient portfolio risk management, and a failure to pay attention to changes in economic or other circumstances that can worsen a financial institution's counterparties' credit standing were the main causes of serious banking problems. Credit risk, both systemic and localized, must be monitored and controlled by financial institutions.

Usually, the total assets and sales of a corporation reveal how big it is. Large businesses typically attract more attention or are more well-known to the general population. The larger the company, the better signal it can send to the public. However, according to the study's findings, the size of the microfinance organizations did not significantly affect their financial performance; this meant that other, more cautious prudential criteria were responsible for determining the course that the institutions' performance went.

### 6.2. Recommendations

Since reducing overhead has a direct effect on profitability, the study suggested that microfinance institutions evaluate their overhead costs to determine whether there are opportunities to reduce them. Effectively monitor accounts receivable to ensure that clients are billed accurately and payments are received promptly. Analyze the profitability of each of their products and services. It is suggested by the study that microfinance institutions augment their capital requirements through the following means: augmenting profits, issuing cash-backed common or preferred stock, procuring long-term loans, substituting short-term debt with long-term debt, or divesting long-term assets for cash. The

study recommended that microfinance institutions lend to consumers, small enterprises, and large corporations. Microfinance institutions should increase lending standards, which have required consumers with higher credit quality, and also increase capital liquidity requirements. They must be able to account for loan defaults and related expenses.

The study suggests more research be done on the implications of loan portfolio diversification requirements, restrictions on a bank's lines of business or investment portfolio, and other measures to restrict the kinds of risks that a banking company can take. The paper makes the case for conducting additional research on financial institutions other than microfinance institutions.

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