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The Strategic JOURNAL of Business & Change MANAGEMENT
ISSN: 2312-9492 www.strategicjournals.com
Vol. 11, Iss.2, pp 661 – 685, May 12, 2024. www.strategicjournals.com, © Strategic Journals

FINANCIAL RISK AND PROFITABILITY OF MICROFINANCE BANKS IN KENYA

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Accepted: April 24, 2024

DOI: http://dx.doi.org/10.61426/sjbcm.v11i2.2938

ABSTRACT

The objective of this research was to assess the effect of financial risk on profitability of microfinance banks in Kenya. The study was based on five theories namely; portfolio theory, information asymmetry theory, capital buffer theory, shiftability theory, and operational risk theory. A causal research design was adopted. The population of the study was the 14 microfinance banks operating in Kenya as at 31st December 2022. Census was used. The study utilized secondary data gathered using a data collection instrument and document review guide. The data was collected from the Central Bank of Kenya. The secondary data collected was on an annual basis and covered a period of 5 years (January 2018 to December 2022). Data was analyzed using mean, mode and standard deviation for descriptive statistics and panel regression analysis. The research discovered and subsequently determined that financial risks have a favorable and substantial impact on the profitability of microfinance banks. The findings of the study indicate that credit risk, liquidity risk and operational risk have a statistically significant negative effect profitability. However, it was observed that market risk do not have a statistically significant effect on the profitability. The research further confirmed that competition had a moderating role in the association between financial risk and profitability. The study further found that the effect of financial risks on the profitability of microfinance institutions was mediated by income diversification. The study concluded that profitability of microfinance bank is affected by financial and is further mediated and moderated by income diversification and competition respectively. The study recommended that MFBs to focus on developing strategies that optimize working capital management. This would enable them to effectively meet their short-term financial commitments. In regards to market risk, the Central Bank of Kenya (CBK) could develop and implement more stringent capital adequacy requirements for microfinance banks that are exposed to market risk, and conduct regular stress tests to assess their resilience to market shocks. In relation to operational risk, the research suggests that micro-finance institutions should prioritize the implementation of appropriate laws, regulations, and procedures. These measures aim to mitigate company losses and facilitate seamless operations, ultimately leading to enhanced profitability.

Key Words: *Financial Risk, Credit Risk, Liquidity, Market, Operational, Income Diversification Competition*

CITATION: Nyangaresi, R. B., & Simiyu, E. (2024). Financial risk and profitability of microfinance banks in kenya. *The Strategic Journal of Business & Change Management,* 11 (2), 661 – 685. http://dx.doi.org/10.61426/sjbcm.v11i2.2938

INTRODUCTION

The goal to maximize profits is at the heart of any business (Baba & Nasieku, 2016). Profitability, in theory and practice, is the difference between a firm's current as well as future status. Profitability does not happen by itself. It happens in an environment where there are both internal as well as external shocks that can affect the profitability of a firm. Likewise, a business entity's profitability motivates it to expand for them to reach even more quality outcomes in a particular time frame (Tomal & Jones, 2015). Today's market environment is characterized by volatility, unpredictability, complexity, and ambiguity, making it difficult for firms to accurately anticipate their future. Economic shifts, political shifts, technical shifts, social shifts, and legal shifts are all expected to contribute to the business environment's dynamism. These changes are driving business entities to be disturbed concerning their performance's stability and sustainability, necessitating the establishment of a plan in order to preserve competitive capability and operate in an evolving ecosystem (Hunjra, Mehmood, Nguyen & Tayachi, 2020).

Financial risks are at the epicenter of modern management of business organizations (Truica & Trandafir, 2019). Banking institutions are vulnerable to different financial risks including liquidity, credit, forex, interest rate, and market risks that adversely affect their financial performance (Djan et al., 2015). Thus, to enhance financial performance, one of the most essential success indicators for any banking entity remains in its ability to effectively manage the inherent financial risks facing its business. Failure to manage effectively the financial risks can lead to bank failure (Hunjra et al., 2020). Diversification is one of the strategies used by financial institutions to manage financial risks and it is hypothesized that effective use of diversification strategy lowers financial risks and enhances financial performance. The effect of financial risks on financial performance is expected to be influenced by firm characteristics such as age of the firm, ownership structure and size of the firm (Ye, Yeung & Huo, 2020).

Globally, the Covid-19 outbreak and the 2008–2009 financial crisis are two examples of disasters that have had an impact on the performance of the world economy. Occasioned by high risk appetite by institutions in the financial sector was the financial crisis and it resulted in weakening of trust of investors in ability by financial institutions to properly manage risk (Onsongo, Muathe & Mwangi, 2020). Further, this global financial crisis had a significant negative impact on financial markets, especially on international banking institutions that conduct business in borderless markets (Bhimjee, Ramos, & Dias, 2016).

Regionally, Zhongming, Frimpong and Guoping (2019) state that there has been technological improvement to boost financial performance in the banking sector in Africa. Through adoption of novel advancing strategies for small and medium enterprises, aimed at improving performance has resulted in loan default, which has in turn made credit risk take up the biggest proportion of financial risk in financial institutions based in Africa. Moreover, high-speed uptake of internet banking in financial institutions in Africa has resulted in increased financial risk due to poor usage of internet banking.

In Ghana, the Brong Ahafo region is said to have credit risk that has influenced the profit levels of the rural and community banks in the region. Further, it is cited that in Nigeria, from 2004 to 2009, credit risk management effectiveness by commercial banks provides insight into credit risk as a mechanism for enhancing profit. In East African economies, Kenya is lauded for its size as well as its diversification compared to its counterparts (Muriithi, 2016). Additionally, in August 2018, five banks in Ghana have had their licenses revoked as a result of implementation of poor risk management practices. These banks are: Construction Bank Limited, UniBank Ghana Limited, Sovereign Bank Limited, Royal Bank Limited and Beige Bank Limited (Zhongming et al., 2019).

In Kenya, the microfinance sector is crucial to the development of financial markets and the improvement of the majority of Kenyans' access to financial services and products, the research will focus on MFIs in Kenya. The microfinance institutions are essential since they lend to 45% of Kenya's informal sector (Association of Microfinance Institutions, 2022). The financial risk for most MFIs has increased but focus has mostly been on the banks (CBK, 2022). It would be necessary to also investigate financial risk among MFIs in Kenya due to their enormous contribution towards financial intermediation plus inclusion.

The major financial risks comprise; credit risk, liquidity risk, capital risk, market risk, and operational risk (Haque & Wani, 2015; Amin et al., 2014). Credit risk is proxied by the percentage of defaulted loans to aggregate loans, and a higher percentage indicates a higher probability of default (AlKhouri & Aurori, 2019). Liquidity risk means that a bank is unable to reduce its liabilities and increase its assets and is measured using the liquidity coverage ratio (Haque & Wani, 2015). Market risk refers to uncertainty in a financial institution's portfolio earnings due to changes or fluctuations in market conditions related to factors such as exchange rates; interest rates is measured using value at risk (VAR). Capital risk denotes the possibility of a banking entity losing its capital, which is measured through the capital adequacy ratio (Duho et al., 2020). Operational risks denote the possibility of losses arising from bank systems', processes and individuals, and is assessed by the cost/revenue ratio (Ali & Oudat, 2020). The current study will measure financial risks in terms of credit risk, liquidity risk, market risk, and operational risk.

Kenyan microfinance is governed by a number of legislations, notably the Microfinance Act, that was passed in 2006 and revised in 2013. Therefore, the Central Bank of Kenya Act Also Microfinance Act 2006 regulates the microfinance sector (Muganga, 2010). The Microfinance Act aims at providing a framework for regulatory, legal including oversight of deposit-taking microfinance institutions. Low-income groups and micro and small businesses can get financial services from microfinance organizations because they typically lack access to the nation's main financial establishments. The microfinance sector is crucial in developing financial markets and improving the majority of Kenyans' access to financial services and goods. The microfinance institutions are essential since they lend to 45% of Kenya informal sector (Association of Microfinance Institutions, 2022).

Statement of the Problem

Microfinance banks in Kenya contribute towards financial intermediation which has included 2.9% Kenyans (FinAccess, 2019). Despite this, the microfinance banks' financial results have been erratic. The banks reported a decline in ROA in 2019 from 2.7% in 2018 to 2.6%. The ROA in 2020 was also 2.6% but this fall lower in 2021 to stand at 1.7%. The ROA however rose in 2022 to stand at 2.5% (CBK, 2022). The microfinance banks in Kenya have recorded growth in relation to NPLs in the last decade which signifies rising credit risk (Association of Microfinance Institutions, 2022). The microfinance banks have also recorded a rise in liquidity risk which lenders them vulnerable to customer's withdrawal (AMFI, 2021). Financial risk management is said to be an enabler of financial performance among financial institutions. Kenyan microfinance banks offer a good context to investigate the level of financial risk and how this influences financial performance.

Empirical evidence exists on how financial risks affect financial performance of institutions like commercial banks though few if any have focused on financial risk and performance of microfinance banks. The studies have also produced contradictory results. Moslehpour et al. (2022) surveyed financial risks influence on global financial markets. The empirical findings demonstrate that credit risk and liquidity risk affect the global financial markets negatively.

Orichom and Omeke (2020) probed the extent to which the performance of Uganda's microfinance institutions is linked to credit risk management (CRM) and showed that CRM has a positive effect on performance. Ochieng (2021) sought to establish effect of credit risk, liquidity risk, operating risk and interest rate risk on ROA of DT-Savings and credit cooperative societies in Nairobi County, Kenya. The results proved adverse influence on ROA due to presence of credit risk plus liquidity risk while operating risk and interest rate risk showed insignificant effects on ROA. Otanga, Mule and Momanyi (2020) examined the manner in which the performance of DT-SACCOs in Western Kenya is impacted by credit risk discovering that it causes a substantial adverse influence on performance.

This research was inspired by the fact that despite the existence of prior studies shows that there exist contextual, conceptual and methodological gaps that need to be filled. Conceptually, prior studies have operationalized financial risk differently as majority have not considered market risk and operating risk which will be considered in this study. Contextually, majority of the available surveys are on commercial banks and therefore need to investigate if similar findings hold for microfinance banks. Methodologically, most of the previous studies have employed ordinary least square to which has its shortcomings when dealing with panel data. The current study employed a panel regression model.

Objectives of the Study

The overall aim of this research was to assess the effect of financial risk on profitability of Kenyan microfinance banks.Particular intentions of this research were:

- To examine the effect of credit risk on profitability of microfinance banks in Kenya
- To establish the effect of liquidity risk on profitability of microfinance banks in Kenya
- To determine the effect of market risk on profitability of Kenyan microfinance banks.
- To establish the effect of operational risk on profitability of Kenyan microfinance banks
- To determine the mediating effect of income diversification on the relationship between financial risk and profitability of Kenyan microfinance banks
- To assess the moderating effect of competition on the relationship between financial risk and profitability of Kenyan microfinance banks

The null hypotheses that were tested included:

- H01: Credit risk has no statistically significant effect on profitability of Kenyan microfinance banks.
- H02: Liquidity risk has no statistically significant effect on profitability of Kenyan microfinance banks.
- H03: Market risk has no significant effect on profitability of microfinance banks in Kenya.
- H04: Operational risk has no statistically significant effect on profitability of Kenya's microfinance banks.
- H05: Income diversification has no statistically significant mediating effect on the relationship between financial risk and profitability of Kenya's microfinance banks.
- H06: Competition has no statistically significant moderating effect on the relationship between financial risk and profitability of Kenya's microfinance banks.

LITERATURE REVIEW

Theoretical Framework

Information Asymmetry Theory

The current study is anchored by this theory and it was proposed by Akerlof (1970). The theory has been used as it expounds on instances where financial firms cannot separate the safe from risky borrowers. The research makes use of information asymmetry theory in comprehending how financial risk impact the FP of a firm. The theory states that when borrowers and lenders interact, there is an information asymmetry. The assumption arises from borrowers who request for loans with no

information on the possible risks associate with investment options on which the loan will be used. The lender on the other hand has no prior information on the investment by the borrower (Edward & Turnbull, 2013). Because none of them is privy to such information, adverse selection is generated thereby creating moral hazard issues (Horne, 2012).

Horne (2012) criticizes the theory stating two main reasons: signals influence information asymmetry which is not correct and investors that are heavily impacted upon by information asymmetry problems are ambiguously identified or misidentified. Stiglitz (1970) state that financial institutions write loan contractual terms seeking to attract borrowers to agree to their terms including attracting low risk credit borrowers. The effect of this is the setting of rates of interest for which loan demand exceeds loan supply. The credit amount and the collateral amount also have an impact on credit-seeker character and distribution of the credit issued, and returns to lenders (Moti et al., 2012).

Capital Buffer Theory

Rob and Calem (1996) were the pioneers of buffer theory. The main idea behind the capital buffer theory is that banks should hold a certain amount of capital in excess of their regulatory minimum requirements to provide a cushion against unexpected losses. This excess capital is known as a capital buffer. The purpose of the capital buffer is to absorb losses during periods of financial stress, without requiring banks to reduce lending or seek additional capital from external sources. By ensuring that banks have sufficient capital to weather economic downturns, the capital buffer can help to promote financial stability and reduce the likelihood of systemic risk. There are several different types of capital buffers, including the conservation buffer, the countercyclical buffer, and the systemic risk buffer. Each of these buffers serves a different purpose and is calibrated based on various factors, including the size and complexity of the bank and the overall economic environment (Rifqah & Hafinaz, 2019)

One criticism of the capital buffer theory is that it may lead to a false sense of security among regulators and policymakers. In particular, if banks are perceived to have sufficient capital buffers in place, regulators may be less likely to engage in effective supervision and monitoring of their activities. This could create a situation where banks are able to take on excessive risk, confident in the knowledge that they have a buffer to absorb losses. Another criticism of the capital buffer theory is that it may lead to a misallocation of resources within the banking sector (Atsango, 2018).

Portfolio Theory

This theory was formulated and proposed by Markowitz (1952). According to the theory, there exists four steps in formulating a portfolio: valuation of a security, asset allocation, optimization of portfolios and management of performance (Seibel, 2012). The theory further postulates that several companies utilize value at risk models to manage and control exposure to market and interest rate risk. Margrabe (2007), stated that even though credit risk is the most significant risk affecting banks, the use and application of the theory in credit risk management remains to be seen. Portfolio theory provides a valuable framework for understanding the relationship among credit risk management, efficiency, and financial performance of commercial banks. By effectively managing credit risk and optimizing the risk-return tradeoff of their loan portfolio, banks can improve their efficiency and enhance their financial performance.

Essendi (2013) noted that the portfolio theory states that investors often hope to increase investment returns for specified risk level utilizing a framework specifying and measuring investment risk thereby forging a relation between risk and predicted returns. A critical limitation of the theory is that it is difficult to establish and evaluate concentration, that is, added risk arising from increased exposure to specific correlated lenders.

Shiftability Theory

Mouton (1918) created the shiftability theory and published it in his article titled Commercial banking and capital formation. The following primary themes underpin the theory: A bank must set up its portfolio in order to have the appropriate liquidity; The majority of investments are made in secondary money market instruments, which allow for liquidity with little to no value loss; these securities include treasury bills, commercial paper, and securities issued by reputable corporations; By retaining the tools as security, the central bank can offer cash to the bank in times of need (Ngwu, 2009).

There are parts of this theory that are true. Banks now acknowledge reliable assets that can be transferred to different banks. Treasury bills, bills of exchange, major company shares, and debentures are all recognized as liquid assets. This has prompted banks to offer term loans. The need to retain reserves of a significant amount of idle cash balance has decreased as a result of the shiftability theory. It has offered a different approach to the real bill doctrine or theory, where there is a chance of risk due to an economic downturn while buying and selling commercial products alongside raw materials. The chances of gaining income can be raised whereas the likelihood of risk can be decreased with the use of shiftability theory (Cai & Anjan, 2008).

Operational Risk Theory

This theory was hypothesized by Basak and Buffa in 2015. According to this theory, financial instutions adopt different investment models for projection of expected asset profitability and determination of viability of a given investment. Basak and Buffa (2015) define operational risk as the risk associated with implementation of an investment model containing operational errors. Operational risk is categorized into internal operational risk and external operational risk. Operational risk is believed to be internal whenever a financial entity possess control over it and perceived external whenever it is due to uncontrollable events for instance, natural disasters and security breaches. In this study, the operational risk theory reinforces the operational risk variable.

This theory assumes that a financial institution can choose the sophistication of the investment model to be utilized, that the more sophisticated a model is the more prone it is to operational errors during implementation, that financial entities adopt the most sophisticated models for external operational risk, that an inverse relationship exists between optimal model sophistication and operational risk, that entities with relatively high internal operational risk are likely to have optimal operational exposure lower than the exposure of entities that have low internal operational risk, that volatility of market exposure is higher in absence of operational risk (Njiru, 2020).

Empirical Review

Credit risk was used as an independent variable in the research by Abdallah (2016) on the impact of credit risk on the profitability of Kirinyaga County commercial banks. In the research, both primary and secondary data were employed. Utilizing a descriptive research approach, qualitative information was gathered to determine the relationship between credit risk and bank profitability. Primary data was obtained by use of questionnaires filled by the bank managers while secondary data was obtained from the bank's annual reports. The study incorporated the seventeen commercial banks licensed between 2012 to 2016, whereby nine of these banks were utilized as the sample. The findings had an indication that there exists a negative link between credit risk and profitability of banks in the county of Kirinyaga in Kenya. This study adopted ordinary regression analysis has its shortcomings such as sensitivity to outliers. A fixed or random effects model will be adopted in this study.

Ekinci and Poyraz (2019) in the research on credit risk impact on financial performance of Turkish deposit banks used NPLs as a measure of credit risk while ROA and ROE were the measures of financial performance. The target population was composed of twenty-six commercial banks in Turkey that were operational between the years 2005 – 2017. Secondary data from the Turkish Banks Association's statistical reports were used in the study. The research's conclusions exhibited presence of negative link between credit risk and ROE. Moreover, the findings revealed a negative link between ROA and credit risk. This research was conducted in Turkey whose economic and social context is different from Kenyan microfinance banks and therefore the findings cannot be generalized.

Al-Rdaydeh, Matar and Alghzwai (2017) examined the impact that credit risk and liquidity risk has on profitability of both conventional and Islamic banks in Jordan. ROA and ROE served as proxies for profitability in the research, whilst liquidity risk and credit risk served as proxies for financial risks. Panel data regression was used in the research hypotheses test. The survey's conclusions demonstrated that liquidity risk in Jordan's conventional and Islamic banks had a negligible impact on ROE and ROA. Based on the research, banks should use prudence when financing riskier projects to prevent losses that deplete resources. This research was conducted in Jordan whose economic and social context is different from Kenyan microfinance banks and therefore the findings cannot be generalized.

Muriithi and Waweru (2017) empirical research of the link between Kenyan commercial banks' financial performance and liquidity risk. The time frame that the research covered was 2005 to 2014. All the forty-three registered commercial banks at the time of study formed the target population. The measures of liquidity risk were liquidity coverage ratio and proportion of net stable funding. Financial performance was measured by ROE. In the research, secondary data were applied. Regression on panel data was utilized in the research. The study's findings demonstrated a negative relationship between Kenya's commercial banks' net stable financing ratio and their financial performance. It was discovered, though, that the liquidity coverage ratio had minimal to no effect on the soundness of Kenyan commercial banks' finances. In generally, there is a negative correlation between financial performance and liquidity risk. Although this study focused on liquidity risk, the study was conducted among banks which differ in size with microfinance banks.

Abdellahi, Mashkani and Hosseini (2017) investigated the impact that market risk and other risks, being credit risk and liquidity risk, have on financial performance indicators. ROA, ROI and Net profit to total sales were the measure of financial performance. The sample of the study consisted of eight listed banks on the Tehran Stock Exchange. Panel data estimation method was used in the estimation of the research model. The results of the study showed that market risk had no significant impact on ROA. Additionally, it was deduced that market risk had a significant association with ROI. Further, at 95% confidence interval, market risk was seen to have a substantial impact on net profit to total sales. However, the research was done in a developed country whose social and economic setting is different from Kenya.

Odubuasi, Uduak and Ifurueze (2020) explored market risks impact on financial performance of firms in Nigeria. Measures of market risk were exchange rate, commodity price change and equity price change whereas ROA and ROE were the measures of financial performance. Casual research design was incorporated in the study. In addition, the study employed use of secondary data. The scope of the study is the twelve firms listed on the Nigerian Stock Exchange under the oil and gas sector. The scope of time covered in the study is for the period between 2014 to 2018. Data analysis was conducted using descriptive statistics, multiple regression analysis

and correlation. Findings of the study depicted that exchange rate has substantial effect on ROA and ROE, interest rate has a substantial impact on ROE but had an insignificant effect on ROA. Changes in share prices and commodities prices have little or no impact on ROA and ROE. This survey focused on oil and gas sector firms which has operational differences with microfinance banks and therefore need for the current study.

Muriithi and Muigai (2017) pursued operational risk quantitative analysis and profitability of Kenyan commercial banks. Cost earnings ratio served as a proxy for operational risk, and ROE served as a proxy for profitability. The research enclosed the years between 2005 and 2014. All the forty-three registered commercial banks at the time of study were included in the research. Panel data techniques were incorporated in the study. Research findings indicated that, in both the short run and long run, an inverse relationship exists between cost income and profitability of commercial banks. As a result, the research advised commercial bank management to pay closer attention to operation cost control. Although this study focused on operational risk, the study was conducted among banks which differ in size with microfinance banks

Toroitich (2018) scrutinized operational risk exposure impact on financial performance of Kenyan commercial banks. Operational risk was proxied by liquidity exposure, credit risk exposure, operational efficiency exposure and operation expenses exposure while financial performance was proxied by ROA. The target population consisted of forty-two commercial banks registered in Kenya at the time of research. In the research, secondary data were utilized. The time frame covered by the research being 2008 to 2017. Panel data regression analysis was utilised in the study. The research findings depicted a negative insignificant credit risk exposure and ROA link. A substantial association between liquidity exposure and ROA; between operating expense exposure and ROA; and also between operating efficiency exposure and ROA. This research concentrated on commercial banks which have operational differences with microfinance banks and therefore need for the current study.

Jones et al. (2023) investigate the effect of income diversification on the risk of bankruptcy among small businesses in the United Kingdom. A sample of 1,500 small enterprises from the UK's Companies House database were utilized in the study. To account for additional variables like industry, size, and age that could increase the likelihood of bankruptcy, the researchers employed a Cox proportional hazards model. The research discovered a link between revenue diversification and small enterprises' risk of insolvency. Businesses with more diverse incomes had lower bankruptcy rates than those with less diverse incomes. The question of whether income diversification can serve as a mediating factor in the link between financial risk and profitability was not addressed in this study.

The connection between income diversification and small company success in the United States is studied by Zhang and Wu (2022). The study used a sample of 1,000 small enterprises from the Small Business Administration dataset of the U.S. Census Bureau. To account for other variables like industry, size, and location that can impact profitability, the researchers employed a multivariate regression model. The research discovered a favorable correlation between income diversification and small business profitability. Businesses were more likely to be profitable if their earnings were more diverse than they were if they were less diversified. The study was conducted in the United States, where the social and economic climates are different from those in Kenya.

Bryson et al. (2023) sought to examine the relationship between competition and profitability in the European telecommunications industry. From 2010 through 2020, the analysis examined a sample of 10 significant European telecoms firms. To account for additional variables, like market size

and the regulatory environment, that can have an impact on profitability, the researchers employed a multivariate regression model. According to the report, there is a strong correlation between competitiveness and profitability in the European telecom sector. Businesses with greater competition made more money than those with less competition. Due to the fact that this study was carried out in a developed setting, there is a contextual gap. A research that focuses on emerging economies like Kenya is necessary.

Njuguna and Muigai (2023) set out to look at how competition affected Kenyan small enterprises' performance. The study employed a sample of 1,000 micros, small, and medium-sized enterprises from Kenya. To account for additional variables, like industry, size, and location that can have an impact on performance, the researchers employed a Cox proportional hazards model. The study discovered a negative correlation between competitiveness and small company success in Kenya. Businesses with greater competition had a higher chance of failing than those with less competition. The study has a conceptual flaw since the moderating impact of competition was ignored. The investigation was also carried out in a different operating setting.

Mthembu and Ntshangase (2023) aimed to evaluate how competition affected South African business innovation. A sample of 1,000 businesses from the Companies and Intellectual Property Commission of South Africa's database were utilized in the study. To account for additional variables including industry, size, and ownership structure that can have an impact on innovation, the researchers employed a multivariate regression model. According to the study, South African business innovation was positively correlated with competitiveness. those with more competition have a higher likelihood of innovating than those with less competition. The study presents a conceptual gap as the focus was on innovations which is a different concept from profitability.

Conceptual Framework

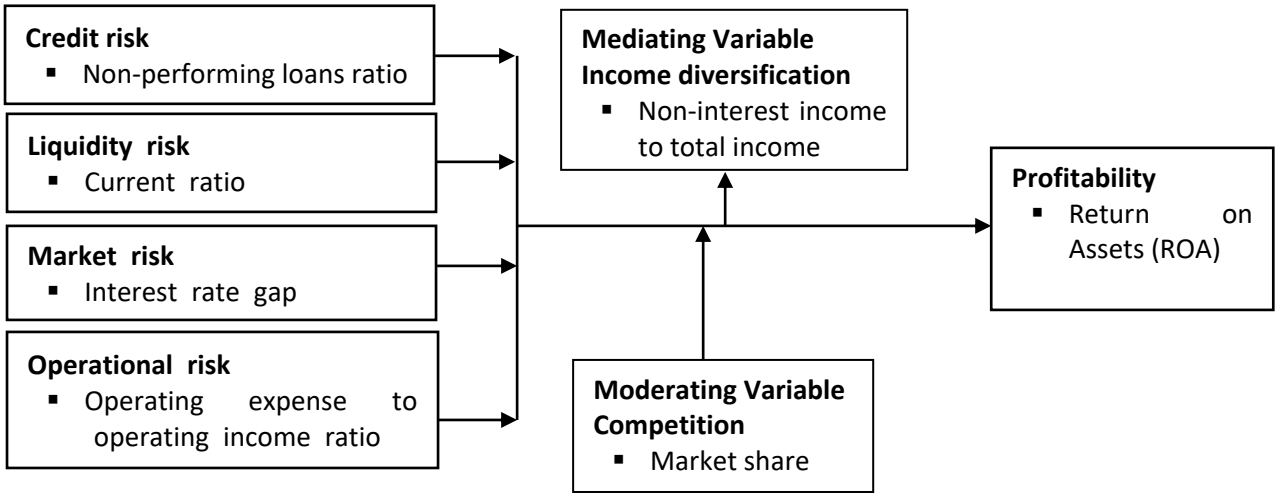

Figure 1: Conceptual Model
Source: Researcher (2023)

METHODOLOGY

The research adopted the positivism research philosophy. Implying that research assumes an unambiguous and accurate knowledge. The current survey utilized a causal research design to examine how financial risk affected profitability of Kenyan microfinance banks. The study comprised a population sample size of 14 Kenyan microfinance banks as at 31st December, 2022 (CBK, 2022). This research adopted a census which enables all the target population companies to be utilized in analysis. Data was gathered from a secondary

source. The data organized and summarized using descriptive statistics. The mean, variance, standard deviation, as well as graphical representations were used to do this. On the other hand, the study used inferential statistics to conduct data analysis. The research utilized STATA software version 20 in analyzing the panel data.

FINDINGS

Descriptive Analysis

The section provides an overview of the descriptive data pertaining to the variables used in the research. These variables include credit risk, liquidity risk, market risk, operational risk, income diversification, competition and financial performance. The descriptive statistics provided a concise overview of the attributes of the variables used. According to Hakim (2012), the use of descriptive statistics aids in comprehending the data's distribution in relation to the normal distribution. The statistical measures of mean, median, standard deviation, maximum, minimum, skewness, and kurtosis were calculated in order to characterize the data collected for the research. The mean was selected as the preferable statistic because to its robustness, which allows it to provide a more representative measure. Additionally, the mean incorporates all values in the dataset and is strongly linked to measures of standard deviation and variance. According to Bell, Bryman, and Harley (2018), standard deviations exhibit stability when used to compare various metrics of dispersion. Table 1 shows the results of the descriptive statistics.

Table 1: Decriptive Statistics

Stats	Profitability	CR	LR	MR	OR	Competition	ID
N	65	65	65	65	65	65	65
Min	-13.4328	0.039	0.010	0.002	0.029	0.002	0.105
Max	4.93617	2.050	7.200	2.294	0.819	0.416	0.950
Mean	0.099592	0.528	0.536	0.406	0.250	0.077	0.347
Sd	13.80352	0.474	0.990	0.402	0.163	0.128	0.215
skewness	-0.95551	1.377	1.322	1.939	1.397	1.848	1.900
Kurtosis	4.287061	4.402	3.159	3.986	5.648	4.642	5.125

CR- Credit Risk; **LR**-Liquity Risk; **MR**-Market Risk; **OP**-Operational Risk; **ID**-Income Diversification

According to the findings shown in Table 1 the average profitabilty for the period spanning from 2018 to 2022 was 0.01%, accompanied by a standard deviation of 13.8%. These results suggest a significant degree of fluctuation in profitability seen across the specified time frame. This suggests that some Microfinance Banks (MFBs) achieved a favorable return on their assets, while others saw unfavorable returns on their assets. The inference suggested that some Microfinance Banks (MFBs) were capable of generating revenue from their assets, while others were not able to do so. The period under consideration saw a minimum profitability of 13.4% and a maximum profitability of 4.94%.

The average value of credit risk throughout the period from 2018 to 2022 was 52.8%, with a standard deviation of 47.4%. The data indicates that there was a very high degree of credit risk in microfinance banks in Kenya from 2018 to 2022, as seen by the positive mean. The credit risk exhibited a significant level of variety, as shown by a standard deviation of 47.4%. This variability is further demonstrated by the range of values observed, with the highest and lowest recorded at 3.9% and 205.0% respectively. The mean number of liquidity risk was found to be 53.6%, with a maximum value of 1.0% and a minimum value of 720.0%. The average value of market risk was 40.6%, with the highest and lowest values recorded as 0.2% and 229.4%, respectively. The average value of

operational risk was 25.0%, with the highest and lowest values recorded as 2.9% and 81.9%, respectively

The mean value of the competition was calculated to be 7.7%, with the largest market share being 41.6% and the least market share being 0.2%. The comeptition had a standard deviation of 12.8%. The findings also revealed that the measure of income diversification had an average value of 34.7%, with a maximum value of 95.0% and a lowest value of 10.5%. The measure of income diversification had a standard deviation of 21.5%, suggesting a relatively moderate level of variability over a given period.

Trends Analysis

The evaluation examined patterns in order to determine the trajectory of variables during the duration of the research. The examination of trends reveals a discernible pattern in the movement of the variables under consideration. The present research examined profitability, credit risk, liquidity risk, market risk, operational risk, income diversification and competition, in order to determine whether any noteworthy changes were place throughout the course of the study period.

Trend Analysis for Profitability

Figure 2: illustrates the trajectory of profitability shown by the 13 Microfinance Banks throughout the period spanning from 2018 to 2022. The measurement of profitability was conducted by assessing the return on assets. The return on assets (ROA) had a positive trend alone during the period spanning from 2018 to 2019. Subsequently, the return on assets exhibited a declining trend from 2019 to 2020 and therafter increased from 2020 to 2022.

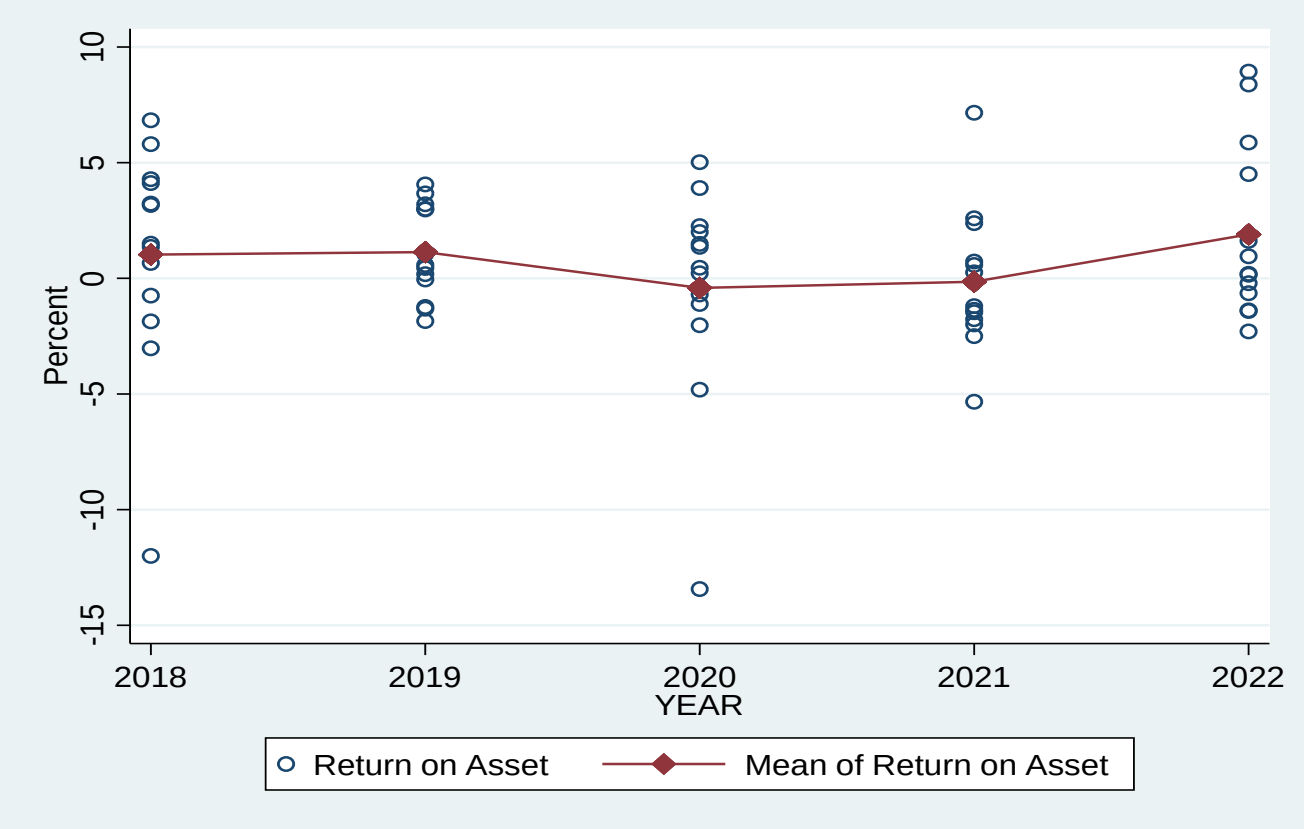

Figure 2: Trend Analysis of Return on Asset

Trend Analysis of Credit Risk

Figure 3 depicts the trends in credit risk within the microfinance banking sub-sector from 2018 to 2022.

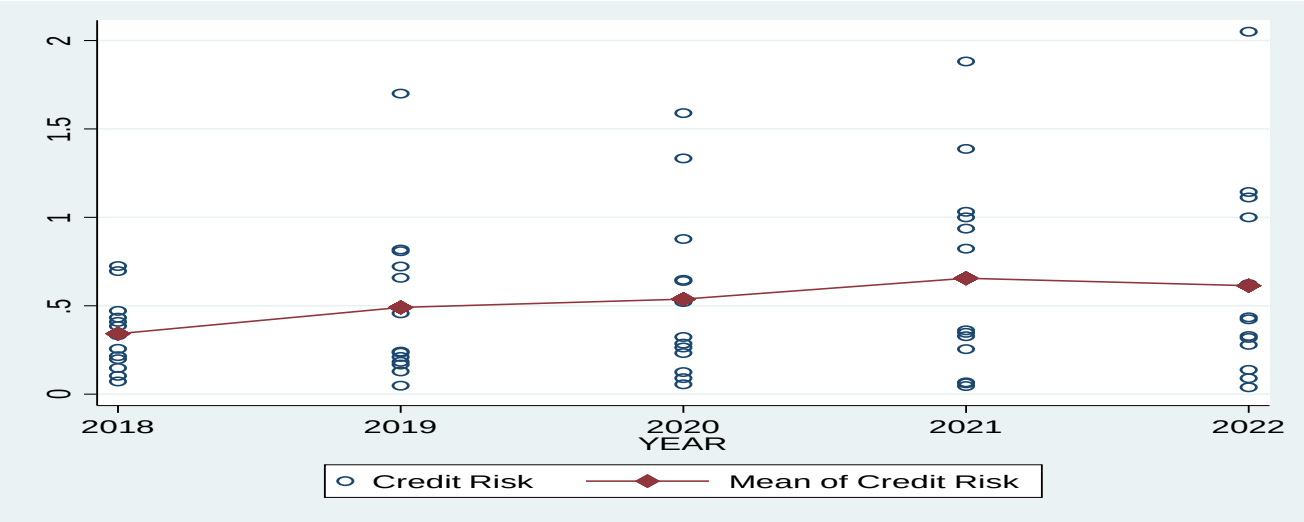

Figure 3: Trend Analysis of Credit Risk

The visual representation shown in Figure 3: illustrates the trajectory of credit risk during the duration of the research. The calculation of credit risk was based on the mean yearly income derived from 13 microfinance banks. The findings of the trend study revealed a consistent upward trajectory spanning from 2018 to 2021. A significant surge was seen over the period spanning from 2021 to 2022.

Trend Analysis of Liquidity Risk

Figure 4 depicts the trends in credit risk within the microfinance banking sub-sector from 2018 to 2022.

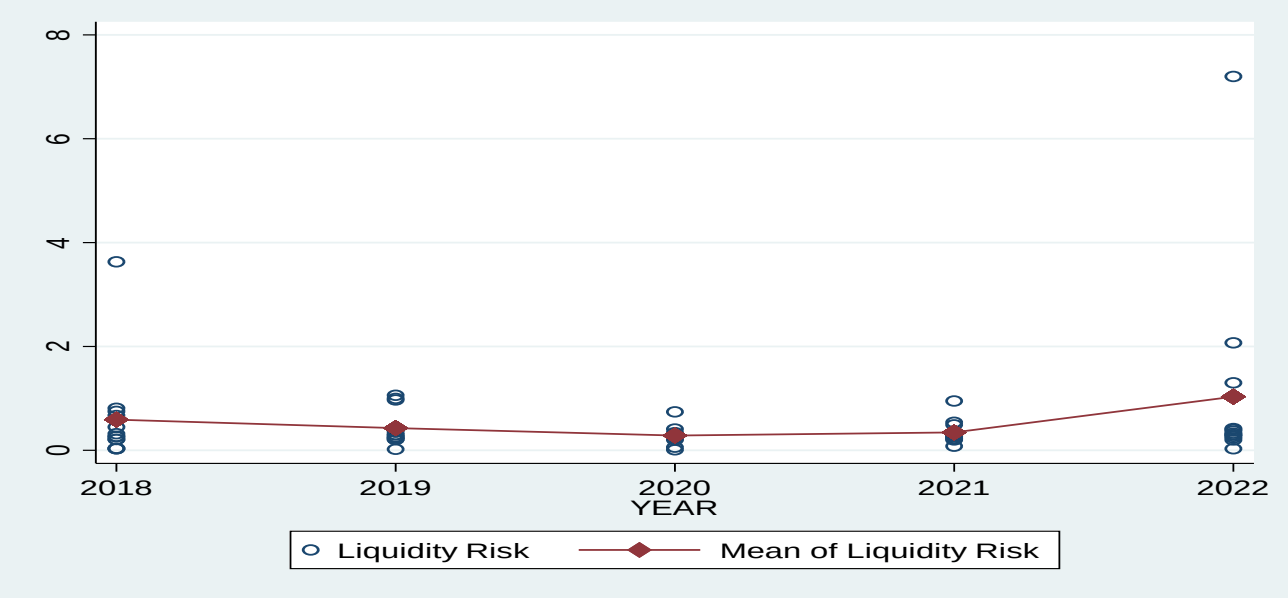

Figure 4: Trend Analysis of Liquidity Risk

Figure 4: illustrates the trajectory of liquidity risk within a sample of 13 microfinance institutions throughout the time span of 2018 to 2022. There has been a notable downward trajectory in liquidity risk from 2018 to 2020, followed by a subsequent rise to 2022.

Trend Analysis of Market Risk

Figure 5 depicts the trends in market risk within the microfinance banking sub-sector from 2018 to 2022.

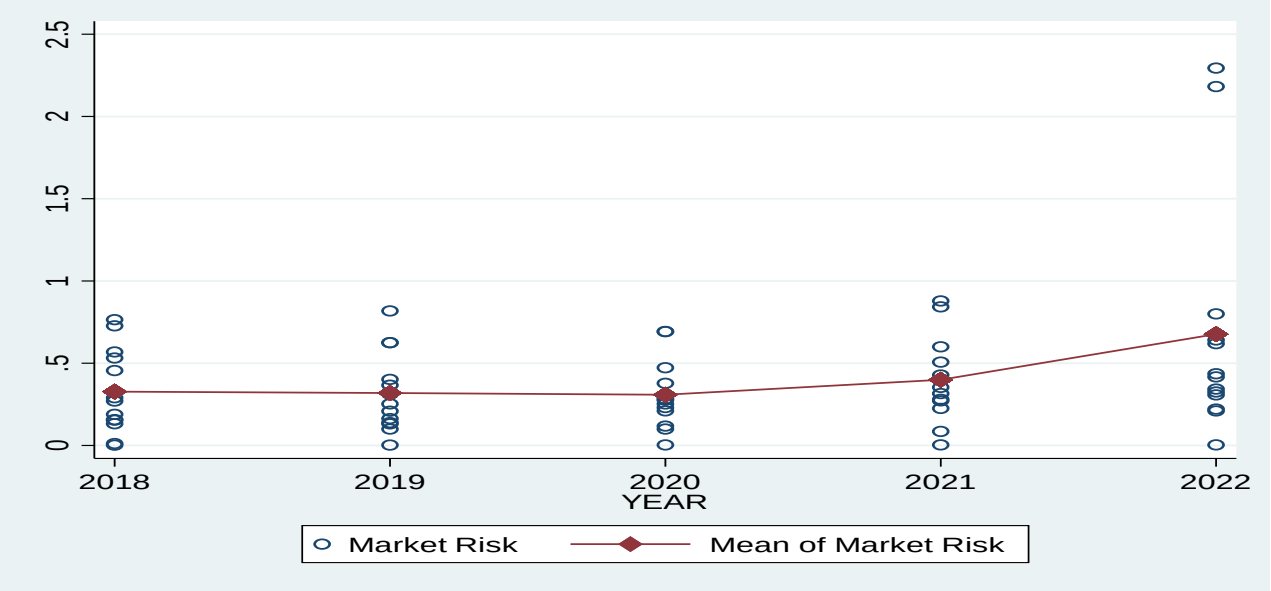

Figure 5: Trend Analysis of Market Risk

Figure 5: illustrates the patterns observed in market risk across the 13 microfinance institutions throughout the period spanning from 2018 to 2022. The measurement of market risk was conducted by assessing the yearly average income derived from 13 microfinance banks. The trend analysis reveals that there was an downward trajectory in the yearly average from 2018 to 2020, followed by a subsequent rise upto 2022.

Trend Analysis of Operational Risk

Figure 6 depicts the trends in operational risk within the microfinance banking sub-sector from 2018 to 2022.

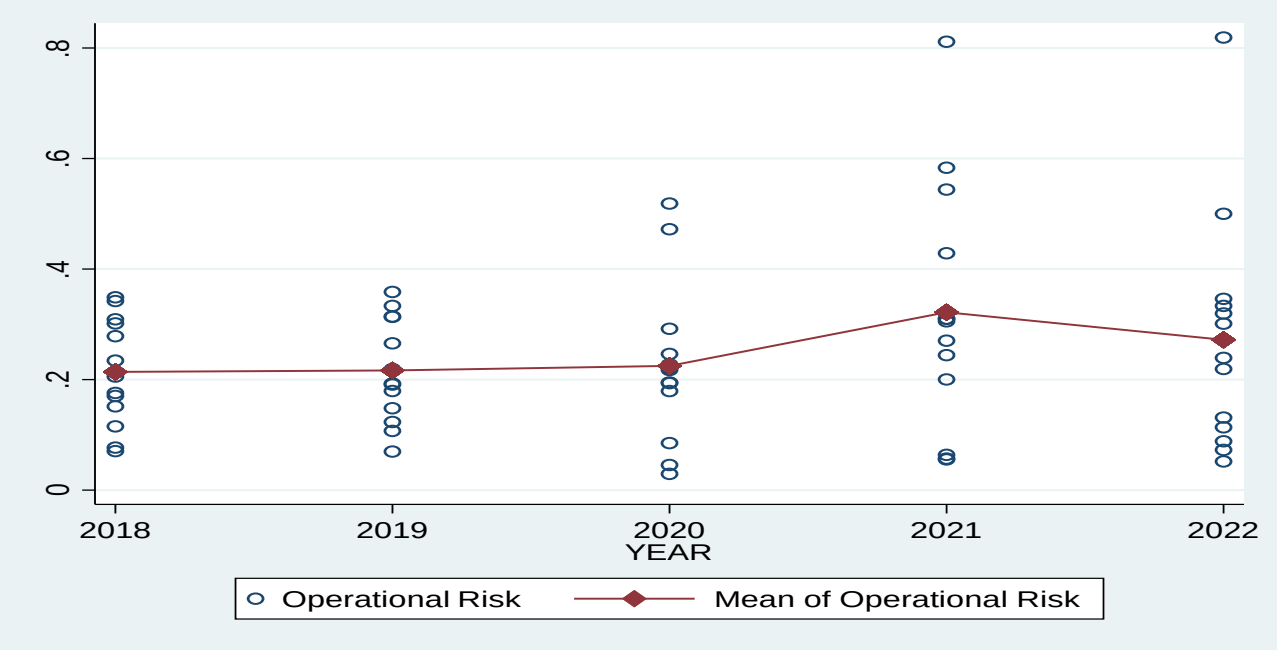

Figure 6: Trend Analysis of Operational Risk

Figure 6 illustrates the patterns observed in operational risk across the 13 microfinance institutions throughout the period spanning from 2018 to 2022. The measurement of operatopnal risk was conducted by assessing the yearly average income derived from 13 microfinance banks. The trend analysis reveals that there was an upward trajectory in the yearly average from 2018 to 2021, followed by a subsequent decline in 2022.

Trend Analysis of Income Diversification

Figure 7 depicts the trends in income diversification within the microfinance banking sub-sector from 2018 to 2022.

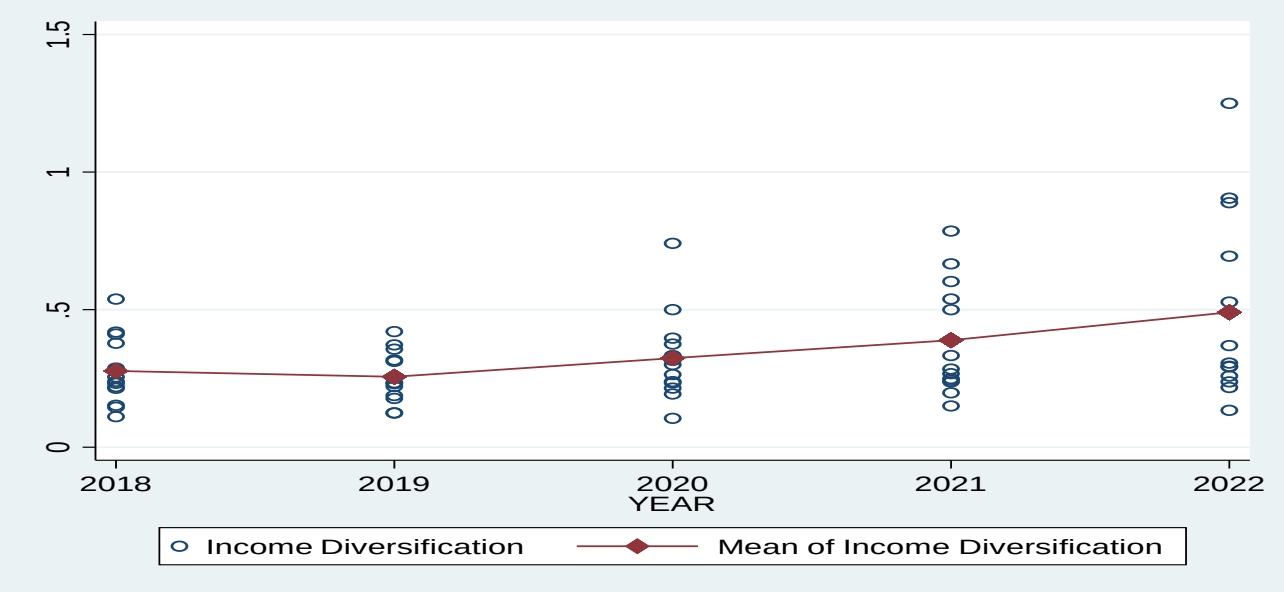

Figure 7: Trend Analysis of Income Diversification

The objective of this research was to analyze the trajectory of the income diversification during the specified time of investigation. Figure 7: illustrates the trend of income diversification of the 13 microfinance institutions examined throughout the period from 2018 to 2022. The data analysis reveals a downward trend in the ratios observed across the duration of the research from 2018 to 2019. However, subsequent to this period, the trend saw a consistent increase from 2019 to 2022.

Trend Analysis of Competition

The analysis of the trend for competition was conducted for the period from 2018 to 2022, as seen in Figure 8.

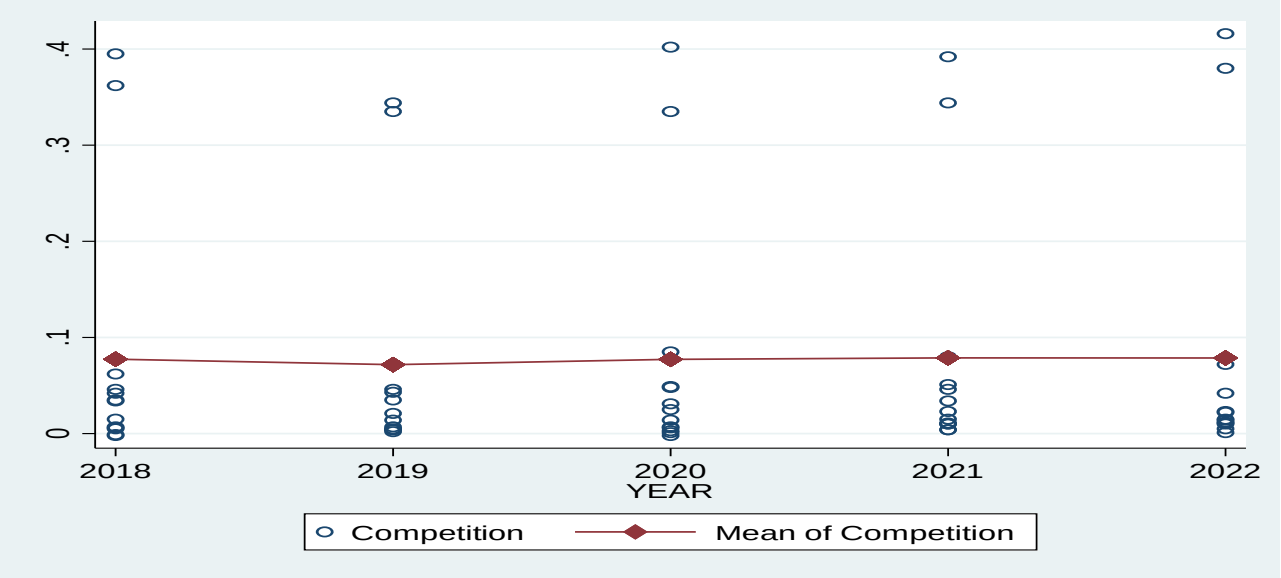

Figure 8: Trend Analysis of Competition

The examination of trends reveals a little decrease in competition from 2018 to 2019, followed by a gradual and modest improvement from 2019 to 202022. The current pattern indicates a rather consistent and competitive landscape among the Microfinance Banks (MFBs) operating in Kenya.

Correlation Analysis Results

The assessment applied Spearman's rank correlation matrix to explain the strength of the relationship between the study variables. The results are presented in Table 2. below.

Table 2: Correlation Analysis Results

	Profit	CR	LR	MR	OR	Competition
CR: Credit Risk	-0.2722	1				
	0.0283					
	-0.3426	0.1334	1			
LR: Liquidity Risk	0.0052	0.2896				
	-0.0697	0.2345	0.4564	1		
MR: Market Risk	0.5811	0.0601	0.0001			
	-0.3715	-0.0209	0.0391	0.0266	1	
OR: Operational Risk	0.0023	0.8689	0.7572	0.8332		
Competition	0.137	-0.283	-0.1859	-0.0877	-0.0618	1
	0.2766	0.0223	0.1382	0.4873	0.6251	
Income	0.4237	0.4836	0.3316	0.3676	0.3324	-0.2822
Diversification	0.0004	0.000	0.007	0.0026	0.0068	0.0228

The results indicated that credit risk has a significant negative relationship on the profitability of microfinance banks in Kenya (r =-0.2942, P=0.0283). The findings are in

agreement with Ekinci and Poyraz (2019) who revealed a negative link between ROA and credit risk. Folajimi and Dare (2020) determined that credit risk and financial performance are negatively correlated. Munangi and Sibindi (2020) showed a negative correlation between credit risk and financial performance.

Further, liquidity risk has a negative and significant on the profitability of microfinance banks in Kenya(r =-0.3426, P=0.0052). The results are supported by Al-Rdaydeh, Matar and Alghzwai (2017) who demonstrated that liquidity risk in Jordan's conventional and Islamic banks had a negligible relationship with ROE and ROA. Muriithi and Waweru (2017) demonstrated a negative relationship between Kenya's commercial banks' net stable financing ratio and their financial performance. Otwoko and Maina (2021) showed a statistically substantial association between liquidity risk and financial performance was shown by the research conclusions

Market risk has a negative and insignificant relationship on the profitability of microfinance banks in Kenya (r =-0.0697, P=0.5811). The findings are in tandem Abdellahi, Mashkani and Hosseini (2017) who showed that market risk had no significant impact on ROA. Additionally, it was deduced that market risk had a significant association with ROI. Further, at 95% confidence interval, market risk was seen to have a substantial impact on net profit to total sales. The findings presented in Maniagi's (2018) study do not provide support for the results obtained. The study demonstrated a positive correlation between market risk and performance proxies, which was shown to be statistically significant in both the initial and optimum models.

Operational risk has a negative and significant relationship on the profitability of microfinance banks in Kenya (r =0.3715, P=0.0023). The results are in agreement with Muriithi and Muigai (2017) who indicated that, in both the short run and long run, an inverse relationship exists between cost income and profitability of commercial banks. However, Onsongo, Mwangi and Muathe (2019) showed that operational risk had a small but substantial link to financial success as assessed by ROA.

Competition has a positive and insignificant relationship on the profitability of microfinance banks in Kenya (r =0.137, P=0.2766). The outcome are not supported by Bryson et al. (2023) who reported that there is a strong correlation between competitiveness and profitability in the European telecom sector. However, Njuguna and Muigai (2023) discovered a negative correlation between competitiveness and small company success in Kenya. Businesses with greater competition had a higher chance of failing than those with less competition. Mthembu and Ntshangase (2023) showed that business innovation was positively correlated with competitiveness. those with more competition have a higher likelihood of innovating than those with less competition.

Lastly, income diversification has a positive and significant relationship on the profitability of microfinance banks in Kenya (r =0.4237, P=0.0004). These results are comparable to Jones et al. (2023) who discovered a link between revenue diversification and small enterprises' risk of insolvency. Businesses with more diverse incomes had lower bankruptcy rates than those with less diverse incomes. Zhang and Wu (2022) discovered a favorable correlation between income diversification and small business profitability. Zhang et al. (2022) showed that income diversification is closely related to how well Chinese family companies function. Businesses with more diverse revenues had a higher propensity to succeed than those with less diverse incomes.

Regression Analysis

The evaluation was conducted with the underlying assumption that there exists a connection between financial risk and the performance of microfinance institutions. However, this relationship was shown to be affected by the competition and affected further by income

diversification. Moreover, the financial performance of Microfinance Banks was directly impacted by credit risk, liquidity risk, market risk and operational rsk. In order to assess the statistical significance of the provided hypotheses, a regression analysis was conducted with a confidence level of 95 percent. The hypotheses were tested using the findings obtained from the regression model. The discourse served as the foundation for evaluating the empirical results by juxtaposing them with the theoretical framework and examining the literature findings from prior research on financial risk and profitability. The focus of the analysis revolves on the primary results and is organized in accordance with the goals of the investigation.

Direct Effect of Financial Risk on Profitability

The study sought to examine the effect of working capital components on profitability of Kenya's microfinance banks. Hypothesis testing and conclusions of the study objectives were based on the multivariate analysis results rather than the bivariate analysis. In this regression, the four independent variables were entered as a block and the results are shown in Table 3.

Table 3: Regression Fixed Effect of Financial Risk on Profitability

Fixed-effects (within) regression				Number of obs =		65
Group variable: MFB				Number of groups =		13
R-sq:				Obs per group:		
within = 0.3947				min =		5
between = 0.0204				avg =		5
overall = 0.1741				max =		5
				F(4,48)=		7.83
				Prob > F=		0.0001
Profitability	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Credit Risk	-1.13327	0.541567	-2.09	0.042	-2.22216	-0.04438
Liquidity Risk	-0.57256	0.235911	-2.43	0.019	-1.04689	-0.09823
Market Risk	0.049789	0.574632	0.09	0.931	-1.10559	1.205164
Operational Risk	-5.39254	1.437037	-3.75	0.000	-8.2819	-2.50318
_cons	-0.04756	0.468616	-0.1	0.920	-0.98978	0.894653

The result obtained from fixed effect model indicated that the financial risks accounted for 17.41% (Overall R square=0.1741) of the variation in profitability of Kenya's microfinance banks. The F-statistic to the model shows was F(4,48)=7.83 which is greater than 0 implying that the estimated parameters in the model are at least not equal to zero. This implies that the four financial risks have an effect on profitability of Kenya's microfinance banks. This effect is significant (P=0.0001). The study regression model as obtained from table above is as shown below.

$$\textbf{Profitability}=-0.04756-0.57256CR_{it}-0.57256LR_{it}+0.049789MR_{it}-5.39254OR_{it}$$

From the findings, credit risk had a regression co-efficient (β_1) of -1.13327, p=0.042 implying that when liquidity risk, market risk and operational risk are controlled, a unit increase in credit risk across time and among microfinance banks would result in a significant decrease of 1.13327 units in profitability. Since the t value is greater than 1.96 and P value is less than 0, the first null hypothesis was rejected as credit risk does significantly affect profitability of Kenya's microfinance banks. The results confirms with Ekinci and Poyraz (2019) who revealed a negative link between ROA and credit risk. The results also concurred with Folajimi and Dare (2020) determined that credit risk and financial

performance are negatively correlated. Munangi and Sibindi (2020) showed a negative correlation between credit risk and financial performance.

The study established that liquidity risk had a regression co-efficient (β_2) of -0.57256, p=0.019 implying that when market risk, credit risk and operational risk are controlled, a unit increase in liquidity risk across time and among microfinance banks would result to significant decrease of -0.57256 units in profitability. The t value is greater than 1.96 and P value is less than 0, the second null hypothesis was rejected as liquidity risk does significantly affect profitability of Kenya's microfinance banks. The results are not in agreement with Al-Rdaydeh, Matar and Alghzwai (2017) who demonstrated that liquidity risk in Jordan's conventional and Islamic banks had a negligible impact on ROE and ROA. Muriithi and Waweru (2017) demonstrated a negative relationship between Kenya's commercial banks' net stable financing ratio and their financial performance. Otwoko and Maina (2021) showed a statistically substantial association between liquidity risk and financial performance was shown by the research conclusions

From the findings, market risk had a regression co-efficient (β_3) of 0.049789, p=0.931 implying that when credit risk, liquidity risk and operational risk are controlled, a unit increase in market risk across time and among microfinance banks would result in a insignificant increase of 0.049789 units in profitability. The t value is greater than 1.96 and P value is greater than 0, therefore the third null hypothesis was not rejected as market risk does significantly affect profitability of Kenya's microfinance banks. The results are supported by The findings are in tandem Abdellahi, Mashkani and Hosseini (2017) who showed that market risk had no significant impact on ROA. Additionally, it was deduced that market risk had a significant association with ROI. Further, at 95% confidence interval, market risk was seen to have a substantial impact on net profit to total sales. The findings presented in Maniagi's (2018) study do not provide support for the results obtained. The study demonstrated a positive correlation between market risk and performance proxies, which was shown to be statistically significant in both the initial and optimum models. According to Kassi (2019), many indicators of market risk have substantial adverse effects on the financial performance of organizations.

Lastly, the results revealed that operational risk had a regression co-efficient (β_4) of -5.39254, p=0.000 implying that when credit risk, Liquidity risk and market risk are controlled, a unit increase in operational risk across time and among microfinance banks would result in significant decrease of 5.39254 units in profitability. The t value is less than 1.96 and P value is less than 0, therefore the fourth null hypothesis was rejected as operational risk does significantly affect profitability of Kenya's microfinance banks. The findings are in agreement with Muriithi and Muigai (2017) who indicated that, in both the short run and long run, an inverse relationship exists between cost income and profitability of commercial banks. Toroitich (2018) depicted a substantial association between operating expense exposure and ROA; and also between operating efficiency exposure and ROA. Simamora and Oswari (2019) depicted that operational risk possessed substantial negative effect on financial performance. However, Onsongo, Mwangi and Muathe (2019) showed that operational risk had a small but substantial impact on financial success as assessed by ROA.

Hypothesis Testing

The hypotheses have been evaluated using multiple regression analysis in the evaluation. Tests were conducted to test the proposed hypothesis, and the findings are shown in table 4 which provides a concise overview of the outcomes obtained from the aforementioned hypothesis testing.

Table 4: Summary of Hypothesis Tests

	Hypotheses	Reject H_0 / Failto reject H_0
H01	H_{01}: Credit risk has no statistically significant effect on profitability of Kenyan microfinance banks.	Reject H_{01}
H02	H_{02}: Liquidity risk has no statistically significant effect on profitability of Kenyan microfinance banks.	Reject H_{02}
H03	H_{03}: Market risk has no significant effect on profitability of microfinance banks in Kenya.	Fail to reject H_{03}
H04	H_{04}: Operational risk has no statistically significant effect on profitability of Kenya's microfinance banks.	Reject H_{04}
H05	H_{05}: Income diversification has no statistically significant mediating effect on the relationship between financial risk and profitability of Kenya's microfinance banks.	Reject H_{05}
H06	H_{06}: Competition has no statistically significant moderating effect on the relationship between financial risk and profitability of Kenya's microfinance banks.	Reject H_{06}

Source: Study data (2021)

SUMMARY

This research aimed to examine the effect of credit risk on profitability of microfinance banks in Kenya. The hypothesis posited was that Credit risk has no statistically significant effect on profitability of Kenyan microfinance banks. Ratio of NPLs to total loans was used to measure credit risk. The findings of the trend study revealed a consistent upward trajectory spanning from 2018 to 2021. A significant surge was seen over the period spanning from 2021 to 2022. The average value of credit risk throughout the period from 2018 to 2022 was 52.8%, with a standard deviation of 47.4%. Moreover, the inferential analysis revealed that credit risk has a significant negative effect on the profitability of microfinance banks in Kenya (r =-0.2942, P=0.0283). Similarly, a unit increase in credit risk across time and among microfinance banks would result in a significant decrease of 1.13327 units in profitability.

This research aimed to establish the effect of liquidity risk on profitability of microfinance banks in Kenya. The hypothesis posited was that Liquidity risk has no statistically significant effect on profitability of Kenyan microfinance banks. Ratio of Liquid assets to total assets was used to measure liquidity risk. There has been a notable downward trajectory in liquidity risk from 2018 to 2020, followed by a subsequent rise to 2022. The mean number of liquidity risk was found to be 53.6%, with a maximum value of 1.0% and a minimum value of 720.0%. Moreover, the inferential analysis revealed that liquidity risk has a negative and significant on the profitability of microfinance banks in Kenya(r =-0.3426, P=0.0052). Similarly, a unit increase in liquidity risk across time and among microfinance banks would result to significant decrease of -0.57256 units in profitability.

This research aimed to determine the effect of market risk on profitability of Kenyan microfinance banks. The hypothesis posited was that Market risk has no significant effect on profitability of microfinance banks in Kenya. Ratio of interest expense to interest income was used to measure market risk. The trend analysis reveals that there was an downward trajectory in the yearly average from 2018 to 2020, followed by a subsequent rise upto 2022. The average value of market risk was 40.6%, with the highest and lowest values recorded as 0.2% and 229.4%, respectively. Market risk has a negative and insignificant effect on the profitability of microfinance banks in Kenya (r =-0.0697, P=0.5811). In addition, a unit increase

in market risk across time and among microfinance banks would result in a insignificant increase of 0.049789 units in profitability.

This research aimed to establish the effect of operational risk on profitability of Kenyan microfinance banks. The hypothesis posited was that Operational risk has no statistically significant effect on profitability of Kenya's microfinance banks. Ratio of Operating expense to operating income ratio was used to measure operational risk The trend analysis reveals that there was an upward trajectory in the yearly average from 2018 to 2021, followed by a subsequent decline in 2022. The average value of operational risk was 25.0%, with the highest and lowest values recorded as 2.9% and 81.9%, respectively. Operational risk has a negative and significant effect on the profitability of microfinance banks in Kenya (r =0.3715, P=0.0023). Moreover, a unit increase in operational risk across time and among microfinance banks would result in significant decrease of 5.39254 units in profitability

Fifthly, this research aimed to determine the mediating effect of income diversification on the relationship between financial risk and profitability of Kenyan microfinance banks. The hypothesis posited was that Income diversification has no statistically significant mediating effect on the relationship between financial risk and profitability of Kenya's microfinance banks. Ratio of Non-interest income to total income was used to measure income diversification. The data analysis reveals a downward trend in the ratios observed across the duration of the research from 2018 to 2019. However, subsequent to this period, the trend saw a consistent increase from 2019 to 2022. The findings also revealed that the measure of income diversification had an average value of 34.7%, with a maximum value of 95.0% and a lowest value of 10.5%. Income diversification has a positive and significant effect on the profitability of microfinance banks in Kenya (r =0.4237, P=0.0004). The results of the inferential analysis did not provide evidence to support the null hypothesis. Hence, it was determined that income diversification had a significant statistical impact on the association between financial risk and profitability.

Last objective of the study was to assess the moderating effect of competition on the relationship between financial risk and profitability of Kenyan microfinance banks. The hypothesis posited was that competition has no statistically significant moderating effect on the relationship between financial risk and profitability of Kenya's microfinance banks. Market share was used to measure competition. The examination of trends reveals a little decrease in competition from 2018 to 2019, followed by a gradual and modest improvement from 2019 to 202022. The mean value of the competition was calculated to be 7.7%, with the largest market share being 41.6% and the least market share being 0.2%. Competition has a positive and insignificant effect on the profitability of microfinance banks in Kenya (r =0.137, P=0.2766). Two of the interaction effect are significant liquidity risk interaction competion (P=0.006) and operational risk interaction competition (P=0.035). Therefore, competition has significant moderating effect. The study found a statistically significant moderating effect of competition on the relationship between financial risk and profitability of Kenya's microfinance banks.

CONCLUSIONS

The research data were used to draw conclusions that aligned with the study goals and hypothesis. The study's conclusion is that there is a positive and statistically significant relationship between financial risks and the profitability of microfinance banks in Kenya, based on the data obtained from the evaluation. The profitability of a MFB is contingent upon the financial risks it undertakes. Operational risk recorded the greatest effect on profitability, followed by credit risk, liquidity risk

and finally market risk which affected profitability positively while the rest negatively.

Firstly, the study concluded that credit risk negatively and significantly affect the profitability of microfinance banks in Kenya. The findings are consistent with several empirical studies across countries. This implies an increase in the non performance loans relative to totals loans results in a decrease in the profitability. This is in line with the Information Asymmetry Theory as a concept from economics and finance that refers to a situation in which one party in a transaction has more or better information than the other party. This imbalance of information can lead to various issues in the credit risk assessment process, as it affects the lender's ability to accurately assess the borrower's creditworthiness.

The profitability of microfinance banks in Kenya was shown to be significantly and negatively impacted by liquidity risk, as revealed by statistical analysis. This implies that as liquid asset increase relative to total asset, the profitability declines. This is not in line with capital buffer theory. Capital buffer theory is applied to liquidity risk in order to ensure that banks have sufficient capital to absorb losses and maintain their ability to meet their financial obligations, even in times of stress. This is important because liquidity risk can pose a significant threat to financial stability, particularly if it is not properly managed.

In addition, it was shown that market risk had an advantageous although statistically negligible impact on the profitability of microfinance institutions operating in the Kenyan context. This suggests that when there is a rise in interest expenditure compared to interest income, the profitability stays same or, if there is a change, it is positive but lacks statistical significance. The findings do not support portfolio theory. Another important application of MPT to market risk is to use asset allocation. Asset allocation involves determining the appropriate mix of different asset classes, such as stocks, bonds, and cash, in a portfolio. The optimal asset allocation for a particular investor will depend on their individual risk tolerance and investment goals.

Further, the profitability of microfinance banks in Kenya was shown to be significantly and negatively impacted by operational risk, as revealed by statistical analysis. This implies that as operating expenses increase relative to operating income, the profitability declines. This is in line with operational risk theory. Operational risk theory and profitability of microfinance banks are closely linked. Operational risk is the risk of losses resulting from inadequate or failed internal processes, people, and systems, or from external events. Microfinance banks are particularly vulnerable to operational risk due to a number of factors, including their reliance on manual processes and systems, their exposure to high-risk borrowers and their operations in often volatile and unpredictable environments.

Moreover, the test results for the fifth hypothesis point out that income diversification has a positive and significant statistical mediating effect on the relationship between financial risks and MFBs profitability. Therefore, the study concludes that income diversification mediates the relationship between financial risks and profitability. income diversification is a valuable tool for businesses of all sizes to manage financial risk and improve profitability. By diversifying their income streams, businesses can reduce their reliance on any one source of income and make themselves more resilient to financial shocks.

The investigation ultimately determined that the presence of competition has a significant moderating effect on the relationship between financial risk and profitability. The inference may be drawn that the correlation between financial risk and profitability is not linear, but rather affected by the presence of competition. In a competitive market, MFIs have to work harder to attract and retain customers. This can lead to them becoming more efficient in their operations and offering more competitive products and services. As a result, MFIs may be able to reduce their costs and increase their

profits, even while maintaining a prudent level of risk. However, it is important to note that competition can also have a negative impact on the profitability of MFIs. If competition is too intense, MFIs may be forced to lower their interest rates and fees in order to attract and retain customers. This can lead to a decrease in profitability, even if MFIs are maintaining a prudent level of risk.

Reccommendations of the Study

In relation to liquidity risk, the research suggests that it is essential for MFIs to focus on developing strategies that optimize working capital management. This would enable them to effectively meet their short-term financial commitments. In regards to market risk, the Central Bank of Kenya (CBK) could develop and implement more stringent capital adequacy requirements for microfinance banks that are exposed to market risk, and conduct regular stress tests to assess their resilience to market shocks. In relation to operational risk, the research suggests that micro-finance institutions should prioritize the implementation of appropriate laws, regulations, and procedures. These measures aim to mitigate company losses and facilitate seamless operations, ultimately leading to enhanced profitability.

The study's results will have significance for microfinance institutions in Kenya as they will delineate the necessary measures to mitigate financial risks and enhance profitability in the presence of competition and income diversification strategies. The results of this research will have significant importance as they will provide valuable insights for Microfinance Institutions (MFIs) in comprehending the potential impact of financial risk on their profitability. This understanding will be particularly crucial for policymakers in formulating effective strategies and policies. The implications of the study's results extend beyond Kenya's banking industry, as they will inform the formulation of various initiatives aimed at enhancing the profitability of microfinance institutions (MFIs) via the use of sound risk management practices across all facets of their operations.

Suggestions for Further Research

Since the scope of this study was narrowed down to microfinance banks only, more research might concentrate on other types of financial institutions, such as SACCOs and commercial banks. The research was predicated around the use of data that had been obtained over a span of five years. Consequently, future investigations should take into account the collection of data that extends beyond the aforementioned five-year period. In further research, the use of a mixed approach, which may include gathering secondary data in addition to primary data utilizing both structured and unstructured questionnaires, need to be given considerable thought.

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