



# MICROFINANCE IN AFRICA: INTEREST RATE, FINANCIAL LEVERAGE, AND FINANCIAL PERFORMANCE: EXPERIENCE AND LESSONS IN KENYA

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## **Abstract**

*The purpose of the study was to investigate microfinance in Africa, the interplay of interest rate, financial leverage and financial performance, experiences, and lessons from microfinance institutions in Kenya. The study employed positivism philosophy as the research philosophy and used explanatory research designs. The targeted population was all the thirteen registered Deposit Taking microfinance institutions in Kenya. The sampling method that was used was the census approach and used secondary data from MFI's (Microfinance Institutions) published accounts for the period between 2014-2018. The study was anchored on 3 theories: Resource-Based theory, Dynamic Capability Theory, and International Fisher Effect theories. Various diagnostic tests were applied to ensure we had a suitable empirical model. Data analysis was carried out using both descriptive and inferential statistics using panel data multiple regression analysis. The study results indicated that interest rates and financial leverage have a positive effect on the financial performance of microfinance institutions. The MFIs owners and managers should put in place risk management measures such as risk identifications to prevent the MFIs from the effect of interest rate and financial leverage as they affect their financial performance.*

**Keywords:** *Financial performance, Financial leverage, Interest rate, Kenya, Microfinance institutions.*

## **INTRODUCTION**

Financial performance is a key determinant of assessing organization success. The financial performance is geared toward determining whether the firms have generated enough income for maximizing shareholder's wealth as opposed to the mere maximization of the firm's net profit (Andrija & Filip, 2017). Rupa (2015) noted

that financial performance measures among them a debt-to-equity ratio, return on assets, operating self-sufficient and profit margins are key drivers that determine the financial performance of Bangladesh MFIs. The study found that the organization should manage the variables that are used to calculate the above financial performance measures depending on their influence on financial performance.

The organization must carry out financial performance analysis to know their financial health. The financial performance analysis to be undertaken depends on the financial objectives of the firm, whether it is liquidity, profitability, sustainability, overall efficiency, or growth (Shah, 2015). In the financial sector, financial performance is usually affected by market trends. The financial institutions are the major lender of capital funds and, they are major investors in various firms, thus their portfolio performance is drawn by earnings of other sectors invested on. When the economy is healthy and businesses are expanding they will have increased revenues and thus high returns (Sean, 2019).

Mugo et al., (2018) observed that for the deposit-taking SACCO (Savings and Credit Cooperative) to maintain a good financial position they must be ready to invest in financial innovations especially Information Technology. The SACCO must adopt mobile communication services to be able to offer efficient services to their customers. The SACCO will need to invest a lot in technology to be able to remain relevant in the competitive financial sector. However, the study ignored other factors like access to cheaper loans from financiers; mobilization of deposits from the customers, and other internal factors that affect the overall performance. The effects of market risk variables need to be minimized for the organization to generate excess income to implement the financial innovations which are costly.

Omondi (2019) noted that microfinance institutions in Kenya are faced with many challenges caused by the changing business environment. Those challenges are driven by emerging financial technologies and the existence of unconventional players in the market. The hard economic conditions have resulted in little customer savings, and the MFIs are left with relying on high-interest loans from commercial banks which have affected their financial performances.

Financial Leverage refers to the proportion of long-term debt in the capital structure. In this study, financial leverage refers to the long-term debt to equity ratio (Enekwe et al., 2014). Financial Leverage influences the financial performance of conventional financial firms' more than Islamic financial firms in Turkey. The lower effects in the Islamic financial firms are explained by lower Financial Leverage in the Islamic market due to Sharia screening criteria which put on a cap the upper limit of the bearing the interest-based debts (Ahmet, 2016).

Nimalathan and Pratheepkanth (2012) observed that the effects of Financial Leverage usually affect the financial performance of various firms especially in terms



of their profitability. The study noted that in Sri Lanka, firms with high financial costs attributable to a high degree of leverage are more profitable. Most Sri Lanka MFIs were found to be profitable since they highly depend on debt capital. Alshubiri (2015) in their study found that Financial Leverage risk used as a performance measure of financial risk hurts financial performance. Hussan (2016) observed that financial leverage risk impacts companies differently in a study done in Bangladesh. Financial Leverage risk influences sales revenue, earnings before interest, and tax and Earning per share of the firm. Financial Leverage using long-term debt financing improves the permanent finance and success of the organization.

Interest Rate risk is a risk where there are chances that unexpected changes in interest rate will negatively affect the value of an investment. Any changes in interest rate cause the value of fixed income from an investment to rise or fall. Njuguna et al., (2017) noted that Interest Rate affects the financial performance and growth of MFIs. The study found that MFIs management has put in place effective Interest Risk and price risk management practices. The MFIs acquire their funds through both internal and external sources. The use of external sources especially bank loan present an Interest Risk exposure to MFIs. The Kenyan MFIs have applied the pecking order theory whereby they first exploit cheap internal sources of funds before embarking on another source like bank loans.

Kamau and Njeru (2016) observed that interest rate influences the financial performance of companies. The study noted that market risk variables comprising of interest rate risk, stock prices and currency risk influences financial performance negatively. Interest rate risk causes the movements in levels or fluctuations of market prices of organization financial assets held. The fluctuations in stock prices influence access to foreign capital through foreign investments. The volatilities affect assets market value and the overall profitability.

According to Emre et al., (2019) interest rate capping had interfered with the Kenya government's monetary policy. The government introduced the interest capping rate to the financial sectors to curb the effect of interest risk. The study found that the introduction of interest rate caps by the Kenyan government caused the collapse of the issue of credits by micro, small and medium enterprises, reduction of loan book balance by the small banks, and reduced financial intermediation.

Globally, Microfinance Institutions have shown great performance in terms of growth in clients and outreach. By the end of December 2017, MFIs have reached an estimated 139 million low-income clients with loan disbursement estimated to be 114 billion dollars all over the world, which was a growth of 5.6% from 2016. South Asia region leads with many MFIs and borrowers estimated to cover 60% of the total

borrowers. The MFI industry has shown different trends in growth in terms of loan borrowers. In South Asia, the growth reduced from 13.4% in 2016 to 6.6% in 2017. In East Asia and the Pacific, the borrowing grows from 10.6% to 18.1% in 2017. In America, the loan portfolio was reduced by 1.1% in 2017. In West Africa, the borrowings grew by 0.4% while in Kenya the borrowings reduced by 18% which is attributed to the electioneering period in 2017 (Blaine, 2018).

In 2016, their global portfolio risk increased to 7.2 % compared to 4.7 % in 2015. For the year 2017, MFIs in Eastern Europe and Central Asia generated losses of (1.1%) on ROA. South Asian MFIs on the other hand shown ROA of 3.5% while African MFIs showed ROA of 3.1% with low portfolio quality (Microfinance Barometer Report, 2018). According to Mohita (2019), there is slow positive growth in the MFIs according to the global trend on assessments of operational and financial results of 762 MFIs worldwide. There is a regional variation that results from difficult regulatory, political, and economic environments. Effects of inflation rates in Nigeria in 2015, an interest cap, and election cycles in Kenya in 2017 were some of the causes of the decline in value of gross loan portfolio in Africa.

Emerging Trends in the microfinance sector are financial inclusions. These innovations play an integral role in shaping the future of microfinance institutions. The innovations include specialized MFIs that focus on specific demands like farmers only; diversifications of MFI 's services and products; new channels like branchless banking and franchise-based services and Turnkey solutions which include more services like chain management and marketing for micro-business products (Kurnia, 2013).

Kenyan microfinance institutions have experienced significant growth from the period 2011 to 2017. There has been a lot of transformation in terms of an increase in innovations of new services, growth in the number of customers, and diversity in the range of services and products offered. There is a notable increase in the number of microfinance institution banks in Kenya from six in 2011 to thirteen in 2017. Their asset base has also increased tremendously from 24.5 billion in 2011 to 72.5 billion in 2016 and their customer's deposits increased from 9 billion in 2011 to 40.1 billion in 2016 (Central Bank of Kenya, 2017).

Despite the importance and reforms in the growth of microfinance institutions in Kenya, Microfinance institutions have reported poor financial performance (Central Bank of Kenya, 2019). In 2014, the microfinance institutions reported a combined profit of Kshs. 1 billion, then the profits declined to Kshs. 592 million in 2015 which was a 169 % decline. In 2016, they reported losses amounting to Kshs. 331 million, in 2017 they reported combined total losses of Kshs 622 million and in 2018 a combined loss of Kshs1.4 billion which amounted to a decline of 131% from 2017 (Central Bank of Kenya, 2017).



## REVIEW OF LITERATURE

This section contains reviews of the theoretical and empirical literature on firm size, market risk, and financial performance and a detailed empirical literature review regarding the main scope of the study

### Theoretical Review

The study is anchored on three theories: Resources Based Theory, Dynamic Capability Theory, and International Fisher Effect theories discussed below.

#### *Resources Based Theory*

Resource-Based View (RBV) is a theory introduced by Barney in 1991 and postulates that firms are heterogeneous, and they possess heterogeneous resources. It emphasized that different firms would apply different strategies since they possess different resource mixes. The theory focuses on how the management of the firms puts a lot of attention on what firms internal resources are to be able to identify those assets, capabilities, and competencies which will put the firm into a superior competitive advantage (Barney, 1991).

Firms operate in an external business environment that is very volatile and thus the firm must determine internal resources and capabilities that will determine their strategic choices to be competitive. The abilities identified by the firm will ensure they add value to the customer value chain and will help the firm to develop new products and successfully enter new markets. Not all resources possessed by firms enable it to have competitive advantages but only those that are different across firms and there exists resource immobility where there is the inability of competing firms to acquire resources from other firms (Madhani, 2010).

Proponents of RBV argue that RBV is a theory that combines both strategic and organizational insights on a firm's competitive advantage. In project management, firms have identified how to spread their resources according to alignment with their strategy and capabilities to shape their competitive advantages. The study indicated that when a firm has a better position in terms of marketing strategy, this helps in maximization of the firm's potential and improves the overall performances (Almarri & Gardiner, 2014). When an organization uses the dynamic managerial capability on managerial cognition, social capital, and human capital in undertaking human resource strategy, RBV theory is applied. The recruitment of employees based on Competitive advantages plays a major role in mediating the relationship between marketing capabilities to financial performances. Marketing and operational capabilities influence the financial performance of an organization positively (Kamboj et al., 2015).

Kraaijenbrink et al., (2010) observed that although RBV helps in the improvement of a firm's performances, it is limited to deal with dynamic issues such as boundaries, timing, innovation, and entrepreneurship. It put more emphasis on resources and capabilities. The theory does not explain the timing of when the value has been created and when firms have innovated and generate new sources of sustainable competitive advantage.

Nason and Wiklund (2018) observed that VRIN resources which are valuable, rare, inimitable, and non-substitutable, and efficient are the basis of RBV and do not contribute to the firm's growth and performance. The versatile resource provides means to exploit opportunities when they are recognized and confer the flexibility to adapt to evolving environmental conditions and leads to firm growth and performances.

The RBV theory relates well to this study since financial performance is a key variable under this study. The organization must identify its competitive advantage over the other players in the industry, taking into consideration market risk factors, for it to become leaders in the market and this improves its financial performance (Collins, 2020).

### *Dynamic Capability Theory*

Dynamic Capability theory (DC) was developed by Teece, Pisano, and Shuen's in 1997 which is a process that enables the organization to reconfigure its strategy and resources to achieve sustainable competitive advantage and to achieve superior performance in a rapidly changing environment (Bleady et al., 2018).

Proponents of the theory like Teece (2018) noted that strong dynamic capabilities enable the creation and implementation of an effective business model. The strengths of a firm's capabilities are implicated when business model changes are translated into organizational transformation. The study found connections among the elements of the economic system that are mapped out to pathways to profit and better financial performance. Arndt (2011) observed that DC theory is a central source of a firm's competitive advantages. The study identified three key aspects of dynamic capabilities which include the process, cognitive and decision-based micro-foundation, and human agency. The processual element of dynamic capability reflects the fact that capabilities are socially constructed base on the decision concerning selection and transformation of capability.

Some of the opponents of the theory include Gorgol (2017) observed that the DC theory approach has a lot of polarization, inconsistencies, and confusion in meaning. The concept of capabilities, abilities, and capacity in the theory is widely misinterpreted. The study introduced the concepts of capability activation and organization dynamic to resolve the DC theory confusion. Peteraf et al., (2013)



revealed that the DC approach has a major problem of polarization in terms of the perspective of dynamic capabilities view in the understanding of the construct. The study findings were that the field is socially constructed on basis of two domains of knowledge and their underlying structural impediments have been impeded on dialog across the domains. The study introduced the contingency-based approach to unify the field.

### *International Fisher Effects Theory*

International Fisher Effects Theory is an economic theory that was developed by Irving Fisher in 1930. It states that any expected change in the future spot rate between two countries' currencies, results in almost the same amount although in the inverse direction of their nominal interest rate. The theory indicates that a currency of a country with a higher nominal interest rate will depreciate against other foreign currencies due to the increase in the inflation rate in that country (Andrea & Rodrigo, 2015).

There is a relationship between the interest rate risk and inflation rate risk. The nominal interest rate is the aggregate of the real interest rate and the expected rate of inflation at any period. Any increase in the growth of the money supply will result in to increase in inflation and the nominal interest rate. It was also observed that when determining the price expectations, there appears a cyclical factor and the implication is that all policy actions targets influencing interest rates and are felt in price expectations (Hur et al., 2018).

International Fisher Effects Theory indicates that the country's currency with a higher nominal interest rate due to the increase in the inflation rate in their economy will depreciate more against other country's currency with a lower nominal interest rate. High interest rates cause a decrease in currency value. High-interest rate influences inflation positively and causes the currency to depreciate (Saeid & Valian, 2011).

According to Jeffrey (2005), there is a perfect correlation between nominal interest rate to change in the inflation rate in the short-term, and the formation of expectation would lead to the greater impact of expectation on the interest rate. Fama developed an efficient market theory using the Fisher hypothesis in 1975. The future price changes are mirrored in the current interest rate and thus the evidence of an efficient market. These concurred with Fisher's hypothesis that previous changes in the price level are already reflected in the current rate of interest (Shiller, 2014).

One of the opponents of the theory was Allen et al., (2014), who noted that the international Fisher effect theory does not hold for private debt and that the rate on private debt increase with inflation. A standard private debt contract pays a total

expected return on nominal and partly real. In the context of this study, when firms are speculating on future spot rates for purposes of making profits, they may move the capital from a country with a low-interest rate to a country with a high interest rate. The reverse applies to sources of foreign funds. The firm will seek funds from countries with lower interest.

### **Empirical Literature Review**

Interest rate risk refers to chances that an investment in bonds will suffer losses as a result of unexpected changes in interest rate. It is expected that interest rates will fluctuate up and down causing the value of investment security to shift respectively (Chen, 2020). Unexpected fluctuations in interest rates may have adverse effects on the value of an investment. Several empirical studies have been done on interest rate risk and financial performance.

Odeke and Odongo (2014) observed that interest rate risk affects the financial performance of financial institutions. The study found that combined variation of interest rate risk factors composing of maturity gaps, basis risk, and assets and liabilities margin accounted for up to 14.5% of the variation in the financial performance of the institutions. Maturity gaps and assets and liabilities influence the financial performance positively while basis risk does not have any significant influence. The findings however contradict previous studies by (Estasy et al., 1996; Bourgi, 2019) who noted that basis risk has a high influence on financial performance. This contradiction brings out a knowledge gap. The study did not include other key factors that influence the interest rate risk among them government regulations like the interest capping rate which influences the financial performance.

Ndegwa et al., (2016) noted that interest rate risk influences the financial performance of MFIs. The study observed that interest rates charged by MFIs influence the liquidity which was used as a measure of financial performance. The study concluded that any fluctuations in interest rates lead to fluctuations in liquidity and financial performance. The higher interest rate charged by MFIs increases their income and profitability and overall financial performance. However, according to the International Fisher Effect Theory when the firm charges a high interest rate, will cause borrowers to shift to lower-interest lending firms which can cause a drop in earnings of those MFIs and affects financial performance. The study relied on primary data collected from the questionnaire filled by the MFIs staff. The data may be comprised and lack credibility and therefore secondary data from published accounts would have complimented the secondary data bringing out a methodological gap (Idoliany & Wiryono, 2014; Musiega et al., 2017) contends with the above results.





Badawi (2017) noted that Credit risk, Liquidity Risk, and Market risk influence bank profitability. The study observed that market risk measured using interest rate risk influences financial performance. The interest rate risk will arise where the banks will provide loans to their customers for a longer period and with a high interest rate and thereafter, the interest rate decreases. The net interest margin is an indicator of how the firm has placed its assets in the form of credits. More credit distribution means firms will earn higher interest income and result in more profits. The study used a purposive sampling method. The study conflicts with International Fishers Effect Theory which indicates that where the firm increases their interest rate, the borrowers will shift to other lenders with lower lending rates.

Kolapo and Fapetu (2015) observed that interest rate risk does not influence the financial performance of Deposit-taking banks. The study noted that bank perceives interest rate as a price of deposits or cost of borrowings and will not have an effect on financial performance. The results showed inconsistency with the precedents studies. In recognizing that the main business of the MFIs is to mobilize funds from customers and access loans from commercial banks, the interest rate risk is one of the major determinants of its financial performance as indicated by the previous studies among them Ndegwa et al., (2016) and Badawi (2017).

Mbuvi and Wamiori (2017) observed that interest rate risk, credit rate risk, and liquidity risk have effects on the financial performance of the MFIs bank. The study found that interest rate risk affects the returns to the owners or investors and adversely affects the borrowers of loans in the MFI sector. The high interest rate will weaken the performance of any MFI and this reduces the attractiveness of investment MFI banks. The study concluded that market risk has a positive and significant relationship with financial performance. The study, however, used nonfinancial measures to analyze the relationship between interest rate risk and financial performance, which may bring out a methodological gap. The study covered 4 MFI banks in Mombasa County in Kenya which may hinder the generalization of the results. Kihara and Mwangi (2017) concur with the above results that the interest rate charged by the banks to loanees has a positive influence on the bank's financial performance while the interest rate paid to the deposit holders has a negative effect on financial performance.

Murage et al., (2018) observed that the effective interest rate charged by the Deposit-Taking Saccos (DT's) influences their financial performance. The study revealed that DT's has adopted an interest rate technique as a strategy to generate income from the loans issued. The findings were that the interest rate has a significant influence on the financial performance of DT's. The study concluded the DTs should review their interest rates regularly to be able to control the borrowing rate and enhance the

loan repayment. The study however ignored the fact that other macro-economic factors like the government policy may affect the interest rate charged. Other studies that were done among them (Ashim & Ranjula, 2013; Flosbach, 2014; Lin & Chang, 2016) contended with the above studies.

Financial Leverage is the degree to which a company uses fixed-income security such as debt and equity to finance its operations. Financial Leverage risk is a risk to investors caused by an increase in debt and equity in the organization's capital structure (Marin, 2019). Financial Leverage risk is the possibility of disproportionate losses related to the amount of interest expense where the borrower does not earn sufficient returns to offset the interest expenses. Daniela and Mircea (2012) referred to Financial Leverage as a mechanism through which debt affects the return on equity, return on the rate of benefits which is the net income and equity. The study noted that economic and financial rates had an upward trend which reflected increased efficiency in the use of equity capital.

Mohammeda and Knapkova (2016) observed that total risk management affects a company's financial performance. The study found that total risk management has a positive influence on financial performance. However, when Financial Leverage is used as a control variable, the result showed that Financial Leverage affects financial performance negatively which is a result of long-term debt commitment. The lower average cost of capital leads to better financial performance. These results contradict the study from Daniela and Mircea (2012) and thus the knowledge gap. Financial Leverage was conceptualized differently as a control variable which could affect the results. The study was done in a different economic bloc and would cause a contextual gap.

Vijitha (2016) reported on how Financial Leverage affects financial performance. A higher level of Financial Leverage results in a higher level of financial risk. The results showed that Financial Leverage has a positive and significant influence on financial performance. Managers must make important decisions on how the firm is to be financed whether to use low debt or preferred stock based on expected returns of equity. Beyond a certain optimal level, the cost of leverage tends to outweigh the benefits accrued from financing using debts. Financial Leverage and Firm Size are determinants of financial risk. The study contradicts the Modern Portfolio Theory which indicates that the capital structure of a firm is influenced by the investors depending on their risk positions. If they are risk-takers they would go for high gearing and higher returns.

Alshubiri (2015) observed that business risk and financial risk have a significant impact on the performance of firms. Financial Leverage used as a measure of financial risk has a negative and significant effect on financial performance. It covered data from twelve different sectors in the Sultan of Oman. The study results



were inconsistent with the previously reviewed studies (Vijitha, 2016; Mohammeda & Knapkovaa, 2016) causing a knowledge gap. The conceptualizing of Financial Leverage as a measure of both business and financial risk may bring out a conceptual gap considering most studies conceptualize Financial Leverage as a measure of market risk. Generalization of results from a study done from 12 different sectors may cause contextual issues considering there may be other underlying factors affecting those sectors differently.

Hussan (2016) examined the impact of financial leverage risk on financial performance. The findings showed that Financial Leverage has a positive impact on sales revenue, earnings before interest, and tax and earning per share of the firm. The study noted that Financial Leverage is the long-term debt financing that improves the permanent finance and success of the organization. Debt financing increases the share price of a firm indicating a positive earning ability and wealth maximization. Firms that use Financial Leverage increase their investment capacity and enjoy tax exemption facilities. MFIs like any other organization must determine how they will finance their financial assets, either by debts or by equity. The study contradicts the capital structure theory that indicates that the gear will increase the earnings up to an optimal level after that any additional will lead to a decline in the earnings.

Abubakar (2015) observed that financial leverage plays a great influence on the financial performance of deposit money banks. The findings were that there is a negative relationship between Financial Leverage and financial performance. 84% of total assets of 11 deposit money banks under the study were financed by debts thus highly leveraged. The study concluded that the optimal debt-equity ratio should be maintained by banks to improve financial performance, survival, and remains competitive. The study may cause a knowledge gap as it is inconsistent with the preceding study by Hussan (2016). The study also contradicts the portfolio theory which indicates that you can achieve high financial performance so long as you can maintain optimal risk and high-risk financial assets offer better returns. Most MFIs have embraced and employed debt financing. MFIs have managed to generate enough returns from their operations which are sufficient to repay borrowed debts from lenders and at the same time ensuring they are left with enough funds for maintaining sustainability over a long period. The study also found that credit methodology employed by MFI's impact negatively on Financial Leverage.

Nimalathan and Pratheepkanth (2012a) found that there is a direct relationship between financial and operating leverage and profitability. Improved Financial Leverage which is highly geared and better operating leverage positions have a positive influence on the profitability and the overall financial performance.

According to Asefa (2017), any increase in Financial Leverage has a negative influence on MFIs profitability. Profitability is associated with a reduction in Financial Leverage. MFIs that earn high profits increased levels of internal financing by using their retained earnings rather than increasing borrowings. The study causes a knowledge gap considering the previously reviewed studies. A theoretical gap arises since it contradicts the capital structure theory which indicates high geared firms usually earn high returns. The study used purposive sampling in the collection of the data which researchers discourage as key sampling procedures due to its biasness and thus may cause a methodological gap.

From the empirical literature reviewed the following hypothesis was developed:

H<sub>1</sub>: Interest Rate has no significant effect on the financial performance of Microfinance Institutions in Kenya.

H<sub>2</sub>: Financial Leverage has no significant effect on the financial performance of Microfinance Institutions in Kenya.

## **RESEARCH METHODOLOGY**

### *Research Design*

The research design is a procedural and sequential way to identify and solve a specific identifiable problem which researchers undertake during their work of analyzing, interpreting, and forecasting phenomena (Rajasekar et al., 2013). According to Saunders et al., (2009), Muathe (2010) research design can be classified into exploratory, descriptive, and explanatory. An exploratory research design is aimed at establishing whether what is being observed or researched can be explained by any existing theory and it furthers lays the groundwork that will lead to future studies. The study adopted an explanatory research design. The design was adopted since according to Dudovskiy (2018), explanatory research design establishes causal and effect relationships between study variables. The target population was the 13 registered Deposit Taking microfinance institutions in Kenya that are registered under the Microfinance Act (2006) and are registered members of the Association of Microfinance Institution of Kenya by December 2018. The census approach was adopted as the sampling method. The secondary data used was collected from the published financial reports for the MFI's for the period between Year 2014 to Year 2018.

### *Data Analysis*

Data collected was analyzed using descriptive statistics and inferential statistics. According to Mugenda and Mugenda, (2003) and Muathe (2010) descriptive statistics usually summarize the data using the mean and standard deviation. It was used to summarize and profile the status of interest rate, financial leverage, and financial performance. Inferential statistics specifically panel multiple regression



analysis was carried out to test the nature of the relationship between interest rate, financial leverage, and financial performance of microfinance institutions in Kenya.

*Empirical Model*

Several models are available which could be used in analyzing quantitative data; logistic, probit, Tobit, discriminant analysis, and regression models. Logistic, probit, and Tobit are used when the dependent variable is dichotomous (Field, 2009; Muathe, 2010). Panel multiple regressions models were used. The model was applied to test the relationships between the various variables to understand the strength of each predictor variable.

Panel multiple regressions analysis entails evaluation of the effects of one or more independent variables and a dependent variable whose measures are continuous then (Brooks, 2008). The interest rate and financial leverage variables under the study were used to explain their influence on the financial performance of the MFIs (Wooldridge, 2002).

Panel multiple regression includes bringing together many predictor variables into a single regression equation. Thus, the effect of multiple predictor variables on the dependent measure was assessed as recommended by Jackson (2009). The goal of analysis for using this model was to find the best fitting and most parsimonious reasonable model to describe the relationship between the dependent variable financial performance and a set of independent variables of Market risk variables.

The panel multiple regression model used in the study was adapted from Beck (2009) as indicated below:

Equation 1 was used for the estimation of the Financial Performance measure

$$ROE_{it} = \beta_0 + \beta_1 IRR_{it} + \beta_4 FLR_{it} + \epsilon_{it} \tag{1}$$

In which:

$ROE_{it}$  = Dependent variable - Financial performance of MFI<sub>i</sub> at time t

$\beta_0$  = The model constant or intercept

$\beta_i$  = The coefficients of the independent variables

$IRR_{it}$  = Interest rate risk of MFI<sub>i</sub> at time t

$FLR_{it}$  = Financial Leverage risk of MFI<sub>i</sub> at time t

$\epsilon$  = Idiosyncratic error term (assume normal distribution)

## FINDINGS AND DISCUSSION

To establish the statistical significance of the hypothesized relationships, multiple linear regression was conducted at a 95% confidence level ( $\alpha=0.05$ ). The hypothesis aimed at establishing the relationship between the Interest rate, financial leverage, and financial performance of MFIs in Kenya.

TABLE 1. EFFECT OF MARKET RISKS ON FINANCIAL PERFORMANCE

ROE	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
Interest Rate Risk	.0333939	.0083316	4.01	0.000	.0170642	0.049724
Financial Leverage	.6495247	.0643961	10.09	0.000	.5233108	0.775739
_cons	-.9735594	.2517968	-3.87	0.000	-1.467072	-0.48005

Number of obs = 65  
 R-sq: overall = 0.8333  
 Wald chi2(5) = 215.34  
 Prob > chi2 = 0.0000

Source: Study data (2020).

The results in Table 1 indicate a chi-squared value generated by the Wald test, as well as the p-value associated with a chi-squared of 215.34 with four degrees of freedom. The P-value is 0.000 which is less than the generally used criterion of 0.05, therefore, we reject the null hypothesis, indicating that the coefficients are not simultaneously equal to zero. Including statistically significant predictors should lead to better prediction (i.e., better model fit) we can conclude that including the four predictors variables will result in a statistically significant improvement in the fit of the model.

*H<sub>1</sub>: Interest Rate has no significant effect on the financial performance of Microfinance Institutions in Kenya.*

Interest rate risk had a coefficient of  $\beta=0.0334$  and  $p=0.00<0.05$ . Therefore, since the  $PV<0.05$ , we do reject the null hypothesis and thus Interest Rate Risk has a significant effect on the financial performance of microfinance institutions in Kenya. The coefficient of positive 3.3% indicates that Interest rate risk has a significant positive effect on the financial performance of MFIs. The interest rate risk was measured using the Cumulative Interest Gap which is a ratio between risk-sensitive assets less risk-sensitive liabilities over the total assets.

The period between the years 2013-2018 under the study faced a lot of competition in the financial sectors caused by the changes in financial laws introduced by the CBK. In 2014 the CBK introduced laws on effective lending rates by commercial banks. They introduced the Kenya Banks Reform Rate (KBRR) where banks were supposed



to base their effective lending rate on their customer with an additional premium. In 2016, the government introduced the Interest rate cap laws, where the CBK controlled the interest rate charged by the commercial bank (Central Bank of Kenya, 2018).

Although the above two laws did not apply to MFIs, they had an indirect effect on them. The laws caused a lot of disruptions in financial investments. The MFIs benefited from accessing cheaper funds from the commercial banks where they were paying the loan with lower interests. On the other hand, the MFIs were offering loans to their customers with a slightly higher interest rate, and this improved their financial performance. The effects of the interest rate risk also resulted from the disruption of the fixed interest earnings from an investment in fixed deposits since the interest capping law applied to them too. MFIs held more risk-sensitive assets in their books than liabilities which indicated better financial performance.

In emerging markets like Kenya, the financial sector is affected by the interest rate risk mostly the repricing risk. The repricing risk arises from the timing difference in the maturity of fixed-rate and floating of assets, liabilities, and off-balance positions. The repricing mismatch exposes the MFI's income to fluctuations where they can gain or lose depending on the interest rate variances (Ngalawa & Ngare, 2014).

In the competitive market setup, many firms compete for a limited market share. Competition helps a client to choose where to acquire credit with lower interest rates. Increased market power in the loan market, may results in higher MFI risk due to increased interest charged to the clients and make loan repayment harder. Increased competition among financial service providers may determine loan portfolio quality and affects MFIs' financial performance (Ashim & Ranjula, 2013). The study concurs with the results obtained by Ndegwa et al., (2016) which indicated that although interest rate risk fluctuations affect the liquidity and profitability of MFIs, it has a positive significant influence on financial performances.

Badawi (2017) contends with the above study and argued that the Net Interest Margin which is a measure of interest rate risk indicates how firms have placed their assets in the form of credits. The more credits earn MFIs high-interest income and more profits. The study concurs with the International Fisher Effects Theory whereby if one firm charges higher interest, the borrowers will shift to lower interest rate lending institutions and thus affects the firm financial performances. Ngalawa and Ngare (2014) noted that exposure to interest rate risk is common in the financial sector. The study found that any changes from fluctuations of the market interest rate risk have a positive influence on a change in incomes generated from the sensitive assets.

Olweny et al., (2017) observed that interest rate risk has a positive significant effect on the financial performance of financial institutions. The institutions increase their profits when interest rate risk increases thus most of the time the interest rate variability favors their financial performances. Odeke and Odongo, (2014) concurred with the study results that interest rate risk exposure has a positive significant influence on the financial performances of banks.

The result contradicts (Kolapo & Fapetu, 2015) study which noted that interest rate risk does not have any significant influence on the financial performance of Deposit Taking firms. But it agrees with Murage et al., (2018) who found that interest rate risk has an insignificant influence on the financial performance of MFIs and Mbuvi and Wamiori (2017) who observed that high-interest rate risk weakens the financial performance of the MFIs.

*H<sub>2</sub>: Financial Leverage has no significant effect on the financial performance of Microfinance Institutions in Kenya.*

Financial leverage had a coefficient of  $\beta=0.650$  and  $p=0.000<0.05$ . The PV value of 0.000 is less than 0.05 hence the null hypothesis is rejected. Therefore, financial leverage has a significant effect on the financial performance of microfinance institutions in Kenya.

The coefficient of positive 64.95% indicated that financial leverage risk had a significant positive effect on the financial performances of microfinance institutions in Kenya. The study revealed that an improvement in debt finance will lead to improved financial performance. All MFIs under the studies have utilized debt financing as their major source of funds compared to shareholder's funds. The study was done during the period of Interest cap laws to the commercial bank by the CBK and hence most of the commercial banks preferred to offer loans to less risky corporate firms like the MFIs than individual clients. The MFIs could later offer loans to their borrower on their preferred effective interest rate.

According to Capital structure theory, debt financing is cheaper than equity financing in long run. The firm should utilize the debt funds to generate enough income to repay the debt interest and to increase their profits. The firm also enjoys tax benefits from the government for the use of debt finance which increases their financial performances. Studies by (Nimalathasan & Pratheepkanth, 2012; Kahihu et al., 2020)) found a direct relationship between financial leverage and profitability. The study found that a geared firm that has an improved Financial Leverage has a positive influence on profitability and the overall financial performance.

Vijitha (2016) observed that MFIs managers must make important decisions on how the firm is to be financed whether to use low debt or preferred stock based on expected returns of equity. Beyond a certain optimal level, the cost of leverage tends to outweigh the benefits accrued from financing using debts. An optimal geared





level leads to a significant positive influence on financial performance. The study also concurs with MPT theory which indicates that a firm with a high leverage portfolio attracts more investors since they perform better than low geared firms. Managers can assemble a portfolio with risky assets with high returns.

Hussan (2016) noted that Financial Leverage has a positive impact on sales revenue, earnings before interest, and tax and Earning per share of the firm. Financial Leverage is the long-term debt financing that improves the permanent finance and success of the organization. Debt financing increases the share price of a firm indicating a positive earning ability and wealth maximization. Firms that use Financial Leverage increase their investment capacity and enjoy tax exemption facilities and thus high financial performance.

The results contradict some studies like that of Abubakar (2015) who noted that there is a negative relationship between Financial Leverage and financial performance. About 84% of the total assets of 11 deposit money banks under the study were financed by debts thus highly leveraged. The study concluded that the optimal debt-equity ratio should be maintained by banks to improve financial performance, survival, and remains competitive. Mohammeda and Knapkova (2016) found that when Financial Leverage is used as a control variable in their study, the result indicated that Financial Leverage affects financial performance negatively which is a result of long-term debt commitment.

## **CONCLUSION AND POLICY RECOMMENDATION**

### *Conclusion*

Review of previous studies done on the relationship between interest rate, financial leverage, and financial performance dealt with commercial banks and other industries in the financial sector. Therefore, the effect of interest rate and financial leverage on the financial performance was left out which is a unique industry in its operations where the government is still making various laws and reforms to regulate it. This study recognizes other factors that may affect the financial performance of microfinance institutions beyond the internal ones like operational cost which the owners and the MFIs Chief Executive Officer (CEO) can have control over them.

As per the study expectations, interest rate and financial leverage variables indicated that they influence the financial performance of microfinance institutions. Interest rate risk and financial leverage risk were found to have a significant positive effect on financial performance. This implies that interest rate and financial leverage play a key role in influencing the financial performance of an organization.

The organization must put the necessary measures to identify and mitigate the interest rate risk, financial leverage risk, and foreign exchange risk. The management should put more concern with the financial leverage risk which was found to have more influence on the financial performance among the other market risk variables

### ***Policy Implications***

Policymakers including the Central Bank, National Treasury, MFIs, and other stakeholders should focus on reforms that promote better financial management and an equal playing field to various industries in the financial sector. The CBK has in past instituted various laws including increased minimum core capital and liquidity rate which are punitive to MFIs forcing them to seek expensive loans for them to survive in the market. The Government should put in place proper monetary and fiscal policies in the country to curb the interest rate risk and foreign exchange risk. The shareholders should embrace an increase of capital funds through equity which is cheaper than loans from commercial banks.

The MFIs owners and CEO should put in place risk management measures such as risk identifications to prevent the MFIs from the effect of interest rate and financial leverage. The study recommends the MFIs should ensure that they put necessary measures to mitigate market risk variables which the study found to influence financial performances. MFIs Owners together with the CEO must invest in enhancing capacities within the organization for managing risks. The MFIs should establish a Risk department that should be facilitated with the necessary training and equipped with current software for risk identifications. The MFIs Credit manager must endeavor to reduce the mismatch between short-term variable rate liabilities (like savings deposits) and long-term fixed-rate loans. The MFIs should refinance short-term borrowings with long-term fixed-rate borrowings to minimize the interest rate fluctuations.

The study found that financial leverage risk affects financial performance. The management of MFIs should strive to have optimal financial leverage which will enable the organization to generate enough income for better financial performance. The managers should also ensure that the MFIs grow by increasing the customer base, asset base, and several outlets so that they improve on their financial performances.

### ***Limitation and Future Research***

This study also captured the only available secondary data for the period 2014 to 2018 which are in CBK records, and a further study is recommended to include a longer period for the time series data. This would help in capturing the potential effects across the economic cycles. Future research should focus on validating the findings and conclusion of this study by undertaking replicative researches in other organizations and sectors in Kenya.



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