

**EFFECTS OF SELECTED MACRO-ECONOMIC FACTORS ON
FINANCIAL PERFORMANCE OF MICROFINANCE
INSTITUTIONS IN KENYA**

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DECLARATION

I, the undersigned, declare that this is my original work and has not been presented to any institution or university other than the University of Nairobi for examination.

Signed:  Date: 14th September, 2022

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

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DEDICATION

The paper is in honour of ALLAH for being with me right from the beginning to this very point. Equally, special dedication goes to my mother MS HAWA ABDULLAHI, my wife MRS. KHADIJA ABDI AHMED, my son KAMAL HUSSEIN and my daughter AYAN HUSSEIN for the encouragement and moral support during my whole life. May Allah shower you with His blessings.

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LIST OF ABBREVIATIONS

AMFI	Association of Micro Finance Institutions
APT	Arbitrage Pricing Theory
CMA	Capital Markets Authority
CBK	Central Bank of Kenya
CPI	Consumer Price Index
GDP	Gross Domestic Product
KNBS	Kenya National Bureau of Statistics
MFI	Microfinance Institution
NPL	Non-Performing Loans
ROA	Return on Assets
SACCOS	Savings and Credit Cooperative Societies
SPSS	Statistical Package for Social Sciences

ABSTRACT

The nexus between macroeconomic indicators and performance is a topical issue in financial economics. The main objective of research was to examine the influence of economic growth, interest rates, exchange rates, inflation rates, liquidity as well as firm size on return of assets of the microfinance institutions. The study was anchored on the

modern portfolio theory and supported by the arbitrage pricing theory and the international fisher effect. Research design was descriptive. Population consisted of the 47 microfinance institutions registered with the AMFI (Kenya). Data was gathered from KNBS, CBK and AMFI websites. The research revealed that GDP significantly affects profitability of microfinance institutions. This means that when the economic growth rate increases, firm profitability also increases. The results of the research also show that inflation rates and financial performance are negatively correlated which means that as inflation rates rise, profitability of MFIs declines. Interest rates were observed to affect positively performance of MFIs. This implies that as interest rates rise, financial performance is improved. It was noted that firm size positively impacts on performance of MFIs. This suggests that when firms increase in size there will be a great improvement in performance. It was observed that liquidity is negatively correlated with financial performance implying that when MFIs are highly liquid, their returns on assets decline. The study recommends that key economic indicators should be closely monitored and effectively managed by the Government because they are significant determinants of performance of MFIs. It is also recommended that microfinance institutions should manage their liquidity ratios and also increase their assets base so as to improve performance. It is recommended that additional research may include other macroeconomic indicators and use different methodologies in their research. Future studies may also focus on other key financial institutions, including commercial banks, insurance companies, pension schemes and SACCOs.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Financial institutions are vital for the economic development of a nation since they perform a great role in financial intermediation and capital formation, which are essential ingredients in economic growth. Financial institutions help in the mobilization of savings from small investors scattered all over the country and make the savings accessible for investment and productive activities. Financial institutions, therefore, perform a great role in capital creation and in so doing they help in accelerating the process of economic growth (Memon et al, 2020).

Financial performance is the process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. Due to the increasing attention attached to financial performance, there have been attempts by scholars to understand the key factors which contribute to good financial performance over time (Abata, 2014).

The nexus between economic indicators and performance has been of great interest to scholars over time. It is opined by some scholars that macroeconomic indicators have a nexus with firm performance (Gan, Lee & Zhang, 2016).

This study is guided by the international Fisher effect, Arbitrage theory and modern portfolio theory. The MPT contends that the security prices in capital markets reflect changes in economic activities. Changes in macro-economic environment affect returns in financial markets return which in turn influence a firm's financial performance. The APT contends that macroeconomic factors affect the returns of financial assets. It argues that variability in the macroeconomic factors may cause variability in the returns in the financial markets and may have positive effects on the financial performance. The fisher theory contends that due to opportunities of arbitrage across financial

markets, the real interest rates will be equal across nations. The Fisher theory explains that any fluctuations in interest rates may encourage or discourage savings and investment and in so doing affect performance (Fisher, 1930).

The research focuses on microfinance institutions. This is due to the fact that, over the years, MFIs have grown significantly in Kenya and have assisted poor people to access microcredit. MFIs have made a great contribution in the provision of microcredit to poor households as well as small businesses. MFIs have therefore contributed immensely to financial intermediation in the country.

1.1.1 Selected Macroeconomic factors

Macroeconomic factors are the major economic forces which influence a firm's decision making and have an impact upon its financial performance. Macro-economic indicators generally affect the overall economic development of a country. Mishkin (2004) contend that GDP, rates of interest, unemployment rate, changes in money supply, rate of exchange, balance of payments and inflation rates are key macroeconomic indicators that influence performance.

Economic growth is monetary value of total production in a country. It is reflected in GDP. Bank rate is used to measure interest rate while consumer price index (CPI) indicates inflation. Exchange rate measures the values of different currencies. In this study the exchange rate will be taken as the value of shillings to the dollar (Shrestha &Subedi, 2014).

1.1.2 Financial Performance

Financial performance refers to the ability of a firm to achieve the set financial objectives such as achieving a certain level of profitability. Performance is an indicator of indicates the degree to which a firm meets its objectives. Financial performance shows the firm's ability to accomplish its financial goals. It shows a company's ability to generate income from the assets provided by the shareholders and creditors (Baba and Nasieku, 2016).

Profitability of an organization is important for its wellbeing, health and survival. A good financial performance indicates the efficiency and effectiveness of a company in managing its assets during financial, operational and investment activities (Deitiana&Habibuw, 2015).

Profitability may be indicated by ROA as well as ROE. ROE reflects the reward to the shareholders of a firm based on the amount of shares they hold in the company. ROE is the ratio of a firm's net income and equity. ROA reflects the reward to both the shareholders and creditors of a company. ROA shows the capacity of a company to effectively use its assets to generate incomes. ROA is the ratio of net income and total assets. ROA will be used in the current study because it is a good indicator of financial performance and has been widely used in other studies (Aduda and Musyoka, 2012, Nderitu, 2019)

1.1.3 Macro-Economic Factors and Financial Performance

Macroeconomic factors are the major economic forces which influence a firm's decision making and have a great impact upon its financial performance. The major macroeconomic indicators that affect performance of firms include gross domestic product, rates of interest, changes in money supply, rates of exchange as well as unemployment rate (Gan et al 2006).

The Efficient markets theory by Fama (1970) contends that in efficient markets, all information available about a security is captured and reflected in the security prices. Managers of financial institutions should therefore monitor and predict the expected changes in the macroeconomic environment and plan for them well in advance. The constant fluctuations in macroeconomic environment present threats as well as opportunities to the financial institutions and adapting to the changes appropriately may be useful in improving financial performance of the financial institutions.

1.1.4 Microfinance Institutions in Kenya

Microfinance institutions perform a vital role in providing access to microfinance services to poor households and small enterprises. Microfinance institutions have assisted the small enterprises and households to obtain financial services. They have demonstrated commitment to avail micro-finance services to the individuals and households who lack access to banking services. The MFIs therefore perform a great role in financial deepening and financial inclusion in the country (AMFI, 2022).

The MFIs in Kenya are broadly divided into two categories, namely deposit MFIs (DTMs) and non deposit-taking MFIs (NDTMs). The DTMs are regulated and licensed by CBK. They are allowed to raise deposits from members of the public. The NDTMs

are licensed and regulated by National Treasury. They are not permitted, by law, to mobilize deposits from the members of the public ((CBK, 2020).

The performance of MFIs is critical to economic development. Profits earned by MFIs are good sources of equity and may enhance financial stability if they are well reinvested. For MFIs to access funds from the capital markets, they should consistently improve on profitability. MFIs need to reduce financial risks and therefore provide confidence to the stakeholders including shareholders, creditors, borrowers, suppliers and regulating authorities. The profitability of MFIs is important as it determines their ability to minimize negative economic shocks and therefore contribute effectively to financial stability and economic growth.

1.2 Research Problem

Financial institutions in Kenya, including MFIs, continue to face challenging macro-economic environment including financial crises, interest rate capping and corporate failures. The major macroeconomic indicators that significantly influence performance of microfinance institutions include GDP, rates of exchange, unemployment rate, rate of inflation and rates of interest. It is expected that fluctuations in macroeconomic indicators may ultimately influence performance of financial institutions.

Imai (2011) conducted a survey in 97 nations and concluded that profitability of MFIs is positively influenced by macroeconomic as well as institutional factors including GDP and value of domestic credit. In contrast, Vanroose, (2008) concluded that sustainability of microfinance institutions is not influenced by the inflation and the level of industrialization. He concluded that population density positively affects outreach because high concentrations of clients leads to a decrease in management costs.

Kaboski et al (2012) determined effects of economic recession on performance of MFIs and noted that profitability of MFIs is significantly influenced by external economic factors. Baba and Nasieku (2016) established that unemployment rate, inflation rates and rates of interest positively affect performance of banks.

Locally, Swaleh and Wekesa (2020) established effects of macroeconomic indicators on profitability of MFIs in Mombasa County. The research established that national savings significantly affect profitability of MFIs. The results, however, indicated that inflation rate negatively affected the performance of microfinance institutions.

Ovamba (2014) examined effects of macroeconomic indicators on profitability of Equity Bank. The research noted that three macroeconomic factors, namely, inflation, rates of exchange and GDP have insignificant association with profitability of banks. In addition, Nderitu (2019) established that interest rates and economic positively influence profitability. He however concluded that inflation rates as well as rates of exchange negatively influenced profitability of banks.

Despite the existence of prior studies, it is noted that there exist contextual, conceptual and methodological gaps that still need to be filled. Conceptually, prior studies have shown mixed findings. Contextually, most studies have focused on commercial banks which operate differently compared to MFIs. Methodologically, the research methodologies adopted have not been uniform hence explaining differences in the findings. The current research is expected to fill these gaps by establishing effects of macroeconomic indicators on profitability of MFIs.

1.3 Research Objective

The main objective of this research is to establish the effects of macroeconomic factors on profitability of microfinance institutions.

1.4 Value of the Study

The findings of research may be useful to academicians and researchers as it will contribute to literature in the field of financial performance. The research will be important to academicians and scholars as it will be useful in identifying the knowledge gaps in the topic of research.

The research may be of great interest to stakeholders of the MFIs as it will generate knowledge in the management of the MFI industry. The stakeholders of MFIs include the managers and shareholders of MFIs who will understand the role played by macroeconomic factors in determining sustainability and outreach of the MFIs.

The study shall also be of great significance to the government as well as the key regulatory institutions such as AMFI and CBK, as the findings may play a role in helping them to generate economic policies and interventions to effectively manage the macroeconomic indicators.

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This chapter begins with a discussion of theories which anchor the research. The three theories provide the basis of the study. The discussion of theories is followed by a discussion of the relevant empirical studies. The research and knowledge gaps also presented followed by a conceptual model highlighting the relationships between the predictor and dependent variables.

2.2 Review of Theories

The following section presents review of theories underpinning the research. The three theories are the modern portfolio theory (MPT), Arbitrate pricing theory (APT) and the international Fisher effect (IFE).

2.2.1 The Modern Portfolio Theory (MPT)

The MPT was originally formulated by Markowitz in 1952. MPT explains how investors can maximize expected returns by diversifying their portfolios of assets. According to Markowitz (1952) investors can combine portfolios of assets which can achieve maximum returns at low risk levels. The MPT advocates that investors can either achieve maximum returns for a particular level or may achieve minimum risks for a particular rate of return by consistently diversifying their portfolio of assets.

The MPT theory states that total risk of an asset consists of unsystematic and systematic risks. The systematic risk is inherent in the whole market and therefore affects all the securities and cannot be reduced through diversification. Unsystematic risk, on the other, is specific to individual securities and therefore can be reduced by diversification. Investors are therefore able to reduce total risk by selecting assets whose returns are either negatively correlated or of low positive correlation (Fisher, 2011).

The MPT is founded on the assumption of rationality. Rational investors always seek to maximize payoffs for particular risk level and also reduce risk for particular return level. The investors are also believed to have perfect information on the available investment opportunities. The Microfinance institutions face a number of risks, including delinquency, default, adverse selection and moral hazard. The MFIs also face the risks inherent in changes

in the macroeconomic environment. The relevance of MPT to the research lies in its explanation that changes in macroeconomic factors may cause variability in systematic risk of the market. The variability of systematic risk may therefore affect performance of microfinance institutions.

2.2.2 The Arbitrage Pricing Theory (APT)

The APT was originally presented in 1976 by Stephen Ross. APT is a multifactor pricing model that links a security's expected returns to the risk of the security. The APT states that an asset may be temporarily not priced at its fair market value. It states that since the market is not always perfect, the assets may be overvalued or undervalued for a temporal time period. However, arbitrageurs will take advantage of the temporary mispricing of securities to make risk free abnormal returns in the short term. The arbitrage opportunities will eventually ensure that securities are priced at their correct fair values (Ross, 1976).

The APT provides a framework linking returns of a security with macroeconomic factors that can increase the risks of such assets. Some of the macro-economic factors that are likely to have an impact on asset prices include public debt, rates of interest, rate of economic growth, inflation rates, balance of payments, expectations of investors, unemployment rates and exchange rates. According to this theory, macroeconomic indicators are linearly related to the returns of assets. Hence changes in macroeconomic factors are likely to have an effect on security returns. Due to the linear relationship between macroeconomic variables and prices of assets, it is reasonable to conclude that security prices are affected by the macroeconomic factors (Cuthbertson, 2004).

The APT is relevant to this study because of the intuition that returns of securities may vary from their correct values due to unexpected changes in production, inflation, term structure, GDP, exchange rate, unemployment and other macroeconomic factors. The APT contends that the return of a security can be explained in terms of a linear relationship between the returns of the asset and a combination of various macroeconomic factors. This theory relates macroeconomic factors to returns of firms and therefore it is relevant to the current study.

2.2.3 International Fisher Effect (IFE)

IFE was presented in 1930 by Irvin Fisher. The IFE specifies the expected relationship among the real and nominal rates of interest rates together with inflation rates. According to IFE, any differentials of anticipated inflation rate with nominal rate will be equal to real interest rate. As a result, any appreciation in inflation reduces real rates of interest as long as the increase in nominal rates is not the same as the increase in inflation rates. (Fischer, 1930).

According to the IFE, due to arbitrage opportunities in the financial markets arising out of capital flows, the real interest rates will be equal among nations. IFE states that nations whose interest rates shall also have higher inflation rates which cause a depreciation in value of its currency over time. The IFE theory therefore explains the nexus of foreign exchange rates and relative interest rates (Gopinath&Rogoff, 2014).

The relevance of IFE to the research is because for IFE to hold, countries with appreciating currencies will have low interest rates while those with depreciating currencies will have high interest rates. The IFE contends that currencies of countries whose interest rates are high will fall in value as the relatively high nominal rates of interest are caused by high rates of expected inflation (Gopinath&Rogoff, 2014). The idea behind the IFE is that fluctuations in interest rates may encourage or discourage levels of investments and savings.

2.3 The Determinants of Financial Performance

Several economic indicators may influence performance of MFIs. The key economic factors that determine performance are discussed in the following section.

2.3.1 Economic Growth Rate

Economic growth rate is monetary value of the products as well as services of a nation during a particular fiscal period. The widely used indicator of economic growth is GDP. Any movement in GDP may occasion a movement in cash flows which may therefore cause changes in financial performance of MFIs (Kirui et al., 2014).

Governments, investors, economists and business enterprises always pay a keen interest in the changes in GDP so that may be able to predict changes in the economy and how they may influence the stability and profitability of MFIs.

2.3.2 Interest Rates

Interest rate may be considered as cost of funds. It is referred to as the borrowing rate by borrowers and as lending rate by the lenders. It is the cost of using capital during a fiscal period, usually a year. Interest rate significantly influences savings and investment decisions and therefore affects performance and stability of MFIs (Barnor, 2014).

Khan and Sattar (2014) state that many investors choose to invest in efficient markets. When the market is not efficient, investors are unable to make extra ordinary returns because of the low confidence of investors in such markets. If the rate of interest rises, investors will turn to savings in the banks as opposed to equity investments. Conversely, if interest rates decline, investors will turn to equity investments instead of savings in the banks. These decisions will affect the investment decisions leading to changes in economic growth. Financial performance of MFIs will in the long run be influenced by the cyclical fluctuations of interest rates.

2.3.3 Inflation Rate

Inflation reflects increases in prices of commodities in the country over a particular time period. An increase in inflation rate is caused by increases in the costs of production including costs of raw materials and labour costs. Inflation rates may also rise because of unexpected rise in demand for products because money will be chasing after few goods and services. Whenever inflation rate rises, savings and investments are depressed leading to low levels of profitability of MFIs (Hendry, 2006).

Inflationary effects on firm profitability is dependent on its ability to monitor, anticipate and effectively react to the change in inflation rate. If MFIs anticipates increases in inflation rates, they may be able to manage interest rates to a level which can cover for increased operational costs. Inflation rates generally affect the investments decisions of firms and therefore lead to a decline in profitability of microfinance institutions.

2.3.4 Exchange Rates

Exchange rates are an expression of a currency's value when compared with value of some other currency. It sets the value of exchanging currencies between countries or regions. Exchange rates are important in influencing international trade and international flow of capital. The rate of exchange affects exports and imports among countries and therefore the total or overall demand for products and commodities in a country. Fluctuations in exchange rates potentially affect international trade and capital flows therefore leading to fluctuations in economic growth and profitability of MFIs (Nwankwo, 2006).

Fluctuations and cyclical movements in exchange rates will affect the prices of imports leading to high production costs. The increase in import prices may lead to a persistent increase in the values of commodities and services thereby leading to high inflation in the country. The increased production costs will lead to a reduction in profitability of microfinance institutions (Magweva&Marime, 2016).

2.3.5 Firm Size

Firm size is the measure for market share that a given firm commands or controls. It is the market proportion, influence and contribution in asset size, customer demographics or performance of a firm relative to the entire industry (Sritharan, 2015). Firm size as the measure of productivity and contribution to the market performance.

Firm size is an indicator of how much influence a given firm has on the overall market or the position occupied by the firm in the market. Firms differ in terms of size; it is possible to find that firms with the same basic structure differ in their influence in the industry. Total asset value was used to measure size in this study.

2.3.6: Liquidity

Liquidity is an indication of the inherent capacity of a given company to turn assets or securities into cash easily and efficiently. A company is liquid if it can meet its obligations as and when they occur. A liquid firm is able to meet all its shorter obligations using cash or near cash short term investments (Kabui, 2020).

When a firm is liquid, it will pay its short term liabilities with its available liquid assets. However, if a firm is highly liquid, it may have a lot of idle capital which is not making any earnings for the firm (Liargovas and Skandalis 2008).

2.4 Review of Empirical Studies

The following section provides discussion of empirical studies that are relevant to this study. The review begins with global studies followed by local studies. These past studies attempt to highlight association of macroeconomic indicators with performance.

2.4.1 Global Studies

Vicki (2012) examined the nexus between capital and sustainability of MFIs. The empirical research data was collected for microfinance institutions in five continents of Africa, Europe, Asia and South America. The research concluded that capital structure was not significantly correlated with profitability of MFIs.

Vanroose (2005) examined the influence of macroeconomic indicators on the outreach and breadth of MFI in developing countries. A set of hypotheses was developed and empirically tested. The research concluded that MFIs have greater outreach in the richer countries than the poorer countries in the developing world. The implication of the research is that adequate amount of development is essential to enable MFIs reach out to a substantial level of clients.

Caro (2017) established role of macroeconomic indicators on profitability of SACCOs, banks and NGOs in Ecuador. The microfinance industry in Ecuador consists of banks, NGOs and SACCOs which provide microfinance services to the poor. Operational sustainability was considered as outcome variable and predictor variables consisted of macroeconomic indicators. The study employed panel data regression method. The research observed that key macroeconomic factors do not positively influence performance of microfinance institutions in Ecuador.

Imai (2011) assessed the nexus of macroeconomic and institutional indicators and growth of MFIs in Bangladesh. Institutional factors were age, size and leverage. The macroeconomic factors included GDP and domestic credit. The research concluded that institutional factors significantly influence profitability of MFIs in Bangladesh. Institutional factors significantly affected portfolio quality, operating expenses and profitability. Macroeconomic factors also significantly affected operating expenses,

portfolio quality and profitability. The study concluded that institutional and macroeconomic indicators have a significant impact on profitability of MFIs.

Ashenafi and Kingawa(2018) investigated impact of economic indicators on performance of MFIs in Ethiopia. Economic factors included firm size, GDP, age, capital structure and operational efficiency. The findings revealed that age and capital structure positively and significantly affect profitability. The results showed that operational efficiency and firm size were negatively and insignificantly correlated with profitability. Gross domestic product was found to positively affect profitability of the MFIs implying that a steady growth of GDP causes a significant improvement in profitability of MFIs. It was also found that as MFIs mature and grow in age, their profitability is greatly enhanced.

Memonet (2020) investigated financial and operational sustainability of MFIs in Asia. Data was collected on 409 microfinance institutions for a 10 year period between 1999 and 2017. The research concluded that macroeconomic factors including human development index, economic growth, FDI, interest rate, labour participation and private credit have a positive impact of operational and financial sustainability.

Zulfiqar and Din (2015) investigated impact of macroeconomic indicators on performance of MFIs in Pakistan. They observed that inflation did not significantly influence profitability. GDP and interest rates significantly influenced performance.

Baba and Nasieku (2016) examined how macroeconomic indicators affected profitability of banks in Nigeria. The research concluded that major economic indicators have positive association with bank profitability. Inflation rates showed a negative association with bank profitability.

2.4.2 Local Studies

Swaleh and Wekesa (2020) examined impact of economic indicators on profitability of MFIs in Mombasa county. The research concluded that interest rate and national savings rate had positive association with financial performance. Inflation rate negatively affected performance.

Talaso (2015) established the association between economic indicators and profitability of microfinance banks. The microeconomic factors included age and capital adequacy of the firms. The macroeconomic factors were liquidity and inflation rates. The research design was descriptive. The research concluded that capital adequacy as well as age positively affect profitability.

Ariema (2016) investigated influence of macroeconomic indicators on performance of MFIs. The macroeconomic factors included national savings rate, GDP, rate of exchange and employment rate. Information on macroeconomic factors was obtained from CBK and KNBS. Data on profitability was obtained from the deposit taking MFIs. The research concluded that inflation rate negatively influences profitability of MFIs. It was observed that GDP, national savings rate, exchange rate as well as employment rate have a positive influence on profitability of MFIs.

Ovamba (2014) carried case research on how macroeconomic indicators influence profitability of Equity Bank. Macroeconomic indicators were GDP, exchange rate and inflation rates. Data on the macroeconomic factors were collected from KNBS and CBK. The research concluded that there exists an insignificant association between inflation rates, exchange rates and real GDP and profitability.

Nguku (2019) evaluated the nexus between macroeconomic indicators and bank profitability. The research targeted eleven banks quoted at the NSE. Profitability was measured using return on equity. The research concluded that rate of inflation does not significantly influence bank profitability. It was observed that exchange rate negatively influences profitability. The research concluded that the rate of interest, however, positively influences profitability of banks.

Nderitu (2019) examined impact of macro-economic indicators on bank profitability. Macroeconomic factors included inflation, GDP, interest rate as well as exchange rates. The research concluded that inflation and exchange rates negatively influence bank profitability while GDP and interest rates positively influence profitability of commercial banks.

2.5 Summary of the Literature Review and Research Gaps

The theories on which the research is anchored have been discussed in this chapter. The theories include modern portfolio theory (MPT), International Fisher effect (IFE) as

well as arbitrage pricing theory. The major empirical studies that are relevant to the current study were critically reviewed. Such studies have given mixed findings and results which have been presented in the chapter.

As reviewed in literature, several researches have investigated association between macroeconomic indicators and profitability. Results have established that key macroeconomic indicators, including inflation rates, GDP, national savings rate, rates of interest and unemployment rate influence firm profitability.

Many of the studies reviewed have revealed different or mixed results concerning the association of macroeconomic indicators and profitability of financial institutions. Contextually, a lot of studies focused on commercial banks. The studies have also used different research designs and methodologies. The research addresses identified knowledge gaps by investigating association of macroeconomic factors and profitability of microfinance institutions.

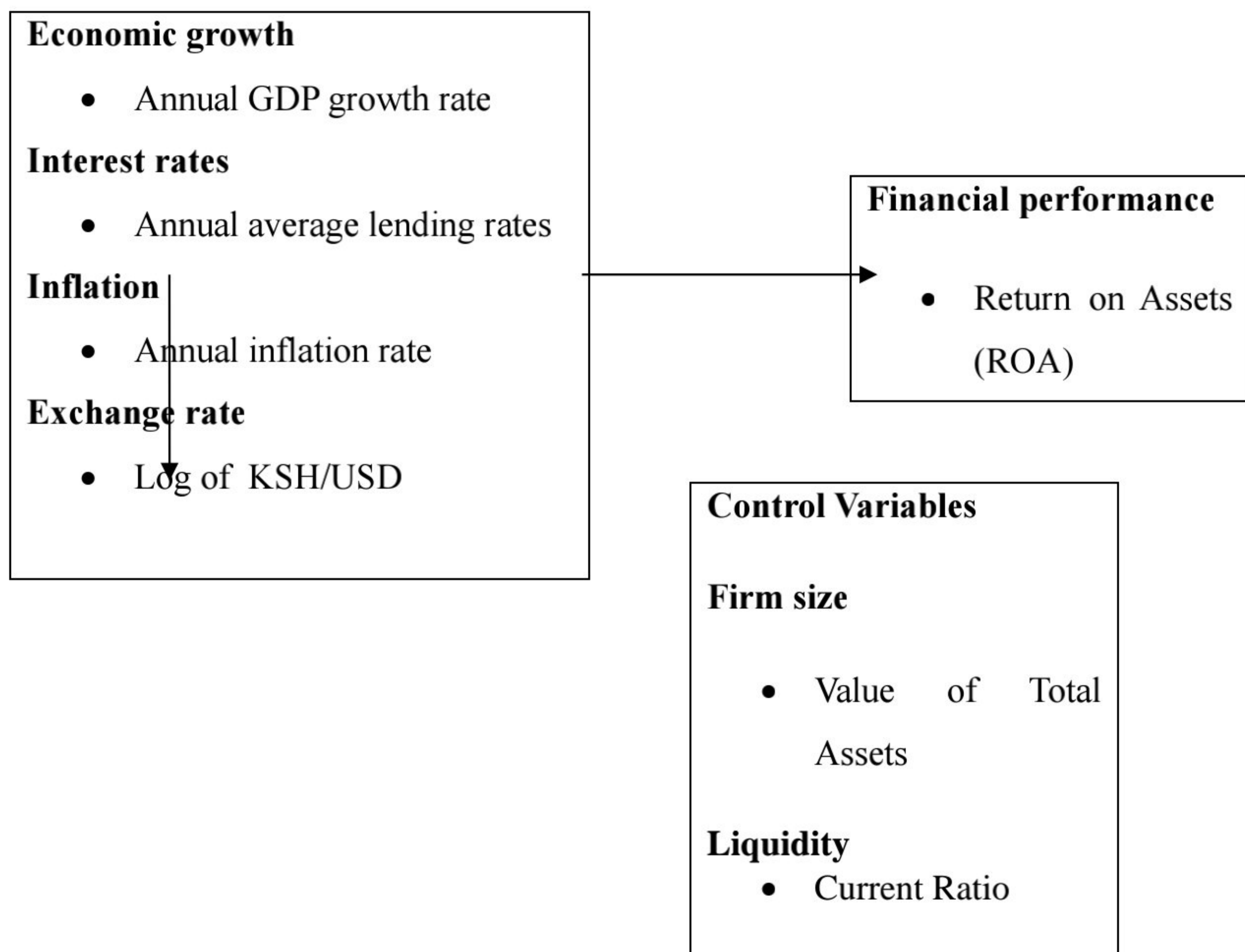
2.6 Conceptual Framework

This conceptual model describes the expected relationship among variables of the research. The explanatory variables are economic growth, liquidity, inflation rate, firm size, exchange rate as well as rates of interest. The measure for economic growth is GDP. The CPI is an indication of inflation rate. Annual lending rate is used to measure interest rate. Exchange rate is measured by value of Kenya Shilling as compared with dollar. Total Assets is an indicator of Size. Current ratio reflects liquidity. ROA is adopted as indicator of profitability.

Figure 2.1: The Conceptual Framework Model

Independent variables

Dependent variable



Source: Author 2022

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter highlights the design and methods of conducting research. The design and population is presented in this chapter. The procedures for data collection as well methods for analysing data are highlighted. It concludes with a discussion of tests of significance and various diagnostic tests.

3.2 Research Design

The study adopted a descriptive research design. A descriptive design is appropriate in explaining the current state of phenomena. It is useful in explaining how the variables in the study are related and influence of predictor variables on outcome variable. The descriptive design helps in representation of associations among the variables. It is therefore assists in providing useful explanations to the problem statement.

3.3 Population

Population represents the universe of the study from which data is collected. Population consists of all microfinance institutions in the country. Currently there are 47 MFIs registered with AMFI. A census survey was conducted. The list of 47 MFIs is indicated in the appendix 1.

3.4 Data Collection

Data was gathered from secondary sources. Annual data covering ten years beginning from the year 2012 up to and including the year 2021 was collected and analyzed. Data

on macroeconomic factors were obtained from KNBS and Central bank of Kenya. Data on total assets, net income, interest income, risk weighted assets and core capital were obtained from the AMFI and financial statements of the microfinance institutions.

3.5 Data Analysis

Analysis of data consisted of both descriptive statistics and inferential statistics. Descriptive analysis was conducted using mean, median, mode, skewness, kurtosis, percentages and frequencies. Descriptive statistics were presented in tabular form. Inferential statistics consisted of ANOVA as well as the multiple regression method. The SPSS software package version 25 was employed to conduct the inferential statistical analysis.

3.5.1 Model of Analysis

The model of analysis consisted of the a multiple regression model which is explained as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon.$$

Where: Y = Financial performance as measured by ROA

β_0 = y intercept of the regression equation.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = are the regression coefficients

X_1 = Economic growth as measured by annual GDP growth rate

X_2 = Interest rate as measured by average annual bank lending rates

X_3 = Inflation as measured by average annual inflation rate

X_4 = Exchange rates as measured by average annual exchange rate of log KSH/USD

X_5 = Firm Size as measured by the Natural log of Total assets

X_6 = Liquidity which is obtained by dividing current assets with current liabilities

ε = error term

3.5.2 Tests of Significance

In order to assess significance of the variables and overall regression model, parametric tests were conducted. Significance levels were tested using both t-test and F-statistic as reflected in the ANOVA.

3.6 Diagnostic Tests

Diagnostic tests involved evaluation of significance of the data and regression model. Normality test involved kolmogorov-smirnov tests as well as the Shapiro-Wilk test. Stationarity test involved Dickey Fuller statistic. Multicollinearity test was evaluated using the variance inflation factors. Autocorrelation was measured using the Durbin Watson test. Heteroscedacity was measured using the levene statistical test. All these diagnostic tests confirmed that data was robust and statistically fitted into the regression model and the results were therefore statistically significant.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

4.1. Introduction:

The chapter highlights key findings and results of research. Descriptive statistics are explained and discussed followed by a discussion of the inferential statistics. Finally a comparison of the current results with previous results is made.

4.2 Descriptive Statistics

Descriptive analysis helped to summarize key characteristics of data collected in the research. Descriptive analysis is useful in showing the main characteristics of a data set and the corresponding measurements. Table 4.1 gives a description of minimum values, maximum values and mean values.

Table 4.1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	47	-2.5	7.95	4.35	1.735
Interest rate	47	6.533	17.110	10.7965	3.5679
Exchange rate	47	85.138	115.518	101.83655	10.3453
Inflation rate	47	6.450	16.833	10.2650	5.2553
GDP	47	3.565	6.789	5.654	3.2564
Firm size	47	9.8	14.5	12.6543	2.8756
Liquidity	47	1.9	2.80	3.4585	1.5455
Valid N	47				

Source: Author (2022)

Based on descriptive analysis, average ROA is 4.35 with a standard deviation of 1.735. The lowest ROA is -2.5 while highest ROA is 7.95. The average value of rate of interest was 10.7965 and the standard deviation of rate of interest was 3.5679. Rate of interest had a lowest value of 6.5% and a highest value of 10.8%. The minimum and maximum values for the exchange rate were 85 and 115 respectively. The mean value for exchange rate was 102 and the standard deviation was 10.35%. During the period of study, inflation rate averaged at 10.26% and the standard deviation was 5.25%. The lowest value for inflation rate was 6.45 with the highest value of 16.83. The mean GDP

growth during the period was 5.65% and the standard deviation was 3.25%. The lowest GDP growth rate was 3.6% and highest figure of 6.8%. Lowest and highest values for firm size were 9.8 and 14.5 respectively. The firm size showed a mean of 12.65 while the value of standard deviation is 2.87. The average value of liquidity was 2.85. The lowest and highest figures for liquidity were 1.9 and 3.5 respectively.

4.3: Diagnostic Tests

4.3.1: Test for Normality

A test for normality is performed to establish if data is normally distributed. Several parametric tests such as t-test and ANOVA assume normality of distributions.

Table 4.2 Test of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Signif
ROA	.243	47	.000	.639	47	.002
Interest Rate	.293	47	.000	.444	47	.000
Exchange Rate	.350	47	.000	.314	47	.002
Inflation Rate	.086	47	.001	.968	47	.000
GDP	.125	47	.000	.918	47	.001
Firm Size	.089	47	.000	.678	47	.000
Liquidity	.069	47	.020	.972	47	.002

a. Lilliefors Significance Correction

Source: Authors (2022)

In the research, normality was tested using Shapiro-Wilk and Kolmogorov-Smirnov statistics. The tests were performed subject to the null hypothesis being there was no normal distribution of population data. The alternate hypothesis was that there was normal distribution of data. It is noted that alpha value of 0.05 is above all the observed p-values. The conclusion was that observations had normal distribution and the statistical t-tests and ANOVA were performed.

4.3.2 Multi-Collinearity Test

Multicollinearity shows the level of correlation among independent variables. Perfect positive correlation occurs when two variables have a correlation coefficient of +1

When the coefficient is -1, then there is perfect negative association of the two variables. A high level of multicollinearity among the variables may lead to less accurate statistical results.

4.3 Test for Multicolliearity

Model		Multicollinearity Values	
		Tolerance	VIF
1	(Constant)		
	Interest Rate	.944	1.059
	Exchange Rate	.952	1.050
	Inflation Rate	.879	1.138
	GDP	.938	1.067
	Firm Size	.893	1.120
	Liquidity	.885	1.065

Source: Author (2022)

It is observed in table 4.3 that the variance inflation factors among the independent variables are quite low. It was concluded that muticollinearity among variables was low.

4.3.3 Test of Autocorrelation

Autocorrelation measures the extent of correlation among the same variables over successive intervals of time. It shows the extent of correlation between a delayed variable value and original value over successive time intervals. Autocorrelation is commonly measured using the Durbin Watson test.

Table 4.4 Test of Autocorrelation

Test	Value
DW statistic	0.826

The Durbin- Watson statistic is 0.826 which is an evidence of positive autocorrelation of the variables. This statistics implies low autocorrelation among the data values.

4.3.4 Heteroscedasticity Test

Heteroscedasticity occurs when the residuals variance are not equal across a range of measurements. Heteroscedacity results to uneven scatter of residuals when regression analysis is performed. Heteroscedasticity indicates the extent of variation among predictor and independent variables across the observations. In order to assess heteroscedacity, the researcher observed the levels of significance existing among the coefficients. If the levels of significance among coefficients are greater than 0.05, then residuals variances are uneven over the range of observations.

Table 4.5 Test of Heteroscedacity

Model		Unstandardized		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.123	.039		3.165	.002
	Interest Rate	.000	.000	.118	1.720	.087
	Exchange Rate	.001	.001	.052	.763	.446
	Inflation Rate	.137	.040	.330	4.633	.052
	GDP	.145	.076	.132	1.920	.056
	Firm Size	.132	.010	.231	3.269	.055
	Liquidity	.126	.025	.214	2.845	.062

Source: Research Findings (2022)

The table above provides evidence that significance levels of coefficients for interest rate, firm size, inflation rate, liquidity, exchange rate and GDP are above 0.05. The

results provide adequate evidence of absence of heteroscedacity among variables of the model.

4.4 Regression Analysis

Regression method is a technique conducted to estimate the nature of relationship among variables. A multiple regression technique is used when there are many explanatory variables.

Multiple regression method was performed using the SPSS software package version 25.

4.4.1 Regression Model

The key characteristics of regression model are indicated in table 4.6. The characteristics include the values of R which describes degree of correlation, R square which shows the determination coefficient, Adjusted R square as well as standard error.

Table 4.6: Regression Model Summary

Regression Model				
Model	R	R Square	Adjusted R Square	Std. Error
1	.725 ^a	.525	.502	4.95491
a. Predictors: (Constant), interest rate, inflation rate, GDP, exchange rate, firm size, liquidity				

Source: Author (2022)

The correlation coefficient (R) indicates the nature of relationship among explanatory variables and outcome variable. The explanatory variables are interest rate, exchange rate, GDP, inflation rate, liquidity as well as size of the firm. ROA is the outcome variable. The correlation coefficient had a value 0.725. This indicates a strong association among the predictor variables and ROA. The R Square value is indicated as

0.525. This reflects the fact that 52.5% of variance in ROA is due to explanatory variables while 47.5% is due to extraneous variables.

4.4.2: Analysis of Variance (ANOVA)

The ANOVA is a major statistical tool that establishes if the difference between two or more groups is statistically significant. It is used to test the differences of means using variance analysis. ANOVA provides a good description of the statistical significance of an experiment or survey.

Table 4.6: Analysis of Variance (ANOVA)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.318	5	2.485	9.891	.000 ^b
	Residual	6.745	41	.251		
	Total	14.063	46			

a. Dependent Variable: ROA

b. Explanatory variables: (Constant), interest rate, firm size, economic growth, inflation rate, liquidity and exchange rate

Source: Author (2022)

Based on ANOVA table, it was observed that significance level is 0.000 compared to 0.05. The model was therefore useful in establishing the relationships among predictor variables and ROA of MFIs.

4.4.2: Coefficients of Regression

Multiple regression analysis is useful in generating a statistical equation that explains statistical association among the dependent and one or more independent variables.

Table 4.8: Coefficients of Regression

Model		Unstandardized		Standardized	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	22.85	4.697		6.568	.000

GDP	.287	.041	.776	4.498	.000
Interest rate	.164	.246	.219	3.918	.000
Inflation rate	-.165	.036	-.743	-3.946	.000
Exchange rate	.125	.228	.082	.978	.235
Firm size	.180	.265	.215	3.233	.027
Liquidity	-.150	.059	.288	2.049	.038

a. Dependent Variable: ROA

Source: Author (2022)

From the above table, the regression coefficients indicate that five predictor variables, namely GDP, interest rate, inflation rate, firm size and liquidity significantly affect ROA due to the p values which are below 0.05. The p-value for exchange rate is above 0.05 meaning that exchange does not significantly influence ROA.

The regression equation for the research can be described as follows:

$$Y = 22.85 + 0.287X_1 + 0.164X_2 - 0.125X_3 + 0.180X_4 - 0.150X_5$$

Where,

Y = Financial performance of microfinance institutions

X₁ = Economic growth

X₂ = Interest rate

X₃ = Inflation rate

X₄ = Firm size

X₅ = Liquidity

The regression equation above indicates that a change in economic growth by one unit leads to 28.7% change in financial performance. It is observed that economic growth significantly affects profitability. Interest rate has coefficient of 0.164 indicating that if interest rate changes by one unit, financial performance changes by 0.164. This is an indication that effect of interest rate on profitability is significantly positive. The regression coefficient for inflation is -0.125 which implies that 1% rise inflation will reduce ROA by 12.5%. It means inflation rates adversely affect profitability of the MFIs. Firm size has a regression co-efficient of 0.180 implying that increasing assets

by 1% increases ROA by 0.18. This is a clear indication that firm size is positively correlated with financial performance. The implication is that when firm size increases, the MFIs will increase their profitability. The regression coefficient for liquidity was -0.150 which implies that whenever liquidity ratio increases by one unit, profitability declines by 15%. The implication is that liquidity negatively affects financial performance. The implication is that when the MFIs reduce their liquidity ratios, financial performance improves significantly

4.5 Discussion of Research Findings

The key aim of this research was to establish effects of macro-economic indicators on performance of MFIs. The macroeconomic factors of interest were interest rate, inflation, economic growth and exchange rate. The control factors included liquidity and firm size. ROA was chosen as the indicator of performance.

The findings indicated that economic growth affected performance of MFIs significantly and in a positive manner. This means that an improved GDP causes significant improvement in profitability of MFIs. The GDP growth rate is an indicator of the well being of the economy. When there is an increase in growth rate, it means the economy is doing well and financial institutions will likewise show a great improvement in financial performance.

The results are an indication that interest rates positively and significantly affect performance. This indicates that interest affects financial performance positively. Interest rates are positively correlated with financial performance. As interest rates rise, MFIs benefit from the interest rate spread to improve financial performance. Inflation rate is negatively correlated with financial performance implying that inflation greatly reduces purchasing power of consumers and households. The implication is that savings and investment activities are greatly reduced. This leads to a reduction in investing activities, thereby reducing the capacity of MFIs to enhance profits. The findings strongly suggest liquidity is negatively correlated with financial performance implying

that low liquidity ratios normally lead to improved profitability. The implication is that MFIs should reduce their liquidity ratios in a bid to reduce the amount of idle assets. The research showed firm size affects profitability. The implication is that as MFIs grow in size, profitability is greatly improved.

The results of this research conform to the findings by Swaleh and Wekesa (2020), Ariema (2016) and Talaso (2015) which stated that GDP and interest rates positively affect the profitability of financial institutions while liquidity and inflation negatively affect profitability of financial institutions. The research findings also relate well with the results by Magweva and Marime (2016) and Ovamba (2014) that found out firm size positively affects profitability of financial institutions.

The findings of this research, however, are contrary to those obtained by Ozcan et al (2017) which contend that size of does not influence profitability. The findings are also different from the findings by Kumar and Kaur (2016) that established that size negatively influences profitability.

The findings of the research are also different from the findings by Osamwonji and Chijuka (2014) that revealed significant and positive association between economic growth and profitability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In the chapter, summary and conclusions of research are discussed. The policy recommendations are also discussed. The summary, conclusions as well as policy recommendations are informed by the research findings. Limitations as well as areas for future research are also highlighted in the chapter.

5.2 Summary

The key purpose of research was to examine effects of selected macroeconomic indicators on profitability of MFIs. Key macroeconomic indicators included GDP, rates of inflation as well as rates of exchange. The two control variables included firm size as well as liquidity. The research design was descriptive. Annual data on the variables of the study for a ten year period (2012 to 2021) was collected from the CBK, Capital Markets Authority and KNBS.

Based on the regression results, R was calculated as 0.725. This is an indication that the various macroeconomic indicators including economic growth, interest rate and rates of inflation together with firm size and liquidity are significantly correlated with ROA. The value of R^2 was 0.525 in the regression model which implies that predictor variables are responsible for 52.5% of variability of ROA while extraneous factors explain the remaining 47.5%. The regression model also indicates that by holding constant the independent and control variables, Return on assets would be 22.85.

The research established that the statistical association between growth rate of GDP and ROA is significant and positive. This indicates that a change in GDP by one unit would result to 28.7% change in return on assets. It was found that the statistical

association between interest rate and ROA is positive which shows that when interest rate increases by one unit, the return on assets would increase by 16%. It was revealed that firm size affects return on assets. A single percentage increase in assets of the firm would cause a 0.18 increase in ROA. The regression results showed that both inflation and liquidity influence ROA negatively. Any unit increment in inflation rate causes a 0.125 reduction in return on assets. Similarly, if liquidity ratio rises by 1% the ROA will reduce by 0.15.

5.3 Conclusions

The research makes a major conclusion that macroeconomic indicators like GDP, inflation rate and interest rate together with liquidity as well as firm size significantly affect profitability of MFIs. The research concluded that GDP positively affects profitability in a significant manner. This indicates that when the GDP growth rises, financial performance is greatly enhanced. It was concluded that Interest rate and financial performance have a positive correlation. As interest rates rise, MFIs increase their profitability by leveraging on the interest rate spread to improve on their investment activities.

The study indicated that inflation is negatively correlated with financial performance. As inflation rates rise, financial performance is negatively affected. The loss in purchasing power arising from high inflation rates may adversely affect financial performance.

The research observed that firm size and ROA are positively correlated. A major conclusion of the study is that firm size positively affects financial performance. MFIs should therefore increase their level of assets as they strive to improve on performance.

The findings showed that Liquidity is negatively correlated with return on assets. It is concluded that liquidity affects financial performance negatively. MFIs should therefore take prudent actions to reduce the liquidity ratios by reducing the idle current assets. The low liquidity ratios will improve the profitability of MFIs.

5.4: Policy Recommendations

The key finding of this research is that economic growth significantly affects financial performance. Due to this key finding, a major recommendation is that the Government should take practical and innovative measures to expand economic growth and development. The government may adopt measures that boost economic growth, including infrastructural development, employment creation initiatives, fiscal policies and incentives to enterprises. The Government should also provide a conducive environment to attract foreign direct investment and increase enterprise development.

The research showed that inflation rate negatively influences performance of MFIs. A recommendation of the study is that prudent measures need to be enforced to monitor and effectively manage the inflation rates in the country. The research also noted that interest rates significantly influence profitability. A key recommendation is that there is need for interest rates to be closely monitored the CBK. Interest rates should be managed in a way that helps MFIs and other financial institutions to operate efficiently and thus maximize returns and profitability.

The research showed that size positively affects profitability. A key recommendation is that MFIs and other financial institutions should expand their fixed and current assets. The expansion in the assets base will increase the firm size. Due to the increased firm size, the return on assets will continue to rise thereby improving performance. It is, thus, recommended that small MFIs should adopt innovative ways to expand their level of assets as this will lead to growth in sales and profitability.

The research showed negative statistical association of liquidity and profitability of MFIs. A recommendation of the research is that firms should adopt measures to reduce their liquidity ratios. MFIs and financial institutions need to establish optimum assets and liability strategies aimed at reducing liquidity risks of the firms and thus maximize profitability.

5.5 Limitations of the Study

This research involved impact of six major factors on profitability. Variables were limited to six factors. It is recognized that adoption of other predictor variables may show different findings.

ROA was the only ratio of profitability. It is recognized that this is not the only ratio for measuring financial performance. A limitation of the study is that adoption of different measures of performance may produce different results.

The period of study also presents a limitation as it covered a 10-year period. It is recognized that a different time frame may provide different results and enhance generalizability.

The other limitation is that the study focused on MFIs in Kenya. It is noted that the characteristics, operations and conduct of MFIs may differ from other financial institutions. Studies conducted on other financial institutions may therefore lead to different findings.

The study also faced a limitation on methodology. The research collected secondary data and used multiple regression analysis techniques. It is noted that use of primary data and other statistical techniques may lead to different results.

5.6: Areas for Future Studies

The research assessed impact of six key indicators on profitability of MFIs. It is noted that financial performance is a function of several factors. A key suggestion for future research is that focus should be on additional factors including unemployment rate, firm characteristics, management efficiency and industry performance.

The time period covered by the research was 10 years from 2012 to 2021. Future researchers may conduct a similar study using a longer period and such findings can be compared with this study.

The study was limited to MFIs. It is therefore recommended that future researchers may focus on major financial institutions including banks, insurance firms, Saccos well as pension schemes.

This study adopted a multiple regression analysis. It is recognized that there are other statistical techniques that may yield different results. It is recommended that future researchers may adopt other statistical techniques such as chi-square and other non-parametric techniques

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APPENDICES

APPENDIX 1: Microfinance Institutions in Kenya

1. Weighbridge Ventures MFI Limited
2. Yehu MFI Limited
3. ZENKA MFI Limited
4. Choice MFI Limited
5. Daraja MFI Limited
6. Diversity MFI Limited
7. Eclof Kenya MFI Limited
8. Faulu MFI Limited
9. Fincredit MFI Limited
10. Liberty Afrika Technologies MFI Limited
11. Longitude Finance MFI Limited
12. Maisha MFI Limited
13. Momentum MFI Limited
14. Money Worth Investment MFI Limited
15. Musoni MFI Limited
16. My Credit MFI Limited
17. NEEMA- HEEP MFI Limited
18. Nyali capital MFI Limited
19. Greenland Fedha MFI Limited
20. Habitat for Humanity MFI Limited
21. Hand in Hand Eastern Africa MFI Limited
22. Hazina Development Trust MFI Limited
23. Jitegemea MFI Limited
24. Jiweze MFI Limited
25. JuhudiKilimo MFI Limited
26. Kenya Women MFI Limited
27. Kipepeo MFI Limited
28. Letshego MFI Limited
29. ASA International MFI Limited

30. BIMAS MFI Limited
31. Caritas MFI Limited
32. Century MFI Limited
33. PAWDEP MFI Limited
34. Platinum Credit MFI Limited
35. Premier Credit MFI Limited
36. Progressive Capital MFI Limited
37. Rafiki MFI Limited
38. Real people MFI Limited
39. Remu MFI Limited
40. Select MFI Limited
41. SMEP MFI Limited
42. SpringBoard Capital MFI Limited
43. Sumac MFI Limited
44. U & I MFI Limited
45. Ushind Bora MFI Limited
46. Uwezo MFI Ltd
47. Vision Fund MFI Limited

Source: AMFI (2022)

Appendix 2: Data Collection Instrument

Year	SIZE	ROA	Total assets	Inflation rate	Interest rates (bank rate)	Exchange rate (ksh/usd)		Economic growth (GDP growth rate)

Appendix 3: Research Data

Year	ROA	Interest rate	Exchange rate	Liquidity	Inflation rate	Economic growth	Size
2012	1.68 %	15.167	93.80	9.116	16.290	0.105	2.45
2013	1.97 %	18.100	86.68	9.452	15.965	0.106	3.96
2014	2.15 %	15.534	87.55	9.351	11.654	0.108	3.68
2015	2.58%	12.870	90.45	9.645	10.300	0.110	3.46
2016	3.55%	11.632	103.59	9.204	10.246	0.116	2.89
2017	4.97%	11.856	105.78.	9.230	9.867	0.117	2.99
2018	3.65%	12.654	110.825	9.157	11.786	0.099	3.62
2019	4.48%	13.556	115.581	9.184	14.033	0.081	3.65
2020	1.79%	14.575	120.236	9.185	18.157	0.050	2.35
2021	2.84%	16.083	125.124	9.120	19.013	0.083	2.85