JETMASE

Journal of Emerging Trends in Management Sciences and Entrepreneurship
Volume 6(1), Pages 296-316, December 2024
ISSN: 2384-762X
https://www.jetmase.com

Effect of Macroeconomic Variables on the Performance of Microfinance Banks in Nigeria

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ABSTRACT: This study examined the effect of effect of macroeconomic variables on the performance of microfinance banks in Nigeria from. Specifically, the effect of unemployment rate, inflation rate, interest rate, and gross domestic products on performance of microfinance banks in Nigeria was ascertained. This study adopted a quantitative research approach using an ex-post facto research design. The study relies primarily on secondary data obtained from reputable sources: Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC). The study covers the period from 2010 to 2023, providing a 13-year timeframe to capture the dynamics of macroeconomic variables and their impact on microfinance bank performance in Nigeria. The Autoregressive Distributed Lag (ARDL) was the technique for analyzing the data. The result of the analysis revealed that unemployment rate has no significant effect on the performance microfinance banks; inflation rate has significant effect on the performance microfinance banks; interest rate has insignificant effect on the performance microfinance banks; and there is significant effect between GDP and the performance of microfinance banks. The government and relevant stakeholders should promote targeted job creation initiatives, such as the N-Power Program and the Anchor Borrowers' Program, focusing on sectors that engage microfinance clients, like agriculture and small-scale industries. These efforts will boost borrowers' income, enhance loan repayment, and improve the financial performance of microfinance banks. Microfinance banks should adopt inflation-adjusted lending practices and diversify their product offerings to cushion the impact of inflation on their operations. Additionally, policymakers should focus on stabilizing inflation through prudent monetary policies, as lower and stable inflation rates contribute to better loan performance and reduced default risks for microfinance banks. Regulatory authorities should work to create a more favorable interest rate environment by ensuring that microfinance banks have access to cheaper sources of funding. This could include government subsidies or credit guarantees that would allow these banks to offer more affordable loans to their clients

Keywords: Macroeconomic variables, microfinance banks, Nigeria

1. INTRODUCTION

Microfinance banks (MFBs) play a pivotal role in the economic development of Nigeria by providing financial services to individuals and small businesses typically excluded from the formal/traditional banking system. These institutions are essential for promoting financial inclusion, reducing poverty, and fostering entrepreneurship. The Nigerian government has made microfinance an official practice, offering financial services like loans, savings, leasing, insurance, and transfers to help economically disadvantaged households engage in income-generating activities and grow their small businesses (Ekwunife, Nduka, & Ogini, 2022). This support from microfinance institutions helps bridge financial gaps for low-income groups, boosting grassroots economic activity (Ademola, 2022). Over the years, numerous programs and policies have been introduced to enhance the living conditions of Nigeria's population. In 2004, the Central Bank of Nigeria, in collaboration with relevant agencies, formulated a policy aimed at enhancing the capacity of micro, small, and medium enterprises through financial intermediation to foster economic growth and development (Nwaogazi, 2010). The unemployment problem in Nigeria has remained persistent resulting in deterioration of welfare of people and therefore little prospect for measurable development in the country. Based on data provided by the Nigerian Bureau of Statistics (NBS) (2011), the unemployment rate in Nigeria has increased to 23.9% in 2011 compared to 21.1% in 2010 and 19.7% in 2009. Despite their critical role, MFBs in Nigeria face numerous challenges. Internally, they often struggle with high default rates, limited access to funding, and operational inefficiencies (Nduka, Atueyi, Osakwe, & Mbanefo, 2021; Obidike, Onyeka, & Nduka, 2022). Externally, their performance is heavily influenced by macroeconomic variables such as inflation, interest rates, GDP growth, and exchange rates. These factors can significantly affect the cost of borrowing and lending, the value of loans, and overall financial stability (NBS, 2021).

Looking at the macro-economic context in Nigeria between 2000 and 2023, Nigeria experienced significant economic fluctuations, including periods of growth and recession. One of the most significant challenges faced by MFBs has been high inflation. High inflation rates, such as those

witnessed in Nigeria during the peak period of 2016-2017 when inflation exceeded 18%, erode the real value of money over time. This erosion affects both borrowers and lenders within the microfinance sector. For borrowers, inflation reduces their purchasing power, making it increasingly difficult to repay loans at their nominal values (Logan, Okanya, Nduka, Manasseh, Ede, Onoh, Omeje, Ozioko, & Agu, 2021; Monogbe, Akinpelumi, Achugbu, & Nduka, 2016; Nduka, Ananwude, & Osakwe, 2019). As a result, the risk of non-performing loans (NPLs) rises for MFBs, impacting their profitability and financial stability. Volatile interest rates, fluctuations in exchange rates have also posed additional challenges for MFBs operating in Nigeria, leading to an increase in the cost of borrowing for MFBs, which in turn affects their lending rates, the affordability of loans for their clients, reduced foreign investments, which limits the capital available to MFBs, constraining their ability to expand operations and offer more extensive financial services to underserved populations in Nigeria (IMF, 2020).

The global oil price crash in 2014 and the subsequent economic recession in 2016 had a profound impact on Nigeria's economy. During this period, the GDP growth rate plummeted from 6.3% in 2014 to -1.6% in 2016, reflecting the severity of the economic downturn (World Bank, 2022). High inflation rates, reaching up to 18.7% in 2017, further exacerbated economic instability (National Bureau of Statistics, 2021). The economy began a slow recovery from 2017 to 2019, achieving modest growth rates of about 2-3% per year. The COVID-19 pandemic in 2020 caused another recession, but recovery efforts in 2021 and 2022 saw gradual economic improvement (IMF, 2022). These macroeconomic conditions have had a direct impact on the microfinance sector. Moreover, the growth and efficiency of MFBs are hampered by insufficient infrastructure, low adoption of technology, and regulatory limitations (KPMG, 2020). These crises have underscored the influence of macroeconomic factors on the operational performance of microfinance banks in Nigeria between 2010 and 2022, emphasizing the importance of robust risk management frameworks (World Bank, 2020).

There seems to be a broad view that microfinance banks play a crucial role in promoting the economic growth of a nation and achieving financial inclusion to the economically poor but active citizens who are excluded from financing by conventional

banks (Ogunewe, Ananwude, & Nduka, 2020; Aniefor, Nduka, Ananwude, & Ezeaku, 2021). Microfinance banks serve as a major tool for tackling unemployment and poverty which retards the economic growth of developing nations (Ademola, 2022). Despite the importance of microfinance banks in Nigeria, it was gathered that over 103 microfinance banks has shut down in 2021 due to profit fluctuations over the years. These fluctuations are driven by several factors which may be internally and/or externally. Acha and Acha (2012) examined the factors affecting the performance of microfinance banks to be infrastructural inadequacies, social misconception and poor regulatory and legal frame work. Inadequate financing, high risk and heavy transaction cost was also listed to be some of the problems of microfinance bank (Nwanyawu, 2011; Anusi & Nduka, 2022). According to UNDP (2003), microfinance banks charge between 30% to 100% interest on loans while they pay 4.5% to 6% on savings, these rates are way too high for small scale business owners to afford which may discourage them from borrowing hence deplete the performance of microfinance banks. In December 2005, the Central Bank of Nigeria (CBN) introduced a microfinance policy framework to enhance the access of micro-entrepreneurs to financial services required to boost, expand and/or modernize their operations and contribute to rapid national economic growth. The rationale was that no robust, people-based growth can be achieved without increasing the access of this category of entrepreneurs and the active poor to factors of production, especially financial services. The latent entrepreneurial capacity of the poor, it was believed, would be significantly enhanced through the provision of microfinance services to enable them engage in economic activities and be more self-reliant; increase employment opportunities, enhance household income and create wealth (NBS, 2011). Despite the implementation of the National Microfinance Policy in 2005 aimed at improving the capability of MFBs to offer financial services to underserved populations (Central Bank of Nigeria, 2019), the sector remains underdeveloped, with formal financial services accessible to only about 40% of the population (EFInA, 2020). These crises have underscored the influence of macroeconomic factors on the operational performance of microfinance banks in Nigeria between 2010 and 2023, emphasizing the importance of robust risk management frameworks (World Bank, 2020). Findings from empirical review show that researchers focused on the

profitability of microfinance banks and how it has impacted economic growth, they failed to look at how macroeconomic variables affect the performance of microfinance banks. It is therefore imperative to fill this gap discovered by examining the effect of unemployment rate, inflation rate, interest rate, and gross domestic products on performance of microfinance banks in Nigeria from 2010 to 2023.

2. LITERATURE REVIEW

The performance of microfinance banks (MFBs) is a critical component in understanding their impact and sustainability within the financial ecosystem. While traditional banking metrics may provide a partial assessment, the unique nature of microfinance operations necessitates the consideration of Key Performance Indicators (KPIs) that capture the multifaceted goals and challenges inherent in this sector (Bali *et al.,* 2008). These KPIs serve as vital tools for evaluating the efficiency, outreach, and social impact of MFBs, ultimately informing strategic decisions and policy interventions. One of the primary KPIs for MFBs is their financial sustainability, which encompasses measures such as operational self-sufficiency and financial self-sufficiency (Cull *et al.,* 2009). Operational self-sufficiency examines the ability of an MFB to cover its operating costs through its own revenue generation, while financial self-sufficiency assesses the institution's capacity to cover both operating and financial costs without relying on subsidies or grants (Ledgerwood, 1998). These metrics provide insights into the long-term viability of MFBs and their ability to maintain operations without external support. For instance, a study by Okumu (2007) on Ugandan MFBs found that those with higher operational self-sufficiency were more likely to attract private investments and sustain their operations in the long run. The banking sector, including the microfinance subsector, operates within the broader macroeconomic environment, which can significantly influence its performance and stability. Macroeconomic variables, such as interest rates, inflation, unemployment, and gross domestic product (GDP), are critical factors that shape the operating landscape for banks and determine their ability to fulfill their core functions effectively. Understanding the interplay between these macroeconomic variables and the banking sector is essential for analyzing the dynamics of Microfinance Banks (MFBs) in Nigeria and their response to changes in the economic landscape (Nduka, Achugbu, & Ucheahara, 2016).

This study is primarily based on the financial intermediation theory. The performance of microfinance banks (MFBs) in Nigeria is closely linked to the broader financial system and the macroeconomic environment in which they operate. The Financial Intermediation Theory provides a relevant theoretical framework for understanding the role of MFBs as financial intermediaries and how they are influenced by various macroeconomic variables. The financial intermediation theory propounded by Gurley and Shaw posits that financial intermediaries, such as banks and microfinance institutions, play a crucial role in channeling funds from surplus units (savers) to deficit units (borrowers) within an economy (Gurley & Shaw, 1960; Scholtens & Wensveen, 2003). These financial intermediaries overcome information asymmetries and transaction costs that would otherwise hinder the direct flow of funds between savers and borrowers. In the context of microfinance, MFBs act as financial intermediaries by mobilizing deposits from individuals and channeling these funds as loans to micro-entrepreneurs, small businesses, and low-income households (Aghion & Morduch, 2005). This intermediation process enables MFBs to fulfill their dual objectives of financial inclusion and poverty alleviation. The Financial Intermediation Theory suggests that the performance and operations of financial intermediaries, including MFBs, are significantly influenced by various macroeconomic variables (Demirguc-Kunt & Huizinga, 1999; Scholtens & Wensveen, 2003). For instance, changes in interest rates can affect the cost of funds and the pricing of financial services for MFBs, potentially impacting the demand for microfinance loans and the ability of borrowers to service their debt. Similarly, high inflation can erode the real value of MFBs' financial services, reducing the purchasing power of their clients and undermining the ability to attract and retain savers. Gross Domestic Product (GDP) growth, a measure of economic expansion, can influence the demand for microfinance services and the overall financial health of MFBs. Periods of economic growth are often associated with increased entrepreneurial activity, rising incomes, and greater financial inclusion, which can lead to higher demand for microfinance products and improved repayment rates (Dietrich & Wanzenried, 2011). Conversely, economic downturns can reduce the pool of potential borrowers and adversely impact the loan portfolio quality of MFBs. Unemployment, a measure of the proportion of the labor force that is without

work, can also affect the operations and performance of MFBs. High levels of unemployment can limit the pool of potential borrowers and savers, reducing the customer base for microfinance services (Chowdhury, 2009). Additionally, unemployed individuals and households are more likely to face financial instability, leading to increased loan defaults and deteriorating asset quality for MFBs. By applying the financial intermediation theory, the researcher can develop a deeper understanding of the mechanisms through which macroeconomic variables influence the performance of MFBs in Nigeria. This theoretical framework can inform the development of appropriate policy interventions, risk management strategies, and operational practices to strengthen the resilience and impact of the microfinance sector in the face of macroeconomic challenges.

The study by Walde and Makori (2022) aimed to establish the effect of macroeconomic variables on the financial performance of Deposit Taking Microfinance Institutions (DTMFIs) in Kenya. The study noted that the loans to deposits ratio for DTMFIs had exceeded the proposed ratio of 70%, indicating a higher appetite for loans than the mobilization of deposits, forcing DTMFIs to seek external funding sources, affecting their liquidity and performance. The study's objectives were to determine the effects of inflation rate, interest rate, gross domestic product (GDP), and exchange rate on the financial performance of DTMFIs in Kenya. The theoretical foundation included market timing theory, pecking order theory, and trade-off theory. A causal research design was employed, and data was collected from all 13 operational DTMFIs in Kenya, using secondary data from the Central Bank of Kenya and Kenya National Bureau of Statistics for the period 2010-2019. Diagnostic tests, including multicollinearity, linearity, heteroscedasticity, normality, unit root, and autocorrelation, were conducted. Karl Pearson's correlation moment and multiple regression analysis were used for data analysis, with descriptive statistics such as standard deviation and mean. The results showed a weak correlation between interest rate and financial performance, a very weak correlation between inflation rate and financial performance, a moderately strong correlation between exchange rate and financial performance, and a strong positive correlation between GDP and financial performance. The regression analysis revealed that interest rate had a statistically insignificant negative effect on financial

performance, inflation rate had a statistically insignificant positive effect, exchange rate had a statistically insignificant negative effect, and GDP had a statistically significant positive effect on the financial performance of DTMFIs.

Lyimo and Hussein (2022) examined the impact of macroeconomic variables on the performance of commercial banks in Tanzania, measured by return on assets (ROA). The study adopted a correlation research design and utilized secondary data from sources such as World Bank Indicators, IMF, Bank of Tanzania, and Ministry of Finance economic bulletins for the period of 2009 to 2020. The findings revealed that economic growth had a significant relationship with the performance of commercial banks. However, the exchange rate, interest rate, and money supply were found to have insignificant relationships with the performance of commercial banks. The study recommends that future research should explore the challenges facing commercial banks, as this could provide insights into overcoming these challenges and promoting efficient implementation, monitoring, and evaluation of commercial bank operations. Additionally, the authors suggest conducting further research on commercial banks in the East African region to establish the impact of macroeconomic variables on their performance. Overall, the study highlights the importance of considering macroeconomic factors, particularly economic growth, in assessing the performance of commercial banks in Tanzania, while also recognizing the need for further investigation into the specific challenges and regional dynamics affecting the banking sector.

Ally (2022) investigated the influence of macroeconomic factors, specifically interest rates, inflation rates, and exchange rates, on the financial performance of commercial banks in Tanzania. The study adopted descriptive and explanatory research designs to analyze the trends and relationships between these macroeconomic variables and the financial performance of commercial banks over a 10-year period from 2010 to 2019. The study utilized secondary data sources, and the collected data were analyzed using descriptive and correlation analyses. The findings revealed a strong negative correlation of 74.99% between interest rates and return on assets (ROA), indicating that an increase in ROA results in a decrease in interest rates by the same magnitude. Additionally, the study found a positive

correlation of 59.22% between inflation rates and ROA, and a negative correlation of 65.52% between exchange rates and ROA. The study concluded that interest rates, inflation rates, and exchange rates significantly influence the financial performance of commercial banks in Tanzania.

Tosin and Otonne (2019) did a study on the determinants of profitability for commercial and microfinance banks in Nigeria, with a specific focus on understanding the potential effects of policies implemented by the Central Bank of Nigeria (CBN) on these determinants and, subsequently, on the banks' profitability. The study adopted a panel data research design and randomly sampled four commercial banks and four microfinance banks based on data availability. Data were sourced from the annual balance sheets and income statements of these banks for the period from 2010 to 2018 and analyzed using the Random Effect Panel Estimation Technique. The findings revealed that while liquidity ratio was not a strong determinant of profitability for either commercial or microfinance banks, capital adequacy was a significant determinant with a positive effect on microfinance banks' profitability and a negative effect on commercial banks' profitability. Additionally, real GDP was found to be a significant determinant of profitability for commercial banks but not for microfinance banks. The study concluded that the recent policy action by the CBN to increase the cash reserve ratio from 22.5% to 27.5% is expected to have an insignificant reduction on the profitability of banks. However, the study acknowledged limitations, such as using a single measure of profitability and external factor, as well as a limited study period and sample size. The authors highlighted the study's contributions, stating that the findings are useful for bank management, shareholders, and policymakers, providing insights into the potential effects of CBN policies on the banking sector in Nigeria.

Njenga (2019) examined the effect of macroeconomic variables on the financial performance of microfinance banks in Kenya. The study was grounded in theories that explain how equilibrium interest rates and growth rates, which are macroeconomic variables, can be determined. The study identified six determinants of financial performance, including interest rates, inflation rates, foreign exchange rates, GDP, firm size (as an index of market size), and the level of unemployment. After reviewing

relevant literature, the study focused on four independent variables: interest rates, market size, inflation, and exchange rates, and their effect on return on assets (ROA) as the measure of financial performance. The study employed a longitudinal and descriptive research design, using panel data spanning seven years from 2012 to 2018. The population consisted of 13 microfinance banks in Kenya, making it a census study. Secondary data was obtained from annual reports of the Central Bank of Kenya on the supervision of financial institutions. The data underwent various tests, including normality, autocorrelation, and multicollinearity. Descriptive statistics, correlation matrices, regression analysis, and ANOVA were performed on the data. The findings revealed that the model explained 23.1% of the variation in ROA, with a moderate correlation (53.7%) between the independent variables and ROA. The ANOVA indicated statistical significance ($p = 0.002$). The study found that the average lending rate had a significant and weak inverse influence on ROA, while inflation had an insignificant and weak positive effect. The exchange rate had a negative and weak but significant effect on ROA, and the market size index had a significant, weak, and positive effect.

Yusuf (2019) investigated the influence of macroeconomic factors on the liquidity position of microfinance banks in Nigeria. Maintaining an adequate level of liquidity is crucial for microfinance banks to ensure sustainable credit provision to underprivileged segments of society that lack access to conventional banking systems. To achieve this objective, the study employed a vector autoregressive (VAR) approach to analyze data on microfinance banks' liquidity ratio, real GDP growth rate, inflation rate, and interest rate. The empirical analysis utilized annual time-series data spanning the period from 1992 to 2017. The data on microfinance banks' liquidity ratio and real gross domestic product were sourced from the Central Bank of Nigeria Statistical Bulletin, while the data on real interest rate and inflation rate were obtained from the World Bank Development Indicator (WDI) database. The study's findings revealed that the impact of macroeconomic factors on the liquidity position of microfinance banks in Nigeria was negligible and insignificant. Consequently, the study concluded that the Nigerian macroeconomic environment had no influence on the liquidity of microfinance banks.

Caro (2017) did a study on the empirical analysis of the effects of macroeconomic factors on the performance of microfinance institutions (MFIs) in Ecuador. The author aims to investigate whether the country's economic situation influences the ability of MFIs to grant credit and support their borrowers effectively. To conduct the analysis, the author employed a fixed effect panel data regression model with multiple imputation techniques to address missing data. The study utilized data from various MFIs, including savings and credit cooperatives, non-governmental organizations, and banks, operating in the Ecuadorian microfinance sector. The data was sourced from the Mix Market website, covering the period from 2003 to 2013 for approximately 60 different MFIs. Macroeconomic data for Ecuador, such as unemployment rates and foreign direct investment, were obtained from the World Bank's website for the period from 1960 to 2013. The study's findings revealed no statistically significant influence of the macroeconomic variables considered, namely unemployment and foreign direct investment, on the performance of microfinance institutions in Ecuador. This suggests that the ability of MFIs to provide credit and support to their borrowers in the country may not be significantly impacted by fluctuations in these macroeconomic factors during the study period.

Chimkono (2017) investigated the effect of micro and macroeconomic factors on the financial performance of commercial banks in the Malawian banking sector. The specific objectives were to establish the impact of asset quality (measured by the non-performing loan ratio), cost efficiency, cash reserve requirement, lending interest rate, and economic growth (GDP) as a moderating variable. The study utilized secondary data covering a 15-year period from 2000 to 2014, with a target population of 10 commercial banks licensed by the Reserve Bank of Malawi. Data was collected from audited financial reports, Bankscope database, and publications from the central bank and the World Bank. A mixed research design encompassing descriptive and correlational techniques was employed. Various diagnostic tests were conducted, including tests for normality, stationarity, multicollinearity, autocorrelation, and heteroscedasticity. The Hausman test was used to determine random and fixed effects, and the Generalized Least Squares model was utilized for quantitative analysis due to its suitability for panel data and handling autocorrelation and

heteroscedasticity. The study found that asset quality, cost efficiency, and lending interest rate had statistically significant effects on the financial performance of commercial banks in Malawi at the 5% level. However, the cash reserve requirement was not statistically significant. Additionally, economic growth (GDP) had a significant influence on the effect of the four independent variables based on the analysis of F-statistic and R-square of the moderated and un-moderated models.

Nzuve (2016) investigated the impact of macroeconomic variables on the financial performance of deposit-taking microfinance institutions (MFIs) in Kenya. The study aimed to assess the effects of inflation, gross domestic product (GDP) growth rate, exchange rate, national saving rate, and employment rate on the financial performance of these MFIs. The study targeted all nine deposit-taking MFIs registered with the Central Bank of Kenya as of 2014. Secondary data was collected from the Central Bank of Kenya periodicals for MFI financial data and from the National Bureau of Statistics and the Central Bank of Kenya for macroeconomic data, covering a period of ten years from 2005 to 2014. The data was analyzed using multiple regression analysis with SPSS version 20.0. The findings revealed a negative relationship between inflation rate and the financial performance of deposit-taking MFIs across all the years studied, indicating that an increase in inflation led to a decrease in their financial performance. Conversely, there was a positive relationship between GDP, exchange rate, national savings rate, and employment rate with the financial performance of these MFIs, suggesting that increases in these macroeconomic variables resulted in improved financial performance.

Imai *et al.* (2011) conducted a study on the impact of macroeconomic and institutional factors on the financial performance of microfinance institutions (MFIs). The study's motivation stemmed from the ongoing global financial crisis, which had led to a decline in donor investments in the microfinance sector, prompting discussions among policymakers and practitioners about the potential effects of macroeconomic conditions and institutional factors on MFI performance. Utilizing data from the Microfinance Information Exchange (MIX) and cross-country data on macroeconomic, financial, and institutional indicators, the authors employed three-stage least squares (3SLS) and fixed effects vector decomposition (FEVD) methodologies to account for the

endogeneity of key explanatory variables. In contrast to previous findings by Ahlin et al. (2010), the authors generally found that institutional factors significantly influenced MFIs' financial performance, particularly in terms of profitability, operating expenses, and portfolio quality. Additionally, macroeconomic and financial factors, such as GDP and the share of domestic credit to GDP, positively impacted MFIs' financial performance measures, including profitability, operating expense ratios, and portfolio quality. The study concluded that while macroeconomic factors are important, improving macro-institutional factors and implementing policies to enhance country-level institutional qualities are crucial for ensuring the sustainable operations of MFIs, especially in the context of the global recession.

3. RESEARCH METHODOLOGY

This study adopted a quantitative research approach using an ex-post facto research design. The study relies primarily on secondary data obtained from reputable sources: Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC). The study covers the period from 2010 to 2023, providing a 13-year timeframe to capture the dynamics of macroeconomic variables and their impact on microfinance bank performance in Nigeria. This period is significant as it encompasses various economic cycles, including periods of growth, recession, and recovery, allowing for a comprehensive analysis of macroeconomic effects. The dependent variable is Return on Assets (ROA), whereas the independent variables include Unemployment Rate (UNEMP), Inflation Rate (INFL), Interest Rate (INT), and Gross Domestic Product Growth Rate (GDPGR). The Autoregressive Distributed Lag (ARDL) was the technique for analyzing the data.

The model for this study assumes an underlying relationship between some macroeconomics variables and microfinance banks variables. The research model was based on the modification of (Caro, 2017) model. The original model is stated as thus:

LLR =*f*(GROWGDP, UNPLOYMENT, INFLATION, FDI) 3.1

Where
LLR = Non-performing portfolio rate
GROWGDP = GDP growth

UNPLOYMENT = Unemployment
INFLATION = Inflation
FDI = Foreign direct investment

This study examines the effect of macroeconomic variables on the performance of microfinance banks in Nigeria using the model as thus:

ROA= *f*(UNEMP,INFL,INT,GDP)

3.2

$$ROA = \beta_0 + \beta_1 UNEMP + \beta_2 INFL + \beta_3 INT + \beta_4 GDP + \varepsilon$$

3.3

Where;
ROA= Return on assets
UNEMP= Unemployment rate
INFL=Inflation rate
INT= Interest rate
GDP=Gross domestic product
β_0 = Constant (Intercept)
β_1, β_2, β_3, $\beta 4$ = Regression coefficients
ε = Error term

4. DATA ANALYSIS AND FINDINGS

This Descriptive statistics provide an overview of the variables used in the model, offering insight into their characteristics. Typically, the mean and standard deviation are reported together. The standard deviation serves as a measure of dispersion or uncertainty, indicating how spread out the data points are. A high standard deviation suggests that the data points are far from the mean, while a low standard deviation indicates that they are closer to the mean. The descriptive summary in Table 4.1 reveals that the mean values for ROAM, GDP, INF, INTR, and UMP are 2.840769, 112686.5, 26.78077, 12.40385, and 22.02308, respectively. The standard deviations are 1.465313, 44361.05, 2.777143, 2.379466, and 9.702676. The maximum and minimum values across the five variables range from 199336.0 to 0.360000. Skewness shows both negative and positive values, indicating a mix of negatively and positively skewed distributions.

Table 4.1 Descriptive Statistics of Data

	ROAM	GDP	INF	INTR	UMP
Mean	2.840769	112686.5	26.78077	12.40385	22.02308
Median	3.000000	101489.5	27.29000	12.00000	23.10000

Maximum	4.500000	199336.0	30.60000	16.50000	37.70000
Minimum	0.360000	54612.26	22.42000	6.250000	7.800000
Std. Dev.	1.465313	44361.05	2.777143	2.379466	9.702676
Skewness	-0.404218	0.526321	-0.269242	-0.998109	0.087270
Kurtosis	1.926080	2.225192	1.901564	4.905761	1.930772
Jarque-Bera	0.978722	0.925373	0.810618	4.125772	0.635760
Probability	0.613018	0.629590	0.666771	0.127087	0.727690
Sum	36.93000	1464924.	348.1500	161.2500	286.3000
Sum Sq. Dev.	25.76569	2.36E+10	92.55029	67.94231	1129.703
Observations	13	13	13	13	13

Source: Data output via E-views 12 .0

From the result in Table 4.2, the coefficient of UMP is 0.096017 which is positively related with ROAM. It has a positive coefficient of 0.096017 which implies that a unit increase in UMP will result into 0.096017 unit increase on ROAM in Nigeria which is against the stated a priori expectation. Unemployment rate has no significant effect on the performance microfinance banks in Nigeria. The unemployment rate may not have a significant effect on the performance of microfinance banks in Nigeria due to the nature of the services offered by these banks and the structure of the Nigerian economy. Microfinance banks primarily serve low-income individuals, small businesses, and informal sector participants, who may not be significantly impacted by formal unemployment figures. Many people in Nigeria rely on self-employment or operate within the informal economy, which is not fully captured in official unemployment statistics. As such, fluctuations in the formal unemployment rate may not directly translate into changes in demand for microfinance services. Furthermore, microfinance banks provide credit to individuals and small businesses who may continue to seek loans to fund small enterprises regardless of employment status, especially in a country with a large informal sector. Additionally, microfinance banks often focus on providing financial services to marginalized groups, including women and rural communities, who may not be fully represented in formal employment data. Even during periods of high unemployment, these groups continue to engage in entrepreneurial activities, seeking microloans to sustain their businesses. Moreover, the creditworthiness of microfinance bank clients is typically assessed based on their business activities and repayment capacity, rather than their formal employment status. As a result, the overall performance of microfinance banks may remain relatively insulated from the fluctuations in the unemployment rate,

particularly in an economy like Nigeria's, where informal economic activities play a significant role

Table 4.2: OLS Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP	0.000325	4.63E-05	7.019086	0.0197
GDP(-1)	-0.000468	5.18E-05	-9.020642	0.0121
INF	0.957019	0.182553	5.242411	0.0345
INF(-1)	0.755018	0.135777	5.560709	0.0309
INTR	-0.181169	0.107666	-1.682698	0.2345
INTR(-1)	-1.332236	0.223089	-5.971772	0.0269
UMP	0.096017	0.025719	3.733264	0.0648
UMP(-2)	-0.007060	0.035969	-0.196286	0.8625
C	-15.06112	3.975475	-3.788508	0.0631
R-squared	0.988717	Mean dependent var		2.810000
Adjusted R-squared	0.943584	S.D. dependent var		1.603053
S.E. of regression	0.380757	Akaike info criterion		0.838303
Sum squared resid	0.289951	Schwarz criterion		1.163854
Log likelihood	4.389333	Hannan-Quinn criter.		0.633089
F-statistic	21.90700	Durbin-Watson stat		2.360715
Prob (F-statistic)	0.044374			

Source: Data output via E-views 12 .0

The coefficient of INF is 0.957019 which is positively related with ROAM. It has a positive coefficient of 0.957019 which implies that a unit increase in INF will result into 0.957019 unit increase on ROAM in Nigeria which is against the stated a priori expectation. Inflation Rate has significant effect on the performance microfinance banks in Nigeria. The inflation rate can have a significant effect on the performance of microfinance banks in Nigeria due to its direct impact on the purchasing power of both the banks and their clients. As inflation rises, the cost of goods and services increases, reducing the disposable income of individuals and small businesses, which are the primary clients of microfinance institutions. This decrease in purchasing power may lead to lower savings and an increased difficulty for clients to repay loans, thereby increasing the risk of default for microfinance banks. In addition, higher inflation can erode the value of the microfinance banks' assets and loans, making it more difficult for them to maintain profitability. Rising inflation may also compel microfinance banks to charge higher interest rates to mitigate their risks, which could further burden clients and negatively impact loan uptake. Furthermore, inflation can increase the operational costs of microfinance banks. The rising costs of supplies, utilities, wages, and other business expenses could reduce their profit margins. In

a high-inflation environment, microfinance banks may struggle to manage the gap between the interest rates they charge clients and the inflation-driven increase in their own costs. This scenario could lead to a decline in their financial performance. Additionally, inflation often leads to economic uncertainty, which may reduce clients' willingness to borrow or invest, impacting the demand for microfinance services. As a result, inflation can disrupt the growth, stability, and profitability of microfinance banks in Nigeria, making it a critical factor to consider when assessing their overall performance.

The coefficient of INTR is -0.181169 which is negatively related with ROAM. It has a negative coefficient of -0.181169 which implies that a unit increase in INTR will result into -0.181169 unit decrease on ROAM in Nigeria which is against the stated a priori expectation. Interest Rate has insignificant effect on the performance microfinance banks in Nigeria. Interest rates may have an insignificant effect on the performance of microfinance banks in Nigeria because these institutions often operate in a niche market that is less sensitive to broader interest rate fluctuations. Microfinance banks typically serve clients who have limited access to traditional banking services, including small businesses and individuals in the informal sector. These clients are generally more concerned with accessing capital to sustain or grow their businesses than with the cost of borrowing, particularly since microfinance loans are usually short-term and relatively small in size. As a result, changes in national interest rates may not significantly influence the borrowing behavior of these clients, meaning the demand for microfinance services remains stable even when interest rates fluctuate. Additionally, microfinance banks often set their interest rates independently from broader macroeconomic conditions, based on their unique cost structures and the perceived risk of lending to underserved populations. Their rates are typically higher than those of traditional banks, due to the higher risk associated with their clientele. This self-regulation of interest rates means that microfinance banks may be less directly affected by changes in central bank interest rates. The relatively insulated nature of their operations and client base means that the performance of microfinance banks is more likely to be influenced by factors like client repayment behavior, economic stability, and inflation rather than by shifts in the broader interest rate environment.

The coefficient of GDP is 0.000325 which is positively related with ROAM. It has a positive coefficient of 0.000325 which implies that a unit increase in GDP will result into 0.000325 unit increase on ROAM in Nigeria which is in line with the stated a priori expectation. There is significant effect between GDP and the performance of microfinance banks in Nigeria. Gross Domestic Product (GDP) has a significant effect on the performance of microfinance banks in Nigeria because it reflects the overall economic health and income levels of the country. When GDP grows, there is increased economic activity, which leads to higher household incomes and business revenues. This, in turn, positively impacts the ability of microfinance clients to repay loans, resulting in lower default rates and improved profitability for microfinance banks. A growing economy also creates opportunities for small and medium-sized enterprises (SMEs), which are major clients of microfinance banks, to expand and require more financial services, such as credit and savings products. This leads to an increased demand for microfinance services, boosting the operational performance of these banks. Moreover, higher GDP growth is often accompanied by improvements in infrastructure, regulatory frameworks, and investment climates, which directly benefit microfinance institutions. As the economy expands, more individuals and businesses move from informal to formal financial systems, increasing the client base for microfinance banks. Additionally, economic growth can attract foreign investments in the microfinance sector, providing additional capital to expand services and improve the technological infrastructure of these banks. Conversely, during economic downturns or periods of low GDP growth, the performance of microfinance banks can suffer due to higher default rates, reduced demand for loans, and limited access to external funding. Thus, GDP plays a critical role in shaping the overall sustainability and success of microfinance institutions in Nigeria.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the effect of effect of macroeconomic variables on the performance of microfinance banks in Nigeria from 2010 – 2023. The study used gross domestic product, inflation rate, unemployment rate, and interest rate as the independent variable while return on assets of microfinance banks as the dependent variable. The analysis spanning from 2010 to 2023 indicates that

macroeconomic variables has a significant effect on performance of microfinance banks during this period. Macroeconomic stability, reflected in controlled inflation and favorable interest rates, enhances the ability of microfinance banks to lend effectively and manage risks. Conversely, high inflation and volatile exchange rates negatively impact loan repayment rates and erode profitability. The findings highlight the importance of maintaining a stable macroeconomic environment to ensure the sustained growth and resilience of microfinance banks, which are crucial for financial inclusion and poverty alleviation in Nigeria.

The government and relevant stakeholders should promote targeted job creation initiatives, such as the N-Power Program and the Anchor Borrowers' Program, focusing on sectors that engage microfinance clients, like agriculture and small-scale industries. These efforts will boost borrowers' income, enhance loan repayment, and improve the financial performance of microfinance banks. Microfinance banks should adopt inflation-adjusted lending practices and diversify their product offerings to cushion the impact of inflation on their operations. Additionally, policymakers should focus on stabilizing inflation through prudent monetary policies, as lower and stable inflation rates contribute to better loan performance and reduced default risks for microfinance banks. Regulatory authorities should work to create a more favorable interest rate environment by ensuring that microfinance banks have access to cheaper sources of funding. This could include government subsidies or credit guarantees that would allow these banks to offer more affordable loans to their clients. Efforts should be made to promote economic growth by supporting key sectors like agriculture, small businesses, and manufacturing. As GDP increases, the economic activity of microfinance clients improves, leading to greater demand for loans and better loan repayment, which boosts the performance of microfinance banks.

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