



DETERMINANTS OF MICROFINANCE BANKS' SURVIVAL IN SOKOTO AND ZAMFARA STATES

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Abstract

External and internal economic environments continue to pose serious challenges to the performance and survival of microfinance banks, particularly in developing economies such as Nigeria. This study examines the determinants of microfinance banks' survival in Sokoto and Zamfara States. The specific objective is to assess the effect of capital adequacy, asset quality, liquidity, and operational efficiency on the survival of microfinance banks. The study employed a correlational research design and utilized quantitative secondary data covering a ten-year period from 2014 to 2023. The population comprised all ten microfinance banks operating in Sokoto and Zamfara States; however, due to data availability constraints, a filter sampling technique was adopted, resulting in a final sample of four microfinance banks. Data were sourced from audited annual financial statements of the sampled banks. Fixed effects multiple regression analysis with robust standard errors was employed for data analysis. The findings reveal that capital adequacy and operational efficiency have positive and statistically significant effects on the survival of microfinance banks, while asset quality and liquidity, although positively related, do not exert statistically significant effects during the period under review. The study concludes that strong capitalization and efficient cost management are the most critical drivers of microfinance bank survival in Sokoto and Zamfara States. Consequently, the study recommends that the Central Bank of Nigeria should prioritize policies that strengthen the capital base of microfinance banks to enhance their resilience, sustainability, and contribution to financial inclusion.

Keywords: Asset quality, capital adequacy, liquidity microfinance banks, microfinance institutions, operational efficiency, return on assets.

JEL Classification: G21, G28, G32, O16

INTRODUCTION

Microfinance banks are entities created to provide financial services such as mini and small loans, deposit taking and remittances to low income groups who lack capacity to be served by conventional banks for their consumptions and productive projects. Microfinance is the advancement of small loans to destitute people for consumption and self-employment projects that generate income in allowing them to take care of themselves and their families without necessarily having collaterals (Chikwira et al., 2022). Microfinance is the provision of a broad range of financial services such as deposits, loans, payment services. Money transfers and insurance for the poor and low income households, individuals and their small business (Thank

et al., 2020). It is simply the supply of financial services to an impoverished population mostly women who lack permission to financial services from conventional banks.

In view of the desire for growth currently needed by the MFBs sector despite challenges experienced and the need to create room for survival and expansion in the long run. This study looks at, four variable factors that seem to affect the survival of MFBs which are regarded to be independent variables (IVs) of the study; capital adequacy, assets quality, liquidity and operational efficiency. Whereas, the dependent variable (DV) is survival (ROA). These variables are expected to yield an effective statistical result due to their role in explaining the survival of MFBs as suggested in the literature.

Previous empirical evidence (Adebisi et al., 2022; Karimu, 2021; Maenuddin et al., 2023) has identified several factors as key determinants of the survival of microfinance banks (MFBs), including CAMEL-based financial indicators, customer focus and satisfaction, client outreach, technology adoption, as well as social, economic, and regulatory conditions. The relationship between these factors and MFB survival has been extensively discussed in the literature (Mansur et al., 2022). In Nigeria, however, empirical studies in this area remain limited, with notable methodological gaps observed in existing research. Moreover, the specific effects of capital adequacy, asset quality, liquidity, and operational efficiency on the survival of MFBs in Nigeria have not been adequately examined.

LITERATURE REVIEW

The concept of microfinance is viewed by Akwasi (2015) as the financial services that include micro-insurance, micro-credit, consumer credit, micro-savings, pensions, working capital, and transfer of payment services, loans and remittances to the indigent population. ACCA (2010) holds that microfinance is the provision of mini credit facilities to destitute people for productive development projects that generate income and allow them to take care of themselves and their families.

Survival of microfinance banks Guntz (2011) is viewed as the capacity of continuing any given operation in to the future taking cognizance of the existing limited resources own by a business. It is synonymous to sustainability which is the ability of a firm to provide a strategic plan that is capable of guaranteeing the attainment of desired outcome in short as well as long run. It is the ability of a MFBs to continue into operation into the future despite all challenges. Survival is the state or fact of continuing to live or exist, typically in spite of an accident, ordeal, or difficult circumstances,” and as “an object or practice that has continued to exist from an earlier time” (Oxford Languages, 2022). Survival is the act or fact of surviving, especially under adverse or unusual circumstances. Survival is seen as business survival, solvency and corporate strength (Mansur et. al 2022). Survival is defined as the capacity to cover all of its expenses by its revenue and to generate a margin to finance its growth, and this is the same as sustainability in the long run (Kenbish, 2017). This study defines survival as the presence of sustainable strategic managerial policies that guides against eroding of capital, liquidity, decrease in asset quality and earnings ability tied with increased cost of governance and debt financing that lacks a professionally trained, experience and committed supervision.

Return on Assets (ROA) Akinkumi (2017) defined it as the ability of an organization to generate revenue from the management of its assets. It is frequently used as the key ratios for evaluation of bank's profitability in several studies such as Akinkmi (2017) and Babalola, (2012). Babalola, (2012) said the calculation of return on assets (ROA) involves dividing the total profits by the total assets for a specific accounting period. This ratio assesses the company's ability to generate revenues through the effective utilization of its entire assets. In essence, it shows how efficiently the company's assets are deployed to get high returns. A higher ROA signifies the efficient utilization of the company's resources, while a lower ROA suggests less effective resource utilization. This study adopted the definition of ROA given by Akinkmi (2017) as its working definition.

Mousismi and Swati (2016) see capital adequacy as one of the financial reliabilities of a financial institution. It is the percentage of share of a financial institution's primary capital to its assets that measures its financial strength and stability. Ahmed and Dogarawa (2021) opined that it is measures bank's available capital which is expressed as a percentage of its total risk weighted credit exposure. Thus, CA can be used for the protection of depositors and equally promote the stability in a financial system. Capital adequacy to refer to the level of capital base MFBs has maintained and serves a buffer against actual, anticipated and unforeseen losses and a stimulus to managing risk taking behavior.

Assets Quality (AQ) is the management of credit risk to attract frequent cash inflows (Munangi and Sibindi 2020). Aliero and Ache (2022) defined AQ as the timeliness with which bank's customers repay their loans. It is the flow of interest on bank loans. Furthermore, Mansur et al (2022) posit that AQ means the management of credits to control risk towards attracting continuous cash inflows. AQ is considered in establishing the general condition of a bank. According to Ahmed and Dogarawa (2021) is the evaluation of assets of a bank in order to determine associated risk in relation to its lending practices and measure the rate at which a bank or other financial institutions can trade a loan. Thus, it is considered to be a good parameter as well as a gauge that can be used to ascertain the component of non-performing assets as a percentage of the total assets of the firm. This study adopted the definition of AQ given by Ahmed and Dogarawa (2021) as its operational definition.

Liquidity is the ability of an entity to exchange its existing wealth for goods and services or other assets. Companies with high liquidity are considered capable of managing their business, resulting in a low risk (Gujurati, 2003). CBN consider 30 percent of total assets as a benchmark for liquidity. A company with high level of liquidity indicates its ability to pay its short-term obligations when they are due for payment. Akande and Yunus (2015) posits that liquidity shows a credible company's ability to create a positive and strong image attached to the company. It the ability to convert an asset to cash with relative speed and without significant loss in value. The less liquid assets or liabilities are those that will take longer period to be converted in to cash.

Abba, Okwa, Benedict and Aikpitanyi (2018) posit that liquidity measures the ability of the firm to meet its financial obligations as they fall due, without disrupting the normal on-going operations of the business. A frequent cause of liquidity problems issues occurs when debt maturities are not in conformity with the rate at which their assets can be converted to cash. It transcends the individual microfinance bank as liquidity short fall at a single institution can have system-wide repercussions. A number of studies have used several measures to measure

liquidity. This study used current ratio in measuring liquidity. It defined liquidity as the ability to increase funding in assets and meet obligations as they come due. And this is what is considered as working definition for the study.

Operational efficiency means doing the same with less (Abba, Okwa, Benedict and Aikpitanyi, 2018). It is producing the same thing with fewer resources. Thus, it is the bond between an organization's output and its input, which when healthy, helps business cut down needless costs at the same time increasing revenue. It is what business strive to do: produce a high-quality products/services at the same scale with as few resources as possible. To measure operational efficiency of microfinance banks selected for this study, cost to income ratio is used from financial statements/reports of these banks.

According to Irala (2007) Operational efficiency is the ability of a company to optimize its internal process, resources and systems in order to achieve maximum productivity at the same time minimizing costs. It entails streamlining workflows, removing bottlenecks and making effective use of resources at one's disposal to deliver goods/services in the most desirable way possible.

Theoretical Framework

Action Regulatory theory developed by Hacker (1994) is used in underpinning this study. The view of this theory is that for an organization to be successful in all its operation or otherwise, the two (success and failure) are product of actions or/and inactions of the entrepreneur (Frese, 2007). Assessment of this theory reveals that actions or inactions of the proprietor has a significant consequence on the extent of problems on the going concern aspect of an organization. More so, Action regulatory theory drew theoretical evidence that support the connection between contemporary challenges and the survival of MFBs in Nigeria in two ways: the challenges that emanates from proprietors' action and the proprietors' action may minimize or deepen challenges which may have impact on the failure or survival of MFBs. The workability of actions/inactions would determine the outcome that covers sustaining financial health resulting to the survival of these banks. Gutiérrez-Nieto, Serrano-Cinca and Molinero (2009). As a result of this theory, poor management of these challenges can threaten any positive proprietors' result. This theory is relevant to MFBs if the postulations advance by the agency is applied in the day to day running of the institutions in Nigeria

Empirical Review

In other to study the determinants of microfinance bank's survival in Sokoto and Zamfara states, some of the empirical studies were taken into consideration so as to serve as a guide to the study. These are, Mansur et al (2022) examine the factors of corporate failure in Nigeria. Using qualitative and quantitative technique in collecting data, they used failed MFBs from Lagos, Bauchi, Kano Abuja, Kogi, Kebbi and Adamawa as population and a sample of forty-eight (48) microfinance banks. STATA was used to analyze the results. It was documented that poor earnings ability, capital inadequacy; poor asset quality, management inefficiency and illiquidity are causes of failure but quality of assets, earning ability efficiency and entertaining adequacy in CAMEL significantly affect MFBs survival. The study was only limited to some state of the federation, its findings cannot therefore be generalized.

In a related study, Nasiru, Mohammed and Darwina (2016) access the impact of business practices on sustaining MFBs' performance. Using a questionnaire as an instrument in collecting data for the study. MBIs operating in the financial industry in the country were the population of

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the study and one hundred and twenty-one (121) MFIs as sample. Statistics and percentage is use to analyze the Result. It finds out that the study indicate that these financial institutions are heterogeneous. There were 872 MFBs in the country, therefore taking a sample of 121 MFBs to represent the entire population is inadequate. Equally the methodology used (questionnaire) would have been complemented by other methods as done in other studies as this would likely bring better result.

Abdurrahman and Hassan (2021) examine the factors that determine the sustainability for MFIs: Lesson for Islamic banks in the Nigeria. Literature review method was used in collecting data. Nigeria is considered to be the population and sample of all Islamic microfinance institutions. Results show that the operational efficiency, functions of the form of capital and assets size in promoting the MFBs' financial sustainability. The study also reveals that, adequate risk management framework, good corporate governance, and financial innovation play important role in the attainment of objective of MFIs. The study was not underpinned on any theory, therefore a theory providing better explanation of the variables of the study could have been used.

Furthermore, Helex Keyembe et al. (2021) examine the factors that determine sustainability of MFIs in Malawi. Social theory is use to underpin the study. Cross-sectional survey is use in collecting data, Malawi is also use as a population and sample of the study. To analyze the results, SPSS software is applied. It discovers that the MFIs' operation in Malawi are significant and significantly correlated to sustainability of MFIs. These includes corporate governance and commercialization, reporting and performance monitoring system. Contrary to this the results also established that the sustainability of MFIs in Malawi is negatively correlated to loan portfolio management and loan design. The study beside been based in Nepal not in Nigeria and that the findings of this study cannot be applicable to Nigeria since the economic situation in the two countries are not the same.

Thanh et al (2020) examine the factors that determine the operational self-sustainability of MFIs in Vietnam. Qualitative and quantitative research methods are used in collecting data. Population of thirty-four (34) microfinance institutions and sample of ten (10) microfinance practitioners, policymakers and researchers were used in the study. OLS regressions analysis is used via STATA software, binary logistics. The study posits that: Vietnamese MFIs are not highly sustainable and dependent on outside financing, Vietnam MFIs conforms to the international standard of OSS; though, lack of sustainability among institutions are quite distinctive. Using ten (10) microfinance practitioners, policymakers and researchers as sample out of thirty-four (34) microfinance institutions was not adequate to represent the entire population as used by the study.

Gambo (2022) examines the effect of profitability on financial sustainability of MFBs in Nigeria. Sampling technique was used as method of data collection and the population of the study is nine hundred and seventy-four (974) MFBs, and a sample of one hundred and fifty-one (151) MFBs is consider. Financial ratios and regression analyses is use to analyze the results. The study found out that there is poorly sustained profitability over the three-year period (2017–2021). The sample of 151 MFBs used by the study is not adequate to represent a population of 974 MFBs. Similarly, this research was not underpin on any theory.

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Similarly, Krishna and Basu (2022) examine the factors that determine performance of MFBS in Nepal. Using Likert scale questionnaire. Nepal is the population and all MFIs are sample of the study. To analyses data multiple regression and ANOVA is use. The following is use as independent variables of the study: loan lending system, information technology, motivation of employees, management of risk, system of management, and regulatory framework while operational performance is use as dependent variable. It reveals that three variables; the loan – lending system, information technology and regulatory framework have significant effect on the performance of MFBS. Lack of better management of risk, motivation of staff and process of management all have a small but positive correlation with the financial performance of MFBS Nepal. The using of Using Likert scale questionnaires by the study is seen as limitation of the study as not all data can be grouped as required by it.

Okyere, and Joseph (2019) examine the factors of financial sustainability of rural banks in Ghana. Questionnaire is use in collecting data for the study. Population of three rural banks and sample of one hundred and fifty (150) customers were use in the study. ANOVA is use to analyze the report. The study documents that credits significantly affects the financial sustainability of these banks. The study found out that an increase in interest charged on loan would lead to twenty and a half percent (20.50%) decrease in the number of years a customer had been banking with the bank. The usage of only primary data may provide result that is biased and therefore cannot be generalized.

Furthermore, Naz, Salim et al. (2019) examine the factors of financial stability of Pakistani MFIs. Fixed and random effect with regression is use in collecting of data for the study. Using population of all MFIs in Pakistan, twenty-nine (29) is use as sample. 2SLS and 3SLS is use in analyzing the data. It is observed that assets size increased financial sustainability and profitability of MFIs in Pakistan. The cost of running Pakistani MFIs is relatively high, which affects their financial sustainability and profitability. The study could have better used other methods of data analysis than the 2LS and 3LS like the OLS or Probit regression.

METHODOLOGY

This study adopts a correlational research design using quantitative secondary data to examine the determinants of microfinance banks' survival in Sokoto and Zamfara States, Nigeria, over the period 2014-2023. The correlational design is appropriate because it allows for the examination of the statistical relationships between survival of microfinance banks and selected firm-specific characteristics without manipulating the study variables. The design is widely used in banking and financial performance studies where historical financial data are analyzed to establish empirical relationships among variables.

The population of the study comprises all ten (10) microfinance banks (MFBS) currently operating in Sokoto and Zamfara States as at the end of the study period. Of these, six (6) are located in Sokoto State, while four (4) operate in Zamfara State. These banks represent the total licensed MFBS within the two states during the period under review. Due to constraints relating to data availability and completeness of annual financial reports, the study employed a filter (purposive) sampling technique. Only microfinance banks with complete and consistent financial data for the entire ten-year period (2014-2023) were included in the sample. Consequently, four (4)

microfinance banks met the data availability criteria and were selected as the final sample for the study.

The use of filter sampling ensures reliability and consistency of the panel data used for analysis. The study relies exclusively on secondary data, sourced from the audited annual financial statements and reports of the sampled microfinance banks. Additional supporting information was obtained from regulatory publications of the Central Bank of Nigeria (CBN) where necessary. The use of secondary financial data enhances objectivity and reduces response bias, making it suitable for empirical analysis of bank-level performance and survival. The study employs one dependent variable and four independent variables. The dependent variable is microfinance bank survival, while the independent variables include capital adequacy, asset quality, liquidity, and operational efficiency. The variables and their measurements are presented in Table 1.

Table 1:
Description and Measurement of Study Variables

Variable	Description/ Measurement	Source
Survival (ROA)	Return on Assets = Total income ÷ Total assets	Akinkumi (2017); Anende-Kur & Agbo (2021); Tanko et al. (2021); Mansur et al. (2022); Onuorah (2023)
Capital Adequacy (CAPAD)	Total equity ÷ Total assets	Rafet et al. (2015); Mansur et al. (2022)
Asset Quality (AQ)	Non-performing loans ÷ Total assets	Mansur et al. (2022)
Liquidity (LIQ)	Current assets ÷ Current liabilities	Myers & Rajan (1998); Khemiri & Noubbigh (2018); Mansur et al. (2022)
Operational Efficiency (OE)	Cost-to-income ratio	Mansur et al. (2022)

Source: Researcher’s compilation, 2025.

Model Specification

To assess the determinants of microfinance banks’ survival in Sokoto and Zamfara States, the study adapts, with minor modifications, the model used by Mansur et al. (2022). The functional form of the model is specified as:

$$ROA_{it} = \beta_0 + \beta_1 CAPAD_{it} + \beta_2 AQ_{it} + \beta_3 LIQ_{it} + \beta_4 OE_{it} + \varepsilon_{it}$$

Where:

ROA = Survival of microfinance banks

β_0 = Intercept

β_1 - β_4 = Coefficients of the explanatory variables

CAPAD = Capital adequacy

AQ = Asset quality

LIQ = Liquidity

OE = Operational efficiency

ε = Error term

i and t represent bank and time dimensions respectively

E=Error term.

The study employs panel data multiple regression analysis to test the formulated hypotheses. Prior to estimation, descriptive statistics are used to summarize the properties of the data. Diagnostic tests, including multicollinearity and heteroskedasticity tests, are conducted to validate the regression assumptions. The Hausman specification test is applied to determine the appropriate panel estimator, after which the fixed effects regression model with robust standard errors is employed to ensure reliable statistical inference. All analyses are conducted using STATA version 13.0.

RESULTS AND DISCUSSION

The statistical properties of the variables included in the study model are presented using descriptive statistics in order to provide preliminary insights into their central tendencies, dispersion, and distribution across the sampled microfinance banks during the study period. The results of the descriptive statistics are reported in Table 2.

Table 2:
Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
ROA	0.211	0.317	0.011	1.485
CAPAD	0.358	0.201	0.043	0.901
AQ	0.151	0.212	0.025	0.750
LIQ	1.769	0.587	0.936	3.562
OE	0.569	0.214	0.001	0.869

Source: Author's Computation, 2025.

From Table 2, return on assets (ROA), which serves as a proxy for the survival of microfinance banks, records a mean value of 0.211, indicating an average return of about 21.1 percent. This suggests that for every one naira invested in the assets of the sampled microfinance banks, approximately 21.1 kobo was generated as return. This level of performance reflects a moderate capacity for sustainability among the banks. The standard deviation of 0.317, which is slightly higher than the mean, indicates noticeable variation in returns across banks and over time. The minimum and maximum values of 0.011 and 1.485 respectively reveal substantial dispersion in performance, which may be attributable to differences in managerial efficiency, operational structure, and governance practices that are beyond the scope of the present study.

Capital adequacy (CAPAD), measured as total equity relative to total assets, has a mean value of 0.358, implying that approximately 35.8 percent of the total assets of microfinance banks in Sokoto and Zamfara States were financed through owners' equity. This indicates that the banks maintained a moderate equity base and were not excessively dependent on debt financing. The standard deviation of 0.201, which is lower than the mean, suggests relatively moderate variability in capital adequacy across banks. The minimum and maximum values further indicate that while some banks operated with relatively low capital buffers, others maintained significantly stronger capitalization positions, reflecting heterogeneity in financial structure.

Asset quality (AQ), proxied by the ratio of non-performing loans to total assets, records a mean value of 0.151, indicating that non-performing loans accounted for about 15.1 percent of total assets on average. This relatively high proportion suggests considerable credit risk exposure among the sampled microfinance banks. The standard deviation of 0.212 indicates moderate variation in asset quality, while the minimum and maximum values of 2.5 percent and 75 percent respectively reflect substantial differences in loan portfolio quality across banks.

Liquidity (LIQ), measured as the ratio of current assets to current liabilities, has a mean value of 1.769, implying that current assets were approximately 1.77 times current liabilities on average. Although this ratio is slightly below the conventional benchmark of 2:1, it nonetheless indicates that the banks maintained a reasonably adequate liquidity position to meet short-term obligations. The standard deviation of 0.587 suggests limited variation in liquidity levels among the banks, as reflected by the minimum and maximum values of 0.936 and 3.562 respectively.

Operational efficiency (OE), measured using the cost-to-income ratio, records a mean value of 0.569, indicating that operating costs consumed about 56.9 percent of operating income on average. This suggests that a significant portion of revenue was absorbed by operating expenses. The standard deviation of 0.214, which is lower than the mean, indicates moderate variability in efficiency across banks. The minimum and maximum values of 0.001 and 0.869 respectively show that while some banks operated with very low costs relative to income, others experienced considerably higher cost burdens.

Correlation Analysis

The correlation matrix presented in Table 3 shows the pairwise relationships among the dependent and independent variables and provides preliminary evidence on the direction and strength of associations, as well as an initial indication of potential multicollinearity.

Table 3:
Correlation Matrix of Dependent and Independent Variables

Variable	ROA	CAPAD	AQ	LIQ	OE
ROA	1.000				
CAPAD	0.277	1.000			
AQ	-0.078	0.801	1.000		
LIQ	-0.249	-0.161	-0.281	1.000	
OE	0.216	-0.141	0.246	-0.008	1.000

Source: STATA Output, 2025.

The results indicate that ROA is positively correlated with capital adequacy and operational efficiency, while it is negatively correlated with asset quality and liquidity. The positive association between ROA and CAPAD suggests that better-capitalized microfinance banks tend to record higher returns. Asset quality exhibits a weak negative correlation with ROA, implying that higher levels of non-performing loans are associated with lower profitability. Liquidity also shows a negative relationship with ROA, suggesting that excessive liquidity holdings may constrain returns. Operational efficiency is positively correlated with ROA, indicating that improved cost management enhances bank survival prospects.

Variance Inflation Factor (VIF) Test for Multicollinearity

To formally assess the presence of multicollinearity among the explanatory variables, the Variance Inflation Factor (VIF) test was conducted. The results are presented in Table 4.

Table 4:
Variance Inflation Factor (VIF) Test

Variable	VIF	1/VIF
LIQ	1.15	0.8697
AQ	1.10	0.9077
CAPAD	1.08	0.9300
OE	1.02	0.9783
Mean VIF	1.09	

Source: STATA Output, 2025.

All VIF values are well below the critical threshold of 5, indicating the absence of multicollinearity among the explanatory variables. This confirms that the regression estimates are not distorted by linear dependence among regressors and that the independent variables retain sufficient explanatory power.

Heteroskedasticity Test

The Breusch Pagan/Cook Weisberg test was conducted to examine whether the variance of the error terms is constant across observations. The results are reported in Table 5.

Table 5:
Breusch Pagan/Cook Weisberg Test

Statistic	Value
χ^2	39.99
Prob > χ^2	0.0000

Source: STATA Output, 2025.

The statistically significant result indicates the presence of heteroskedasticity in the model. Consequently, the study employed fixed effects regression with robust standard errors to obtain consistent and reliable parameter estimates.

Hausman Specification Test

The Hausman specification test was conducted to determine the appropriate panel estimation technique between fixed effects and random effects models. The results are presented in Table 6.

Table 6:
Hausman Specification Test

Statistic	Value
χ^2	22.52
Prob > χ^2	0.0002

Source: STATA Output, 2025.

The significant test statistic indicates that the fixed effects model is appropriate, implying that unobserved bank-specific effects are correlated with the explanatory variables.

Regression Results

The fixed effects regression results with robust standard errors are presented in Table 7.

Table 7:
Fixed Effects Regression Results (Robust Standard Errors)

Variable	Coefficient	Robust Std. Error	t-Statistic	p-value	95% Confidence Interval	
CAPAD	0.614	0.167	3.68	0.001	0.287	0.941
AQ	0.342	0.201	1.70	0.090	0.052	0.736
LIQ	0.166	0.091	1.82	0.069	-0.012	0.344
OE	0.631	0.267	2.36	0.019	0.108	1.154
Constant	0.046	0.281	0.16	0.872	-0.504,	0.596

R² (within): 0.1728, F-statistic = 5.27

Source: Author's Computation using STATA, 2025.

Interpretation of Regression Results

The fixed effects regression results estimated with robust standard errors indicate that the model is statistically sound and jointly significant. The overall model fitness is confirmed by an F-statistic of 5.27, which is statistically significant at the 5 percent level, implying that the explanatory variables collectively explain variations in microfinance banks' survival. Capital adequacy and operational efficiency exhibit positive and statistically significant coefficients, indicating that stronger capitalization and improved cost management play critical roles in enhancing the survival prospects of microfinance banks in Sokoto and Zamfara States. Asset quality and liquidity, although positively related to survival, are not statistically significant at conventional levels, suggesting that their effects are present but not sufficiently strong to independently influence survival during the study period. The within R-squared value of 0.1728 shows that approximately 17.28 percent of the variation in microfinance banks' survival is explained by the included determinants, while the remaining variation is attributable to other institutional, regulatory, and macroeconomic factors not captured in the model. Overall, the results indicates that the importance of internal financial strength and operational discipline in sustaining microfinance banks within the study area.

Test of Hypotheses

The first hypothesis tested examined whether capital adequacy has a significant effect on the survival of microfinance banks in Sokoto and Zamfara States. The regression result shows that capital adequacy has a positive coefficient of 0.614 and is statistically significant with a p-value of 0.001. This implies that increases in equity financing relative to total assets significantly enhance the survival capacity of microfinance banks by strengthening their ability to absorb

losses and withstand financial shocks. Consequently, the null hypothesis that capital adequacy has no significant effect on survival of microfinance banks in Sokoto and Zamfara States is hereby rejected. This finding is consistent with Mansur et al. (2022), who report that capital adequacy is a critical determinant of microfinance bank survival in Nigeria, as well as with Obasi and Chukwu (2014) and Owoputi et al. (2014), who document that well-capitalized financial institutions are better positioned to withstand operational and macroeconomic shocks. However, the result contradicts Abdulrahman and Hassan (2021), who found that capital adequacy does not exert a significant influence on the sustainability of Islamic microfinance institutions in Nigeria.

Furthermore, the second hypothesis tested assessed the effect of operational efficiency on the survival of microfinance banks in Sokoto and Zamfara States. The estimated coefficient for operational efficiency is 0.631 and is positive and statistically significant at the 5 percent level with a p-value of 0.019, indicating that banks that manage operating costs efficiently relative to income are more likely to sustain operations. This finding highlights the importance of cost control and revenue optimization in the microfinance sector. Based on this evidence, the null hypothesis that operational efficiency has no significant effect on survival in Sokoto and Zamfara States is hereby rejected. This result supports the findings of Samuel (2019), who observe that inefficiencies in cost management significantly undermine the sustainability of microfinance institutions. Conversely, the finding contradicts Abdulrahman and Hassan (2021), who report an insignificant relationship between operational efficiency and microfinance sustainability.

Furthermore, the third hypothesis examined whether asset quality significantly affects the survival of microfinance banks in Sokoto and Zamfara States. The regression result indicates that asset quality has a positive coefficient of 0.342 but is statistically insignificant at the 5 percent level with a p-value of 0.090. This suggests that although asset quality, measured by non-performing loans relative to total assets, is positively associated with survival, its effect is not strong enough to exert a statistically significant influence during the study period. As a result, the null hypothesis that asset quality has no significant effect on survival is not rejected. This finding aligns with Onuorah (2023), who reports that asset quality does not independently determine bank survival once capital strength is accounted for. However, it contradicts Samuel (2019) and Osuagwu (2014), who find that deteriorating asset quality significantly weakens financial sustainability.

Similarly, the fourth hypothesis tested the effect of liquidity on survival. Liquidity has a positive coefficient of 0.166 but remains statistically insignificant at the 5 percent level with a p-value of 0.069. This implies that while maintaining adequate liquidity supports operational stability, it does not independently drive survival outcomes among microfinance banks in the study area. Accordingly, the null hypothesis that liquidity has no significant effect on survival is not rejected. This result is consistent with Babalola (2012), who argues that excessive liquidity does not necessarily translate into improved performance or sustainability, but contradicts Onuorah (2023), who finds a significant positive relationship between liquidity and bank survival. Overall, these results suggest that capital strength and operational efficiency are more critical determinants of survival than asset quality and liquidity within the sampled microfinance banks.

CONCLUSION AND RECOMMENDATIONS

This study examined the determinants of microfinance banks' survival in Sokoto and Zamfara States, Nigeria, using panel data covering the period 2014-2023. Survival was proxied by return on assets, while capital adequacy, asset quality, liquidity, and operational efficiency were employed as explanatory variables. The empirical results from the fixed effects regression with robust standard errors reveal that capital adequacy and operational efficiency exert positive and statistically significant effects on the survival of microfinance banks. In contrast, asset quality and liquidity, although positively related to survival, do not exhibit statistically significant effects within the study period. Overall, the findings indicate that internal financial strength and effective cost management are more critical to microfinance bank survival in the study area than asset quality and liquidity positions.

Based on the findings of the study, it is concluded that capital adequacy and operational efficiency are the most critical determinants of microfinance banks' survival in Sokoto and Zamfara States. Microfinance banks with stronger capital bases are better equipped to absorb financial shocks, manage operational risks, and sustain their activities over time, while efficient cost management and prudent use of resources significantly enhance their long-term viability. In contrast, asset quality and liquidity, although important for financial stability, do not exert statistically significant independent effects on survival within the study period. This suggests that while non-performing loans and liquidity positions may influence short-term stability, their impact on long-term survival is secondary to capital strength and operational efficiency in the context of microfinance banks in the study area.

Recommendation

- i.** The management of microfinance banks, under the supervision of the CBN, should maintain an equity to asset ratio of at least 35 percent through retained earnings and periodic recapitalization to enhance resilience and support inclusive financial intermediation.
- ii.** Microfinance banks in Sokoto and Zamfara States should reduce the cost to income ratio to below 55 percent by strengthening cost controls and adopting efficient operational systems to ensure sustainable service delivery.
- iii.** The management of microfinance banks, monitored by NDIC, should enforce stricter credit appraisal and loan recovery mechanisms to keep non-performing loans within regulatory limits, thereby protecting funds meant for low-income clients.
- v.** The management of microfinance banks, in collaboration with the CBN, should maintain a minimum current ratio of 1.5 to ensure short-term stability and uninterrupted access to financial services for underserved populations.

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