



## Effect of Cost Efficiency and Capital Adequacy on Financial Performance of Cooperative Financial Institutions in Nigeria

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### Abstract

*This study examines the effect of cost efficiency and capital adequacy on financial performance of cooperative financial institutions in Nigeria. The specific objectives of the study are: to examine the effect of cost efficiency on the financial performance and to evaluate the effect of capital adequacy on the financial performance of cooperative financial institutions in Nigeria. The study was an ex post facto research design which span for a period of 13 years from 2011 to 2023. The study adopted a stratified sampling technique in determining the sample size, hence twelve (12) cooperative financial institutions were sampled for analysis. Utilizing panel regression analysis, the study tests two hypotheses regarding the impact of these financial indicators on financial performance. The first hypothesis investigates the relationship between cost efficiency, measured by the operating expense ratio, and financial performance, represented by the net profit margin. The analysis reveals a significant and positive association between cost efficiency and financial performance, indicating that improvements in cost efficiency can enhance the financial performance of cooperative financial institutions. The second hypothesis explores the relationship between capital adequacy, measured by the capital adequacy ratio, and financial performance. The findings demonstrate a significant and positive impact of capital adequacy on financial performance, suggesting that higher levels of capital adequacy are associated with improved financial performance. These results underscore the importance of managing costs effectively and maintaining adequate capitalization to enhance the overall performance and sustainability of cooperative financial institutions in Nigeria. The study provides valuable insights for policymakers, regulators, and practitioners in the financial sector, emphasizing the significance of cost efficiency and capital adequacy in driving financial performance and fostering long-term growth and stability.*

**Keywords** Cost Efficiency; Capital Adequacy; Financial Performance; Cooperative Financial Institutions

**Citation** Ik-Ugwoezuonu, L. (2024). Effect of Cost Efficiency and Capital Adequacy on Financial Performance of Cooperative Financial Institutions in Nigeria. *International Journal of Advanced Finance and Accounting*, 5(1), 17-33 <https://doi.org/10.5281/zenodo.11120425>



## Introduction

Cooperative financial institutions play a significant role in the economic development of Nigeria, particularly in providing financial services to the unbanked and underserved populations. These institutions, characterized by their cooperative ownership structure and focus on serving members' needs, contribute to financial inclusion and socio-economic empowerment (Ofulue et al., 2022).

In recent years, the Nigerian financial sector has experienced dynamic changes due to evolving regulatory requirements, technological advancements, and shifting market dynamics. Amidst these changes, cooperative financial institutions face increasing pressure to enhance their financial performance to remain competitive and sustainable in the evolving landscape (Olando et al., 2020).

Two critical factors that significantly influence the financial performance of cooperative financial institutions are cost efficiency and capital adequacy. Cost efficiency reflects the ability of these institutions to optimize their resources and operational processes to minimize costs while maximizing outputs. On the other hand, capital adequacy measures the sufficiency of a financial institution's capital to cover its risks and support its operations.

Understanding the relationship between cost efficiency, capital adequacy, and financial performance is essential for policymakers, regulators, and stakeholders in the cooperative financial sector. By examining how these factors interact and impact financial performance, stakeholders can formulate informed strategies to enhance the resilience and competitiveness of cooperative financial institutions in Nigeria.

Moreover, given the unique characteristics and operational challenges faced by cooperative financial institutions, studying the Nigerian context provides valuable insights into the broader discourse on financial sector development and performance in emerging economies. Nigeria's diverse economic landscape, regulatory environment, and socio-cultural factors offer a rich empirical setting to explore the dynamics between cost efficiency, capital adequacy, and financial performance in cooperative financial institutions (Owino & Nganga, 2019).

Therefore, this study aims to empirically investigate the effect of cost efficiency and capital adequacy on the financial performance of cooperative financial institutions in Nigeria. By employing rigorous analytical methods and utilizing data from a diverse sample of cooperative financial institutions, this research endeavors to provide actionable insights that can inform policy formulation, regulatory interventions, and strategic decision-making within the Nigerian cooperative financial sector.

## Statement of the Problem

Cooperative financial institutions in Nigeria would ideally operate with optimal cost efficiency and maintain adequate capital levels to support their operations and mitigate risks effectively. In this scenario, cost efficiency measures would reflect streamlined processes, prudent resource allocation, and effective management practices, resulting in minimized operational costs and enhanced profitability. Simultaneously, capital adequacy ratios would indicate sufficient capital buffers to absorb potential losses and ensure the stability and solvency of cooperative financial institutions.

However, the reality often deviates from this ideal scenario, presenting several challenges for cooperative financial institutions in Nigeria. One primary concern is the lack of sufficient cost efficiency within these institutions. Inefficient operational processes, high administrative costs, and suboptimal resource utilization can lead to inflated operating expenses, reduced profitability, and ultimately hinder financial performance. Additionally, limited access to technology and inadequate infrastructure may further exacerbate cost inefficiencies, constraining the ability of cooperative financial institutions to compete effectively in the market.

Another significant issue pertains to capital adequacy challenges faced by cooperative financial institutions. Insufficient capital levels relative to the risks undertaken can undermine the financial stability and resilience of these institutions. Inadequate capitalization may limit the capacity to absorb unexpected losses, increase vulnerability to

external shocks, and pose systemic risks to the broader financial system. Moreover, regulatory compliance requirements related to capital adequacy impose additional pressures on cooperative financial institutions, necessitating strategic capital management and allocation strategies.

If the challenges related to cost efficiency and capital adequacy remain unaddressed, cooperative financial institutions in Nigeria may face adverse consequences with far-reaching implications. Persistently low levels of cost efficiency could erode profitability, weaken competitiveness, and impede the ability to expand financial services to underserved communities. Moreover, inefficiencies in resource allocation may lead to suboptimal utilization of funds, limiting the impact of cooperative financial institutions on economic development and poverty alleviation initiatives.

Similarly, inadequate capitalization poses significant risks to the stability and sustainability of cooperative financial institutions. Without sufficient capital buffers, these institutions may struggle to absorb losses arising from loan defaults, market fluctuations, or regulatory changes, increasing the likelihood of insolvency or financial distress. Such outcomes not only jeopardize the interests of depositors and members but also undermine confidence in the cooperative financial sector, potentially leading to systemic disruptions and broader economic repercussions. Therefore, addressing the challenges surrounding cost efficiency and capital adequacy is imperative to ensure the resilience, competitiveness, and long-term viability of cooperative financial institutions in Nigeria, thereby fostering inclusive economic growth and financial stability.

### **Objectives of the Study**

The main objective of the study is to analyze the effect of cost efficiency and capital adequacy on financial performance of cooperative financial institutions in Nigeria. The specific objective of the study are to:

- i. To examine the effect of cost efficiency on the financial performance of cooperative financial institutions in Nigeria.
- ii. To evaluate the effect of capital adequacy on the financial performance of cooperative financial institutions in Nigeria.

### **Research Questions**

The study provided answers to the research question:

- i. What is the effect of cost efficiency on financial performance of cooperative financial institutions in Nigeria?
- ii. What is the extent of influence of capital adequacy on financial performance of cooperative financial institutions in Nigeria?

### **Statement of Hypotheses**

The following hypotheses in null form ( $H_0$ ) guided the study:

- i. There is no significant relationship between cost efficiency and financial performance of cooperative financial institutions in Nigeria.
- ii. There is no significant relationship between capital adequacy and financial performance of cooperative financial institutions in Nigeria.

### **Significance of the Study**

The significance of the study lies in its potential to benefit various individuals and institutions involved in the cooperative financial sector in Nigeria. These include:

- i. **Cooperative Financial Institutions (CFIs):** CFIs stand to gain valuable insights into the factors influencing their financial performance. Understanding the relationship between cost efficiency, capital adequacy, and financial performance can enable CFIs to implement targeted strategies for improving operational efficiency, optimizing capital management, and enhancing overall financial health.
- ii. **Regulatory Authorities:** Regulatory bodies responsible for overseeing the operations of cooperative financial institutions can benefit from this study by gaining a deeper understanding of the factors affecting the stability and resilience of CFIs. The findings can inform regulatory policies and guidelines aimed at promoting sound financial practices, ensuring capital adequacy, and safeguarding the interests of depositors and investors.
- iii. **Policy Makers:** Policymakers at both the national and regional levels can use the insights from this study to formulate policies and initiatives aimed at fostering the growth and sustainability of the cooperative financial sector. By addressing key challenges related to cost efficiency and capital adequacy, policymakers can create an enabling environment for CFIs to thrive, thereby contributing to financial inclusion, economic development, and poverty alleviation efforts.
- iv. **Researchers and Academia:** Researchers in the fields of finance, economics, and development studies can benefit from the study's findings as it adds to the body of knowledge on the performance determinants of cooperative financial institutions. Academics can use this research to enrich teaching materials, develop theoretical frameworks, and guide future research endeavors in the area of cooperative finance and microfinance.
- v. **Investors and Donors:** Investors and donors interested in supporting or investing in the cooperative financial sector can use the insights from this study to make informed decisions. Understanding the factors influencing financial performance can help investors assess the risk-return profile of investments in CFIs and identify opportunities for impact investing or philanthropic support aimed at strengthening the sector.

### **Review of Related Literature**

#### **Conceptual Review**

##### **Cost Efficiency**

Cost efficiency is a critical aspect of financial management for any organization, including cooperative financial institutions (CFIs). It refers to the ability of an institution to minimize its expenses while maximizing the output or value generated from its operations. In the context of CFIs, which often operate in resource-constrained environments with a focus on serving underserved communities, achieving cost efficiency is particularly crucial for sustaining operations, achieving financial viability, and fulfilling their mission of providing affordable financial services to members (Osazefua, 2019).

### **Importance of Cost Efficiency**

Cost efficiency plays a vital role in determining the overall financial health and sustainability of CFIs. Barus et al (2017) posited that efficient cost management allows CFIs to:

**Enhance Profitability:** By minimizing expenses relative to income, CFIs can improve their profitability, which is essential for sustainability and growth.

**Lower Operational Risks:** Efficient cost management helps mitigate operational risks by ensuring that resources are utilized effectively and wastage is minimized.

**Maintain Affordability:** CFIs often serve low-income and marginalized communities. Cost efficiency enables them to keep the cost of financial services low, making them accessible to their target clientele.

**Improve Competitiveness:** In a competitive financial market, cost efficiency can be a source of competitive advantage. CFIs that operate more efficiently can offer better terms and services to members, attracting and retaining customers in the process.

### **Factors Affecting Cost Efficiency**

Several factors influence the cost efficiency of CFIs, including:

**Scale of Operations:** Economies of scale play a significant role in cost efficiency. Larger CFIs may benefit from spreading fixed costs over a larger volume of transactions, reducing per-unit costs.

**Technology Adoption:** The use of technology, such as digital banking platforms and automated processes, can improve efficiency by streamlining operations, reducing manual errors, and enhancing the speed of service delivery (Wafula, 2016).

**Staff Productivity and Training:** Skilled and motivated staff contribute to operational efficiency. Investing in staff training and development can improve productivity and efficiency in service delivery.

**Branch Network Optimization:** CFIs need to strike a balance between expanding their reach and maintaining cost efficiency. Optimizing the branch network based on customer density and transaction volumes can help reduce overhead costs.

**Outsourcing and Partnerships:** CFIs can achieve cost savings by outsourcing non-core functions or entering into strategic partnerships for shared service delivery, such as sharing branch facilities or IT infrastructure.

### **Measuring Cost Efficiency**

Cost efficiency can be assessed using various financial ratios and performance indicators, including:

**Operating Expense Ratio:** The ratio of operating expenses to total income measures the efficiency of cost management. A lower ratio indicates higher cost efficiency.

**Cost-to-Income Ratio:** This ratio compares operating expenses to total income and reflects the proportion of income consumed by operating costs. A lower ratio signifies greater efficiency.

**Return on Assets (ROA):** ROA measures the efficiency of asset utilization in generating profits. Higher ROA indicates better cost efficiency in generating returns from assets.

**Cost per Transaction:** This metric evaluates the cost incurred for each transaction processed by the CFI, providing insights into the efficiency of transaction processing and service delivery.

### **Strategies for Improving Cost Efficiency**

CFIs can adopt several strategies to enhance cost efficiency, including:

**Process Automation:** Automating routine processes and transactions can reduce manual effort and minimize errors, leading to cost savings and efficiency gains.

**Lean Operations:** Adopting lean principles involves identifying and eliminating waste in operations, optimizing processes, and enhancing efficiency throughout the organization.

**Investment in Technology:** Embracing technology solutions such as core banking systems, mobile banking apps, and digital payment platforms can streamline operations, improve service delivery, and reduce costs.

**Continuous Monitoring and Evaluation:** Regular monitoring of financial performance and cost indicators allows CFIs to identify inefficiencies and areas for improvement, enabling timely corrective action.

**Staff Training and Capacity Building:** Investing in staff development programs enhances skills and productivity, contributing to overall operational efficiency (Abera & Asfaw, 2019).

### **Challenges and Barriers**

Despite the benefits, achieving cost efficiency in CFIs is not without challenges. Common barriers include:

**Limited Resources:** CFIs, particularly smaller ones, may face resource constraints, making it challenging to invest in technology, training, or infrastructure needed to improve efficiency.

**Resistance to Change:** Implementing cost-saving measures or adopting new technologies may encounter resistance from staff or management accustomed to traditional practices.

**Regulatory Constraints:** Regulatory requirements and compliance obligations may impose additional costs on CFIs, limiting their flexibility in cost management.

**External Factors:** Economic fluctuations, changes in market conditions, or unforeseen events such as natural disasters can impact cost efficiency by affecting operational costs or revenue streams.

### **Capital Adequacy**

Capital adequacy is a fundamental concept in the financial industry, ensuring that institutions have a sufficient buffer of capital to absorb potential losses and maintain stability. In the context of cooperative financial institutions (CFIs) in Nigeria, capital adequacy is particularly crucial for safeguarding depositors' funds, meeting regulatory requirements, and supporting sustainable growth (Adenugba et al., 2016).

### **Importance of Capital Adequacy**

Capital adequacy serves multiple critical functions for CFIs:

**Risk Absorption:** Adequate capital acts as a financial cushion, enabling CFIs to absorb unexpected losses without jeopardizing their solvency or ability to meet obligations to depositors and creditors.

**Regulatory Compliance:** Regulatory authorities impose minimum capital requirements to ensure the stability and resilience of financial institutions. Maintaining capital adequacy is essential for CFIs to comply with regulatory standards and avoid sanctions or restrictions.

**Investor Confidence:** Capital adequacy signals financial strength and stability to investors, depositors, and other stakeholders, enhancing confidence in the institution's ability to withstand adverse conditions and generate sustainable returns.

**Growth and Expansion:** Sufficient capital provides CFIs with the flexibility to pursue growth opportunities, expand their operations, and invest in new products or services, contributing to long-term sustainability and impact (Alukwe et al., 2015).

### **Capital Components**

Capital adequacy is typically measured based on the composition of a financial institution's capital, which may include:

**Tier 1 Capital:** Core capital comprising common equity and retained earnings, representing the highest quality and most readily available form of capital for absorbing losses.

**Tier 2 Capital:** Supplementary capital, including subordinated debt and other instruments with specific characteristics that provide additional loss-absorbing capacity but are subject to certain limitations.

**Total Capital:** The sum of Tier 1 and Tier 2 capital, reflecting the overall capital position of the institution and its capacity to absorb losses.

### **Regulatory Framework**

Regulatory authorities, such as the Central Bank of Nigeria (CBN), establish prudential regulations governing capital adequacy for CFIs. These regulations typically include:

**Minimum Capital Requirements:** Prescribed minimum levels of capital that CFIs must maintain based on factors such as asset size, risk profile, and nature of operations.

**Capital Adequacy Ratios:** Regulatory ratios, such as the Capital Adequacy Ratio (CAR), calculated as the ratio of regulatory capital to risk-weighted assets, used to assess the adequacy of capital relative to the institution's risk exposure.

**Supervisory Oversight:** Regulatory agencies conduct regular assessments and examinations to monitor CFIs' compliance with capital requirements, identify potential risks, and enforce corrective measures when necessary (Ene & Bello, 2016).

### **Factors Influencing Capital Adequacy**

Several factors affect the capital adequacy of CFIs, including:

**Asset Quality:** The quality of assets, including the level of non-performing loans (NPLs) and credit risk exposure, directly impacts capital adequacy. Higher asset quality reduces the likelihood of losses and enhances capital resilience.

**Risk Management Practices:** Effective risk management frameworks, including credit risk assessment, asset-liability management, and liquidity risk management, contribute to capital adequacy by minimizing the probability and severity of adverse events.

**Profitability and Retained Earnings:** CFIs' ability to generate profits and retain earnings over time bolsters capital adequacy by increasing Tier 1 capital, enhancing financial resilience, and supporting organic growth without diluting ownership or control.

**External Capital Sources:** Access to external sources of capital, such as equity investments, subordinated debt, or grants from development agencies, can supplement internal capital generation and strengthen overall capital adequacy (Ashenafi & Kingawa, 2018).

### **Measurement and Assessment**

Capital adequacy is evaluated through various quantitative and qualitative measures, including:

**Capital Ratios:** Regulatory capital ratios, such as CAR, leverage ratio, and Tier 1 capital ratio, provide standardized metrics for assessing capital adequacy and comparing institutions' capital positions.

**Stress Testing:** Scenario-based stress tests simulate adverse economic conditions or operational disruptions to assess the resilience of CFIs' capital adequacy and identify potential vulnerabilities under different scenarios.

**Internal Capital Assessments:** CFIs conduct internal assessments of capital adequacy, considering factors such as business strategy, risk appetite, and growth projections to ensure that capital levels align with strategic objectives and risk tolerance.

### **Challenges and Mitigation Strategies**

Despite its importance, maintaining capital adequacy poses challenges for CFIs, including:

**Profitability Pressure:** Balancing the need for capital with the imperative to generate returns for investors and members can be challenging, particularly in competitive or volatile markets (Fujo & Ali, 2016).

**Asset-Liability Mismatch:** Mismatches between asset and liability structures can strain capital adequacy by exposing CFIs to liquidity risks or interest rate fluctuations, necessitating effective asset-liability management practices (Sharma, 2017).

**Economic Volatility:** Macroeconomic factors such as inflation, currency depreciation, or economic downturns can affect asset quality, market valuations, and capital adequacy, requiring proactive risk management and contingency planning.

**To mitigate these challenges, CFIs can adopt strategies such as:**

**Prudent Risk Management:** Implementing robust risk assessment, monitoring, and mitigation processes to identify and manage risks effectively, thereby preserving capital and safeguarding financial stability.

**Diversification and Innovation:** Diversifying revenue streams, expanding product offerings, and embracing innovation can enhance CFIs' resilience, profitability, and capacity to generate internal capital (Harelimana, 2017).

**Stakeholder Engagement:** Engaging with investors, regulators, and other stakeholders transparently and proactively fosters trust, facilitates access to external capital sources, and strengthens CFIs' capital adequacy position.



## Financial Performance

Financial performance refers to the evaluation of a company's or organization's effectiveness in utilizing its financial resources to achieve its objectives and generate returns for its stakeholders. It involves assessing various financial metrics, ratios, and indicators to measure the profitability, liquidity, solvency, efficiency, and overall health of the entity.

Profitability measures the ability of an organization to generate profits relative to its expenses and investments. Key indicators of profitability include net income, gross profit margin, and return on investment (ROI). Net income represents the bottom-line profit after deducting all expenses from revenue, while the gross profit margin reflects the percentage of revenue remaining after deducting the cost of goods sold. ROI calculates the ratio of net income to total investment, indicating the efficiency of capital utilization (Kirimu et al., 2017).

Liquidity reflects the ability of an organization to meet its short-term financial obligations without causing significant disruption to its operations. Common liquidity ratios include the current ratio and quick ratio. The current ratio compares current assets to current liabilities, indicating the organization's ability to cover short-term liabilities with short-term assets. The quick ratio provides a more conservative measure of liquidity by excluding inventory from current assets (Kenn-Ndubuisi & Joel, 2019).

Solvency assesses the long-term financial viability and stability of an organization by examining its ability to meet its long-term debt obligations. Key solvency ratios include the debt-to-equity ratio and interest coverage ratio. The debt-to-equity ratio measures the proportion of total debt to total equity, while the interest coverage ratio indicates the organization's ability to cover interest payments with its operating income (Ngumo & Collins, 2017).

Efficiency measures how effectively an organization utilizes its resources to generate revenue and control costs. Important efficiency ratios include the asset turnover ratio and operating expense ratio. The asset turnover ratio calculates the ratio of revenue to total assets, indicating how efficiently the organization generates sales from its assets. The operating expense ratio shows the proportion of revenue consumed by operating costs (Ochieng, 2018).

Growth evaluates the rate at which an organization expands its operations and increases its financial performance over time. Growth indicators include revenue growth rate and profit growth rate. The revenue growth rate measures the percentage increase in revenue from one period to another, while the profit growth rate shows the percentage increase in net profit over time (Mathuva, 2016).

Market performance assesses the organization's value and attractiveness to investors by examining its stock price, market capitalization, and other market-based indicators. Market performance indicators include the price-to-earnings (P/E) ratio and market-to-book ratio. The P/E ratio compares the company's stock price to its earnings per share, indicating investor sentiment and valuation. The market-to-book ratio compares the company's market value to its book value, providing insights into its market valuation relative to its accounting value (Mmari & Thinyane, 2019).

Hence, financial performance is a multidimensional concept that encompasses various aspects of an organization's financial health and operational effectiveness.

## Theoretical Review

The study on the effect of cost efficiency and capital adequacy on the financial performance of cooperative financial institutions in Nigeria is theoretically underpinned on Agency Theory.

### Agency Theory

Agency theory explores the relationship between principals (owners or shareholders) and agents (managers or executives) within an organization. It posits that conflicts of interest may arise between principals and agents due to differing goals and incentives, leading to agency costs and potential inefficiencies. The theory suggests that aligning the interests of principals and agents through effective monitoring, incentives, and contractual agreements can mitigate agency problems and enhance organizational performance.

### Relevance to the Study

In the context of cooperative financial institutions in Nigeria, agency theory provides valuable insights into the dynamics between members (principals) and management (agents) within these organizations. CFIs are typically owned and governed by their members, who delegate authority to management to run day-to-day operations. However, conflicts of interest may arise between members seeking financial stability and management pursuing personal or short-term objectives.

**Cost Efficiency:** Agency theory suggests that management may prioritize their own interests over those of members, leading to inefficiencies and resource misallocation. By analyzing the relationship between cost efficiency and financial performance, the study can assess whether management's actions align with the interests of members. If cost efficiency positively correlates with financial performance, it indicates that management is effectively utilizing resources to maximize returns for members, thus reducing agency costs.

**Capital Adequacy:** Similarly, agency theory highlights the importance of capital adequacy in mitigating agency conflicts. Insufficient capital may incentivize management to take excessive risks or engage in short-term profit-seeking behavior at the expense of long-term stability. By examining the impact of capital adequacy on financial performance, the study can assess whether CFIs maintain sufficient capital to safeguard members' interests and fulfill their financial obligations, thereby reducing agency risks and enhancing trust between members and management.

**Implications for Governance and Regulation:** Insights from agency theory can inform governance structures and regulatory frameworks for CFIs in Nigeria. Strengthening member control, transparency, and accountability mechanisms can align the interests of members and management, reducing agency costs and enhancing organizational performance. Regulatory interventions aimed at promoting capital adequacy, risk management, and financial transparency can further mitigate agency risks and ensure the long-term sustainability of CFIs.

In summary, agency theory provides a theoretical framework for understanding the dynamics of principal-agent relationships within cooperative financial institutions and their implications for financial performance.

### Empirical Review

Atsango (2018) examined the effect of firm characteristics on the profitability of deposit-taking SACCOs in Kenya and found that firm size, asset quality, and operational efficiency had a negative and significant effect on profitability. Ochingo and Muturi (2018) examined the effect of firm characteristics on the financial performance of SACCOs in Kenya and revealed that capital adequacy, asset quality, operational efficiency, and liquidity had a positive and statistically significant effect on the financial performance of SACCOs. Barus et al., (2017) found an inverse relationship between operational efficiency and financial performance of SACCOs considering SACCOs operating in Kenya from the period 2011-15. However, the result was against the finding of Fujo and Ali, (2016) and Hesborn et

al. (2016) who reported a positive and significant relationship between operating efficiency and financial performance.

Henock (2018) examined the financial sustainability and outreach performance of SACCOs in Eastern Ethiopia and found that return on asset and operational efficiency has a positive effect on financial sustainability while debt to equity ratio, donation, deposit mobilization, and size has a significant negative effect on the financial sustainability of SACCOs. Findings by Marwa and Azikpono (2015) showed that return on asset, deposit mobilization, cost per loan, technical efficiency, and loan size had a significant influence on the sustainability of SACCOs. Additionally, Abate et al. (2013) identified that the operational efficiency of the firm, return on asset, loan size, gross loan portfolio, yield, and donation over loan has a significant effect on the sustainability of microfinance. A study by Nyamsogoro (2010), Bogan (2008), and Cull et al. (2008) established a relationship between size and MFIs' sustainability and showed that size is positively and significantly related to financial performance reflecting the cost advantages associated with size (economies of scale).

Khan et al. (2017) identifies the factors affecting the financial self-sufficiency of MFIs in Pakistan, India, and Bangladesh and their result showed that the size of MFI and loan portfolio to total assets have a positive impact while portfolio at risk, breadth of outreach, management inefficiency and operating cost ratio has a negative effect on financial self-sufficiency.

Yitayaw (2017) investigated determinants of the financial performance of SACCOs: evidence from selected three zones of Amhara regional state, Ethiopia and found that, operational efficiency, management efficiency, capital adequacy, gearing ratio, and loan to deposit ratio have a positive and statistically significant impact on profitability. Loans are the most important indicators of performance and primary activity of financial institutions. For that, a positive relationship between the loan to deposit ratio and profitability is expected. However, if increasing loans lead to higher funding requirements, a negative impact of the loan to deposit ratio on the bank's profitability may accrue Alexiou and Sofoklis (2009) and Kundid et. al. (2011). Oigo (2015) identified factors affecting the financial performance of deposit-taking SACCOs in Kisii County, Kenya, and revealed that capital adequacy, asset quality, management capability, and earning quality significantly influence financial performance. However, Barus et al., (2017) concluded that management efficiency has no significant effect on the financial performance of SACCOs in Kenya.

Zergaw (2015) studied the determinants of profitability of Microfinance in Ethiopia and found that breadth of outreach and age has a positive and significant effect on profitability while operational efficiency (lower cost) has a negative and significant effect on profitability. Jorgensen (2012) studied the determinants of profitability in connection with the yield on gross profit by taking a sample of 879 Microfinance Institutions all over the world. The finding of his study depicted that, number of active borrowers, deposit, cost per borrower, and legal status have a negative significant relationship with profitability. Sima (2013) studies the determinants of profitability of Ethiopian Microfinance Institutions and found operational efficiency and portfolio quality have a negative significant effect on profitability while age has a positive significant effect. Ngumo and Collins (2017) examine the determinants of the financial performance of Microfinance Banks in Kenya. The study found a positive and statistically significant relationship between operational efficiency, capital adequacy, firm size, and financial performance of Microfinance. Ashenafi and Cherinet (2018) factors affecting the profitability of microfinance institutions (a study of MFIs in southern nation nationalities people's regional state) and found a negative relationship between profitability and operating efficiency and size.

Kathuri (2014) found that age, size, growth rate, and liquidity have a positive effect on the SACCO's profitability in Nairobi, however, the leverage ratio had a negative effect. The empirical result on the relationship between leverage and the firm's profitability is inconsistent. A study by Berger and Udell (2006) provide empirical evidence supporting a positive relationship between leverage and a firm's performance or profitability while, Booth et al., (2001) and Fama and French (2002) established a negative relationship between debt level and a firm's performance or profitability.

Tehulu (2013) investigated the determinants of financial sustainability of 23 Microfinance Institutions in East Africa using unbalanced panel data from the period 2004 to 2009 and the result revealed that financial sustainability correlated positively with the level of leverage and liquidity while management inefficiency and portfolio at risk have a negative and significant impact on financial sustainability.

**Methodology**

**Research Design**

This study adopted *ex-post facto* research design.

**Area of the Study**

The study was carried out in Nigeria, and specifically on the cooperative financial institutions.

**Sources of Data**

This study employed secondary data. It was sourced from the annual reports and accounts of the selected cooperative financial institutions in Nigeria for various years spanning from 2011 to 2023.

**Population of the Study**

The population of interest consisted of 20 prominent and sizable cooperative financial institutions operating across various states in Nigeria.

**Determination of Sample Size**

The study adopted a stratified sampling technique in determining the sample size, selecting twelve (12) cooperative financial institutions from the population of interest. These institutions were chosen based on their prominence and size within the cooperative financial sector in Nigeria. Additionally, the selection aimed to ensure representation across different states and regions of the country, thereby capturing a diverse range of perspectives and operational contexts within the cooperative financial landscape.

**Model Specification**

The study focused on analyzing the effect of cost efficiency and capital adequacy on financial performance of cooperative financial institutions in Nigeria over a period of 2011-2023. The study used operating expense ratio and capital adequacy ratio (CAR) as proxy for cost efficiency and capital adequacy respectively, while financial performance which is the dependent variable was proxy with net profit margin (NPM).

Given the above considerations, a two predictor model were specified as follows:

$$Y' = a + \beta_1 X_{1it} + \beta_2 X_{2it} + \epsilon_{it} \dots \dots \dots (i)$$

Where;

Y = Dependent variable

X<sub>1</sub>, X<sub>2</sub> ----- X<sub>n</sub> = the explanatory or independent variables

B<sub>1</sub>, B<sub>2</sub> ----- β<sub>n</sub> = the coefficient of the parameter estimate or the slope

ε = Error or disturbance term, while

t = Time

**Explicit representation of the model:**

$$NPM = \beta_0 + \beta_1 OER_{it} + \beta_2 CAR_{it} + \epsilon_{it} \dots \dots \dots (ii)$$

Where,

NPM = Net Profit Margin

OER	=	Operating Expense Ratio
CAR	=	Capital Adequacy Ratio
$\epsilon_{it}$	=	error terms
t	=	time

### Method of Data Analysis

This study applied Panel Least Squares Regression Analysis.

### Statement of Decision Rule/Criteria for Hypotheses Testing

Reject the null hypothesis ( $H_0$ ), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

### Results

**Table 1: Regression Analysis Result of the Industry Level Panel Data of the sampled cooperative financial institutions in Nigeria**

Dependent Variable: NPM  
 Method: Panel Least Squares  
 Date: 04/04/24 Time: 07:59  
 Sample: 2011 2023  
 Periods included: 13  
 Cross-sections included: 12  
 Total panel (balanced) observations: 156

Variable	Coefficient	Std. Error	t-Statistic	Prob.
OER	0.086597	0.028595	3.028450	0.0029
CAP	2.640821	0.211753	12.47124	0.0001
C	-16.10855	2.719147	-5.924120	0.0000
R-squared	0.531460 Mean dependent var		18.61789	
Adjusted R-squared	0.525336 S.D. dependent var		2.498864	
S.E. of regression	1.721614 Akaike info criterion		3.943445	
Sum squared resid	453.4853 Schwarz criterion		4.002096	
Log likelihood	-304.5887 Hannan-Quinn criter.		3.967267	
F-statistic	86.77326 Durbin-Watson stat		1.832435	
Prob(F-statistic)	0.000000			

**Source: E-view 11.0 Statistical Output, 2024**

Table 1 unveils that the operating expense ratio, serving as a proxy for cost efficiency, exerts a positive and significant effect (p-value 0.0029) on the financial performance, represented by the Net Profit Margin, of the cooperative financial institutions sampled in Nigeria. Moreover, the analysis reveals that the capital adequacy ratio also demonstrates a positive and significant impact on the performance of these institutions, with a probability value of 0.0001 and a t-statistic of 12.47124.

The adjusted R-squared ( $R^2$ ) suggests that approximately 53% of the significant variations in financial performance, as indicated by the net profit margin, can be attributed to cost efficiency and the capital adequacy ratio. The remaining 47% may be influenced by other factors affecting the financial performance of the sampled cooperative financial institutions in Nigeria, as well as other remote factors captured by the error term.

Furthermore, the probability of the F-statistic is significant (0.00000), indicating the statistical robustness of the multiple regression model and its results. Additionally, the absence of serial autocorrelation in the panel data extracted from the annual reports and accounts of the sampled cooperative financial institutions in Nigeria is suggested by the Durbin-Watson statistic of 1.83243, which falls within the expected range or relatively normal.

### **Test of Hypotheses**

#### **Test of Hypothesis One**

**Restatement of the Hypothesis in Null and Alternate forms:**

##### **Null Hypothesis:**

There is no significant relationship between cost efficiency and financial performance of cooperative financial institutions in Nigeria.

##### **Alternative Hypothesis:**

There is significant relationship between cost efficiency and financial performance of cooperative financial institutions in Nigeria.

##### **Statement of Decision Rule:**

Reject the null hypothesis ( $H_0$ ), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

##### **Decision**

Table 1 presents the panel regression results, indicating that the financial performance, represented by the Net Profit Margin, is influenced by cost efficiency. The analysis reveals a significant and positive impact of cost efficiency on the financial performance of the sampled cooperative financial institutions in Nigeria. Specifically, an increase in cost efficiency, as proxied by the operating expense ratio, is highly likely to enhance the financial performance of these institutions. The observed p-value of 0.0029 for the operating expense ratio is below the conventional significance level of 0.05, leading to the rejection of the null hypothesis ( $H_0$ ) and acceptance of the alternative hypothesis. Consequently, the study suggests a robust and positive relationship between cost efficiency and the financial performance of cooperative financial institutions in Nigeria.

#### **Test of Hypothesis Two**

**Restatement of the Hypothesis in Null and Alternate forms:**

##### **Null Hypothesis:**

There is no significant relationship between capital adequacy and financial performance of cooperative financial institutions in Nigeria.

##### **Alternative Hypothesis:**

There is significant relationship between capital adequacy and financial performance of cooperative financial institutions in Nigeria.

### Statement of Decision Rule:

Reject the null hypothesis ( $H_0$ ), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

### Decision

The panel regression results presented in Table 1 highlight the influence of the capital adequacy ratio on financial performance. The analysis reveals a significant and positive impact of the capital adequacy ratio on financial performance, suggesting that an increase in this ratio is likely to result in a corresponding improvement in the financial performance of the sampled cooperative financial institutions in Nigeria. The probability value of 0.0001 for the capital adequacy ratio falls below the threshold value of 0.05, leading to the rejection of the null hypothesis ( $H_0$ ) and acceptance of the alternative hypothesis. Therefore, the study asserts a robust and positive relationship between capital adequacy and the financial performance of cooperative financial institutions in Nigeria.

### Summary of Findings

Findings arising from this research were summarized as follows:

1. The first hypothesis examined whether there was a significant relationship between cost efficiency and the financial performance of cooperative financial institutions. The analysis revealed a noteworthy finding: a significant and positive impact of cost efficiency on financial performance. Specifically, an increase in cost efficiency, as measured by the operating expense ratio, was found to enhance the financial performance of the sampled institutions. With a p-value of 0.0029, which was below the conventional significance level of 0.05, the null hypothesis was rejected, indicating strong evidence in favor of a positive relationship between cost efficiency and financial performance.
2. The second hypothesis investigated the relationship between capital adequacy and financial performance. Similar to the first hypothesis, the analysis showed a significant and positive impact of the capital adequacy ratio on financial performance. An increase in this ratio was associated with an improvement in the financial performance of cooperative financial institutions. With a probability value of 0.0001, falling below the threshold of 0.05, the null hypothesis was rejected, providing robust evidence for a positive relationship between capital adequacy and financial performance.

### Conclusions

This study sheds light on the effect of cost efficiency and capital adequacy on financial performance of cooperative financial institutions in Nigeria. Through rigorous panel regression analysis, this study has provided valuable insights into the significance of cost efficiency and capital adequacy in determining the financial performance of these institutions.

The results unequivocally demonstrate that cost efficiency, as measured by the operating expense ratio, exerts a significant and positive influence on financial performance. A higher level of cost efficiency is associated with enhanced financial performance among the sampled cooperative financial institutions. This underscores the importance of managing operating expenses effectively to achieve better financial outcomes.

Furthermore, the analysis reveals a compelling link between capital adequacy and financial performance. The capital adequacy ratio emerged as a significant predictor of financial performance, with an increase in this ratio corresponding to an improvement in the financial performance of cooperative financial institutions. This underscores the critical role of adequate capitalization in bolstering financial stability and resilience.

These findings carry significant implications for stakeholders in the financial sector. Policymakers and regulators should consider measures to incentivize and promote cost-efficient practices within cooperative financial institutions. Similarly, efforts to ensure sufficient capitalization should be prioritized to enhance the sector's overall performance and sustainability.



In conclusion, this study contributes valuable insights to the understanding of the determinants of financial performance in cooperative financial institutions in Nigeria. By highlighting the importance of cost efficiency and capital adequacy, it provides actionable recommendations for enhancing the sector's resilience and fostering its long-term growth and stability.

### Recommendations

Based on the findings, the following recommendations are proposed to enhance the study:

- i. Cooperative financial institutions should prioritize initiatives aimed at improving cost efficiency by streamlining operations, leveraging technology, and optimizing resource allocation. This may include investing in automated processes, consolidating redundant functions, and renegotiating contracts with suppliers to achieve cost savings. By enhancing cost efficiency, institutions can improve profitability, enhance competitiveness, and better serve their members.
- ii. To bolster capital adequacy, cooperative financial institutions should adopt strategies to strengthen their capital positions and ensure compliance with regulatory requirements. This may involve retaining earnings, raising additional capital through equity offerings or subordinated debt, and exploring partnerships with investors or development finance institutions. By maintaining adequate levels of capital, institutions can enhance financial resilience, mitigate risks, and support sustainable growth over the long term.

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