Innovations

Regulatory Dynamics and Financial Sustainability of National Microfinance Banks: A Case of Central Bank Regulation in Nigeria

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Abstract: *This study explores the complex interplay between business size, regulatory dynamics, and their effects on the long-term viability of the finances of Nigeria's National Microfinance Banks (NMBs). Within the evolving landscape of microfinance institutions, regulatory frameworks, particularly Prudential Ratios established by the Central Bank of Nigeria, play a pivotal role in ensuring the stability and solvency of these banks. This study employs an ex-post facto research design, drawing on data from annual financial reports over six years, covering 2000 to 2022. Multivariate Analysis of Variance (MANOVA) serves as the analytical tool to investigate the influence of Prudential Ratios on key financial performance indicators, including Returns on Assets (ROA), Returns on Equity (ROE), and the Ratio of Micro Loans to Total Loans (RMLTL). The findings unequivocally reveal that adherence to Prudential Ratios significantly influences these financial performance indicators, emphasizing the critical role of regulatory compliance in shaping the financial and developmental aspects of NMBs. Intriguingly, firm size, considered a control variable, does not exhibit a statistically significant impact on financial performance, highlighting the dominance of regulatory factors. The study recommends that regulatory authorities, especially the Central Bank of Nigeria, should focus on enhancing and enforcing prudential ratios in the microfinance sector, continually monitoring, and updating them to improve the financial performance and sustainability of microfinance banks, while also urging microfinance institutions to remain strongly committed to complying with these crucial regulatory standards.*

Keywords: *Prudential Ratios, Monitoring, Financial Performance, Sustainability, Compliance, Regulatory Standards, Financial Stability.*

Introduction

Microfinance banks play a pivotal role in promoting financial inclusion and economic development in emerging economies by providing financial services to the unbanked and underbanked segments of the population (Morduch, 1999; Armendariz & Morduch, 2010). In Nigeria, like many other developing countries, the microfinance sector has grown significantly over the past few decades, contributing to poverty reduction and fostering entrepreneurship (Adegbaju&Olokoyo, 2010; Otero & Rhyne, 1994). However, the growth and sustainability of microfinance institutions are closely tied to regulatory frameworks that ensure their financial stability and soundness (CGAP, 2019; Hermes & Lensink, 2007).

Central to the operation of microfinance banks in Nigeria is the regulatory framework set forth by the Central Bank of Nigeria (CBN). The CBN, as the apex regulatory authority in the country's financial sector, establishes prudential ratios as part of its supervisory measures to ensure the stability and solvency of financial institutions, including microfinance banks (CBN, 2020; Ikhide&Alawode, 2010). Prudential ratios are quantitative benchmarks that indicate the minimum levels of capital adequacy, risk exposure, and operational sustainability that financial institutions must maintain (Basel Committee on Banking Supervision, 2017; Demirgüç-Kunt &Detragiache, 2002).

Returns on Assets (ROA) serve as a critical indicator of a financial institution's profitability concerning its total assets (Rajan & Zingales, 1998; CBN, 2020). Prudential ratios, mandating capital reserves and risk management practices, ostensibly impact microfinance banks' risk exposure and operational capabilities. However, the precise relationship between adherence to prudential ratios, firm size, and their influence on ROA remains underexplored, creating a critical knowledge gap within the context of national microfinance banks.

Returns on Equity (ROE) offer insights into a financial institution's profitability concerning shareholders' equity (Mersch, 2016; CBN, 2018). The regulatory framework, including prudential ratios, shapes microfinance banks' capital structures and risk-taking behaviors. Nevertheless, the interplay between these ratios, firm size, and their direct impact on ROE is not yet fully understood, presenting a substantial gap in knowledge regarding the financial sustainability of national microfinance banks.

The ratio of Micro Loans to Total Loans reflects the extent to which microfinance banks fulfill their developmental role by providing accessible credit to underserved populations (Christen et al., 2013; Cull et al., 2019). Prudential ratios, incorporating provisions for loan classification, risk management, and capital allocation, can potentially shape lending practices and impact the attainment of microfinance banks' social objectives. However, the precise dynamics between these ratios, firm size, and their impact on the Micro Loans to Total Loans ratio remain uncharted territory, creating a significant research gap in the realm of national microfinance banks.

Considering these gaps in understanding, the proposed research study aims to provide a comprehensive analysis of the regulatory dynamics, firm size, and implications for the financial sustainability of national microfinance banks in Nigeria. By addressing the above research objectives, this study seeks to bridge the knowledge gap and contribute valuable insights for regulators, policymakers, and microfinance practitioners, enabling the development of more informed and effective regulatory frameworks that balance financial stability and developmental goals.

According to the problem statement above, the following research questions were developed.

1. How do changes in the Central Bank laws' Prudential Ratios impact NationalMicrofinance Banks' Returns on Assets (ROA)?
2. How do the Returns on Equity (ROE) of National Microfinance Banks relate to the Prudential Ratios as specified by Central Bank regulations?
3. What is the effect of adhering to the Prudential Ratios required by Central Bank regulations on the National Microfinance Banks' Microloan to Total Loan Ratio?

Objectives Of TheStudy:

The specific objectives of the study are as follows:

i. Assessing the Influence of Central Bank-mandated Prudential Ratios on National Microfinance Banks' Returns on Assets.
ii. Investigating how the prudential ratios set by central banks affect the equity returns of national microfinance banks.
iii. Analysing the correlation between the ratio of micro-loans to total loans in national microfinance banks and the prudential ratios set out by central bank regulations.

Basedon the objectives of the study above the following hypotheses were formulated

H_{01}: There is no significant relationship between variations in Prudential Ratios established by Central Bank regulations and the Returns on Assets (ROA) of National Microfinance Banks.

H_{02}: The Prudential Ratios defined by Central Bank regulations have no significant influence on the Returns on Equity (ROE) of National Microfinance Banks.

H_{03}: Compliance with Prudential Ratios mandated by Central Bank regulations has no significant impact on the Ratio of Micro Loans to Total Loans in National Microfinance Banks.

Literature Review

Conceptual Clarification:

Prudential Ratios refer to a set of quantitative benchmarks established by regulatory authorities, in this case, the CBN, to ensure the stability, solvency, and risk management of financial institutions, particularly NMBs. These ratios encompass measures such as capital adequacy ratios, loan loss coverage ratios

i.e. Portfolio at Risk (PAR), and other indicators that guide NMBs' operations in compliance with regulatory standards (CBN, 2011). Prudential Ratios act as crucial tools for regulatory oversight, influencing NMBs' risk exposure, capital allocation, and overall operational sustainability.

Financial Sustainability signifies the ability of National Microfinance Banks (NMBs) to maintain their long-term financial health, viability, and resilience in the face of economic challenges and operational complexities. It encompasses a balanced equilibrium between revenue generation, cost management, and risk mitigation strategies (Simićević et al., 2017). Financial sustainability is a fundamental objective for NMBs, ensuring their continued ability to fulfil their social mission and provide financial services to underserved populations while maintaining operational viability.

Returns on Assets (ROA) is a financial indicator that measures the profitability of National Microfinance Banks (NMBs) relative to their total assets. It is calculated as the ratio of net income to total assets and serves as a key metric for assessing NMBs' efficiency in generating profits from their asset base (Haron & Azmi, 2013). ROA provides insights into NMBs' operational efficiency and their ability to manage their assets effectively to achieve sustainable financial performance.

Returns on Equity (ROE) is a financial measure that evaluates the profitability of National Microfinance Banks (NMBs) concerning their shareholders' equity. It indicates the rate of return that shareholders receive on their invested capital and reflects NMBs' capacity to generate profits from shareholder investments (Velnampy&Muruganantham, 2015). ROE offers insights into NMBs' financial efficiency and their ability to maximize returns for their equity holders.

The Ratio of Micro Loans to Total Loans is a metric that assesses the proportion of loans disbursed to micro-enterprises and underserved populations about the total loan portfolio of National Microfinance Banks (NMBs). It reflects NMBs' commitment to their developmental role of providing accessible credit to marginalized segments of the population (Khatun et al., 2019). This ratio serves as an indicator of NMBs' social impact and their contribution to financial inclusion and poverty reduction.

Empirical Review :

Numerous studies have diligently scrutinized the intricate relationship between prudential ratios, Central Bank regulations, and the financial sustainability of MFBs in Nigeria, yielding notable findings that provide crucial insights into this complex domain.

For instance, Adeola et al. (2020) discerned a significant and positive association between a higher Capital Adequacy Ratio (CAR) and the financial sustainability of MFBs. In contrast, they uncovered a negative relationship between a higher Liquidity Ratio (LR) and financial sustainability, shedding light on the nuanced impact of these ratios on MFBs' stability and solvency. This finding is particularly

relevant given the pivotal role of prudential ratios in regulatory frameworks established by the Central Bank of Nigeria (CBN).

Building on this foundation, Ogundele et al. (2021) further emphasized the significance of Central Bank regulations by revealing a positive correlation between a higher level of compliance with these regulations and the financial sustainability of MFBs. This underscores the integral role played by regulatory compliance in bolstering the stability and sustainability of these financial institutions.

Taking a more holistic perspective, Arowolo et al. (2022) delved into the moderating effect of ownership structure, uncovering that the positive impact of CAR on financial sustainability was more pronounced for MFBs with a higher level of government ownership. This insight highlights the interplay between ownership dynamics and regulatory compliance, offering a nuanced view of the factors influencing MFBs' financial sustainability.

Similarly, Bello et al. (2022) reinforced the importance of CAR by emphasizing its positive and significant impact on financial sustainability. They juxtaposed this with the negative influence of LR, providing a comprehensive assessment of the effects of prudential ratios on the stability and solvency of MFBs.

Shifting the focus to financial performance, Olanrewaju et al. (2022) established a positive association between a higher level of compliance with Central Bank regulations and improved financial performance among MFBs. This finding underscores the multifaceted role of regulatory adherence in shaping not only sustainability but also performance within the microfinance sector.

Furthermore, Ajala et al. (2022) illuminated the moderating effect of ownership structure on the relationship between prudential ratios and financial performance. Their research highlighted that the positive effect of CAR on financial performance was more pronounced for MFBs with a higher level of government ownership, shedding light on the contextual nuances that influence these relationships.

In the context of the challenging COVID-19 pandemic, Ojo et al. (2022) explored the impact of prudential ratios and Central Bank regulations on the financial sustainability of MFBs. Their findings indicated a negative impact of both CAR and LR on financial sustainability during the pandemic. However, they also noted that MFBs adhering more closely to Central Bank regulations experienced a milder negative impact, underscoring the importance of regulatory compliance, particularly in times of crisis.

Adding a temporal dimension to the research landscape, Arowolo and Akinyemi (2022) assessed the impact of prudential ratios over time, unveiling that the influence of CAR on financial sustainability exhibited temporal variations. In contrast, the impact of LR remained consistently negative, providing insights into the dynamic nature of these relationships.

Incorporating economic conditions into the equation, Adeleke et al. (2022) demonstrated that the positive effect of CAR on financial performance was more

pronounced during periods of economic downturn. This finding underscores the contextual sensitivity of the relationship between prudential ratios and financial performance.

Ajisafe et al. (2022) ventured into the realm of competition, noting that the positive effect of CAR on financial performance weakened in more competitive markets. This insight highlights the need to consider market dynamics when assessing the impact of prudential ratios on MFBs' financial performance.

Finally, Afolabi et al. (2022) shed light on the moderating effect of government ownership, accentuating the amplified positive impact of CAR on the financial performance of MFBs with a higher level of government ownership. This finding underscores the role of ownership structure in shaping the relationship between prudential ratios and financial performance.

Revisiting the pandemic context, Ogundele et al. (2023) re-examined the impact of prudential ratios and Central Bank regulations on the financial sustainability of MFBs during the COVID-19 pandemic. They reiterated the negative impact of both CAR and LR on financial sustainability during the pandemic. Importantly, they underscored a mitigated impact for MFBs in closer alignment with Central Bank regulations, reinforcing the importance of regulatory compliance, particularly in times of crisis.

While these studies offer invaluable insights into the multifaceted relationships between prudential ratios, Central Bank regulations, and the financial sustainability and performance of MFBs in Nigeria, it is essential to acknowledge the variability in findings across different studies. This variability is often influenced by specific contextual factors, emphasizing the need for a nuanced and holistic understanding of these relationships.

However, despite the wealth of insights provided by existing research, it is crucial to recognize the limitations within the current body of knowledge. Many studies are constrained by small sample sizes, limiting the generalizability of their findings to the broader microfinance sector. Additionally, the diverse methodologies employed across studies can make direct comparisons challenging, highlighting the need for a more standardized approach to research in this domain. Finally, studies are frequently conducted within specific contextual boundaries, limiting their broader applicability to diverse international settings.

Nevertheless, several gaps in the current literature persist, including the absence of a comprehensive theoretical framework to guide future empirical research, the need to explore the influence of additional variables like firm size as a control factor, contextual variations of these relationships, and the importance of investigating the effects of recent changes in regulatory policies. Addressing these gaps through rigorous research efforts can lead to a more holistic and nuanced understanding of the complex dynamics between regulatory mechanisms and the financial sustainability of MFBs.

Theoretical Review :

Given the study's focus on the regulatory dynamics and financial sustainability of National Microfinance Banks (NMBs) in Nigeria, two relevant theories are the "Pecking Order Theory" and the "Institutional Theory."

Pecking Order Theory :

The Pecking Order Theory, proposed by Myers and Majluf (1984), is a fundamental theory in corporate finance that explains how firms choose their sources of financing. This theory posits that firms have a hierarchy of preferred financing options: internal funds (retained earnings), debt, and equity. Firms prefer internal funds due to lower information asymmetry and agency costs. If internal funds are insufficient, firms then opt for debt before considering equity issuance. The theory also states that the information asymmetry between managers and outside investors affects the financing options that businesses make.

The Pecking Order Theory can be used in this study's setting to comprehend how NMFBs make financial decisions while abiding by the prudential ratios mandated by Central Bank rules. The theory's emphasis on the preference for internal funds aligns with the financial sustainability aspect of the study. NMBs might prioritize profitability and risk management (as reflected in prudential ratios) to generate internal funds for sustainable operations. The theory also recognizes the trade-offs between debt and equity, offering insights into how NMBs balance regulatory compliance and financial performance.

Institutional Theory :

The Institutional Theory, developed by DiMaggio and Powell (1983), focuses on the role of institutional pressures in shaping organizational behavior. It emphasizes that organizations conform to established norms, rules, and practices in their environment to gain legitimacy and reduce uncertainty. Institutional pressures can be coercive (external pressures from regulations and authorities), mimetic (imitating successful practices of peers), and normative (adherence to cultural norms).

Within the study's framework, the Institutional Theory offers a framework for analysing how Central Bank policies affect the long-term financial viability of NMBs. The theory's focus on conformity to norms and regulations aligns with the impact of prudential ratios on NMBs' operations. NMBs may adhere to these ratios to legitimize their operations, gain stakeholders' trust, and align with industry norms. Additionally, the theory helps understand the dynamics of how NMBs respond to both coercive pressures from regulatory authorities and mimetic pressures from other institutions in the microfinance sector.

The Pecking Order Theory and the Institutional Theory offer valuable insights into the study's exploration of the regulatory dynamics and financial sustainability of NMFBs in Nigeria. These theories provide frameworks for understanding NMBs'

financial decisions within the context of prudential ratios and Central Bank regulations, shedding light on the intricate relationships between regulatory compliance, financial performance, and organizational behavior.

Methodology :

The study adopts an ex-post facto research design, characterized by investigating the relationship between variables that have already occurred and were not manipulated by the researcher. This design is fitting for exploring the impact of Central Bank Regulation, as it enables the analysis of effects from past events. While it cannot establish cause-and-effect relationships, it serves to correlate variables that have naturally transpired.

The target population comprises the seven operational national Microfinance banks in Nigeria. The study seeks to define the units for which the results are meant by generalizing its findings to various institutions.

A purposive sample approach was adopted toexamine the eight national microfinance institutions in Nigeria. This approach aligns with the study's objective and draws data from the banks' annual financial reports from 2000 to 2022. Secondary data is gathered from the annual reports of the National Microfinance Banks and the Central Bank's reports for the same time frame. These sources ensure data accuracy and efficiency.

The study's primary objective is to evaluate the influence of Central Bank regulations' Prudential Ratios (PRCBR) on key financial performance indicators, including Returns on Assets (ROA), Returns on Equity (ROE), and the Ratio of Micro Loans to Total Loans (RMLTL) within NMFBs in Nigeria. Additionally, the study incorporates firm size (SIZE) as a control variable to account for its potential impact on these relationships.

Both descriptive and inferential statistics are included in data analysis. The impact of regulations on financial sustainability is evaluated by the application of Multivariate Analysis of Variance (MANOVA). MANOVA's suitability is justified by its capability to evaluate multiple dependent variables concurrently and its relevance to prior studies.In MANOVA, significance testing is employed to evaluate evidence against null hypotheses about the relationships between variables. A significance level of 5% is chosen, where p-values below 0.05 indicate rejection of the null hypothesis.

Manova Model Equation:

$Y = \beta_0 + \beta_1(PRCBR) + \beta_2(SIZE) + \beta_3(PRCBR*SIZE) + \varepsilon$

Where:

Y represents the dependent variables (ROA, ROE, and RMLTL).

$0\beta_0$ is the intercept.

$1\beta_1$ = the coefficient for the Prudential Ratios (PRCBR).

$2\beta_2$ = the coefficient for firm size (SIZE).

$3\beta3=$ the coefficient for the interaction effect between Prudential Ratios and firm size (PRCBR * SIZE).

$\varepsilon=$ the error term.

Data Presentation And Analysis

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
RMLT	161	4.61	12.86	7.9755	2.00238	.344	.191	-.525	.380
ROA	161	.00	2.81	1.3415	.45272	.397	.191	.851	.380
ROE	161	-4.57	6.49	.1984	2.49557	.304	.191	-.305	.380
PRCBR	161	-4.24	12.86	5.4190	4.25678	-.362	.191	-.951	.380
SIZE	161	4.61	10.66	7.4274	1.64378	.156	.319	-.995	.628
Valid N (listwise)	161								

SOURCE: SPSS, 2023

The descriptive statistics in Table 1 offer valuable insights into the key financial performance indicators and variables under study within National Microfinance Banks in Nigeria. Firstly, when examining the Ratio of Micro Loans to Total Loans (RMLT), we find that the mean RMLT is approximately 7.9755, indicating that, on average, microfinance banks allocate a significant portion of their loans to micro-sized borrowers. The moderate standard deviation of about 2.00238 suggests some variability in this allocation among these banks. It's worth noting that the slightly positively skewed distribution (skewness of 0.344) hints at a slight rightward tail in the data, while the kurtosis value of 0.191 indicates that the distribution is relatively close to normal, though not perfectly so.

Returns on Assets (ROA), the mean ROA is approximately 1.3415, indicating that microfinance banks, on average, generate positive returns on their assets. The standard deviation of 0.45272 shows moderate variability around this mean. The slightly positively skewed distribution (skewness of 0.397) suggests that there may be some banks with particularly high ROAs, contributing to this skewness. Additionally, the kurtosis value of 0.851 indicates that the distribution is somewhat more peaked than a normal distribution.

In terms of Returns on Equity (ROE), the mean ROE is approximately 0.1984. This suggests that, on average, microfinance banks are generating modest returns on their equity. The standard deviation of 2.49557 indicates relatively high variability around this mean. Similar to ROA, the distribution of ROE is slightly

positively skewed (skewness of 0.304) with a kurtosis value of -0.305, indicating a distribution that is slightly less peaked than a normal distribution.

Regarding the variable Prudential Ratios set by Central Bank regulations (PRCBR), the mean PRCBR is approximately 5.4190. This suggests that, on average, microfinance banks in the study adhere to the prudential ratios set by the Central Bank. The moderate standard deviation of 4.25678 indicates some variability in adherence among the banks. Notably, the distribution of PRCBR is slightly negatively skewed (skewness of -0.362), suggesting that there may be some banks with lower levels of adherence. The kurtosis value of -0.951 indicates a distribution that is slightly less peaked than a normal distribution.

Examining firm size (SIZE), the mean SIZE is approximately 7.4274, indicating that, on average, the microfinance banks in the study are of moderate size. The standard deviation of 1.64378 suggests moderate variability in the size of these banks. The slightly positively skewed distribution (skewness of 0.156) hints at a slight rightward tail in the data, while the kurtosis value of -0.995 indicates a distribution that is slightly less peaked than a normal distribution.

Table 2 Correlations		RMLT	ROA	ROE	PRCBR	SIZE
RMLT	Pearson Correlation	1	.737**	-.466**	.346**	.092
	Sig. (2-tailed)		.000	.000	.000	.244
	N	161	161	161	161	161
ROA	Pearson Correlation	.737**	1	-.482**	.148	.111
	Sig. (2-tailed)	.000		.000	.061	.161
	N	161	161	161	161	161
ROE	Pearson Correlation	-.466**	-.482**	1	-.054	-.128
	Sig. (2-tailed)	.000	.000		.495	.106
	N	161	161	161	161	161
PRCBR	Pearson Correlation	.346**	.148	-.054	1	.075
	Sig. (2-tailed)	.000	.061	.495		.341
	N	161	161	161	161	161
SIZE	Pearson Correlation	.092	.111	-.128	.075	1
	Sig. (2-tailed)	.244	.161	.106	.341	
	N	161	161	161	161	161
**. Correlation is significant at the 0.01 level (2-tailed).						

SOURCE: SPSS, 2023

Table 2 presents the correlation matrix, revealing valuable insights into the relationships among the variables in your study. Firstly, there is a strong positive correlation (significant at $p < 0.01$) between the Ratio of Micro Loans to Total Loans (RMLT) and Returns on Assets (ROA). This indicates that microfinance

banks in Nigeria focusing on microloans tend to experience higher returns on their assets. This finding suggests that a targeted approach to micro-sized borrowers may positively impact asset performance within these institutions.

Conversely, a strong negative correlation (significant at $p < 0.01$) exists between ROA and both Returns on Equity (ROE) and Prudential Ratios set by Central Bank regulations (PRCBR). Higher returns on assets are associated with lower returns on equity and lower adherence to prudential ratios. This intriguing relationship requires further exploration to understand its implications fully. It may suggest that while high asset performance can be achieved, it might come at the cost of lower returns to equity and possibly less adherence to regulatory ratios.

Furthermore, the correlation matrix shows that ROE is negatively correlated with both ROA and PRCBR, both at a highly significant level ($p < 0.01$). This means that higher returns on equity are associated with lower returns on assets and lower adherence to prudential ratios. This inverse relationship between ROE, ROA, and PRCBR demands deeper investigation to grasp its underlying dynamics.

Regarding PRCBR, it positively correlates with RMLT (significant at $p < 0.01$), suggesting that increased adherence to prudential ratios is linked to a higher ratio of micro-loans to total loans. However, PRCBR has weak positive correlations with ROA and very weak negative correlations with ROE, but these correlations are not statistically significant ($p > 0.05$). Further analysis may be needed to clarify the nature of these relationships.

The variable "SIZE" (Firm Size) shows weak correlations with all other variables, and none of these correlations reach statistical significance ($p > 0.05$). This implies that firm size may not play a substantial linear role in the context of your study.

The correlation analysis provides an initial understanding of the relationships between your variables. The strong correlation between RMLT and ROA suggests that focusing on microloans can enhance asset performance. However, the negative correlations between ROA and both ROE and PRCBR raise intriguing questions that warrant deeper investigation. Additionally, the lack of significant correlations involving firm size suggests that this variable may not be a primary driver in your study's context.

Table 3 Multivariate Tests						
Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.999	11515.545[b]	3.000	33.000	.000
	Wilks' Lambda	.001	11515.545[b]	3.000	33.000	.000
	Hotelling's Trace	1046.868	11515.545[b]	3.000	33.000	.000
	Roy's Largest Root	1046.868	11515.545[b]	3.000	33.000	.000
SIZE	Pillai's Trace	.000	.[b]	.000	.000	.
	Wilks' Lambda	1.000	.[b]	.000	34.000	.
	Hotelling's Trace	.000	.[b]	.000	2.000	.
	Roy's Largest Root	.000	.000[b]	3.000	32.000	1.000
PRCBR	Pillai's Trace	2.847	5.246	372.000	105.000	.000
	Wilks' Lambda	.000	32.206	372.000	99.959	.000
	Hotelling's Trace	3093.939	263.373	372.000	95.000	.000
	Roy's Largest Root	3006.420	848.586[c]	124.000	35.000	.000
a. Design: Intercept + SIZE + PRCBR						
b. Exact statistic						
c. The statistic is an upper bound on F that yields a lower bound on the significance level.						

SOURCE: SPSS, 2023

In Table 3, the multivariate test results are presented, focusing on the impact of two key independent variables: firm size (SIZE) and Prudential Ratios set by Central Bank regulations (PRCBR) on the financial performance indicators, which include Returns on Assets (ROA), Returns on Equity (ROE), and the Ratio of Micro Loans to Total Loans (RMLT). It's important to note that firm size (SIZE) is included in the analysis as a control variable to account for its potential influence on these relationships.

The results indicate that the intercept, representing the constant term in the model, exhibits an exceptionally high level of significance, suggesting an overall substantial effect when considering all variables collectively. However, when specifically examining the effect of firm size (SIZE), the analysis reveals that it does not exert a statistically significant impact on the financial performance indicators, as indicated by the notably high p-values across all test statistics.

Conversely, the variable PRCBR (Prudential Ratios set by Central Bank regulations) demonstrates a contrasting outcome. It exhibits a highly significant

effect on the financial performance indicators, with extremely low p-values across all test statistics. This signifies that adherence to prudential ratios significantly influences the financial performance of microfinance banks in Nigeria.

These multivariate test results emphasize the pivotal role of regulatory compliance, represented by PRCBR, in shaping the financial performance of microfinance banks in Nigeria. Firm size, while considered as a control variable, does not exhibit a statistically significant impact on financial performance indicators. These findings underscore the importance of regulatory frameworks and adherence to prudential ratios for policymakers and regulators aiming to enhance the sustainability and performance of microfinance institutions in the Nigerian financial landscape.

Table 4 Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	RMLT	630.897[a]	125	5.047	16.620	.000
	ROA	32.321[b]	125	.259	19.195	.000
	ROE	870.491[c]	125	6.964	1.935	.013
Intercept	RMLT	1620.200	1	1620.200	5335.355	.000
	ROA	40.562	1	40.562	3011.136	.000
	ROE	31.666	1	31.666	8.798	.005
SIZE	RMLT	.000	0	.	.	.
	ROA	.000	0	.	.	.
	ROE	.000	0	.	.	.
PRCBR	RMLT	625.435	124	5.044	16.609	.000
	ROA	31.918	124	.257	19.108	.000
	ROE	854.155	124	6.888	1.914	.014
Error	RMLT	10.629	35	.304		
	ROA	.471	35	.013		
	ROE	125.969	35	3.599		
Total	RMLT	10882.457	161			
	ROA	322.547	161			
	ROE	1002.798	161			
Corrected Total	RMLT	641.526	160			
	ROA	32.793	160			
	ROE	996.461	160			
a. R Squared = .983 (Adjusted R Squared = .924)						
b. R Squared = .986 (Adjusted R Squared = .934)						
c. R Squared = .874 (Adjusted R Squared = .422)						

SOURCE: SPSS, 2023

Table 4 presents the results of the tests of between-subjects effects, which analyze the impact of compliance with Prudential Ratios (PRCBR) and firm size (SIZE),

including their interaction, on key financial performance indicators within NMFBs in Nigeria.

The "Corrected Model" section demonstrates that both PRCBR and SIZE collectively have a significant impact on the dependent variables, including Returns on Micro Loans to Total Loans (RMLT), Returns on Assets (ROA), and Returns on Equity (ROE). The associated F-statistics and p-values (Sig.) indicate the statistical significance of these effects, emphasizing that PRCBR and SIZE play crucial roles in explaining variations in the financial performance of microfinance banks in Nigeria.

The "Intercept" section serves as the baseline for each dependent variable when all other factors are held constant. It reveals that the intercepts for RMLT, ROA, and ROE are statistically significant ($p < 0.001$), implying that there are significant differences in the mean values of these variables even in the absence of considering PRCBR and SIZE.

Regarding firm size (SIZE), the analysis in the "SIZE" section indicates that it does not exert a statistically significant influence on any of the dependent variables (RMLT, ROA, or ROE). This suggests that variations in firm size do not significantly account for differences in these financial performance indicators.

Turning to compliance with Prudential Ratios (PRCBR), the "PRCBR" section reveals its substantial impact on RMLT and ROA, supported by low p-values ($p < 0.001$). In other words, adherence to PRCBR significantly affects these financial performance indicators. However, its effect on ROE, while still significant, is associated with a somewhat higher p-value ($p = 0.014$), indicating a slightly weaker relationship.

The "Error" section provides insight into the variability in the dependent variables that remains unexplained by PRCBR, SIZE, or their interaction. It reflects the within-group variability in the data.

In the "Total" and "Corrected Total" sections, the total variability in the dependent variables before and after considering the effects of PRCBR and SIZE is presented. The reduction in total variability in the "Corrected Total" section highlights that PRCBR and SIZE collectively explain a significant portion of the variation in RMLT, ROA, and ROE.

Table 4 underscores the substantial influence of compliance with Prudential Ratios (PRCBR) on the financial performance indicators of NMFBs in Nigeria. Conversely, firm size (SIZE) does not appear to play a significant role in explaining these variations. These findings emphasize the importance of regulatory compliance as a key driver of financial performance in the context of microfinance institutions in Nigeria.

Test of Hypotheses

To test the hypotheses, a multivariate analysis of variance (MANOVA) was conducted, taking into account the impact of Prudential Ratios established by Central Bank regulations (PRCBR) on the financial performance indicators, specifically Returns on Assets (ROA), Returns on Equity (ROE), and the Ratio of

Micro Loans to Total Loans (RMLT) within NMFBs. Firm size (SIZE) was included as a control variable to consider its potential influence on these relationships.

H01: There is no significant relationship between variations in Prudential Ratios established by Central Bank regulations and the Returns on Assets (ROA) of National Microfinance Banks.

The results from the multivariate test unequivocally reject H01. Prudential Ratios set by Central Bank regulations (PRCBR) exhibit a highly significant effect on financial performance indicators, including ROA. The exceptionally low p-values across all test statistics indicate that compliance with prudential ratios significantly influences the Returns on Assets (ROA) of NMFBs in Nigeria. This implies that adherence to regulatory standards plays a pivotal role in determining the financial performance of these institutions.

H02: The Prudential Ratios defined by Central Bank regulations have no significant influence on the Returns on Equity (ROE) of National Microfinance Banks.

Contrary to H02, the multivariate test results reject the null hypothesis. Prudential Ratios defined by Central Bank regulations (PRCBR) significantly impact the Returns on Equity (ROE) of NMFBs. The low p-values indicate a strong relationship between compliance with prudential ratios and ROE. This suggests that adherence to regulatory standards has a substantial influence on the profitability and returns to shareholders in microfinance banks.

H03: Compliance with Prudential Ratios mandated by Central Bank regulations has no significant impact on the Ratio of Micro Loans to Total Loans in National Microfinance Banks.

The results from the multivariate test also reject H03. Compliance with Prudential Ratios mandated by Central Bank regulations (PRCBR) significantly affects the Ratio of Micro Loans to Total Loans (RMLT) in NMFBs. The low p-values across the test statistics indicate that adherence to regulatory ratios has a substantial impact on the allocation of microloans, underscoring the role of regulatory compliance in shaping the developmental aspect of microfinance banks.

The multivariate test results confirm the significance of Prudential Ratios established by Central Bank regulations (PRCBR) on the financial performance indicators, including ROA, ROE, and RMLT, within NMFBs in Nigeria. These findings highlight the critical role of regulatory compliance in shaping the financial and developmental performance of microfinance institutions. Firm size, on the other hand, does not exhibit a statistically significant impact on these financial performance indicators, emphasizing the regulatory aspect as the dominant factor in these relationships.

Discussion of the Finding:

Adeola et al. (2020) highlighted the importance of the Capital Adequacy Ratio (CAR) and Liquidity Ratio (LR) in influencing the financial sustainability of MFBs. Their study revealed a positive association between a higher CAR and financial

sustainability, while a higher LR was negatively correlated with stability and solvency. This aligns with the current study's findings, emphasizing the significance of prudential ratios, including regulatory compliance, in shaping the financial performance of NMBs.

Building on this foundation, Ogundele et al. (2021) further underscored the pivotal role of Central Bank regulations by establishing a positive correlation between a higher level of compliance and the financial sustainability of MFBs. This research reaffirmed the importance of adhering to regulatory standards in bolstering stability and sustainability within the microfinance sector, mirroring the current study's results.

Similarly, Bello et al. (2022) reinforced the importance of CAR by emphasizing its positive and significant impact on financial sustainability. They contrasted this with the negative influence of LR, providing a comprehensive assessment of the effects of prudential ratios on the stability and solvency of MFBs. These results align with the current study's findings, emphasizing the significance of regulatory compliance, particularly related to CAR.

Olanrewaju et al. (2022) established a positive association between a higher level of compliance with Central Bank regulations and improved financial performance among MFBs. This finding underscores the multifaceted role of regulatory adherence in shaping not only sustainability but also performance within the microfinance sector. While the current study primarily examines sustainability, the alignment of these findings underscores the broader impact of regulatory compliance on microfinance institutions.

While these studies offer invaluable insights into the multifaceted relationships between prudential ratios, Central Bank regulations, and the financial sustainability and performance of MFBs in Nigeria, it is essential to acknowledge the variability in findings across different studies. This variability is often influenced by specific contextual factors, emphasizing the need for a nuanced and holistic understanding of these relationships.

However, despite the wealth of insights provided by existing research, it is crucial to recognize the limitations within the current body of knowledge. Many studies are constrained by small sample sizes, limiting the generalizability of their findings to the broader microfinance sector. Additionally, the diverse methodologies employed across studies can make direct comparisons challenging, highlighting the need for a more standardized approach to research in this domain. Finally, studies are frequently conducted within specific contextual boundaries, limiting their broader applicability to diverse international settings.

The Pecking Order Theory and the Institutional Theory offer valuable insights into the study's exploration of the regulatory dynamics and financial sustainability of NMFBs in Nigeria. These theories provide frameworks for understanding NMBs' financial decisions within the context of prudential ratios and Central Bank regulations, shedding light on the intricate relationships between regulatory compliance, financial performance, and organizational behavior.

Conclusion :

The findings of this study underscore the critical role of regulatory compliance, particularly in the form of Prudential Ratios set by Central Bank regulations (PRCBR), in shaping the financial performance of microfinance banks in Nigeria. The multivariate test results indicate that PRCBR exerts a highly significant influence on key financial performance indicators, including Returns on Assets (ROA), Returns on Equity (ROE), and the Ratio of Micro Loans to Total Loans (RMLT). These results emphasize the importance of adherence to regulatory standards and prudential ratios for the sustainability and performance of microfinance institutions in the Nigerian financial landscape.

Interestingly, while firm size (SIZE) was included as a control variable to account for its potential impact on these relationships, the analysis reveals that it does not exert a statistically significant influence on the financial performance indicators. This finding suggests that, within the context of this study, regulatory compliance represented by PRCBR plays a more dominant and significant role in shaping financial performance than firm size.

The study's results provide valuable insights for policymakers and regulators seeking to enhance the stability and performance of microfinance institutions in Nigeria. By emphasizing the pivotal role of adherence to prudential ratios and regulatory frameworks, this research contributes to a better understanding of the complex dynamics between regulatory mechanisms and the financial sustainability of MFBs in the country.

Based on the study's findings, it is recommended that regulatory authorities, particularly the Central Bank of Nigeria, continue to prioritize and strengthen the enforcement of prudential ratios in the microfinance sector. These regulations should be consistently monitored and updated to ensure their relevance and effectiveness in enhancing the financial performance and sustainability of microfinance banks. Additionally, microfinance institutions should maintain a strong commitment to compliance with these regulatory standards, recognizing their significant impact on financial performance.

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