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Macroprudential policy and credit risk management in Nigerian banks: An empirical analysis

Ucheoma Austie Ehimare *

Michael Okpara University of Agriculture², Statistics, Umudike, Abia State, Nigeria.

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Abstract

The research considers how macroprudential policy has affected how Nigerian banks manage their credit risk, from 2020 to 2024. A quantitative approach is used to look at data from Zenith Bank, First Bank of Nigeria, Access Bank, Guaranty Trust Bank (GTBank) and United Bank for Africa (UBA), together with macroprudential and macroeconomic data from the Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The authors use panel data regression to evaluate if relationships exist between macroprudential tools (CAR, CCB and LDR) and credit risk measures (NPL ratios and LLP). The study found out that CAR and CCB are very effective in lowering credit risk, LDR and requirements for some sectors remain less important. Growth in the economy, changes in inflation rates and wild exchange rates all play a part in influencing credit risk, where more economic growth decreases risk and increasing inflation or big swings in currency values make it greater. According to the study, strong capital buffers guide banks clear of serious risks and call for more strict policy enforcement and economic balance. With so little data to work with, the findings still give useful advice to policymakers and executives to create better macroprudential rules and risk management strategies in Nigeria's banking sector.

Keywords: Macroprudential Policy; Credit Risk Management; Nigerian Banks; Capital Adequacy Ratio; Non-Performing Loans; Financial Stability

1. Introduction

Macroprudential policy has increasingly been used to preserve system stability after global financial crises broke out (Borio, 2011; Claessens, 2014). Since Nigeria's banking sector is vital for economic growth, good credit risk management is essential to protect its banks (Sanusi, 2011; Nwankwo, 2014). Using the important link between macroprudential regulation and handling credit risks, we study Nigerian banks in this paper. As Nigerian banks are now more at risk from credit losses, unpredictable macroeconomic indicators and sudden policy adjustments, there is an urgent need to assess whether macroprudential tools can manage this risk (Adekunle & Adediran, 2015; CBN, 2018).

While studies on bank risk management and related rules have increased, few have studied empirically how macroprudential policy affects banks' management of credit risk in Nigeria (Beck et al., 2016). Most prior studies examine general financial rules and only pay little attention to larger systemic instruments such as countercyclical capital buffers, loan-to-value caps and sectoral capital requirements (Galati & Moessner, 2013; Kuttner & Shim, 2016). What's more, banks are now following both Central Bank of Nigeria (CBN) policies and Basel III standards, but examining their real-world impact on lending practises is still not common (Okafor et al. 2017; Umar and Sun, 2018).

First, the study will examine how much does the presence of macroprudential policy shape credit risk management within Nigerian banks? Of all the macroprudential tools which ones most impact outcomes related to credit risk? How

* Corresponding author: Ucheoma Austie Ehimare

do Nigeria's macroprudential systems match up with operational risk management? For these questions, high-quality data from individual banks and overarching financial indicators are analysed to see if and how macroprudential rules are working in Nigeria.

The three objectives of this study are as follows: to assess how macroprudential tools work for banks in Nigeria, how these tools are operationalized in practise and to offer solutions for improved macroprudential oversight and risk management frameworks. With empirical studies, this research aims to address a gap in Nigerian banking literature and to supply useful information to Nigerian regulators, policy makers and bank risk officers.

2. Literature review

Over the last two years, governments around the globe have increasingly focused on macroprudential policy, mainly due to the effects of the 2007–2009 global financial crisis. Around the world, macroprudential regulators develop policies that help defend the entire financial system, focusing on risks that microprudential action cannot manage. Many researchers, for example Borio (2014) and Galati and Moessner (2018), believe that elements like countercyclical capital buffers, leverage caps and dynamic provisioning contribute to stabilising the financial system and decreasing its main risks. Such projects have been tested out in nations at various stages of development, but how well they work still relies on a nation's institutions, economics and government.

Many of the rules for macroprudential regulation in Nigeria have come from the CBN's attempts to align the local industry with important international standards such as Basel II and III. According to Soludo (2004) and Sanusi (2010), rapid developments in banking, major effects from oil price changes and unpredictable capital movements characterise Nigeria's financial system. Udom and Akpan (2018) and other empirical researches say that the use of macroprudential guidelines such as capital requirements and loan-deposit limits, has been enforced, but their effectiveness in risk reduction is still questioned due to weakness in the system and regular exploitation of rules.

In addition to macro prudential effort, the literature on credit risk management has greatly increased. The risk of a borrower not repaying is the biggest problem banks face in developing countries. Altman's (1968) research and others put weight on using NPL ratios, how much loan loss expenses are kept and various credit scoring methods. According to Okpara (2011) and Ibe (2013) in Nigeria, factors like shifting macroeconomics, lack of proper borrower cheques and poor handling of collateral cause the greatest problems for credit risk.

The body of this study is built on financial stability theory which holds that a mix of strong micro- and macro-risk management makes the system more durable. Both Allen, Gale and their colleagues in 2000 and Brunnermeier et al. in 2009 explain how connexions among financial institutions lead to more systemic risks, showing it may be necessary for rules to be adjusted together. In Nigerian banks, policy responses and bank practises can be examined together to see how they control credit risk.

Looking at other emerging markets gives us useful ideas. For example, Lim et al. (2011) and Claessens et al. (2013) have shown that appropriate use of macroprudential tools can rein in fast credit development and lower risks to banks. At the same time, country-level details, for example institutional ability and rule enforcement, strongly impact the results. So far, data collected in Nigeria is not fully available and most studies look at either macro approaches or analyse each bank's credit risks separately, without connecting the two.

To fill those gaps, this study brings together information on macroprudential policy and credit risk management, focusing on how they work together in Nigeria's banking sector. Although research has detailed what macroprudential policies involve, few have looked into how they really influence the risk of default by Nigerian banks. This paper demonstrates how using bank-grade data along with macroeconomic and regulated variables deepens our understanding of how policy can impact (strengthen or weaken) the way Nigerian banks handle micro risks and appreciate the problems and opportunities facing them at this time of heightened focus from regulators.

3. Methodology

This study employs a quantitative approach to investigate the way macroprudential policy affects the management of credit risk in Nigerian banks. Quantitative analysis is useful since it lets us cheque if relationships exist between variables we can measure using statistics, ensuring we stay fair and can repeat the findings. We use quantitative data from banks because detailed storeys or interviews give more details but this study is most concerned with numbers. The research uses current data from annual reports and financial statements provided by Zenith Bank, First Bank of

Nigeria, Access Bank, Guaranty Trust Bank (GTBank) and United Bank for Africa (UBA). They met our criteria due to being important, having a high level of assets, significant market involvement and consistently available data for the years 2020 to 2024. Macroprudential information — which included capital buffer rules, sectoral loan restrictions and reports on risk to the system — was collected from the Central Bank of Nigeria (CBN). We drew the macroeconomic control variables from data published by the National Bureau of Statistics (NBS).

Because we could not find enough disaggregated data and in order to maintain thorough coverage, the sample size was intentionally slim — only five banks over five years. Using even a small sample, we can analyse the data because it has longitudinal structures that look at differences between banks as well as over time. The key feature of interest is credit risk which we represent using two measures: the NPL ratio and LLP. Resources used for this study (independent variables) include: the capital adequacy ratio (CAR), loan-to-deposit ratio (LDR), countercyclical capital buffer (CCB) and standards for sectoral capital (SCR). Other control variables are GDP growth, the inflation rate and changes in the exchange rate.

The study employs a panel data regression model

$$\text{CreditRisk}_{it} = \alpha + \beta_1 \text{Macroprudential}_{it} + \beta_2 \text{Controls}_{it} + \epsilon_{it}$$

where *i*refers to the bank, *t*to the year, and ϵ is the error term. Both fixed-effects and random-effects estimations are applied, guided by the results of the Hausman test. Multicollinearity, heteroskedasticity and autocorrelation are investigated in the data to confirm that the model is valid. We cheque the data we get from banks' audit statements against the reports prepared by the CBN. The results become more credible when you try a different model (changing the dependent variable) and leave out the most unusual observations to cheque if the outcomes remain the same. Because the sample is very small, attention is given to the direction and practical importance of the estimated effects.

4. Results

The descriptive statistics below summarise the core variables across the five banks between 2020 and 2024.

Table 1 Descriptive Statistics of Key Variables (Zenith, First Bank, Access, GTBank, UBA, 2020–2024)

Variable	Mean	Std. Dev.	Min.	Max
Non-performing Loan Ratio (%)	7.8	2.0	5.2	10.9
Loan Loss Provisions (₦ Billion)	44.3	14.6	27.1	66.4
Capital Adequacy Ratio (%)	16.1	2.8	12.7	19.3
Loan-to-Deposit Ratio (%)	64.8	5.7	57.4	71.9
Countercyclical Buffer (%)	1.3	0.4	0.9	1.7
Sectoral Capital Requirement (%)	10.2	1.0	8.7	11.6
GDP Growth (%)	2.6	1.3	1.0	4.1
Inflation Rate (%)	16.7	2.9	13.4	20.0
Exchange Rate Volatility (%)	5.7	1.4	3.9	7.9

Looking at the results from the panel regression, we find important connexions. The results show that a better capital position at Zenith and GTBank is related to better credit risk handling. The relationship between LDR and NPL ratios is weak and statistically unimportant, so lending intensity by itself fails to predict credit quality. Looking at the CCB, we find that having a stronger buffer in place corresponds to lower credit risk, even if the impact is not strong and the evidence for this result is moderate. SCR appears to influence loan results only slightly and banks with customised sectoral limits (UBA and Access Bank) experience minor differences in their loan outcomes.

According to the control variables, credit risk goes down as the economy grows. When inflation goes up and foreign money fluctuates, credit risk increases, owing to macroeconomic circumstances that decrease a borrower's ability to repay. Cofficients demonstrate that for each 1% rise in CAR, the NPL ratio can be expected to decline by 0.28% in all other situations. Similar to before, a 1 percentage point rise in the countercyclical buffer leads to about a 0.13 percentage

point drop in credit risk. And this may seem little, but it actually equals billions of naira in safety for banks' extensive portfolios.

Three robustness cheques were performed: (1) the dependent variable was replaced with loan loss provisions, (2) we excluded one financial institution from the analysis one at a time and (3) multiple lag structures were tried. Even with these differences, the capital adequacy ratio continued to be the study's strongest indicator of lower risks for borrowers. Although the findings cannot be used widely because of the small amount of data, the fact that all the figures agree between models gives us confidence in the outcomes.

5. Discussion

What capital buffers, loan-to-deposit ratios and sectoral capital requirements in the mentioned banks correspond with changes in bad debts and loan loss provision was the focus of this study. It was found from the analysis that CAR and CCB reduce credit risk, while loan-to-deposit ratios and sectoral capital requirements had a weak or nil effect. A rising GDP was seen to lower risks, but inflation and sharp swings in exchange rates raised the level of risk. The results make clear that tools based on capital work well and that what or how sectors you lend in has a less significant effect.

Using panel data and FGLS, Agha et al. studied how governance at banks, their assets and latent systemic risks influence the risk faced by 12 Nigerian banks during the years 2008-2021. Measures of governance such as board size, were found to be unimportant, but liquidity, inflation, GDP and capital buffers were. My analysis supports the idea that governance factors (which were not the focus) are not as important, though high capital and macroeconomic stability help reduce credit risk a lot. Both investigations show that GDP acts as a source of strength and point out that effective macro-level actions exceed what internal bank controls can do (Agha et al., 2023).

Aliyu et al. (2024) discovered, using ARDL models, that banking sector performance improves when capital adequacy is high, particularly over a long period, while interest rates are more important for performance in the short run. Perhaps surprisingly, a boom in money supply pushes profitability higher, while shocks to the exchange rate tend to make things worse. While my focus is only on credit risk, the results are relevant. Healthy capital reserves protect the company from risk which helps its results. It is also clear to me that increasing instability in inflation and exchange rates adds risk which matches Aliyu et al.'s (2024) claim that banking outcomes can suffer due to macroeconomic instability. The theory examined here does not consider monetary policy interactions as much as future research could which remains an important point to study.

According to the research, the buffer theory is supported because strong capital holds help banks resist the risks caused by larger financial crises. In practise, it argues that executives in Zenith Bank and GTBank, where the capital-risk link is highest, should aim for a capital position that surpasses the minimum required by law. To the Central Bank of Nigeria and other policymakers, the results point out that capital requirements are useful but that other measures such as lending limits, may not be effective enough to manage risks. Surprisingly, we found that loan-to-deposit ratios did not relate meaningfully to risk. This may be related to stronger internal measures or simply the poor accuracy of that ratio. It seems that strong diversification or weaker enforcement in Nigerian banks may mean that sectoral capital requirements did little to affect UBA and Access Bank. A further problem is that the small sample size — just five banks during five years prevents the results from being widely applied.

6. Conclusion

The study looked at how macroprudential policies have affected credit risk management in Nigeria's top five banks across the 2020–2024 period. Results show that maintaining CAR and CCB helps manage credit risk more effectively than do assets-deposit ratio or capital requirements for particular sectors. The growth of the economy is good for credit, but both high inflation and changes in currency exchange make credit risk higher. Even with a limited number of banks studied, the results demonstrate that capital-based macroprudential tools strongly protect Nigerian banks from systemic risk.

Recommendations

Policymakers ought to give preference to reinforcing the macroprudential tools that are tied to bank capital, so that firms are well capitalised and adhere to countercyclical policies. The CBN must improve its systems to detect abuses and help reduce arbitrage in the financial sector. Bankers should use signals from the macro market which will support better decisions on risk and providing loans. Besides, helping stabilise the economy can be done through matching fiscal and monetary policies to reduce both inflation and the swings in exchange rates. Going forward, larger samples and

opinions from managers and regulators should be added to give more insights into the obstacles and outcomes found in implementing these policies.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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