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CAUSAL RELATIONSHIP BETWEEN ASSET QUALITY AND PROFITABILITY OF THE NIGERIA BANKING INDUSTRY

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Abstract: *This study investigates the causal effects of asset quality shocks on the profitability of Nigeria banking industry for a period of 11 years ranging from 2008 to 2021.Time series data were sourced from the Nigeria deposit insurance corporation annual reports and accounts, CBN financial stability report and CBN statistically bulletin for various years. The granger causality framework was employed in analyzing the time series data. The result shows evidence of causality between asset quality and return on asset of commercial banks in Nigeria. Based on this we conclude by saying that maintaining sound assets quality position is critical to the long-term performance, survival and sustainability of banks in Nigeria.*

Keyword: Asset Quality, Non-Performing Loan, Commercial Banks, Granger Causality Framework, Nigeria

1. Introduction

Basically, banks are faced with numerous challenges in the money creation business and banks are known for their risk-taking behavior (Iwedi & Onuegbu, 2014) which includes credit risk, market risk, interest rate risk, default risk, operational risk and exchange rate risk (Aruwa & Musa, 2014). Loan granted to businesses and households are assets for banks. The interest banks earn on these assets is a key component of their income and profit, and the risk of the loans not being paid back is their main risk, the higher this credit risk, the lower the quality of the loan or "asset quality". Consequently, for banks to achieve their profitability objective it behooves on them to maintain an appropriate level of stability and resilience in the system which of course are dependent on the level of assets quality maintained by the bank (Swamy, 2015). Assets quality management entails maintaining sound and judicious granting of loans and advances that must comply with set standard since poor quality assets affects the financial performance and the soundness of the banking system.

Iwedi (2017) stress that bank shocks is occasioned by non-performing assets which of course affect a nation's development plans and hampers economic prosperity. The banking system stability is a pre-requisite for economic development and resilience against financial crisis. Just like any other enterprises, banking sector success is assessed based on profitability and quality of assets it possesses (Ombaba, 2013). Assets quality shocks and deteriorating level of bank assets has remained an issue confronting financial institutions in Nigeria. There is no gain saying the fact that this was not unconnected with weak credit policies and practices, insider abuses and unstable macroeconomic environment. In Nigeria, Non-performing assets (NPA) reached alarming levels in the 90s in excess of fifty percent (50%) of gross loan. This of

course collapsed over 30 commercial banks, several community banks, primary mortgage institutions and finance companies. In 2009, the non-performing assets ratio of 10 banks including the intervened banks averaged 54.2 percents (Oni, 2012).

The total credit extended by the deposit money banks to the domestic economy amounted to N15.29 trillion in 2018, representing a 3.90% decrease from the N15.91 trillion recorded in 2017 and rose by N880.65 billion in the period under review, from N42.55 trillion as of December 2020 to N43.44 trillion at the end of Q1 2021. This development exposed the banking industry to high credit risk as depicted by the high NPLs ratio of 5.70% at end of June 2021, though an improvement when compared with NPLs ratio of 6.4% recorded at end of June 2020 (CBN 2021). Deposit Money Banks in Nigeria experienced deterioration in assets quality at end of December 2016. The ratio of non-performing loans (NPLs) to gross loans deteriorated by 25.7 percent at end of December 2016 compared with the levels at the end of December 2015, 2014, 2013 and 2012 of 10.3, 6.4, 7.3 and 8.2 percent, respectively. The deterioration in asset quality was largely attributed to the rising inflationary trend, negative GDP growth, and the depreciation of the naira (CBN, 2016). Similarly, the industry non-performing loans (NPLs) decreased by 25.15% to N1.79 trillion in 2018 from N2.36 trillion in 2017. The banking industry was exposed to high credit risk as depicted by the high NPLs ratio of 11.70% at end of 2018, though an improvement when compared with NPLs ratio of 14.84% recorded at end of 2017 (CBN 2018). However, the industry NPLs ratio of 5.7% exceeded the maximum prudential threshold of 5% for deposit money banks. Going by this, there is need to constantly investigate and analyze effect of asset quality on profitability of banks in Nigeria.

2. Empirical Review

Bulk of studies suggests that poor asset quality (NPAs) of banks is closely related to economic prosperity. Kithinji (2010) tested the effect of credit risk management (measured by the ratio of loans and advances on total assets and the ratio of non-performing loans to total loans and advances on return on total asset in Kenyan banks between 2004 to 2008). The study documented that the bulk of the profits of commercial banks are not influenced by the amount of credit and non performing loans. The implication is that other variables apart from credit and non performing loans impact on banks' profit. Kargi (2011) found in a study of Nigeria banks from 2004 to 2008 that there is a significant relationship between banks performance and credit risk management. He found that loans and advances and non performing loans are major variables that determine asset quality of a bank.

Muhammed, Shahid, Munir and Ahad (2012) used descriptive, correlation and regression techniques to study whether credit risk affect banks performance in Nigeria from 2004 to 2008. They also document that poor credit risk management has a significant impact on profitability of Nigerian banks. Kolapo, Ayeni and Ojo (2012) applied panel data regression for the period 2000 to 2010 found that the effect of credit risk on bank's performance measured by the return on asset (ROA) of banks is cross sectional invariant. Khalid (2012) result showed that a bad asset ratio is negatively associated with banking operating performance after controlling for the effect of operating scale, traditional banking business concentration and the idle fund ratio.

In an attempt to examine the effect of credit risk on bank performance, Iwedi and Onuegbu (2014) used panel data regression on a sample of 15 Nigerian deposit money banks. Using judgmental sampling technique, the findings revealed a positive relationship between the ratio of non-performing loans to loans and advances and ratio of loans and advances to total deposits on bank performance. Abata (2014) examined assets quality and bank performance of six largest banks quoted in Nigeria stock exchange for fifteen years (1999 – 2013). The results show that assets quality has statistical relationship and influence bank performance in Nigeria.

Lucky and Nwosi (2015) study examined the relationship between asset quality and the profitability of the fifteen (15) quoted commercial banks in Nigeria from 1980 – 2013. The Ordinary Least Square properties of Augmented Dickey Fuller Test, Co-integration and Granger Causality test were employed to determine the short and long –run relationship between the dependent and the independent variables. The regression result proved that percentage of non-performing loans to total loans and percentage of non-performing loans to total customers' deposit have positive relationship with return on investment while percentage of loan loss provision to total loans and percentage of loan loss provision to total asset have negative relationship with return on investment of the commercial banks. The unit root test shows stationarity of the variables in order of 1(1), the co-integration reveal long run relationship between the variables while the granger causality reveals no causal relationship among the variables. The model summary proved that the explanatory variables can explain 65.5% variation on the explained variables.

Eyup K & Niyazi T and Nurcan O, (2017) investigates whether non-performing loans affect the banks profitability in Turkey. The study applies a panel regression method to the quarterly data set of 55 banks in Turkey during the period from 1st quarter of 2005 to 3rd quarter of 2016. It is found that there is a significant, negative relationship between non-performing loans and bank profitability which is measured by return on equity and return on asset. The higher non-performing loans, the lower asset quality, leads to the lower return on equity and return on asset, and the lower non-performing loans, the higher asset quality, leads to the higher return on equity and return on asset. Salike and Ao (2018) study the determinants of Asian banks' profitability with particular focus on the role of asset quality. Using fixed effect estimation for the panel data of the sample that consists of 947 banks from 12 Asian economies over the period of 2001-2015. The study finds that poor asset quality (measured as impaired loans over gross loans) has a significant negative impact on banks' profitability. Other bank-specific variables – capital adequacy, income diversification and operating inefficiency – are also important determinants. With regard to macroeconomic factors – real gross domestic product growth has most significant influence on the performance of banks.

Ifdah and Dian (2019) studied whether assets quality and capital have an effect on credit risk and profitability in both conventional and Islamic banks in Indonesia. 115 banks in Indonesia form the population of the study. The results show that assets quality has a positive and significant effect on credit risk in both conventional and Islamic banks. On the other hand, capital has no effect on credit risk in both types of banks. Assets quality has a positive and significant effect on profitability in conventional banks, but has a negative effect on Islamic banks. Capital has a positive and significant effect on profitability in conventional banks. Meanwhile, credit risk has a negative and significant effect on profitability in both banks. Mbatabbey (2019) investigated the relationship between asset quality and deposit money banks performance in Nigeria over a period of 30 years ranging from 1986 to 2016, utilizing time series data collected from the Nigeria deposit insurance corporation annual reports and accounts, CBN financial stability report and CBN statistically bulletin for various years. The study utilizes both the descriptive and econometric techniques to analyze the time series data. The result shows that there is a short run relationship between asset quality and deposit money bank performance in Nigeria.

Alqahtani, F., Hamdi, B. & Skully, M. (2021) examine whether the relationship between asset quality and profitability is linear or nonlinear, using a global dataset containing 2,943 banks from advanced and emerging economies. The study uses the *U*-shape test to investigate the existence of a nonlinear relationship between asset quality and profitability. In addition, the dynamic panel

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generalized method of moments (GMM) and quantile regression are used to examine the nonlinear effect of profitability on nonperforming loans (NPLs). The results show empirical evidence supporting the existence of a nonlinear relationship in the form of a *U*-shape. This is also confirmed through the three-stage *U* test procedure. After distinguishing between advanced and emerging economies, the study also find that, in advanced markets, the credit policy responds more rapidly to changes in credit market conditions than in emerging markets, providing insights into credit market dynamics.

3. Methodology

3.1 Data

Bi annual data spanning the period of 11 years were used and this were sourced from the Nigeria deposit insurance cooperation (NDIC) and Central Bank of Nigeria (CBN) financial stability report.

3.2 Model Specification

The causal effect between asset quality and return on asset of commercial banks in Nigeria is modeled as follow:

$$RNA_t = f(NPN_t\ LSL_t\ LTA_t) \quad (1)$$

To have the estimable version of above equation, equation (1) can be rewritten to have

$$RNA_t = \alpha_0 + \beta_1 NPN_{t-1} + \beta_2 LSL_{t-2} + \beta_3 LTA_{t-3} + \mu_{it} \quad (2)$$

Where

RNA = Return on Assets

NPN=Non-Performing Loans to Total Loans

LSL =Liquid Assets (core) to Short term Liabilities

LTA =Liquid Assets (core) to Total Assets

α_0 = Constant

β_1 - β_3 = Coefficients of independent variables

μ_{it} = Error Term

4. Results and Discussions

Table 1 Granger Causality result ON Bank Assets Quality and Return on Assets

Null Hypothesis:	Obs	F-Statistic	Probability
NPN does not Granger Cause RNA	37	1.77927	0.43031
RNA does not Granger Cause NPN		0.11710	0.52000
LSL does not Granger Cause RNA	37	2.60432	0.09471
RNA does not Granger Cause LSL		3.59150	0.04320
LTA does not Granger Cause RNA	37	7.04864	0.30093
RNA does not Granger Cause LTA		3.35894	0.05074
LSL does not Granger Cause NPN	37	0.92660	0.40960
NPN does not Granger Cause LSL		0.62885	0.54176
LTA does not Granger Cause NPN	37	1.99824	0.15750
NPN does not Granger Cause LTA		1.25612	0.30281
LSL does not Granger Cause LTA	37	0.02567	0.97468
LTA does not Granger Cause LSL		3.31366	0.05361

Source: E view 9.0 Output

The result of the Pairwise granger causality test conducted with a maximum log of 2 as presented in the above table. The null hypothesis is rejected if the probability of F-statistics given in the test result is less than 0.05. From the table the result shows that at 5% level of significance, the

shock from non-performing loan to gross loan (NPN) does not granger cause banking sector profitability (RNA), just as Nigeria banking industry (RNA) does not granger cause Non Performing loan. This implies that the level of NPL shock in the Nigeria banking industry cannot influence return on assets of banking institutions in Nigeria vice versa. Also the result as shown in table 1 above reveals that there is no evidence of causality flowing either from Liquid Assets (core) to Short term Liabilities (LSL) shock to banking sector profitability (RNA) or banking sector profitability (RNA) to Liquid Assets (core) to Short term Liabilities (LSL) shock. This evidence is confirmed by the probability value at both instances were greater than 0.05 and 0.10 measured at 5% and 10% Significance level. Finally, the results reveal the case of a unidirectional causality flowing from ratio on assets (ROA) to liquids asset to short term liabilities of Nigeria. The implication of this is that an increase in ratio on assets (ROA) can boost banks liquidity to meet short term obligation as they come due. Our finding collaborate the findings (Kpefan 2013), the study cannot accept the null hypothesis of no causal affect between asset quality and DMB performance in Nigeria. By inference therefore, the results shows that asset quality shock does not granger cause or influence Nigeria banking industry profitability.

5. Conclusion

Conclusively, it can be deduced that there asset quality shocks does not granger cause Nigeria. This agrees with the fact that good assets quality is relevant deposit money banks (DMBs) performance. Furthermore, maintaining sound assets quality position is critical to the long term performance, survival and sustainability of DMBs in Nigeria. Based on this, the following recommendations are made:

i Managers of banks should encourage activities that will promote DMBs liquidity which will be used to meet customers run on the banks and other short term obligation.

ii Managers of banks should continue practice prudent credit risk management to safeguard assets and protect interests of the investors.

iii Banks should from time to time review their credit policy to further reduce the incidence of bad loans.

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