



Central Bank Policy and Commercial Banks Distress Level in Nigeria

Princewill Ihenacho Wachukwu, Marshal Iwedi*, Sirah Patience Barisua

Department of Banking and Finance, Rivers State University, Port Harcourt, Nigeria

*Corresponding Author: marshal.iwedi@ust.edu.ng

Article Information:

Received: March 10, 2023, Accepted: April 23, 2022, Published: April 30, 2023

Abstract

This study investigated the impact of central bank policy on commercial bank distress Level in Nigeria. Financial time series data were obtained from the central bank of Nigeria statistical bulletin. The data collected were tested using the vector auto regression analysis. The study established that 99.3 percent variation in commercial bank distress level in Nigeria is accounted for by the combined efforts of the explanatory variables of the study. The study concludes that Central Bank of Nigeria must continuously monitor the level of liquidity in order to mitigate any adverse impact on the stability of the financial system.

Keywords: Central Bank Policy, Bank Distress, Loan To Deposit Ratio, Cash Reserve Ratio, Liquidity Ratio, Non Performing Loan

JEL CODE: E58, G01, G21

How to cite:

Wachukwu, P. I., Iwedi, M., Barisua, S. P. (2023). Central Bank Policy and Commercial Banks Distress Level in Nigeria. *Journal of Business & Management*, 1(2). 157 – 173. DOI. <https://doi.org/10.47747/jbm.v1i2.1132>

1. Introduction

Commercial bank's role in any economy is typically financial intermediation. In this regard banks mobilize funds from scattered sources (surplus economic units) and channel these funds through loans or investments usually at a margin to the deficit units. The nature of banking business exposes them to risk. This risk taking behavior includes the inability of the bank not being able to meet their obligations to depositors to whom they have issued demandable claims



(Donli, 2004). In mobilizing deposits, banks issue demandable claims in favor of the surplus units. However, these savings are pooled and extended to deficit units as illiquid loans and advances with definite and invariably longer maturity than the maturity of the demandable debt. In discharging of this intermediation function, banks not only accept maturity transformation but are also expected to evaluate the set of loan opportunities available to them using distinctive expertise as well as continuously monitor and obtain repayment.

Commercial bank distress describes the situation where a bank suffers from severe financial, operational and managerial weaknesses, which renders it incapable of meeting its financial obligations to customers, the owners and the economic structure (Nzotta, 2004). Commercial bank distress sustains a disintermediation process and affects the confidence of depositors in the banks. Illiquid and terminally distressed banks sustain various levels of inefficiencies that the growth of banking. For Ologun (1994), commercial bank distress could be said to be the inability of a bank to meet its obligations to its customers, owners, stakeholders and the economy, occasioned by felt weaknesses in its operations, which has rendered it either illiquid or insolvent. According to Brownbridge (1998), banks are financially distressed when they are technically insolvent and or illiquid. Insolvency is the inability of a business to have enough assets to cover its liabilities. A situation where a firm's operating cash flows are not sufficient to satisfy current obligations and the firm is forced to take corrective action. The term bank distress is used in a negative connotation to describe the financial situation of a company confronted with a temporary lack of liquidity and with the difficulties that ensue in fulfilling financial obligations on schedule and to the full extent (Outecheva, 2007). This definition is all embracing and conveys the cause and effect nature of distress in the banking sector. Thus, a state of distress prevails when a bank is unable to meet its financial obligations such as inter-bank indebtedness, repayment of depositors' funds, honoring maturing obligations etc. Such a situation is caused by the presence of weak deposit base, poor capital base, poor management, asset mismatch or even weaknesses in operational conditions (CBN 2002).

The non-performing loan, coupled with the growth in successful fraud cases in the financial system, continue to elicit increases in loan loss provisioning, on the back of huge exposure to oil and gas subsector as crude oil prices moderated to low levels at the international oil market, and with the entrenchment of unyielding macroeconomic distortions, the probability of banking system default is relatively high and ever material in scope (Hamilton, Ogbeide, Adeboje & Mande, 2020). Bank distress cannot be adequately examined without putting into consideration some bank specific variables such as Capital Adequacy Ratio (CAR), Liquidity and Non-Performing Loans (NPL). CBN (2009) on the assessment of the health of the banking sector in Nigeria using CAMEL parameters indicated that no bank was rated A, rather, the rating saw some banks at B, C, D and E given their CAR. The assessment also concluded that some banks 49 exhibited concerns with their inability to meet the stipulated capital ratio. Similarly, Ogude et al (2012) carried out an appraisal of the impacts of bank failure on Nigerian economy and identified capital inadequacy, lack of transparency and huge non-performing loans as major causes of bank failure in Nigeria. The study opined a negative impact between bank failure and Nigeria's economy but unable to unravel the factors leading to this failure. Meanwhile, Adeyemi (2011) in his study "bank distress in Nigeria, a consequence of capital inadequacy, lack of



transparency and non-performing loans. Iwedi (2017) study on bank failure in Nigeria opined that the incessant failure witness in the banking sector over these years is captured by the number of failed banks, spate of non performing credits, the debt and extent of required capitalization, loss of depositors funds and the general impact on the economy all of which underscores the importance of the sector.

However, central bank policy stance has future impacts on banks risks taking that can invariably weaken the stability of financial systems (Borio and Zhu, 2008; Wu, Jeon, Chen, and Wang 2015 and Hamilton, Ogbeide, Adeboje & Mande, 2020). The excess risk-taking by banking institutions is considered by many scholars as the key factor contributing to the financial crisis of 2007–2008, which forced some countries to adopt strategies to increase the level of concentration and reduce the banking sector competition in order to increase financial stability (González, Razia, Búa and Sestayo, 2017). This development has helped to intensify empirical studies on the relationship between central bank policy, risk taking and distress with many scholars arguing on the link, but a look suffices it to say that in Nigeria the true nature of the effect between central bank policy and distress level is yet to be fully established and hence this study focuses on central bank policy and commercial bank distress in Nigeria.

2. Literature Review

2.1 Bad Management Hypothesis

Bad Management Hypothesis proposed by Berger and de young (1997) postulates that poor management in the banking institutions brings about bad quality loans and lower incomes leading to an increase in the level of non-performing loans. This implies that if induce diligence is carried out in loan administration, the value of bad loans would reduce and profitability will increase. Accordingly, this hypothesis in a bit mitigates rises NPLs, poor Managers usually allocate more resource to underwriting and monitoring bad loans. This causes an increase in the operating expenses over interest income which in the long-run lead to higher cost to income ratio (low cost efficiency). A good number of empirical studies are founded on the hypothesis, for instance Norden and Stoian (2014) noted that bank specific variables like performance and efficiency indicators influence the level of NPLs significantly, thus, support the hypothesis. Based on this promise a negative relationship between nonperforming loans and Return on Asset (ROA) or Return on Equity (ROE) as a proxy for profitability is expected in the study.

2.2 Empirical Review

Felix, Marshall, Oluwale and Owoputi (2015), their research was focused on knowing the effect of bank distress on the Nigerian economy, after much investigation they found out that 0.0020 and 0.0374 respectively. The implication of this result is that the Nigerian economy is significantly affected by bank distress. The paper suggests that careful evaluation of loan proposals should always be carried out by banks to determine the viability of the projects and the repayment of the principal sum and revealed that the ratio of non-performing loans to total loans, and total loans and advances have significant negative effect on economic growth with p values of 0.0240 and 0.0445 respectively. Also, total bank deposit and cash reserve ratio have significant positive effect on economic growth with p-values of its interest ensured to prevent weak asset quality.



Hamid, Akter and Rab (2016). Their research was based on predicting financial distress of non-bank financial institution (NBFIs}. This study tries to predict the financial health of NBFIs for that period. So the discovered that most of the sampled NBFIs are in distress zone, some of the sampled NBFIs are nationally and industrially acclaimed for their outstanding performances and contributions to the industrial as well as economic development of the country, but fail to attain the minimum score. Most of the companies are lying on the bankruptcy level. Hence, the study suggests the stakeholders, including regulatory authorities and researchers to be more watchful of the operations of NBFIs.

Rahman, Mufidur and Subat (2020), there study was focused on measuring financial distress in non-bank financial institution (NBFI) are recognize as the fundamentals for a financial market as they complement the banking institution. So they found out that 95% of the 20 non-bank financial institutions were in distress zone during the study period and only 5% of NBFIs were in safe zone during that period. Therefore, the analysis predicted that within the upcoming years a few of the NBFIs will be approaching bankruptcy finally it is suggested that the government, respective regulatory authority and policy makers to pay an immediate attention on mitigating the factor affecting the financial distress.

3. Research Method

3.1 Data

The data are time series in nature. That is secondary data obtained from the publications of the Central Bank of Nigeria statistical bulletin 2021. Data were collected for the period of 1981 to 2021 (40 years) on liquidity ratio, cash reserves ratio, loan to deposit ratio and non-performing loan ratio.

3.2 Techniques of Data Analysis

The study conducted preliminary analysis, descriptive statistical analysis and econometric analysis. For the preliminary analysis, the unit root test will be used to investigate the stationarity of the variables as non stationarity could lead to spurious regression results. Such spurious relationship between/among variables may be evident in time series data that exhibit non stationary. Thereafter, the descriptive statistics analysis was carried out to ascertain the true behavior of the variables of study. The study utilizes such measures as the mean, median, standard deviations, skewness and kurtosis, and the Jarque-Bera statistic. Furthermore, the study makes elaborate use of graphical analytical techniques such as line graphs, histogram and stacked bar charts, among others. However, the VAR model will be adopted as the estimation technique of the study, while the Granger Causality Test would also be applied in checking the underlying structure of the dynamics relationship between the variables.

3.3 Model Specification

The effect of central bank policy on commercial bank distress level is modeled as follows:

$$\text{Bank Distress} = f(\text{Central Bank Policy}) \quad (1)$$



$$NLR = f(LQR, LDR, CRR) \quad (2)$$

Equation 3 presents the estimable version of equation (2)

$$\begin{aligned} NLR_t &= \alpha_0 + \beta_1 LQR_t + \beta_2 LDR_t + \beta_3 CRR_t + \mu \\ &= \alpha_0 + \sum_{i=0}^n \beta_{1i} + E_{it}; \beta_i \geq 0 \end{aligned} \quad (3)$$

Where

NLR = Non-Performing Loan Ratio

LQR = Liquidity Ratio

LDR = Loan to Deposit Ratio

CRR = Cash Reserve Ratio

$\alpha_0, \beta_1 - \beta_3$ = Intercept and Parameters

4. Results And Discussion

4.1 Trend Analysis of central bank policy variables and commercial banks distress

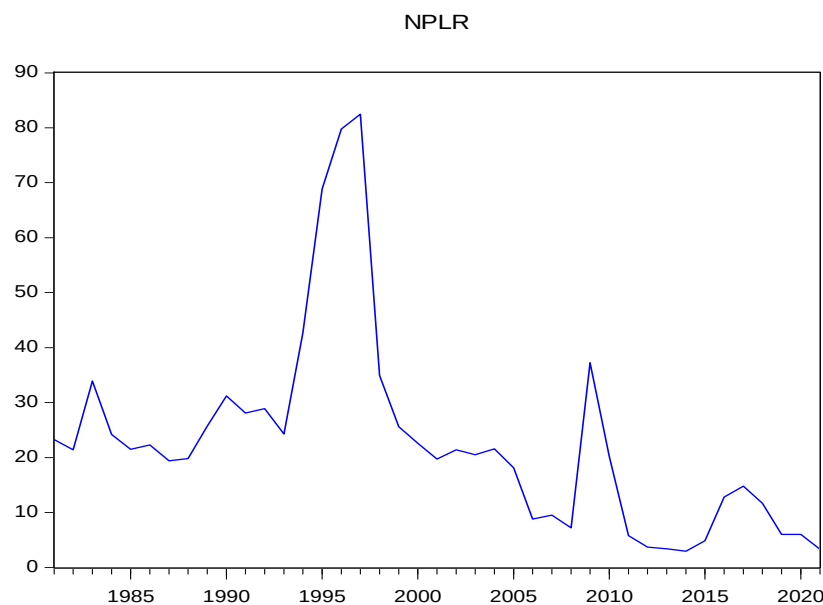


Chart 1: Trend of Nonperforming Loan Ratio



Chart 1 presents the trend of nonperforming loan ratio, in 1985 the nonperforming loan ratio was 35% but its peak of 85% in the late 90's. After the economic recession of 2000-2002, the banks and the lending agencies have been more cautious in giving out loans especially to risky sectors (Nersisyan & Wray, 2010; Adekunle et al., 2015). At the same time the government has also been taking a more proactive approach to regulate the lending practices of the banking institutions through the implementation of Basel II Accord, which aims to reduce the reliance on the short-term commercial paper and increase their leverage on the bond markets (Fadun, 2013). The banks have also been encouraged to reduce their exposure to risk by restricting their lending activities to certain industries or companies that are deemed to be risky. The nonperforming loan ratio has been declining since 2001 and decreased to 7.8% in 2016 from 10% in 2011, the trend shows that the rate of the nonperforming loans is declining which is a good sign for the economy and also for the government because it shows the banks are increasing the lending activity which is good for the economy. The banks should sustain this growth by increasing their lending activities. The nonperforming loans should be reduced below the level of 10% within the next five years and to the level of 5% in the next seven years (Ari et al., 2019). This will help the government to reduce the budget deficit by reducing the interest payment on the loans.

LIDR

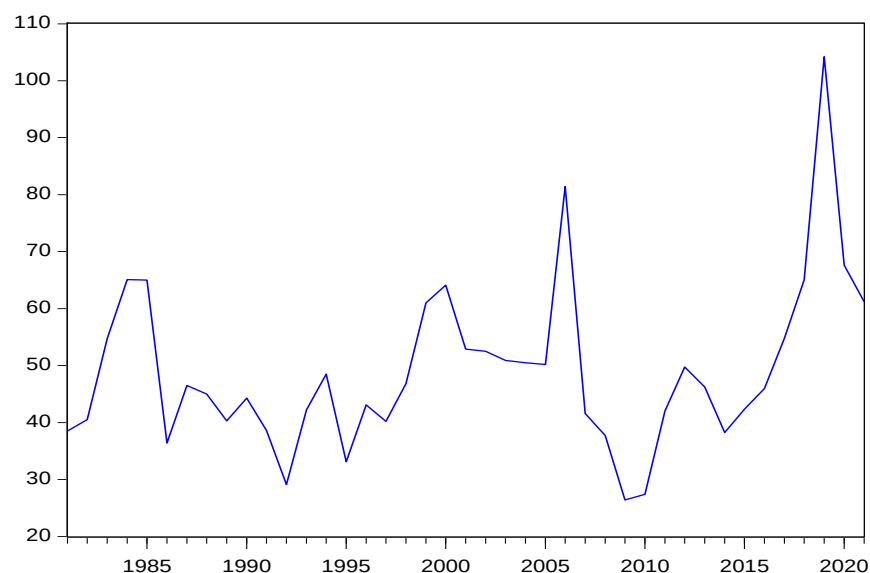


Chart 2 Trend of Loan-to-Deposit Ratio

Chart 2 shows the trend of loan-to-deposit ratio, in 1985 the loan-to-deposit ratio was 65%, it maintained a fluctuating trend of 30% to 50% from 1990 to 1995. In 2010 it was the lowest at 25% and was at its peak in 2020 at above 100%. From 2005 onwards the government has encouraged the banking sector to increase lending activities in order to reduce the growing fiscal deficit in order to bring down the interest rate on long-term loans and increase the investment activities in the economy. The increase in the loan-to-deposit ratio can be attributed to the increase in the availability of funds from the foreign investors, who are attracted to the country



because of its potential to develop into a high income economy (Van den End, 2016). The increase in the deposits is also attributed to the growth of the private sector in the country which has increased the demand for the services of the banking sector (Fadare, 2011). The government should also encourage the banks to increase their investment in government bonds to bring down the interest rate on government borrowings and provide funds for the development of the infrastructure in the country.

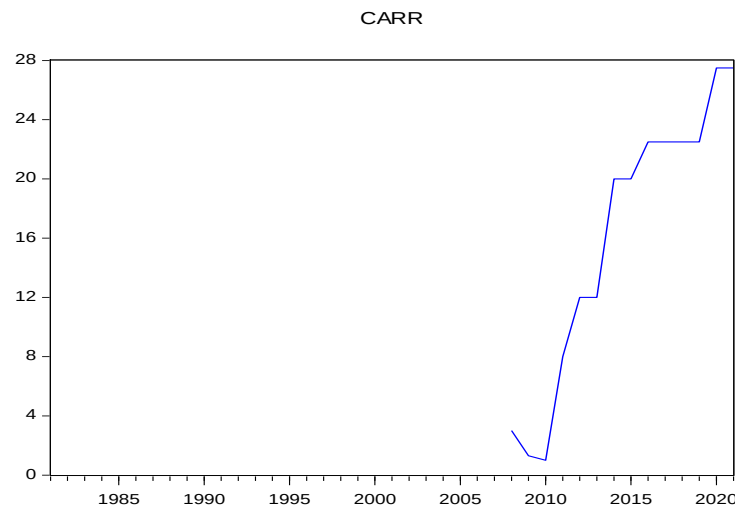


Chart 3 Trend of Cash Reserve Ratio

The trend of cash reserve ratio presented in chart 3 shows that the cash reserve ratio in Nigeria was introduced in 2010 and it has continued to grow significantly to above 25% in 2020 as a result of the increase in the interest rate by the Central Bank of Nigeria to encourage banks to increase the liquidity in their system to meet the increasing demand for funds from commercial banks from private sector as well as the government (Sanusi, 2011). The lower the cash reserve ratio the more the deposits that the banks can invest in short-term treasury bills and other money market instruments to meet the short-term financial needs of the bank (Ibe, 2013). On the other hand, the higher the amount of cash reserves held by the banks the higher the interest they have to pay to the government for the excess amount of reserves held with them (Williamson, 2019). The higher the interest that they have to pay to the government the lower their profits and thus they will be reluctant to increase the level of loans to the private sector as they have to bear the cost of maintaining their excess cash reserves (Balloch & Koby, 2019). The government should take measures to reduce the interest rates on the government bonds and encourage the banks to invest in these bonds to provide the funds required for the development of the country's infrastructure.

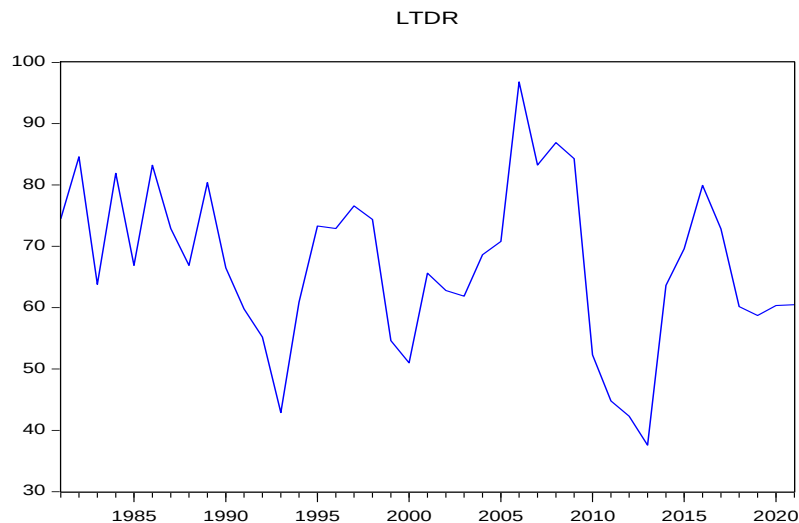


Chart 4 Liquidity Ratio

The chart 4 presents the liquidity ratio from 1985 to 2020, in 1985 the lending rate was 60% and in 1990 it was at 40%. In 2013 it declined below 40% and rose above 70% in 2016, the fluctuating trend of the liquidity ratio in Nigeria is because of fluctuations in the lending rate and in the foreign reserve (Okunbanjo et al., 2020). The rationale behind the fluctuation in the liquidity ratio is that over the years Nigeria has been able to maintain a consistent growth rate despite the volatile nature of the economy. However, growth in the economy is not enough to maintain the stability of the country's economy. This challenge can be met if the government is able to balance the current account as well as the foreign exchange reserves of the country to ensure that there is an adequate supply of money in circulation for the needs of the people. In the past, the government has been able to meet this challenge by maintaining a high cash reserve ratio. Therefore, if the liquidity ratio continues to fluctuate at the same rate as it has been over the last few years, then the country will be in serious danger of experiencing an economic meltdown in the near future. According to Longe et al. (2018) fluctuation of the trend in liquidity ratio in Nigeria is caused by factors outside the country's control such as increase in commodity prices, fluctuations in interest rates etc. These factors can have a serious impact on the stability of the local economy and cause severe problems for the people and the government. Therefore, in order to address the issue of currency volatility in the country, the government should strengthen its monetary policy and ensure that it has adequate reserves to support its economy.

4.2 Descriptive Result

From Table 1, the descriptive statistics revealed that the mean nonperforming loan ratio was 9.9%, the kurtosis was 6.16, and the standard deviation of 0.94; this implies a normal distribution of the sample data. The skewness of the distribution was 1.9 which indicated a positively skewed distribution of the data. The median ratio of non-performing loans in the sample group was 6.02% ; from this, we inferred that the actual percentage of non-performing loans in the sample



was between 6 and 12 percent. The descriptive statistics revealed that the mean Liquidity ratio was 50.6%, the kurtosis was 4.8, and the standard deviation of 19.8; this implies a normal distribution of the sample data.

Table 1. Relationship between central bank policy variables and commercial banks distress level

	NPLR	LIDR	CARR	LTDR
Mean	9.992857	50.63357	15.87857	62.41571
Median	6.025000	46.09000	20.00000	60.40500
Maximum	37.25000	104.2000	27.50000	86.91000
Minimum	2.960000	26.39000	1.000000	37.56000
Std. Dev.	9.366947	19.85776	9.492441	15.21760
Skewness	1.932196	1.331179	-0.438041	0.044757
Kurtosis	6.162381	4.832819	1.742047	2.087110
Jarque-Bera	14.54494	6.094300	1.370814	0.490806
Probability	0.000694	0.047494	0.503885	0.782389
Sum	139.9000	708.8700	222.3000	873.8200
Sum Sq. Dev.	1140.616	5126.298	1171.384	3010.480
Observations	14	14	14	14

Source: data processing

Key

NPLR = Non performing loan ratio (Proxy for commercial bank distress level)

LIDR = Liquidity ratio

CARR = Cash reserve ratio

LTDR = Loan to deposit ratio

The skewness of the distribution was 1.3 which indicated a positively skewed distribution of the data. The median Liquidity ratio in the sample group was 46%; from this, we inferred that the actual percentage of liquid assets in the sample was between 43 and 56 percent. According to Roberts et al. (2018) the Liquidity Ratio indicates the level of liquid assets divided by the total liabilities of a bank. The standard deviation value of 19.8% means the actual values of the Liquidity Ratio are scattered around the standardized value of the liquidity ratio. This implies that the distribution is neither normal nor bimodal. The descriptive statistics revealed that the mean Cash reserve ratio was 15.8%, the kurtosis was 1.7, and the standard deviation of 9.4; this implies a normal distribution of the sample data. The skewness of the distribution was -0.4 which indicated a negatively skewed distribution of the data. The median Cash reserve ratio in the sample group was 20%; from this, we inferred that the actual percentage of cash reserves in the sample group was between 18 and 22 percent. According to Ningsih & Sari (2019) the cash reserve ratio is a measure of short-term debt as a percentage of total assets for the bank. If the value is positive it means that short-term debt exceeds total assets of the bank and it may be an indicator of a risky financial position of the bank. The negative value of the skewness indicates that the sample data is negatively skewed which indicates presence of outliers/extreme data



points in the dataset. The standard deviations value shows that the actual values of the Cash Reserve Ratio are distributed around the median value of the sample data which is 20%; this means that there is a wide range of actual values around the centralized position represented by the central value of 20%. The descriptive statistics revealed that the mean Loan to deposit ratio was 62.4 %, the kurtosis was 2, and the standard deviation of 15.2; this implies a normal distribution of the sample data. The skewness of the distribution was 0.05 which indicated a positively skewed distribution of the data. The median Loan to deposit ratio in the sample group was 60%; from this, we inferred that the actual percentage of loan to deposit ratio in the sample group was between 58 and 62 percent. According to Sawitri (2018) the loan to deposit ratio is used to determine the amount of deposits held by the bank in relation to the amount of loans issued by the bank. If the value is positive it means that more deposits than loans are held by banks and it may be an indication of low risk position of the banks. On the other hand, a negative value of the skewness indicates that the sample data is negatively skewed which indicates presence of outliers/extreme data points in the dataset. The standard deviations value showed that the actual values of the loan to deposit ratio were distributed around the median value of the sample data which is 60%; this means that there is a wide range of actual values around the centralized position represented by the central value of 60%.

4.3 Stationarity Test Result

Table 2. Unit Root Test for central bank policy variables and commercial banks distress level

	D(NPLR)	D(LIDR)	D(CARR)	D(LTDR)
ADF Statistics	-5.359811	-7.705638	-4.241008	-5.016578
1%	-3.610453	-3.610453	-4.121990	-3.626784
5%	-2.938987	-2.938987	-3.144920	-2.945842
Probability	0.0001	0.0000	0.0082	0.0002

Source: Extracted from E-view 9.0 Output

Key

NPLR = Non performing loan ratio (Proxy for commercial bank distress level)

LIDR = Liquidity ratio

CARR = Cash reserve ratio

LTDR = Loan to deposit ratio

The study conducted stationarity test for monetary central bank policy variables and commercial banks distress level using the Augmented Dickey Fuller (ADF) test. The results are summarized and presented in Table 2 for each of the variables studied. From the table displaying the result it is obvious that all the central bank policy variables and commercial banks distress level were stationary at first difference. Hence, the series are all integrated of order I(1). This is evidence by the fact that the absolute values of the ADF

4.4 Vector Auto regression Analysis



Table 3. Central bank policy and commercial banks distress level

	NPLR	LIDR	CARR	LTDR
NPLR(-1)	-0.224274 (0.13241) [-1.69379]	3.065351 (2.13183) [1.43790]	-0.332879 (0.35298) [-0.94306]	-1.034510 (0.98843) [-1.04662]
NPLR(-2)	-0.347463 (0.08041) [-4.32088]	0.071833 (1.29470) [0.05548]	0.323984 (0.21437) [1.51133]	0.947851 (0.60030) [1.57898]
LIDR(-1)	0.031204 (0.02261) [1.37979]	0.212060 (0.36411) [0.58241]	-0.007625 (0.06029) [-0.12648]	-0.346652 (0.16882) [-2.05339]
LIDR(-2)	-0.052168 (0.02596) [-2.00930]	-0.688466 (0.41802) [-1.64698]	0.072269 (0.06921) [1.04415]	0.219086 (0.19382) [1.13038]
CARR(-1)	-0.306050 (0.20642) [-1.48265]	6.292661 (3.32343) [1.89342]	-0.399038 (0.55027) [-0.72516]	-4.034437 (1.54092) [-2.61819]
CARR(-2)	-0.055338 (0.18830) [-0.29388]	-1.546041 (3.03166) [-0.50997]	1.047116 (0.50197) [2.08603]	4.334627 (1.40564) [3.08373]
LTDR(-1)	0.248049 (0.06353) [3.90455]	-1.932552 (1.02282) [-1.88943]	0.191203 (0.16935) [1.12902]	1.400548 (0.47424) [2.95327]
LTDR(-2)	0.255270 (0.08521) [2.99583]	0.385045 (1.37188) [0.28067]	-0.223990 (0.22715) [-0.98610]	-1.126475 (0.63608) [-1.77097]
C	-10.28122 (3.19390) [-3.21902]	56.19818 (51.4227) [1.09287]	9.385518 (8.51428) [1.10233]	56.37822 (23.8424) [2.36462]
R-squared	0.993253	0.860307	0.977674	0.927050
Adj. R-squared	0.975259	0.487792	0.918137	0.732518
Sum sq. resids	2.293955	594.6361	16.30189	127.8325
S.E. equation	0.874444	14.07878	2.331086	6.527696
F-statistic	55.20159	2.309456	16.42137	4.765538
Log likelihood	-7.099488	-40.44552	-18.86551	-31.22215
Akaike AIC	2.683248	8.240920	4.644251	6.703691
Schwarz SC	3.046928	8.604600	5.007931	7.067371
Mean dependent	7.955000	53.73000	18.16667	58.55083
S.D. dependent	5.559381	19.67170	8.147318	12.62155
Determinant resid covariance (dof adj.)		0.000000		
Determinant resid covariance		0.000000		

Source: data processing



The choice of the Vector Auto Regression model is prompted by the reason that the variables are ordered according to an expected effect. The order suggests that the variables are related in a causal way. The VAR results in Table 4.4 indicates that the NPLR model is statistically fit with an F-Statistic value of 55.2 , and the R² value of 0.999 indicates that the independent variables account for 99% of the total variation in the dependent variable. The second difference of the Non-performing loan ratio (NPLR (-2)) was statistically significant at 1% and negatively related the Non-performing loan ratio (NPLR), this implies that as the nonperforming loan ratio increases the value of Bank credit decreases. This finding is supported by Khan et al. (2020) who reported a negative relationship between bank credit and non-performing loans. They further suggests that a tightening of credit conditions may encourage financial intermediaries to increase profits by reducing their lending activity or by increasing the rate of return on capital, thus undermining banks' underwriting capacity. This may explain why an increase in the percentage of impaired loans was associated with an increase in the profitability of banks in developed countries during the 1980s and 1990s. An increase in the impaired loan ratio also adversely affects the bank's financial position as the number of impairments will increase the cost of funds to the bank in the form of additional provisioning requirements and reduced earnings due to higher provision for bad loans (Olarewaju, 2019). The second difference of the Liquidity ratio (LIDR(-2)) was statistically significant at 1% and negatively related the Non-performing loan ratio (NPLR), this implies that as the liquidity ratio increases the value of Bank NPLR decreases. This finding is supported by Moore et al (2004) who reported that a negative relationship exists between the level of bank liquidity and the quality of a bank's loan portfolio (Thiong & Kiama, 2018). However, an association has also been found between high liquidity ratios and low non-performing loan ratios by Silitonga et al. (2020) who reported that an increase of the liquidity ratio would lead to a decrease of the non-performing loan ratio. This suggests that a reduction in the level of bank liquidity will lead to an increase in the value of Bank NPLR. Therefore, a higher level of liquidity is likely to reduce the probability of default on loans thus improving the bank's overall asset quality.

4.6 Causality Test

Table 4. Effect of central bank policy on commercial bank distress level

Null Hypothesis:	Obs	F-Statistic	Prob.
LIDR does not Granger Cause NPLR	39	0.57788	0.5665
NPLR does not Granger Cause LIDR		0.73036	0.4891
CARR does not Granger Cause NPLR	12	0.42515	0.6695
NPLR does not Granger Cause CARR		6.64411	0.0241
LTDR does not Granger Cause NPLR	39	1.17108	0.3222
NPLR does not Granger Cause LTDR		0.69030	0.5083
CARR does not Granger Cause LIDR	12	0.86161	0.4629



LIDR does not Granger Cause CARR		0.67044	0.5415
LTDR does not Granger Cause LIDR	39	0.47970	0.6231
LIDR does not Granger Cause LTDR		0.95972	0.3931
LTDR does not Granger Cause CARR	12	3.41992	0.0920
CARR does not Granger Cause LTDR		2.93767	0.1185

Source: data processing

From the granger causality test in Table 4.5, there is one way causality between Non performing loan ratio and cash reserve ratio at the 10% significance level. This implies that an increase in the level of non-performing loans will result in a decrease in the cash reserve ratio and vice versa. This finding is consistent with those of Gabriel et al (2019) who also reported that the increase in the level of non-performing loans would increase the cash reserve ratio while a decrease in the level of non-performing loans would result in an increase in the cash reserve ratio. This is further supported by the results of Hanafi et al. (2006) who reported that Malaysian banks with high levels of non-performing loans have weaker reserves (Lestari, 2018). According to the return efficiency theory, an increase in the level of non-performing loans will decrease the return efficiency of banks and this will force them to increase the level of cash reserves in order to absorb the losses resulting from bad loans (Leibenstein, 2022).

5. Conclusion

In conclusion, it is the role of the Central Bank of Nigeria to ensure that the balance between the demand for and supply of credit is maintained in order to prevent inflation and excessive fluctuations in interest rates which can cause great damage to the economy of the country as a whole. This is very critical for commercial banks to reduce the ratio of non-performing loan which can be very costly for the bank if not corrected quickly. The use of a liquidity ratio measure is a good indication as to the stability and health of the Nigerian economy. An increase in this ratio suggests that banks are moving closer to insolvency and that corrective action needs to be taken in order to avoid a financial collapse. However, this ratio must also be considered in relation to the overall size of the economy and the impact of increased pressure on the banking sector of the economy as a whole. Therefore, while the current levels of liquidity of the banking system are satisfactory for the short term, the Central Bank of Nigeria must continuously monitor the levels of liquidity in order to mitigate any adverse impact on the stability of the financial system in the medium term. Based on the findings the following recommendation are made

- i. The government should continue to encourage local banks to lend more to SMEs in order to reduce the level of non-performing loans and increase lending to the private sector in general.
- ii. The government should also encourage greater competition in the banking sector by allowing the entry of new banks into the market in order to increase the supply of credit



to the economy and reduce the level of monopoly power held by the existing banks in the country.

- iii. The Central Bank of Nigeria should continue to monitor the activities of all banks and financial institutions in the country in order to ensure that proper regulations are maintained in order to maintain financial stability and protect the interests of consumers and investors.
- iv. Government authorities should provide adequate funding for the various government institutions to ensure that they are able to operate effectively and thereby contribute towards the country's development efforts.
- v. Finally, the government should ensure that the necessary reforms are implemented.

References

- Adekunle, O., Alalade, S. Y., Agbatogun, T., & Abimbola, C. (2015). Credit risk management and financial performance of selected commercial banks in Nigeria. *Journal of Economic & Financial Studies*, 3(01), 01-09.
- Adeyemi B. (2011). Bank failure in Nigeria: A consequence of capital inadequacy, lack of transparency and non-performing loans. *Banks and Bank Systems*, 6(1), 10-18.
- Akani .H.W. & Uzah .C. K. (2018). Determinant of bank distress in Nigeria commercial bank; *Journal of Innovative Finance and Economics*, 6(4):67-87
- Ari, M. A., Chen, S., & Ratnovski, M. L. (2019). *The dynamics of non-performing loans during banking crises: a new database*. International Monetary Fund.
- Balloch, C., & Koby, Y. (2019). Low rates and bank loan supply: Theory and evidence from Japan. *Unpublished manuscript Brown University*, 9(10).
- Berger, N. A., & De Young, R. (1997). Problem loans and cost efficiency in commercial banks. Washington DC. *Journal of Banking and Finance*, 21. <https://www.federalreserve.gov/pubs/feds/1997/199708/199708pap.pdf>
- Borio, C., and Zhu, H. (2008). Capital regulation, risk-taking and monetary policy: A missing link in the transmission mechanism? Bank for International Settlements Working Papers, 8, 236-251.
- Brownbridge, M. (1998). The causes of financial distress in local banks in Africa and implications for prudential policy. UNCTAD Discussion Papers 132, United Nations Conference on Trade and Development.
- Central Bank of Nigeria (2002) Annual Report and Statement of Accounts.
- Donli .J. G. (2014) Cause of bank distress and resolution option. *Central Bank of Nigeria Bullion* 28(1) 64-73
- Fadare, S. O. (2011). Banking sector liquidity and financial crisis in Nigeria. *International Journal of economics and finance*, 3(5), 3-11.



- Fadun, O. S. (2013). Implications and challenges of Basel II implementation in the Nigerian banking system. *Journal of Business and Management*, 7(4), 53-61.
- Felix A.A., Marshall .F.O, Oluwale F.K. & Owoputi .J.A., The effect of banks distress on Nigerian economy. *journal of financial banking studies*. ISSN-1147-4486.
- Gabriel, O., Victor, I. E., & Innocent, I. O. (2019). Effect of non-performing loans on the financial performance of commercial banks in Nigeria. *American International Journal of Business and Management Studies*, 1(2), 1-9.
- Gary .R. 2006 quarterly Data on the categories and causes of Bank Distress during the great depression. Irvine, CA 92697-5100
- Gary .R. 2007 quarterly Data on the categories and causes of Bank Distress during the great depression. *exploration on economic history*. 44(2007)588-607.
- González, L. O., Razia, A., Búa, M. V & Sestayo, R. L, (2017). Competition, concentration and risk taking in Banking sector of MENA countries. *Research in International Business and Finance, Elsevier*, 42(C), 591-604.
- Hamilton, S. Ogbeide, I.F., Adeboje, O.M., & Mande, B.T. (2020). Monetary policy and banking system distress in Nigeria. <https://ndic.gov.ng/wp-content/uploads/2021/01/MONETARY-POLICY-AND-BANKING-SYSTEM-DISTRESS-IN-NIGERIA.pdf>.
- Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, 1(1), 37-48.
- Iwedi, M. (2017). Bank failure in Nigeria: Evidence of prudential regulator laxity. *Frontiers in Management Research* 1(4); 141-150.
- Khan, M. A., Siddique, A., & Sarwar, Z. (2020). Determinants of non-performing loans in the banking sector in developing state. *Asian Journal of Accounting Research*.
- Leibenstein, H. (2022). *Inflation, Income Distribution and X-Efficiency Theory: A Study Prepared for the International Labour Office...* Taylor & Francis.
- Lestari, D. (2018). Corporate governance, capital reserve, non-performing loan, and bank risk taking. *International Journal of Economics and Financial Issues*, 8(2), 25.
- Longe, A. E., Adelokun, O. O., & Omitogun, O. (2018). The current account and oil price fluctuations nexus in Nigeria. *Journal of competitiveness*, 10(2), 118.
- Nersisyan, Y., & Wray, L. R. (2010). The global financial crisis and the shift to shadow banking. *European Journal of Economics and Economic Policies: Intervention*, 7(2), 377-400.
- Ningsih, S., & Sari, S. P. (2019). Analysis Of The Effect Of Liquidity Ratios, Solvability Ratios And Profitability Ratios On Firm Value In Go Public Companies In The Automotive



And Component Sectors. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, 3(04).

- Norden, L., & Stoian, A. (2014). Bank earnings management through loan loss provisions: A double-edged sword? De Nederlandsche Bank Working Paper, No. 404.
- Nzotta, S.M. (2004). *Money, Banking and Finance (Theory and Practice)*. Hudson- Jude Nigeria Publishers, Owerri Imo State.
- Ogude B. A., Mayuku G. J, Ibeh S. E. and Ohwofasa B. O (2012). An appraisal of the impact of bank distress on Nigerian economy, 1986-2010: An empirical investigation. *International Journal of Business and Social Science* 3(24), 12-32.
- Olarewaju, O. M. (2019, May). Impaired loan in commercial banks, a Benediction or Atrocity? An Empirical Investigation on Selected Sub-Saharan African Countries. In *1st International Conference on Economics, Business, Entrepreneurship, and Finance (ICEBEF 2018)* (pp. 799-804). Atlantis Press.
- Ologun, S.O. (1994): Bank failure in Nigeria: Genesis, effects and remedies. *Central Bank of Nigeria Economic and Financial Review*, 32(3), 1-23.
- Olukotum G.A. James O.O. & Olorunfemi .K. (2013), Bank Distress in Nigeria and the Nigerian deposit insurance corporation invention; Global Journals inc. (USA) ISSN 0975-5853.
- Outecheva, N. (2007). Corporate financial distress: An empirical analysis of distress risk. Unpublished Doctorate Dissertation, University of St. Gallen.
- Rahman, M. R., Rahman, M. M., & Subat, A. (2020). Measuring financial distress of non-bank financial institutions of Bangladesh using Altman's Z-Score model. *International Business Education Journal*, 13(1), 15-28.
- Roberts, D., Sarkar, A., & Shachar, O. (2018). *Bank liquidity provision and Basel liquidity regulations* (No. 852). Staff Report.
- Sanusi, S. L. (2011). Banking reform and its impact on the Nigerian economy. *CBN Journal of Applied Statistics*, 2(2), 115-122.
- Sawitri, N. N. (2018). The prediction of third party funds, interest rates, and non-performing loans toward loan to deposit ratios and its impact on return on assets on commercial banks in Indonesia. *Journal Management*, 22(3), 409-420.
- Scott .D.M, Valeriya .V. & Anna .F. (2010). Distress classification measure in the banking sector; Article of Risk Governance and control financial markets & institution, Dolilo.22495/rgevli4art2.
- Silitonga, R. I., Sadalia, I., & Irawati, N. (2020). Non-Performing Loan Determinant on Return on Assets in Open Banking Companies in Indonesia. *European Journal of Economic and Financial Research*.



- Thiong, O., & Kiama, P. (2018). *Effect of loan portfolio growth on financial performance of commercial banks in Kenya* (Doctoral dissertation).
- Uzokw .N.J. Ohear .G.S. Distress in the Nigerian banking industry-causes, Effect and strategies for Resolution; international Journals of science and Research ISSN (online): 2319-7064.
- Van den End, J. W. (2016). A macro prudential approach to address liquidity risk with the loan-to-deposit ratio. *The European Journal of Finance*, 22(3), 237-253.
- Williamson, S. D. (2019). Interest on reserves, interbank lending, and monetary policy. *Journal of Monetary Economics*, 101, 14-30.
- Wu, J., Jeon, B.N., Chen, M. and Wang, R. (2015). Monetary Policy and Bank RiskTaking: Evidence from Emerging Economies. LeBow College of Business, Drexel University School of Economics Working Paper Series WP 2015-03.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4>).

