INTEREST RATES AND LOAN PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

There has been much speculation about the seemingly high lending rates as evident of perceived inequity on the part of bankers by their customers in reaction to huge overhang of unpaid loans in the books of Deposit Money Banks (DMBs). Data for the study was collected from the financial statements of the three banks under study (UBA, FBN and GTB), as well as the CBN's statistical database for macroeconomic variables analysed using Microsoft Excel's regression function to perform a descriptive, correlation and regression analysis and examine the relationship between interest rates and loan repayment. This study established that there is a significant relationship between the interest rate and loan repayment, measured by credit quality using the non-performing loan ratio. This indicates that an increase in the interest rate will likely cause a corresponding increase or decrease in the credit quality. It further showed that any slight change in the lending rate would increase non-performing loan.

KEY WORDS: *Prime lending rate (PLR); Monetary Policy Rate (MPR); Non-performing Loan (NPL), and loan loss provision.*

1.0 INTRODUCTION

The global financial meltdown of 2008 accelerated a fundamental change in the banking industry the world over as it affected almost all sectors of global business and with the banking sector most hit due to the nature of their liabilities and couple with risks of loan default. The non-payment of loans or other forms of credit by debtors plays an important role in banks performance because a large part of banks revenue is interest generated from loans (Harcourt, 2017). Also Oladejo & Oladipupo, 2011) observed that in the global economic space, banks constitutes the largest owner of financial assets, which makes them an important element of firms' operations in the real sector, while (Greenberg & Simbanegavi, 2009), asserted that the performance of banks tend to have a direct impact on the stability of the economy. Fitch,(2017) pointed out that the financial stability report of the Central Bank of Nigeria showed that banking industry Non-Performing Loans (NPLs) moved from 11.7 per cent to 12.8 per cent at the end of 2016 to N2.1 trillion at the end of December 2016 from N1.67 trillion in June 2016.Consequently, baseline for the industry, large, medium, and small banks stood at 14.78 per cent, 15.47 per cent, 12.75 per cent and 3.14 per cent, respectively, showed a decline, although above limit, but worse for small banks. The apex bank's simulation also showed that a 100 per cent further increase in NPLs, will lead to damning effect on all sizes of banks, while the small banks will be closed down.

Therefore, non-performing loans affect the bank's liquidity and profitability which are the main components of the overall efficiency of banks as any increase in NPLs provision diminishes income and also, a mismatch of maturities between asset and liability create liquidity risk or the banks that deteriorate bank's overall credit rating. (Badar & Yasmin, 2018).The Central Bank of Nigeria expects banks' NPLs not to exceed five per cent, but many lenders have grown their NPLs to over 20 per cent in recent months while the financial industry still harbours weaknesses in governance as seen in insider non-performing loans, unreported losses, huge exit packages for directors, over-domineering executive management, contravention of regulatory/prudential guidelines and lending limits, poorly appraised credits and weakening of shareholders' funds, among others. (CBN, 2018).This type

of risk is borne largely by banks and it includes the loss of principal and interest, and such loss could be complete or partial. Credit risks can result in the erosion of a bank's capital. (CBN, 2014).

It would be recalled that Structural Adjusted Programme (SAP) was introduced in 1986 in Nigeria which deregulates all the commanding heights of the economy including interest rate regimes which was allowed to be determined by the interaction between the forces of demand and supply and players in the financial market were lenders and borrowers were allowed to negotiate the rate of deposits and lending with the purpose of promoting effectiveness and efficiency in intermediation process, ensure healthy competition and greater participation (Abogan, Olajide & Oloba, 2014). Therefore, Deposit Money Banks (DMB) becomes an important channel for transmission of CBN's interest rate policy in Nigeria and while they pay interest on deposits to their customers on one hand, they charge interest on loans and advances lent to borrowers; hence, the difference between these two interest rates defines the interest spread which constitutes a significant proportion of the profits of Deposit Money Banks (DMB) (Ogunbiyi & Ihejirika 2014). Similarly, Chodechai (2004) while investigating factors that affect interest rates, degree of lending volume and collateral setting in the loan decision of banks, posits that banks have to be careful with their pricing decisions when lending to their customers as they cannot charge interest rates that are lower than their cost of fund because the interest income will not be enough to cover the cost of deposits, general expenses and the loss of revenue from some borrowers that do not repay their indebtedness. Also Ogunyemi (2013), observed that minimum rediscounting rate (MRR); liquidity ratio, and exchange rate in recent time in Nigeria was not in favour of increase in the volume of deposit money banks loans and advances due to poor infrastructural facilities and high cost of operating in an unstable and volatile economic environment.

Furthermore, Muritala & Taiwo (2013), asserted that, in some instances, DMBs and other financial institutions have approved loan decisions that are not commercially justifiable and thus facilitated incidents of loan defaults and huge unpaid debt overhang which has become problematic in the books of DMBs in Nigeria. Corroborating this further, Famuyiwa, (2018), reiterated that banks are charging high interest rates on credit exposures of the banking public and the attendant widespread defaults has led Nigerian banks to be battling with high level of NPLs and incidents of increased loan provisioning on flow in compliance with prudential guidelines on loan loss reserves has reduced profit margin and financial position size of banks with additional increase of impaired assets (non-performing loans) by 400 billion naira in third quarter of 2018 which has adversely affected financial performance of banks, hence, Nigerian banking industry non-performing loans is now 2.36 trillion naira representing 14.8% of banking sector loan portfolio, this is almost three times the CBN maximum prudential threshold of 5% for non-performing loans observable by banks.

2.0 LITERATURE REVIEW
2.1 Conceptual Review
2.1.1 Deposit Money Bank Loan Performance
Lending is the principal business activity for most commercial banks and the loan portfolio is typically the largest asset and predominant source of revenue, hence, it is one of the greatest sources of risk to a bank's safety and soundness.

Effective management of the loan portfolio's credit risk requires that the board and management understand and control the bank's risk assets profile and its credit culture. To accomplish this, they must have a thorough knowledge of the portfolio's composition and its inherent risks.(Imeokpararia, 2013). In other words, banks do grant loans and advances to individuals, business organizations as well as government in order to enable them embark on investment and development activities as a means of contributing toward the economic development of a country in general (Felicia, 2011). Also, lending is said to be the most profitable activity of banks, but if lending decisions are not handled with care, it could turn out to be the most loss-making activity of a bank hence; banks always try to ensure that there is a reasonable certainty that loans granted are likely to be repaid by the borrower (Anolue, 2010). In addition Dimeji (2017), posited that the performance of DMBs has been affected by the amount of loans and advances they grant, the quality of the loans and the provision made for the loans losses, hence, there is need for them to ensure that loans are granted to qualified candidates to ensure prompt repayment of the principal and interest cost. Supporting this, Banks and Other Financial Institution Act (BOFIA) 1990 as amended in Section 18 prohibits any personal interest in any loans and advance by bank staff without declaration of the nature of interest while section 20 restrict loans and advances to the rate 20 percent of shareholders fund to a single borrower/single obligor since the challenges of Nigerian banks are facing in the past have been the mismatch of assets and liabilities (Ponniah and Shenbagavalli, 2014). Similarly Solomon, (2012) asserted that DMBs invest customer deposits in various short term and long term investment outlets; however, the core of such deposits are used for loans to generate profits. Hence, the more loans and advances they extend to borrowers, the more profit they make. Similarly Adeyemi (2017), described loan performance as a concept that revolves around the extent to which the loans being disbursed by banks are repaid as at when due including payment of interests and other bank charges. The repayments of principal loan and interest as at when due are key indicators of whether the loan is performing or not.

Interest Rate is a concept that has been explained and defined severally over the years. Amadeo(2018) defined interest rate as the percent of principal charged by the lender for the use of its money.CBN (2016),also defined interest rate as "the cost of borrowing; and shows what a borrower pays to the lender for the use of money, while, Corb (2012) described interest rate as an economic tool used by the CBN to control inflation and boost economic development; invariably any poor decisions on an interest rate regime could spell doom for the financial system and the economy as a whole and that the CBN usually uses the interest rate as a monetary policy tool to adjust the lending rates of banks and other financial institutions in Nigeria. Also, Makinde, (2016) posited that interest rate is the rate that is paid on either savings or lending. It represents the rate of return that is due to the owner of funds for differing present consumption for future consumption while Edakasi (2011) defined Bank interest rates as rewards expected by the lenders (bank) for the period the borrower spends using the borrowed funds. It is the time value of money for the funds granted to borrowers in a specific period of time. Waweru, (2012) asserted that Interest rates offered by commercial banks globally and locally attract customers to purchase products and services of

financial institutions. Also, CBN, (2014), stated that interest rates in all segments of the money market reflected the liquidity conditions in the banking system. Hayes, (2013) stated that when interest rates rise, banks net income margin/net interest expenses (NIM/NET) tend to decline and vice versa as interest rates are also a key driver of loan yields while loan yields occur generally from market interest rate, hence, unexpected movements in rates and the yield curve can be negative for banks financial position, and can result in unrealized loss income. Srivastava & Srivastava (2010) explained that interest rates affect a bank's earnings by changing its net interest income and the level of other interest-sensitive income and operating expenses. Further, Ponniah & Shenbagavalli (2014) stated that changes in interest rates also affect the underlying value of the bank's assets, liabilities and off-balance sheet instruments because of the present value of future cash flows. Also, Ogunbiyi, & Ihejirika (2014) & Khan & Sharta (2014) asserted that decline in the interest rate as a common rule is most excellent for the economic atmosphere because customers can easily repay their loans as they do not have to pay higher interest rate for taking loans.

2.1.2 Non-Interest Income and Loan Loss Provision

Chen, Huang & Zang, (2015), described non-interest income as the revenue earned by banks mostly from fees and other activities outside the core activity of lending. Unlike interest income, non-interest income is usually stable and largely unaffected by economic, market cycles; it is usually not controlled by law or regulation. Kenton (2018) asserted that non-interest income is bank and creditor income derived primarily from fees including deposit and transaction fees, insufficient funds (NSF) fees, annual fees, monthly account service charges, inactivity fees, check and deposit slip fees, and so on. Mathuva (2015) showed that increased dependence on non-interest income is associated with higher returns. Nisar, Peng, Wang and Ashraf (2018) analysed a panel dataset of 200 commercial banks from all South Asian countries, and found that overall revenue diversification into non-interest income has a positive impact on the profitability and stability of South Asian commercial banks and further observed that different types of non-interest income-generating activities have different impacts on bank performance and stability.

Khan,2018 asserted that banks have to meet loan provision requirements on the basis of asset classification and taking into account the time lag between an account becoming doubtful of recovery, its recognition as such and the erosion over time in the value of security charged to the bank. Golin & Delhaise (2013), observed that loan loss provision is a non-cash charge against operating income made to account for expected or unexpected loan losses; and can be general provision or specific provision. Also CBN (2014) stated that, loan loss provision is a portion of banks' profit that is deducted or sacrificed to pay off part of sticky past due of its borrowers according to prudential guidelines on non-performing credits and in addition Lalong, (2015) asserted that, in order to promote provisioning policies, which are consistent with sound risk management practices, the CBN reviewed the prudential guidelines for DMBs based on forward-looking capital provisioning, driven by stress test to address wide-ranging areas of risk management, anti-money laundering, loans loss provisioning, and financing to different sectors.

2.1.3 Monetary Policy Rate and Capital Adequacy

In the Nigerian economy, the monetary policy rate (MPR) is the official interest rate of the Central Bank of Nigeria (CBN), which anchors all other interest rates in the money market and the economy.(Ogunbiyi & Ihejirika, 2014). The MPR sets the floor for the interest rate regime in the money market (the nominal anchor rate) and thereby affects the supply of credit, the supply of savings and the supply of investment.(Obidike, Ejeh, &Ugwuegbe, 2015; Solomon, 2013; & Victor &Eze, 2013). Over the years, the MRR/MPR has been reduced, increased, reduced and increased and as at February 2014 stands at 12% for private sector deposits and 7.5% for public sector deposits. (Ogunbiyi & Ihejirica 2014).The deregulation of interest rate translated into an immediate rise in the gap between several MRR now known as Monetary Policy Rate (MPR) was used to signal the desired direction of interest rate movement (Nwude, 2013). Concerning capital adequacy, Obiakor, (2014) defined capital adequacy as excess of shareholders' fund that is available for meeting business financial commitments as and at when they become due without jeopardizing solvency. Similarly, Olalekan & Adeyinka, (2013) described adequate capital as the amount that has the capacity to prevent banks from failure by absorbing possible losses. Bank losses usually arise to the risk they undertake in serving the credit needs of their borrowers, hence, adequate capital works as a defense mechanism of takeovers since enough capital means solvency. Akani, (2019) posited that three core indicators of capital adequacy such as liquidity, safety and profitability are vital to the robustness of financial sector and it enables banks to withstand shocks in their financial position (SOFIP) and deterioration in the ratio signifies increased risk exposure and possible capital adequacy problems while an increase in the ratio means the reverse.

2.1.4 Bank Liquidity and Non-Performing Loan

Bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations while meeting statutory liquidity position. It is the banks' ability to immediately meet cash, cheques, and other withdrawal obligations and legitimate new loan demand while abiding by existing reserve requirements (Bassey, Tobi, Bassey & Ekwere, 2016). The loan-to-deposit ratio (LTD) is a commonly used measurement of a bank's liquidity by dividing the bank's total loans by its total deposits. This number is expressed as a percentage. If the ratio is too high, it means that the bank may not have enough liquidity to cover any unforeseen fund requirements, and conversely, if the ratio is too low, the bank may not be earning as much as it could be (Saleh, 2014). However, Liquidity Ratio is known as cash to deposit ratio, it provides a clear indication of a bank's ability to meet its cash obligations instantaneously and also indicates how much of a bank's core funds are being used for lending which is the main banking activity. It can also be defined as Total of Cash in hand and treasury bills divided by Total deposits, this is particularly important in a cash-based economy such as Nigeria. (Saleh, 2014).

Heibati, Nourani & Dadkhah (2009), stated that a business is organic; it survives and grows. It is therefore, important that a bank earns profit for its long term survival and growth. It is also necessary that enough profit must be earned to maintain the activities of the business to be able to

obtain funds for expansion and growth of the bank Similarly, Bassey & Moses (2015) posit that profitability on banking operations is the ability of bank to use its resources to generate revenues in excess of its expenses. In other words, the survival-ability of banks depends on how it can manage its risk assets in order to minimise incidents of non- performing loans (NPL) or assets, hence, Fatima & Ashraf, (2017; Samir & Kamra, (2013) explained that NPLs are hazardous for banking operations as they have to make provisions for bad and doubtful debts in compliance with prudential guidelines of the Nigeria Deposit Insurance Corporation (NDIC) which results in decreasing profitability as well as liquidity, because provision amount has been set aside out of profits. Banks do not receive regular interest instalments which influence their liquidity and solvency position. Therefore, higher level of NPLs affects credibility of banks; they ruin banks goodwill in the eyes of the public; erodes net worth of banks, generate low yield on advances, reduce capital adequacy ratio (CAR) and effect operational efficiency of banks; widens the gap between assets and liability; high level of Non-Performing Assets (NPA) influences economic value addition of banks; Banks officials devote great deal of time and efforts in reducing NPAs which is an additional indirect cost to banks.

2.1.5 Prime Lending Rate and Asset Quality

Prime lending rate is one of the key drivers of asset quality and Ombaba (2013) defined asset quality as the general risk attached to various assets held by financial institution which determines how many of these assets are at financial risk and how much allowance for potential losses they must make. Similarly, Chisti (2012), stated that asset quality of a bank is one of the main issues whenever research on banks is conducted as the quality of assets of DMBs is measured by the proportion of impaired credits to total credits to determine whether the statutory maximum threshold of 5% is allowed for banks is complied with. Corroborating this, Khalid (2012) asserted that the most common assets of banks requiring strict determination are its loans and advances as increasing loan quality will increase the return of DMBs loans and reduce the costs of failure but the attendant cost will requires banks' attention to manage. In the same vein, (Sangmi and Nazir, 2010) stated that the bank asset includes among others current asset, loan portfolio, tangible asset, and other investments which more often than not, is the major asset that generates the biggest share of the banks income, hence, the highest risk facing a bank is the losses that will arise from non-performing loans. Thus non-performing loan ratios are the best proxies for asset quality and low non-performing loans to total loans ratio shows good health of the bank's portfolio and the lower the ratio, the better the DMBs financial performance. Similarly, Sontakke & Twari, (2013) observed that, banking failures are as a result of inefficient management, low capital adequacy and poor assets quality such as non-performing loans has become the single largest cause of irritation of the banking sectors while Lafuente, (2012) asserted that poor asset quality in the form of non-performing loan can seriously damage a bank's financial position having adverse effect on its operation.

In his study, Enyioko (2012) investigated twenty (20) banks to examine the performances of banks and interest rate policies and found that interest rate policies have not improved the overall performances of banks significantly. Trovonis, (2018) observed that asset quality indicators can provide useful complementary information which includes measures for non-performing assets or for the coverage of distressed assets by provisions and/or collateral. However, how accurately these measures are reported essentially depends upon the thoroughness and rigour of the problem in bank's asset classifications, valuations and provisioning practices.. Ugwuanyi (2012) examined interest rate deregulation and bank lending in Nigeria within the period of 1987 to 2011 using ordinary least square (OLS) techniques and found that lending rate, cash reserve ratio, and total bank deposit and gross domestic product have different degree of relationship on Bank Lending and Advances (BLA). Okoye and Eze (2013), examined the impact of bank lending rate on the performance of Nigerian Deposit Money Banks between 2000 and 2010. It specifically determined the effects of lending rate and monetary policy rate on the performance of Nigerian Deposit Money Banks and analyzed how bank lending rate policy affects the performance of Nigerian deposit money banks. The result confirmed that the lending rate and monetary policy rate have significant and positive effects on the performance of Nigerian deposit money banks. The implication of this is that lending rate and monetary policy rate are true parameter of measuring bank performance.

2.2 Theoretical Review

In this study, several theories that explain this work are reviewed such as; Anticipated loan theory; Fisher theory of interest rates; Loan pricing theory, and commercial loan theory.

2.2.1 Anticipated Income Theory

This theory was propounded by Prochnow in 1944.The theory depends on loan portfolio as liquidity source. In essence, banks' liquidity can be planned if scheduled loan payments are based on future income of the borrower at a point in time. This theory states that irrespective of the nature and feature of a borrower's business, the bank plans the liquidation of the term-loan from the expected income of the borrower. It is admitted against pledge as security of machinery, inventory and even immovable property. The bank puts limitations on the financial activities of the borrower while granting this loan. While lending, the bank considers security along with the anticipated earnings of the borrower. So a loan by the bank gets repaid through the future earnings of the borrower in installments, rather than giving a lump sum at the maturity of the loan. The theory recognises the influence of maturity structure of the loan and its effects on liquidity position of banks. In the words of Kolapo, Ayeni, & Oke, (2012), one striking thing with this theory is its future-oriented approach to bank lending administration as it is also generally known as "cash flow approach" to lending. According to Adegboye, Olowe, Uwuigbe, (2010), this theory satisfies the three major objectives of liquidity, safety and profitability when the borrower saves and repays the loan regularly after certain period of time; safety principle is when the bank permits reliance on good security as well as the ability of the borrower to repay the loan. Hence, the bank can use its excess reserves in lending term-loan and is convinced of a regular income. Similarly, Moti, Masinde, & Mugenda, (2012) observed that, this theory does not question the shift ability view that a bank's most fundamental source of liquidity is its secondary reserves. Rather, it focused attention on the types of loans appropriate for a bank to advance but came to quite a different conclusion than that reached by the advocates of the commercial loan theory

2.2.2 Fisher Theory of Interest

Fisher (1930) propounded that interest rates are determined by inflation. His findings, dubbed "The Fisher

Effect", stated that the real interest rate equals the nominal interest rate minus the expected inflation rate. Therefore, real interest rates fall as inflation increases, unless nominal rates increase at the same rate as inflation. The interest rate an investor has on a savings account is really the nominal interest rate. Thus, if the nominal interest rate on a savings account is 4% and the expected rate of inflation is 3%, then the money in the savings account is really growing at 1%. The smaller the real interest rate, the longer it will take for savings deposits to grow substantially when observed from a purchasing power perspective. On the other hand, Hayes, (2013) stated that when interest rates rise, banks net income margin/net interest expenses (NIM/NET) tend to decline and vice versa as interest rates are also a key driver of loan yields while loan yields occur generally from market interest rate, hence, unexpected movements in rates and the yield curve can be negative for banks financial position, more specially; result in unrealized losses in accumulated other comprehensive income.

2.2.3 Loan Pricing Theory

This theory states that banks cannot always set high interest rates as it has to consider the problems of adverse selection and moral hazard since it is very difficult to forecast the type of borrower at the start of banking relationship (Stiglitz and Wiess, 1981). If banks set interest rate too high, they may induce adverse selection problem because high-risk borrowers are willing to accept these high rates. This is called borrower's moral hazard since they are likely to take on high risk projects or investments.(Chodecai, 2004). From the reasoning of Stiglitz and Wiez, it is usual that in some cases we may not find that the interest rate set by banks to commensurate with the risk of non-repayment of loans by the borrowers.

2.2.4 Commercial Loan Theory

This theory was developed by Adam Smith in England during the 18th century.The commercial loan or the real bills doctrine theory states that a commercial bank should provide only short-term self-liquidating productive loans to business organizations. Loans meant to finance the production, and evolution of goods through the successive phases of production, storage, transportation, and distribution are considered as self-liquidating loans. The theory assumes that whenever commercial banks make short term self-liquidating productive loans, the central bank should lend to the banks on the security of such short-term loans. This assures that there is appropriate degree of liquidity for each bank and appropriate money supply for the whole economy. However, according to Sanghani (2014), the defect of this theory is that, it believes that loans are self-liquidating under normal economic circumstances which cannot always be the case. If there is depression, production and trade will deteriorate and the debtor will not be able to repay the debt at maturity. Also, there is actually no self-liquidating loan. A loan given to a retailer is not self-liquidating if the items purchased are not sold to consumers and it will stay with the retailer.

3.0 METHODOLOGY
3.1 Research Design

The study employed secondary data which was derived from the audited financial statements of the selected banks in Nigerian within 2010 to 2015 being investigated. As at 2015, there were 22 banks and they constitute the population of study. The sample size of the study population consists of three (3) banks out of the out of the twenty-two (22) existing banks in Nigeria. The selected namely: First Bank of Nigeria, Guaranty Trust bank, and United Bank of Africa.

Model Specification

$Y = f(X)$;
Y = Bank Loan Repayment
X = Interest Rate.
Where:
Y = Bank Loan Repayment
X = Interest Rate
$X = (x_1, x_2, x_3, x_4)$
Where:
x_1 = Interest on Loans
x_2 = Monetary Policy Rate
x_3 = Liquidity Ratio
x_4 = Non-interest fee income and
X = Interest Rate; $Y = (y_1, y_2, y_3, y_4)$
Where:
y_1 = Credit Quality
y_2 = Capital Adequacy
y_3 = Non-performing loan
y_4 = Loan-loss provision
$Y=f(x)$. The variables in Equation 1- 4 are the working Equations to be evaluated in this study. $y_1 = a_0 + {}_1x_1 + e$; $y_2 = a_0 + {}_2x_2 + e$; $y_3 = a_0 + {}_3x_3 + e$; $y_4 = a_0 + {}_4x_4 + e$; $Y= a_0 + {}_1x_1 + {}_2x_2 + {}_3x_3 + {}_4x_4 + {}_5x_5 + e$

4.0 ANALYSIS OF DATA

This study employed secondary data obtainable from the Central Bank of Nigeria (CBN) Statistical Bulletin. Furthermore, this research work employed multiple regression method as econometric technique in estimating the relationship between interest rate (independent variable) proxy by Non-interest income (NIN); Monetary Policy rate (MPR; Liquidity ratio (LR) and Prime lending rate (PLR) and bank loan performance (Dependent variable) proxy by loan loss provision (LLP); Capital Adequacy Ratio (CAR); Non-performing loan (NPL); and Credit Quality (CQ). The study also used ordinary least square (OLS) since it enabled the researcher to capture the essence of the work effectively in addition to its high level of simplicity and global acceptability. Moreover, a 5% confidence level is adopted for the study.

H_{01}: A bank's non-interest income (NIN) has no relationship with loan loss provision (LLP).
$y_1 = a_1 + {}_1x_1 + e$
Where:
y_1 =Dependent Variable=Loan-loss provision=LLP; a_3=Intercept; ${}_1$=Coefficient; x_4=Independent Variable=Non-interest income=NIN; e=Error Term. LLP = 14893.56- 17.0 NIN. The negative coefficient ${}_1$ suggests a positive relationship between NIN and LPP. ${}_1$=-17.04<0. The R-squared at 0% suggests that the model does not explain any of the variation in Loan loss provision. A statistically insignificant t-statistic at t=0.091 and the P-value predicts a 92.9% chance that the coefficient is statistically insignificant.

H_{02}: The Monetary Policy Rate (MPR) does not have relationship with capital adequacy.
CAD=f(MPR); $y_2 = a_1 + {}_2x_2 + e$
Where:
y_2 =Dependent Variable=Capital Adequacy=CAD a_1=Intercept; ${}_2$=Coefficient x_2=Independent Variable=Monetary Policy Rate=MPR;e=Error Term. CAD = 17.84+0.20MPR. The positive coefficient ${}_2$ suggests a positive relationship between MPR and CAD. ${}_2$=0.20>0 Again, the R-squared indicates a statistically insignificant explanatory model by explaining only 4% of the variation in

capital adequacy. The statistically insignificant t-statistic t=0.635, coupled with the P-value predicting a 54% chance the coefficient is statistically insignificant.

H_{03}: Bank liquidity (LR) does not have a relationship with non-performing loans

NPL = f(LR)

$y_3 = a_3 + {}_3 x_3 + e$

Where:

$y_{3.}$=Dependent Variable=Non-Performing Loans=NPL

a_2=Intercept

${}_3$=Coefficient

x_3=Independent Variable=Liquidity Ratio=LR

e=Error Term. NPL = 40.60-0.40LR. The negative coefficient ${}_3$ suggests a negative relationship between LR and NPL. ${}_3$=-0.40<0. The R-squared at 17% points to a weak explanatory power of the model. i.e., the remaining 83% of the variation in Non-performing loans are not explained by the model. The t-statistic is also statistically insignificant (t=-1.39<1.63), pointing to a <90% confidence that the coefficient is statistically significant. The P-value also predicts that the coefficient is 19% likely to be insignificant.

H_{04}: There is no relationship between prime lending rate and credit quality.

CRQ = f(PLR);

$y_1 = a_0 + {}_4 x_4 + e$

Where:

$y_{4.}$=Dependent Variable=Credit Quality=CR

$a_{0.}$=Intercept

${}_1$=Coefficient

$x_{1.}$=Independent Variable=Prime Lending Rate=PLR

e=Error Term

CRQ = -22.65+1.56*PLR. The positive coefficient ${}_1$ suggests a positive relationship between PLR and CRQ. ${}_1$=1.56>0. The R-squared at 45% points to a weak explanatory power of the model. This means that 45% of the variation in credit quality is explained by the model. A statistically significant t-statistic t=2.76>2.63 points to a >95% confidence level in the coefficient. The P-value also predicts 97.82% likelihood that the coefficient is statistically significant.

5.0 SUMMARY OF ANALYSIS AND FINDINGS

This study established a significant relationship between the interest rate and loan repayment, measured by credit quality using non-performing loan ratio of three of Nigeria's foremost banks (First Bank of Nigeria, Guaranty Trust Bank, and United Bank for Africa). This was overwhelmingly supported by the confidence statistics in two banks (Guaranty Trust and United Bank for Africa), and weakly correlated in the third (First Bank). The monetary policy rate was found to only have a positive significant effect on capital adequacy in United Bank for Africa. However, the regression could not establish a relationship between the liquidity ratio and non-performing loans while there is significant and positive relationship between non-interest income and loan-loss provision in all banks except United Bank for Africa. In the case of First bank whose credit quality is seemingly inelastically linked to the prime lending rate, there is need for further inquiry into why this is so.

5.1 Implication of Findings

The relationship that exists between interest rate and loan repayment indicates that the higher the interest rate the higher will be the value of bank loan portfolio and increase in customer indebtedness may lead to increase in loan default due to the inability of bank debtors in meeting debt repayment obligations. Incidentally this will confirm the notion in banking that credit can make or mar banking performance as insolvency will beckon where financial assets and capital of the bank are eaten up by bad loans.

5.2 Conclusion and Recommendation

The study showed that interest rate has significant effect on loan repayment as any slightest change in lending rate will significantly increase the value of non-performing loans and incident of default. It however, recognises the importance of Non-interest income to DMBs and the need to further explore this as opposed to one-sided focus on interest income which always put banks under pressure when there is default. The study concludes that there is a significant and positive effect of interest rates on loan repayment and recommend that continuing capacity building to improve the credit skills and competencies of bank staff to ensure safety of lending and recovery systems in our banks. Also, Nigerian banks should focus more on growing non-interest income. That way, DMBs will be less affected by interest changes. Banks should slightly-lower interest rates regime or recommend other types of credit to customers; they should adopt stricter credit management practices to keep non-performing loans value low. Also of great importance, DMBs must be proactive in identifying sources of information for lending analysis to prevent problems of information asymmetry that can lead to poor credit quality and lost credit.

REFERENCES

1. Abogan, O.P., Olajide, E. &Oloba, O. (2014). The impact of deregulation of the economy on Nigerian

2. Adegbite, E.O. (2005). Financial Sector Reforms and Economic Development Nigeria: The role of management. Conference Paper Delivered at the Inaugural National Conference of the Academy of Management Nigeria, Abuja.

3. Adeyemi, M. O.,(2017). Liquidity and loan portfolio performance: evidence from the Nigerian banking sector. Unpublished Dissertation.University of Ilorin.

4. Akani, H.W. (2019).Credit expansion and commercial banks soundness in Nigeria: an application of multi-dimensional analysis. European Journal of Business and Innovation Research .7, No.1, (www.eajournals.org).

5. Akiri, S.E. (2016). The effect of financial liberalization on the profitability of deposit money   b a n k s (DMBS) in Nigeria: Bounds testing cointegration approach. IOSR Journal of   Economics   and Finance, 7(2&I), 1-11

6. Amadeo, K. (2017). Liquidity: Definition, ratios, and how it's managed. Retrieved November 1, 2018, from https://www.thebalance.com/ 305939

7. Anaeto, E. (2015). Banking industry environment (2014   -2016).   Challenges.Lagos: vanguardngrpublishing.

8. Augie, B. (2017). Banks' interest income spikes on improved loan book, higher yields.https://www.businessdayonline.com

9. Anolue, J. O. (2010). Causative Factors for Non-Performing Loans of Deposit Money Banks in Nigeria: A Critical Examination. An unpublished Master Thesis.

10. Bassey, F. A, Tobi, E. D. Bassey F & Ekwere, R. E. (2016) Liquidity Management and the Performance of Banks in Nigeria (2000-2010). International Journal of Academic Research in Accounting, Finance and Management Sciences, 6(1), 41–48.

11. CBN, (2018). Annual Account and Financial Reports. www.cenbank.orgAbuja.

12. CBN, (2016). Annual Account and Financial Reports. www.cenbank.orgAbuja.

13. CBN, (2014). Annual Account and Financial Reports. www.cenbank.org.Abuja.

14. CBN Briefs 2008-2009/04).

15. Chen Y.K.,Shen C H,.Lan F.K. & Chuan Y.Y., (2018). Bank Liquidity and Performance. Review of Pacific Basin Financial Markets and Policies DOI 10.1142

16. Cheng, M.C, Chien-Chi L, QuynhNhu T. P, & Hui-Yu C. (2016). Factors affect NPL in Taiwan banking industry. Journal of Accounting 6: 65–87.

17. Chisti, K.A., (2012). The Impact of Asset Quality on Profitability of Private Banks in India. Journal of African Macroeconomic Review 2(1), 126-146.

18. Chude, N. P., &Chude D. I., (2014).The Relationship between Regulatory Inconsistencies and Nigerian Banking Industry. Global Journal of Management and Business Research. 14 Issue 4 Version 1.0

19. Chodechai, S. (2004), Determinants of Bank Lending in Thailand. An Empirical Examination for the years 1992 – 1996, Unpublished Thesis.

20. Edakasi.S. &Apunyo B., (2011). Effect of interest rates on loan repayment; a case study of equity bank Masindi branch. Uganda. Unpublished Project.

21. Elliott, D. J. (2014). Bank Liquidity Requirements; An Introduction and Overview .https: //www. Brookings edu/ wpcontent /uploads/ elliott.pdf

22. Ene, E.E. Atong, A.S. &Ene, J.C. (2015). Effect of interest rates deregulation on the performance of deposit money banks in Nigeria. International Journal of Managerial Studies and Research (IJMSR), 3(9), 164-176.

23. Eze, G. P., &Ogbulu, O. M. (2016). Asset Quality Management and the Performance of Deposit Money Banks in Nigeria: A Co-integration and Variance Decomposition Analysis. International Journal of Economics and Financial Research, 2(3), 41-54.

24. Fatima, N., & Ashraf, S.H. (2017). An Inquisition of nonperforming assets in selected Indian public sector banks.

25. Felicia, O.O. (2011). Determinants of Commercial Banks' Lending Behaviour in Nigeria. International Journal of Financial Research.Vol 2(2). www.sciedu.ca/ijfr

26. Felicia, S. (2011).Profitability of the Korean banking sector: Panel evidence on ban specific a n d macroeconomic determinants. Journal of Economics and Management, 7(1), 43-

27. Godfrey, M. (2015). Liquidity and Bank Performance. International Business & Economics Research Journal, 14.

28. Gilchris, M. (2013). Influence of Bank Specific and Macroeconomic Factors on the Profitability of 25 Commercial Banks in Pakistan during the Time Period 2007-2011. American Journal of Business and Finance.

29. Hayes, K.C. (2013). How Interest Rates Impact Banks' Bottom Lines: A look at History.   V a l u e Walk: http://www.valuewalk.com/2013/06 Retrieved April 15, 2016.

30. Heibati, F., Nourani S & Dadkhah S. (2009). Evaluation of the Performance of Private banks of Iran in Comparison to the banks of Arabic countries, Persian Gulf area (domain),Economic Research Letter, 6.

31. Ilhomovich, S.E. (2009).Factors affecting the performance of foreign banks in Malaysia. A thesis for the degree Master of Science (Banking) College of Business (Finance and Banking.)

32. Ighomwenghian, K. (2016). Stanbic IBTC: When Non-Interest Income Boosts Earnings. http://investdata.com.ng/2016/12/stanbic-ibtc-when-non-interest-income-boosts-earnings/

33. Kenton, W. (2018). Non-interest income . Retrieved October 10, 2018, from Investing and financial analysis : https://www.investopedia.com/terms/n/noninterest-income.asp

34. Khrawish, H. A. (2011). Determinants of Commercial Banks Performance: Evidence from Jordan. International Research Journal of Finance and Economics, 19-45.

35. Mathuva, D. (2015). Revenue diversification and financial performance of savings and credit co-operatives in Kenya. Journal of Co-operative Organization and Management, 4 (1), 1-12.

36. Meier, G. (2011). No-ninterest income: A diversification story or a risky proposition? (Unpublished master's thesis), Edwards School of Business, University of Saskatchewan, Saskatoon, Canada.

37. Kenton, W. (2018, June 29). Non-Interest Income. Retrieved   from   Investopedia: https://www.investopedia.com/terms/n/noninterest-income.asp

38. Khalid, A.C., (2012). The impacts of Assets Quality on Profitability of Private Banks in India: A case study of JK, ICICI, HDFC and YES Banks. Journal of African Microeconomic Review 2 (1), 1 – 22.

39. Khan N.A (2018). An Empirical Assessment of Non-Performing Assets in Indian Scheduled

40. Khemraj, T. & Pasha, S. (2012) The Determinants of Non-Performing Loans. An Econometric case study Guyana.

41. Klein, Nir. 2013. Non-Performing Loans in CESEE: Determinants and Impact on Macroeconomic Performance. Working paper No. 13/72. Washington, DC, USA: International Monetary Fund.

42. Kolapo, T. F., Ayeni, R. K. and Oke, M. O. (2012). Credit risk and commercial banks' Performance In Nigeria: A panel model approach. Australian Journal of Business and Management Research 2 (02): 31-38.

43. Lafante Esteban (2012). Monitoring Bank Performance in the Presence of Risk Mirceaepure.   W o r k i n g Papers Barcelona, Spain

44. Makinde, H.O. (2016). Effect of interest rate on commercial bank deposits in Nigeria (2000-2013).Proceeding of the First American Academic Research Conference on Global Business, Economics, Finance and Social Sciences (AAR16 New York Conference).

45. Moti, H.O, Masinde, J.S, &Mugenda, N.G, (2012).Effectiveness of Credit Management Systems on loans performance: Empirical evidence from micro finance Sector in Kenya. International Journal of Business, Humanities and Technology 2(16),99-108.

46. Muritala, T. A. &Taiwo, A. S. (2013). Credit Management Spur Higher Profitability? Evidence from Nigerian Banking Sector: Journal of Applied Economics and Business

47. Obi-nwosu, V. O, Okaro, C. Ogbonna, K. S., Atsanan, A. N.,(2017). Effect of Liquidity on performance of deposit money banks. International Journal of Advanced Engineering and Management Research No. 2 Issue 4, ISSN: 2456-3676

48. Nnanna, O.J. (2005). Beyond Bank Consolidation: The Impact on Society, in CBN (ed.). Consolidation of Nigeria's Banking Industry.Proceedings of the Fourth Annual Monetary Policy Conference. Abuja, FCT. 7.

49. Nzoka, F.K., (2016). The Effect of Assets Quality on the Financial Performance of Commercial Banks in Kenya. Unpublished Master of Science thesis submitted to University of Nairobi.

50. Obidike, P. C., Ejeh, G. C. &Ugwuegbe, S. U. (2015). The impact of interest rate spread on the performance of Nigerian Banking Industry. Journal of Economics and Sustainable Development 6(12), 131-139.

51. Ogunyomi, O.O. (2011). The Impact of Monetary Policy on Commercial Banks Loans and Advances in Nigeria: An Empirical Investigation (1975-2009). http:// www.Research gate.net/ publication/ 228118448

52. Okafor, F.O. (2011). 50 years of Banking Sector Reforms in Nigeria (1960-2010. Past Lessons): Future Imperatives, Enugu.Ezu Books Ltd. 52-57

53. Okafor, R.G. (2012). Performance Evaluation of Nigerian Commercial Banks: Before and After Consolidation. IJEMR.2(2): 1 – 14

54. Okoye, V. & Richard, E.O.(2013). Effect of bank lending rate on the performance of Nigerian deposit money banks. International Journal of Business and Management Review, 1(1), 34-43.

55. Okoye, L.U., Modebe, N.J., Achuagamonu, U. & Isibor., (2016). Effect of mergers and acquisitions on banking sector performance in Nigeria. Journal of Social Development, 5, No. 5, www. Arabian bmr com/ NG JSD Index

56. Ombaba K.B.M., (2013). Assessing the Factors Contributing to Non Performance Loans in Kenyan Banks, European Journal of Business and Management, 5(32), 13-20.

57. Onoh, J. k., (2002). Money and Banking in Nigeria. Lagos, Nigeria. Longman Publishers, Lagos.

58. Onwumere, J.U.J. Okore, O.A. &Ibe, I.G. (2012). The impact of interest rate liberalization on savings and investment: Evidence from Nigeria. Research Journal of Finance and Accounting, 3(10), 130-136.

59. Obute, C., Adyorough, A. &Itodo, A.I. (2012).An assessment of the impact of interest rate deregulation on economic growth in Nigeria (1964-2009).Journal of Business and Organizational Development, 4(1), 12-19.

60. Ogunbiyi, S. S, & Ihejirika, P., (2014). Interest rates and deposit money banks' profitability nexus: the Nigerian experience. Arabian Journal of Business and Management Review (OMAN Chapter) 3, No.11;

61. Olalekan, A., and Adeyinka, S. (2013). Capital adequacy and banks' profitability: an empirical evidence from Nigeria. American Journal of Contemporary Research, 3(10), 1-7.

62. Imeokparaira L., (2013). Loan Management and Performance of Nigerian Banks- Empirical Study. International Journal of Management.

63. Nnanna, O.J. (2005). Beyond Bank Consolidation: The Impact on Society, in CBN (ed.). Consolidation of Nigeria's Banking Industry. Proceedings of the Fourth Annual Monetary Policy Conference. Abuja, FCT. 7.

64. Sanghani, D. A. (2014). The Effect Of Liquidity On The Financial Performance Of Non Financial Companies Listed At The Nairobi Securities Exchange.

65. Samir., & Kamra, D. (2013).A Comparative Analysis of Non- Performing Assets (NPAs) of Selected Commercial Banks in India. Opinion. International Journal of Management, 3 (1), 68-80, June.

66. Sangmi & Nazir, (2010). Analysing financial performance of commercial banks in India; Application of CAMEL Model. Pakistan. Journal of Commerce and Social Sciences 4(1). 40-55

67. Solomon, O. (2012). Credit risk management as a tool for bank survival. www.independent .academia.edu

68. Sontakke Ravindra & Tiwari Chandan (2013). Trend Analysis of Non-performing Asset in Scheduled Commercial Banks in India; International Journal of Application or Innovation in Engineering & Management (IJAIEM); ISSN 2319 – 4847

69. Stiglitz, J. (2002).Democracy has reduced investment risk in Nigeria. A paper titled- private sectorparticipation in Nigerian transition to a competitive market driven economy. Published by Business Vanguard. Lagos 01/21-27.

70. Svoronos JP (2018). Early intervention regimes for weak banks Financial Stability Institute. FSI Insights on policy implementation No 6. Bank for International Settlements.

71. Udeh S.N. (2015). Impact of Monetary Policy Instruments on Profitability of CommercialBanks in Nigeria: Zenith Bank Experience. Research Journal of Finance and Accounting www.iiste.org ISSN 2222-1697

72. Wainaina (2013). Effect of macroeconomic factors on Commercial Banks Lending to Agricultural Sector in Kenya.MBA Project University of Nairobi. [66].