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HYPOTHESES
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
FINDINGS
RECOMMENDATIONS/SUGGESTIONS
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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

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- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

# DETERMINANTS OF NON-PERFORMING LOANS IN NIGERIA

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**ABSTRACT**

*The study examines the determinants of nonperforming loans in Nigeria. Secondary data were extracted from the Central Bank of Nigeria Statistical Bulletin and the Annual Reports of all commercial banks. The study employs an ordinary least square multiple regression analysis given that the data are cross – sectional and time series in nature. The cross – section random effect model was employed and the estimate parameter data were regressed and analyzed with the aid of EVIEWS 7.0 econometric software package. The findings of the study are that, the Gross Domestic Product is not a significant determinant of bad debt ratio, and poor credit risk management contributes significantly to non – performing loans in the Nigerian banking sector. We therefore insistently recommend that, Nigerian government should establish positive banking regulations that would contribute to oversee the administration of loans, and banks should adopts efficient loan appraisal techniques consisting of conventional investment analysis and risk measurements.*

**KEYWORDS**

Financial Institution, loans, Non-performing loans, Commercial Banks, Poor Credit Management, Microeconomic variables, lending portfolio.

## 1. INTRODUCTION

The financial institutions generally serve as financial intermediaries. This form of asset intermediation is required to ensure that the funds are transferred from the surplus economic units to deficit economic units within the economy. The Nigerian banking sector encourages individuals and organizations to establish themselves by approving credit and loans to them and also ensuring that organizations which buy goods or services on credit, or individuals who borrow money, can afford to do so and that they pay their debt on time. “Non-performing loans are define as loans which, for a relatively long period of time, do not generate income, that is, the principal and/or interest on the loans has been unpaid for at least 90 days.” (Lario and Klingebiel, 1999). The incidence of non-performing loans (NPLs) could occur when due, resulting in over-bloated loan interest due for payments.

Poor credit management and non-Performing loans (NPLs) reduce the liquidity of banks, and credit expansion, this would relatively slow down the growth of the real sector with direct consequences on the performance of the banks, the firm and the economy as a whole. Lending involves the creation and management of credit assets and is an important task in bank management. This is so because the lending portfolio requires articulated lending policy. The policy should set out the bank’s lending philosophy and objectives including the modalities for implementation, monitoring, appraisal and review. Well-conceived lending policies and careful lending practices are essential in efficient credit system and in minimizing the risk in lending.

The banking sector seem to have an important role to play in the economic development of the country. However, the previous studies on the sector indicates that little success was recorded in this regard. Some banks find it difficult to deal with the obligation to their customers and owners due to faults or weakness in managing their lending portfolio and the short comings which could render them either illiquid or insolvent. Most banks in Nigeria in the past have been saddled with problems relating to loans and advances particularly credit management and non-performing loans (NPLs) which have gradually eroded their profits and their performances have been greatly retarded. The ability of banks to recover loans and advances granted to customers constitutes a major factor in the bank’s failure. This unhealthy phenomenon has greatly retarded economic growth and development in the state. We seek to achieve three main objectives;

To examine the extent to which poor credit management by Nigerian banks have contributed to determinants of non-performing loans,

To determine the impact of macroeconomic performance of Nigerian economy on the prevalence of non-performing loans in Nigeria.

To examine the impact of banks composition of board of directors on non-performing loans in Nigerian banks.

## 2. LITERATURE REVIEW

The focus of this section is to review literature on Non-performing loans which would serve as a basis of understanding how it would result in banks and the economy of a country.

**NON-PERFORMING LOANS**

Non-performing loans (NPLs) generally refer to the loans which for a relatively long period of time do not generate income. That is the principal and \or interest on loans has remained unpaid for at least 90 days (Caprio and Ktingebiel 1999). Deserving and Renault, (2004) submitted that non-performing loans (NPLs) has taken a new dimension in finance just as interest rate and asset and liability management were, 15 years ago because of mounting pressure of non-performing loans (NPLs) on bank’s balance sheets and incessant banks failure. It is the intention of every lender or credit analyst to make only good loans but inevitably, occasional oversight occurs. In some cases unexpected incident may happen that will disrupt the good plans already laid down.When a loan is to default there are often warning signals, which if perceived early should stimulate the lenders curiosity to take necessary action to safeguard the bank’s interest. Causes of non-performing loans (NPLs) can broadly be grouped into the following: Adverse economic conditions or problems, Bank related problems, Customers' related problems and Political condition/problems. Employment and income are closely affected by lack of payment which may place the borrowers in a position of not being able to repay. Some consumed loans may also couse problems due to poor budgeting by the borrower such as their unforeseen contingencies which are in excess of income. Some banks related problems are the causes of non-performing loans (NPLs) such as: Poor management, Lack of sound credit policy,Inadequate credit analysis,Error in documentation,Undue emphasis on profitability at the expense of loan quality. Fraudulent practices,Abnormal competition – Kassim (2002).

Muller (2001) is of the opinion that though banks earn profit by taking risks, they can minimize this risk to some extent by adopting good lending policies, identifying the risk involved, meaning and cleaning, situation of the venture to prevent bad lending. He further stated that banks are lending area in which business risks are known and the spirit of just creating new business should not plunge the bank into serious debts management problems. According to him, most causes of non-performing loans are usually the consequences of violation of lending policies and market speculation. Alegbe (2004) brought forward the opinion that security perfection is the only prudent practice since customers are over willing to co-operate before disbursement, but becomes extremely difficult once disbursement has been allowed. He therefore warned bank managers to ensure that the security requirement should be fully garented before a customer is allowed to draw down approved facility. He believes that with the collusion of the staff or through inefficient book keping, the bank will not be able to press for repay.

**CREDIT RISK MANAGEMENT**

The amount of debt that is definitely known to be irrecoverable must be written off as bad debts. Bad debts are regarded as an expense in earning the revenue of that accounting period and must be debited to the profit and loss account on balance sheet day. Provision for bad debts might be an income statement account also known as bad debt expenses or uncollectable account expenses.

**MACROECONOMICS VARIABLES**

GDP and inflation are the some microeconomic variables used in this study. The total market value of all final goods services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports. In economics, inflation is a rise in the general level of price of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods services. Negative effects of inflation include a decrease in the real value of money and other monetary items over time. Examining the macroeconomic factors that contribute to banking crises in Latin America during the 1990s, Gavin found that interest rates, inflation, terms of trade, domestic income, credit growth and exchange rate regime are important constraints on loan servicing capacity. Typically, these studies found that loan loss provisions are negatively related to GDP growth and positively related to interest rate.

**COMPOSITIONS OF BOARD OF DIRECTORS**

Choe and Lee (2003), states that board composition is very important to effectively monitor the managers and reduce the agency cost. Although the executive directors have specialized skills, expertise and valuable knowledge of the firms' operating policies and day-to-day activities, there is a need for the independent directors to contribute the fresh ideas, independence, objectivity and expertise gained from their own fields (Weir, 1997; Firth et al., 2002). Hence, the agency theory recommends the involvement of independent non-executive directors to monitor any self-interested actions by managers and to minimize agency costs (Kiel & Nicholson 2003; Le et al. 2006; Florackis & Ozkan, 2004; Williams et al. 2006).

Secondly, the success of the banks brings out the ability of the banks to identify the types of financial products demanded by the public and to provide the products efficiently and sell them at a competitive price. The bank's efficiency is given attention by the management since it will help banks to enhance the chance of survival in the competitive markets (Ihsan & M.Kabir, 2002). Moreover, customers sometimes are fraudulent, they give false information about their business dispose of collateral securities without the knowledge of the lender, and also go into endless litigations with the bank to buy time or even abscond without a leading or forwarding address.

**EMPIRICAL EVIDENCE ON THE EFFECT OF NON-PERFORMING LOANS ON BANKS PERFORMANCE IN SOME COUNTRIES**

Empirical evidence and result from similar studies shows the negative effects of non-performing loans on banks performances. Current global financial crisis attest these direction.

In Turkey, Karabulut and Bilgin (2007) carried out a study with the purpose of examining the impact of the unlimited deposit insurance on non-performing loans of (NPLs) and market discipline. They argued that deposit insurance program plays a crucial role in achieving financial stability. Government in many advanced and developing economies established deposit insurance scheme for reducing the risk of systematic failure of banks. The report shows that deposit insurance has a beneficial effect of reducing the probability of a banking operation. However, deposit insurance systems have their own set of problems. Deposit insurance creates moral hazard incentive that encourages banks to take excessive risks.

Turkey established and explicit deposit insurance system in 1960. Until 1994 the coverage was determined by a flat rate but during that time period, Turkey was experiencing a major economic crisis. In April 1994, Turkey government has to establish an unlimited deposit insurance scheme to restore the banking system stability. In conclusion, the study shows that unlimited deposit insurance causes a remarkable increase of non-performing bank loans (NPLs). What this means is that deposit insurance institutions established by monetary authority must re-examine the current policy of blanket guarantee of deposits in the banking sector.

In Taiwan, Hu Li and Chu (2004) carried out their own study examining how ownership structure affects non-performing loans (NPLs). Their findings revealed that an increase in the government shareholding facilitate political lobbying. On the other hand, private shareholding induces more on non-performing loans (NPLs) to be manipulated by corrupt private owners. The result shows that the rate of NPLs decreased as the ratio of NPLs among Taiwanese public, mixed and private commercial banks.

**RECENT HAPPENINGS IN THE BANKING SECTOR AS A RESULTS OF NON-PERFORMING LOANS**

Nigerian banking is facing a crisis and pragmatic steps must be taken to arrest the ugly situation. Central Bank of Nigeria (CBN), not too long ago announced the dismissal of managing directors of five banks in Nigeria intercontinental Bank, Fin Bank, Corner Stone, Oceanic Bank and Afribank. Apart from that, many influential individuals and companies were fingered not keeping up to agreements of the debts they owed to those banks. The reason given by Sansi Lamido's CBN for letting them go is principally due to excessively high level of non-performing loans in the five banks which was attributed to poor corporate financial practices, tax credit administrator process and the absence or non adherence to the bank's credit risk management practices. Thus, the percentage of non-performing loans to total range from 19% to 48%. The five banks will therefore need to make additional provision of N539,09 billion. The huge provision requirements have led to significant capital impairment. consequently; all the banks are undercapitalized for their current level of operations and are required to increase their provisions for loan losses, which impacted negatively on their capital. Indeed one is technically insolvent with a capital adequacy ratio of 1.0%. Thus, a minimum capital injection of N204.94 billion will be required in the five banks to meet the minimum capital adequacy ratio of 10%. Credit was given to the capitalization of banks at the time of #25 billion that was initiated by Prof. Charle Soludo, the former Governor of CBN.

In the third quarter of 2006, the banks magazine, an arm of the financial times group released its world renowned top 1,000 world banks ranking for 2006 and on the list were size Nigeria banks; First Bank, Union Bank and Oceanic Bank. According to the magazine the increase in the number of Nigeria banks in this global listing is 1000 "due to the consolidation that has taken place in the banking sector in Nigeria since 1st January 2006 and the creation of larger banking institutions with a minimum capital requirement of N25 billion.

**HYPOTHESES**

There are three formulated Hypothesis for this studies. And they are as follows;

Hypothesis 1: Poor Credit management does not contribute significantly to non-performing loan in Nigeria banking sector

Hypothesis 2: Macroeconomic variables do not contribute significantly to non-performing loans in Nigeria banking sector.

Hypothesis 3: Compositions of boards of director do not contribute significantly to non-performing loans in Nigeria banking sector.

## 3. METHODOLOGY

The aim of this study is to examine the determinants of non-performing loan in Nigeria. The study covers commercial banks in Nigeria, Secondary data collection method was adopted in this study. Data were collected on the dependent and independent variables for the period under review (1980-2010). The research is both analytical and descriptive. It is analytical in the sense that data supplied by the sample banks were analyzed to determine their individual debt capacities and descriptive in the existing attitudes and practices concerning non performing loan and comparisons were measured. Population of this study consists of all Nigeria commercial banks that operate in the sector from 1980 – 2010.

Secondary data are used in this study. It was used to agree with their methodology which uses historical records and survey studies because there is no way research into the past events would be carried out without relying on secondary sources. Similarly, it serves as a source of reference for further research.

As indicated from above, secondary data were sourced from existing records and published reports. The data for this study were extracted from the audited statement of accounts and annual reports (1980 – 2010) of all commercial banks to generate the data to be used for the analysis. Also various reports and brochure of Nigerian Deposit insurance Corporation (NDU) were sourced, CBN statistical bulletin were used in this study. Some selected corporate reports of bank were helpful.

Augmented Dickey Fuller (ADF) tests will be used for the analysis. This study examines credit risk management in Nigeria commercial banks. It explore the long run and short term relationship between the dependent variable, bad debt ratio (BDR), (our proxy for credit risk) and some independent variable – total deposits (TO), bank capital base (BCAP), total loans (TL), board independence (BIR), provision for bad debt (PBD), interest rate (INTR), gross domestic product (GDP) and total non-performing loans (TNL). The study covers existing commercial/merchant banks in Nigeria during the period under review. The study period was thirty-one years (1980 – 2010).The pooled data were analyzed using multiple regression analysis. The functional form of our regression model is:

BDR = F (TD, BCAP, TL, BIR, PBD, INTR, INFL, GDP, TNL

Econometric form of our regression model is:

$BDR = \alpha_0 + \alpha_1 TD + \alpha_2 LNBCAP + \alpha_3 LNTL + \alpha_4 BIR + \alpha_5 PBD + \alpha_6 INTR + \alpha_7 INFL + \alpha_8 GDP + \alpha_9 TNL + e$

Where: $\alpha_0 - \alpha_9$ = Coefficients

BDR = Bad debt ratio (our proxy for credit risk)
TD = Total deposits
LNBCAP =Natural Logarithm of Bank capital base
LNTL = Natural Logarithm of Total Loans
BIR = Board independence
PBD = Provision for bad debt
INTR = Interest rate
INFL = Inflation
GDP = Gross domestic product
TNL = Total non-performing loans
e = Error term

## 4. DATA ANALYSIS AND RESULT INTERPRETATION

This study examined credit risk management in Nigerian commercial banks. First, to reduce the effects of large numbers and to make the slope coefficient to be measures of elasticity of the dependent variable with respect to the independent variables, we took the natural logarithms of some of the variables - total deposits (LNTD), bank capital (LNBCAP), and total loans (LNTL) - with large number in their series. To determine the order of integration and to avoid spurious regression, we conducted the unit roots tests to test the null hypothesis that the series have unit roots. Using the Augmented Dickey-Fuller (ADF) tests at 95% level of significance, the results show that all the variables were not stationary at levels (because the ADF test statistic was lower, in some instances, than the ADF critical values at 95% level of significance).

Details of the tests are contained in Table 4.1a.

**TABLE 4.1A: UNIT ROOTS TEST FOR VARIABLES AT LEVELS**

| VARIABLE | ADF TEST STATISTIC | ADF CRITICAL VALUE @ 95% | REMARK |
|---|---|---|---|
| BDR | -4.9030 | -2.9640 | STATIONARY |
| LNTD | 0.1517 | -2.9678 | NON-STATIONARY |
| LNBCAP | -0.8921 | -2.9678 | NON-STATIONARY |
| LNTL | -1.7835 | -2.9640 | NON-STATIONARY |
| BIR | -3.8182 | -2.9640 | STATIONARY |
| PBD | -2.5356 | -2.9640 | NON-STATIONARY |
| INTR | -4.3953 | -2.940 | STATIONARY |
| INFL | -2.6020 | -2.9640 | NON-STATIONARY |
| GDP | -3.7865 | -2.9640 | STATIONARY |
| TNL | -1.6189 | -2.9640 | NON-STATIONARY |

As shown above, all the variables were not stationary at levels. Thus, to ensure the analysis is conducted at the same order of integration we transformed the series to their first difference and thereafter repeated the unit root tests on the first difference values.

**TABLE 4.1B: UNIT ROOT TEST FOR VARIABLES AT THEIR FIRST DIFFERENCES**

| VARIABLE | ADF TEST STATISTIC | ADF CRITICAL VALUE @ 95% | STATUS | ORDER OF INTEGRATION |
|---|---|---|---|---|
| DBDR | -3.7368 | -2.9981 | STATIONARY | I(1) |
| DLNTD | -7.3977 | -2.9763 | STATIONARY | I(1) |
| DLNBCAP | -14.9519 | -2.9719 | STATIONARY | I(1) |
| DLNTL | -4.9342 | -2.9862 | STATIONARY | I(1) |
| DBIR | -7.8031 | -2.9763 | STATIONARY | I(1) |
| DPBD | -8.5044 | -2.9719 | STATIONARY | I(1) |
| DINTR | -10.1437 | -2.9763 | STATIONARY | I(1) |
| DINFL | -5.1881 | -2.9862 | STATIONARY | I(1) |
| DGDP | -5.3390 | -2.9919 | STATIONARY | I(1) |
| DTNL | -5.0949 | -2.9810 | STATIONARY | I(1) |

In Table 4.1b above, it indicates that in each of the variable in the data series, the ADF test statistic is greater than the 95% ADF critical value.This was an indication that they were stationary at their first difference and thus are integrated of order one, I(1).

Thus, we rejected the hypothesis of the existence of unit roots (non-stationarity) for the data series. Thus, the variables are stationary at their first difference and they are integrated of order one [I(1)]. Therefore, the regression analysis on the transformed data would produce non-spurious results. To test for co-integration we employed the Engle and Granger two-stage technique.

**DETERMINATION OF LONGRUNS OR EQUILIBRIUM RELATIONSHIP**

Co-integration helps to determine the long run or equilibrium relationship between the dependent and independent variables. Towards this end, first, we conducted an ordinary least square (OLS) regression analysis (i.e. we regressedBDR on the independent variables) and thereafter, we extracted the regression residuals and we performed the unit roots test on them.

Table 4.2 shows the OLS regression results:

**TABLE 4.2: ORDINARY LEAST SQUARES MULTIPLE REGRESSION ANALYSIS**

| Dependent Variable BDR | Variables | Coefficient | t-statistic | Probability |
|---|---|---|---|---|
| | C | 2.0138 | 1.3261 | 0.1991 |
| | LNTD | 0.2218 | 2.0355 | 0.0546** |
| | LNBCAP | -0.1742 | -1.5619 | 0.1333 |
| | LNTL | -0.4411 | -3.2057 | 0.0042* |
| | BIR | 3.4562 | 1.6097 | 0.1224 |
| | PBD | -1.53E-06 | -0.2131 | 0.8333 |
| | INTR | -0.0056 | -0.2738 | 0.7869 |
| | INFL | 0.0090 | 1.5216 | 0.1430 |
| | GDP | -0.0024 | -0.0718 | 0.9434 |
| | TNL | 1.00E-05 | 3.2817 | 0.0036* |
| **$R^2$** | 0.53 | | | |
| **Adj. $R^2$** | 0.32 | | | |
| **F-statistic** | 2.64 | | | |
| **Pro (F-statistic)** | 0.032 | DW=1.88 | | |

**Source:** Data analysis by Researcher, January, 2013

When we performed a unit root test on the residuals obtained from the above regression at level, to test the null hypothesis that ECM has a unit root against the alternate hypothesis that ECM has no unit root. The test produced the following results in Table 4.3 below.

**TABLE 4.3: AUGMENTED DICKEY-FULLER UNIT ROOTS TEST ON ECM**

| ADF TEST STATISTIC | TEST CRITICAL VALUES AT 95% | REMARKS |
|---|---|---|
| -4.5891 | -2.9763 | STATIONARY |

From the above table, it can be seen that the ADF test statistic, -4.5891 is greater than the 5% critical value of -2.9763 (absolute values).This indicates that the regression residuals are stationary and that the relationship between the dependent variable and independent variables are co-integrated and has long or equilibrium relationship. Thus, a long run or stable relationship exists between the dependent variable, bad debt ratio (BDR) (our proxy for credit risk), and the independent variables –total deposits (TD), bank capital (BCAP), total loans (TL), board independence (BIR), provision for bad debt (PBD), interest rate (INTR), inflation(INFL), gross domestic product (GDP) and total non-performing loans (TNL).

**SHORT RUN DYNAMICS RELATIONSHIPS**

The error correction mechanism (ECM) initially used by Sargon (1984) and popularized by Engle and Granger (1987) corrects the long run or equilibrium relationship for disequilibrium. According to the Granger representation theorem, where two variables are co-integrated, the relationship between the two can be expressed as ECM. Thus, the ECM framework shows the temporary behavior of the dependent variable given short run changes in the independent variables. In this analysis, the autoregressive distributed lags (ARDL) approach was used in estimating the ECM. The results are contained in Table 4.4 below. The adjusted R-squared criterion and information criteria (Akaike info criterion, Schwarz criterion and the Hannan-Quinn criteria) were used in selecting the parsimonious model from the over-parameterized models that is reported in the table. To check for autocorrelation, the Durbin Watson statistic was also used in conjunction with other criteria in selecting the best model from many over parameterized ECM models. The absolute value of the ECM(-1) parameter determines how quickly the equilibrium is restored given temporary shocks in long run relationships.

As shown in Table 4.4 below, the results of the factors that have impact on credit risk (proxied in this study by bad debt ratio, BIR)in the Nigerian banking industry show that the goodness of fit statistic of the model is very high. The adjusted R-squared value is 0.86, an indication that over 86% of the systematic variation in credit risk (BIR)is accounted for by variations in the explanatory variables including changes in the error correction term. Given that F-statistic,12.45, passes the significant test at 1% [Prob (F-stat) =0.0000] level, this is a strong indication that the ECM model has a strong predictive power. Thus, we reject the null hypothesis of no significant log linear relationship between bad debt ratio (our proxy for credit risk) and all the independent variables. Therefore, we conclude that a significant log linear relationship exists between credit risk (proxied by bad debt ratio) and the independent variables.

**TABLE 4.4 ARDL REPRESENTATION OF THE ERROR CORRECTION MECHANISM BASED ON THE ADJUSTED R-SQUARED CRITERION**

| Dependent Variable: DBDR | Variables | Coefficient | t-statistic | Probability |
|---|---|---|---|---|
| | DLNTD(-1) | -0.0413 | -0.3963 | 0.6983 |
| | DLNBCAP(-1) | 0.1184 | 1.4655 | 0.1665 |
| | DLNTL | -0.7999 | -6.0126 | 0.0000* |
| | DLNTL(-1) | 0.0410 | 0.4144 | 0.6853 |
| | DBIR | 1.0399 | 0.6599 | 0.5208 |
| | DBIR(-1) | -1.4977 | -1.1938 | 0.2539 |
| | DPBD | -1.40E-06 | -0.3626 | 0.7227 |
| | DPBD(-1) | 1.74E-05 | 3.2666 | 0.0061* |
| | DINTR | -0.0084 | -0.6218 | 0.5448 |
| | DINTR(-1) | -0.0226 | -1.3901 | 0.1879 |
| | DINFL(-1) | 0.0035 | 0.6716 | 0.5136 |
| | DGDP | 0.0091 | 0.2971 | 0.7711 |
| | DTNL | 1.16E-06 | 0.4990 | 0.6261 |
| | DTNL(-1) | 7.83E-06 | 2.1895 | 0.0474** |
| | ECM(-1) | -0.7434 | -3.1192 | 0.0081 |
| **$R^2$** | 0.93 | | | |
| **Adj. $R^2$** | 0.86 | | | |
| **F-statistic** | 12.45 | | | |
| **Pro (F-statistic)** | 0.0000 | DW=1.83 | | |

**Source:** Data analysis by Researcher, January, 2013

***significant at 1% level; **** significant at 5% level

From the above table, it is observed that the current year value of total loans(DLNTL) has a negative but significant impact at the 1% level on credit risk (DBDR) while the impact of the one-year lag is not significant. Similarly, previous year provision for bad debt (DPBD(-1))significantly impact on credit risk also at the 1% level of significance. Meanwhile although the impact of current year non-performing loans (DTNL) on credit risk is not significant, however, the previous year level of total non-performing loans (DTNL(-1)) has negative but statistically significant impact on credit risk.

Other variables in the model including board independence (BIR), interest rate (DINTR) , inflation rate (INFL), gross domestic product (DGDP) and bank capital base have no statistically significant impact on credit risk. Thus, this study indicates that board independence (BIR), interest rate (DINTR), inflation rate (INFL), gross domestic product (DGDP) and bank capital base (BCAP) are not significant determinants of credit risk in Nigeria.

**LONG AND SHORT RUN RELATIONSHIPS**

Therefore, there exists a long run stable relationship between credit risk (proxied by bad debt ratio) and the independent variables. Indeed, the long run relationships between credit risk and total deposits on the one hand, and credit risk and total loans on the other, are significant with t-values of 2.04 and -3.21 respectively. Similarly, long run relationship exists between credit risk and total non-performing loans. However, in the short run the relationships between the credit risk and total loans, credit risk and previous year provision for bad debt are statistically significant. In the same vein, although the long run relationship between credit risk and the current year total non-performing loans are not significant, but in the short run the previous year impact on credit risk is statistically significant at 5% level. In the short run, any shock or deviation in the long run equilibrium values of these variables is speedily restored to equilibrium level at the rate of 74% given that the ECM coefficient is -0.74.The parsimonious ECM model's adjusted R-squared value of -0.74 clearly shows that the model has strong predictive power. The Durbin Watson statistic of 1.70 indicates the absence of autocorrelation in the time series data. Therefore, we conclude that the results of the regression analyses and the coefficients of the models are reliable and should be very useful in prediction and for policy direction.

## 5. FINDINGS, CONCLUSION AND RECOMMENDATIONS

### 5.1 FINDINGS

This study examined credit management and the determinants of non-performing loans in Nigeria banking industry. It ascertained the impact of credit management on bank lending performance in Nigeria by examining the long run stable and short-term dynamic relationships between the dependent variable – bad debt ratio (BDR) (our proxy for credit risk) and the independent variables – total deposit (TD), bank capital base (BCAP), total loans (TL), board independence (BIR), provision for bad debt (PBD), interest rate (INTR), inflation (INFL), gross domestic product (GDP) and total non-performing loans (TNL). The study covered a period of thirty one years (1980 – 2010).

The major findings of the study are as follows:

- Gross Domestic Product is not a significant determinant of credit risk.
- Total loans and advances significantly impact credit risk.
- Total non-performing loans have significant impact on credit risk.
- Poor credit management contributed significantly to non-performing loans in the Nigerian banking sector.
- Other macro-economic variables (inflation and interest rate) do not contribute significantly to non-performing loans in the Nigerian banking sector.
- Board independence does not significantly have any impact on the level of credit risk.

However, on the short run dynamic relationships, the following findings were revealed:

- The current year value of total loans (DLNTL) has a negative but significant impact at the 1% level on credit risk (DBDR) while the impact of the one-year lag is not significant.
- Similarly, previous year provision for bad debt (DPBD(-1) significantly impact on credit risk, also at the 1% level of significance. Meanwhile although the impact of current year non-performing loans (DTNL) on credit risk is not significant,
- The previous year level of total non-performing loans (DTNL(-1)) has negative but statistically significant impact on credit risk.

Other variables in the model including board independence (BIR), interest rate (DINTR), and inflation rate (INFL), gross domestic product (GDP) and bank capital base have no statistically significant impact on credit risk. Thus, this study indicated that board independence (BIR), interest rate (DINTR) inflation rate (INFL), gross domestic product (DGDP) and bank capital base (BCAP) are not significant determinant of credit risk in Nigeria.

### 5.2 CONCLUSION

In conclusion, bank management should pay greater attention to bank lending activities so as to minimize the incidence of bank debts in the industry. Since the relationship indicators and bad debt ratio are not statistical significant, the Nigerian banks should do all within their power to ascertain that the credit worthy customers and other corporate bodies are given loans instead of outrightly depriving them access to loans in order to enhance the economic development of the country in no time. The level of credit management by Nigerian banks should be significantly improved upon to avoid or reduce the incidence of non performing loans.

### 5.3 RECOMMENDATIONS

In relation to our findings, the following recommendations are suggested:

- The Nigerian government should put in place some banking regulations that would help oversee effective administration of loans.
- The managers of the Nigerian banks from time to time should carry out seminars with their employees on the subject of "credit management" in order to thoroughly educate the workers.
- Banks should endeavor to establish an enduring loan recovery mechanism and the various loan recovery strategies be well employed to recoup all non-performing loans.
- Banks should adopt an Efficient Loan Appraisal Techniques (ELAT) consisting of conventional investment analysis and risk measurement
- Adequate provisions for non-performing loans so as not to distort the true presentation of the bank position in their balance sheets as well as sound credit analysis.
- The banks should endeavour to diversify their investment credit portfolio, Such investment should cut across three categories of loan, viz: short term, medium and long term.
- The institution of bank credit strategy that will take into account the cyclical aspect of economy and shifts in the composition and quantity of credit portfolio.

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