

## **Effect of Loan Assets Classification on Financial Performance of Nigerian Listed Deposit Money Banks**

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**ABSTRACT:** *This ex post facto research study examines the effect of loan asset classifications and the impacts of substandard, doubtful, and loss loans on the financial performance of listed deposit money banks in Nigeria. The studied Population included all 14 deposit money banks listed on the Nigerian Stock Exchange (NSE) within the period of 2008 to 2019. The study purposively sampled 10 out of the 14 banks for the purpose of data collection and employed multiple regression analysis of data collated from the annual financial reports of the sampled banks within the studied period. In view of the absence of cross-section effect in the dataset, the pooled independent OLS regression was chosen for analysis and interpretation, revealing that the combined outcome of substandard (SSL) and loss loans (LL) variables are significantly related with the financial performance of listed deposit money banks in Nigeria, while doubtful loans show an insignificant effect on financial performance. The study concludes that bank loans are strong predictor of financial performance in Nigeria, thus it is recommended that banks should eradicate weaknesses such as underwriters' initial failure to adequately assess borrower risk level prior to issuing loans and to subsequently successfully enforce repayment of the loans.*

**KEY WORDS:** loan assets classification, substandard loans, doubtful loans, loss loans, financial performance and deposit money banks.

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### **INTRODUCTION**

Commercial banks play an important role to foster economic growth and development through their intermediation role and the financial services they provide to communities and nations. The credit facilities that banks offer facilitate the exploration and expansion of productive investment avenues by individuals and institutional investors. However, there is a growing recognition that the quantity or percentage of non-performing credit facilities is related to bank failures and national financial status. (Ugirase, 2013). After the 2008-2009 global financial crisis, which began in the

sub-prime mortgage loan market, the issue of non-performing loans (NPL) has gained increasing research attention because of the potential for rapid increases in defaulting. Moreover, there are some evidences that financial and banking crises in East Asia and Sub-Saharan African countries were preceded by increasing NPLs.

Insider dealing is the major cause of the proliferation of NPL portfolios in Nigeria, involving over-extension of loans become bad and irrecoverable (Etale, 2016). To clean up the mess in the banking sector and return banks to the paths of sound management and profitability, the Central Bank of Nigeria (CBN) had to inject about NGN 700 billion into a bailout exercise for banks while purging the system of bad and irresponsible management teams. To further strengthen banks stability and restore consumer confidence, the CBN (2010), through its prudential guidelines, required licensed banks to periodically review their credit portfolios, at least once in a quarter, with a view to recognizing any deterioration in credit quality. It is also specified that a credit facility should be deemed to be non-performing under any of the following conditions where interest or principal is due and has been unpaid for 90 days or more. A credit facility is also regarded as non-performing where interest payment is outstanding up to 90 days, or more and also if interest have been capitalized or rescheduled or rolled over into a new loan. Thus, the CBN bulletin (2010) classified non-performing credit facilities into three categories of substandard, doubtful and loss loans based on outstanding days principal and interest repayment. Substandard Loans was pegged at up to 90 days, Doubtful loans of maximum 270 days and Loss loans up to 360 days and above.

In other national contexts, inconsistent and mixed findings have been generated concerning the impact of various types of loan assets on banks financial performance (FP). Appiah,2011 , Awuyo-Victor,2012; Karimet (2010). The various and conflicting findings concerning listed deposit money banks financial performance (LDBFP) such studies are attributable to methodological, ontological, and behavioral complexities. There is a need to research this subject in detail concerning where to the best of researchers' knowledge in Nigeria context only. Etale et al. (2016) have studied the impact of CBN (2010) loan asset classifications in respect to banking FP.

This study is restricted to the effect of loan asset classifications on FP of listed deposit money banks (LDBs) in Nigeria. It aligns with the classification of the CBN (2010) of SSL; DL, and LL, as explained previously, while FP is measured using return on assets (ROA) ; the use of the latter is justified as assets represent organizations' resources used in generating income. Based on the literature reviewed in the following sections, this paper developed the following hypotheses that guide this study;- **HO<sub>1</sub>**: SSLs have no significant LDBFP in Nigeria.

**HO<sub>2</sub>**: DLs have no significant effect on LDBFP in Nigeria.

**HO<sub>3</sub>**:LLs have no significant effect on LDBFP in Nigeria.

## LITERATURE REVIEW

### **Concept of Loan Assets Classification**

A loan is usually available on a fixed and spot basis, and can be either secured or unsecured. Loans are offered for specified amounts for specified periods. Loans are generally a major component of total assets of every bank. The lender cannot seek repayment prior to expiry of the period unless there has been some default according to stipulated terms of the loan. In a legal sense, a loan facility is a contractual promise between a lender and a borrower, whereby the lender ( i.e, the bank) consents to the granting of an amount to a borrower, who undertakes to resettle the same to the lender either in bulk or in installments within a specified period of time. A loan may be classified as performing or non-performing loans (NPLs) (Mabvure , 2012).

Credit risk underlines and drives asset classification and provisioning systems, particularly its two key components of default and losses (which might result as result consequence of the default) ( Etale et al 2016 ). Loan systems usually have a minimum level of provisions that need to be recorded once the default materializes (Simeon et al., 2021). In Nigeria, the rising trend in NPL assets between 1981 and 2013 accounts for over 10% of the total loans granted resulting in significant bank distress. Bank defaulting debtors were in many cases found to abandon their debt obligations and go onto other unsuspecting banks to contract new debts, which are likely to subsequently degenerate into further NPLs.

### **Substandard Loans (SSLs).**

An SSL complying or which did not comply with its contractual terms, and which has other credit weaknesses which may make payment default or principal exposure likely, but not yet certain (European Banking Authority, 2013). This type of loan advance shows a distinct loan weakness that endangers the solvency of the debt incurred. It normally includes loans granted to debtors who are having cash flow restrictions whereby they cannot service the current maturing debt, loans to borrowers who are significantly undercapitalized, and loans to borrowers lacking sufficient working capital to meet their operating needs.

### **Doubtful Loans (DLs).**

A DL is one for which full repayment is questionable and uncertain. The degree of repayment of loans in question ranges from a complete loss to an uncertain loss unless corrective actions are taken. DLs are usually NPLs on which interest is overdue and the full collection of the principal is in jeopardy (Basel Committee for Banking Supervision, 2006). A loan classified as doubtful has all the characteristics of a SSL and credit weakness, making full collection questionable and improbable. Cihak et al(2012) classified DLs loans (1) not adequately protected by the debtor's current worth or capacity to pay; (2) not adequately supported by collateral, or (3) characterized by a weakness or weaknesses that call the potential liquidation of the debt into question. Loans can become doubtful due to a variety of causes on the part of either the borrower or lender

,including substandard underwriting, such as an underwriter's initial failure to adequately assess the borrower's risk level prior to the making of the loan, or the underwriter's failure to successfully enforce repayment of the loan (Saba et al, 2012)

### **Loss Loans (LLs).**

LL assets are said to be uncollectible and of such little value that their continuation as recoverable advances are not warranted. However, this does not indicate that there is no recovery value of the loan advanced, however, the practicability to defer writing off this type of loan is often accepted, even though partial recovery may be hampered in the future (Nawaz et al., 2012). This type of loan advance includes liquidated or insolvent companies with bad current asset and cash flow.

### **Financial Performance (FP).**

FP refers to the subjective measure of how well a firm can use assets from its primary mode of business to generate revenues. This term is also used as a general measure of a firm's overall financial health over a given period of time and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. FP is therefore a very important aspect of financial management and is central to the survival of any business enterprise. Without sound FP, a business organization may easily close down its operations. Without sound financial performance, a business organization may easily close down its operations (Mombo, 2013).

Profitability is a bank's first line of defense against unexpected losses, as it strengthens its capital position and improves future profitability through the investment of retained earnings (Ideh et al., 2022). There are various possible measures of FP, such as return on sales, return on asset (ROA) and return on equity (ROE).

### **Empirical Review of NPL.**

Gabriel et al (2019) examined the effect of NPLs on the FP of commercial banks in Nigeria from 1985 to 2016. The study employed the multiple regression analysis on data collated from the (CBN) statistical bulletin, and Nigeria Deposit Insurance Corporation publications for various years. The results indicate that NPLs to total loans ratio measured by SSL,DL, and cash reserve ratio had a statistically significant negative impact on (ROA), and that a high level of NPLs would reduce the FP of commercial banks in Nigeria. Their study aligns the this one in the area of explanatory variables decomposed into SSLs, DLs and LLs.

Etale et al. (2016) investigated the relationship between NPLs and bank performance in Nigeria for the period of 1994-2014 with multiple regression analysis. The results showed that "bad loans"and ( DL) had statistically significant, negative impacts on Return on Capital Employed (ROCE) SSL had statistically insignificant ,negative impact on ROCE and a high level of NPLs reduces the long-run performance of banks in Nigeria.

Muluwork (2016) examined the relationship between NPLs and FP of commercial banks in Ethiopia using a descriptive research design methodology with secondary data for the period 2011 to 2015. The study found that NPLs have a significant negative effect on banks' FP, concluded that performance increased from the year 2011 to 2015 due to a significant decrease in NPLs in the same period. The study recommended that commercial bank management should assess the creditworthiness of their clients and apply rigorous policies on loan advances to insure that loans are awarded to those with the ability to repay, and mitigate moral hazards (such as insider lending and information asymmetry) to minimize NPLs incidence since they influence FP and the position of banks by decreasing the level of interest income (and consequently FP).

John (2018) examined the bank-specific variable ROA and macroeconomic factors (gross domestic product, unemployment rate, and exchange rate) as determinants of NPLs in two commercial banks in Nigeria over the period 2010-2015. This research is an explanatory research design that identifies the cause-and-effect relationships between the NPLs and its determinants. These data were collected from annual statement of account and CBN statistical bulletins. The study found that the GDP ratio had positive relationship with ROA, whereas the exchange rate and unemployment rate had a negative relationship with ROA. Adebisi and Matthew (2015) investigated the impact of NPLs on firm profitability in the Nigerian banking industry for the period 2006-2012. Data were analyzed using regression statistical tools, and the results revealed that there is no relationship between NPLs and the ROA of Nigerian banks. This means that the assets values of the firms are not affected by the level of NPL. Shareholder wealth maximization is affected, as the results showed that there is a relationship between NPLs and the ROE of Nigerian banks.

Ugoani's (2012) exploratory research examined NPL portfolios and their impact on bank profitability in Nigeria. Data generated were organized and coded before they were classified, then descriptive and regression analyses were applied using SPSS. With the regression result of  $Y = 78.353 - 4.04x$  it was found that NPLs have a negative effect on bank profitability. Adegbe and Otolaiye (2020) examined the effect of credit risk on FP of money deposit banks in Nigeria with where the researcher cannot manipulate the secondary collected),, descriptive research design, using inferential statistics to analyze the data. The population consisted of all 19 LDBs listed on the NSE as of 31<sup>st</sup> December, 2018. A sample of 13 LDBs were purposively sampled based on the availability of complete data within the study period under consideration. The study covered 169 firm-year observations for the period of 2006-2018, and extracted secondary data from the financial statements of the studied banks. The study identified three variables of FP (dependent variable) surrogated with ROCE, the independent variable of credit risk proxied with NPLs, capital adequacy ratio, loan loss provisions, loan to deposit ratio, and the control variable of bank size. The findings indicated that credit management had a positive significant effect on the FP of the LDB; the control variable of bank size exhibited a strong impact; and credit risk with bank size had a strong, statistically significant impact on the FP of LDBs in Nigeria.

Bishnu (2019) investigated the effect of credit risk on the FP of commercial banks in Nepal with balanced panel data from ten commercial banks, comprising 160 observations for the period 2001-2016. The regression results revealed that the capital adequacy ratio, NPL ratio, and management quality ratio significantly affected the FP of commercial banks in Nepal (measured as ROA). However, the credit to deposit ratio and risk sensitivity had no significant impact on FP.

## **THEORETICAL FRAMEWORK**

### *Information Asymmetry Theory*

This theory first proposed by George Akerlof (1970), information asymmetry theory holds that in the event that one party to a potential transaction is more informed than the other, markets can fall apart completely; in the context of financial services, it may be difficult to distinguish good from bad borrowers, Richard, (2015), which may result into adverse selection and moral hazard problems. The party that has more information on a specific item to be transacted is in a position to negotiate optimally for the transaction than the other party (Nenbee et al.,2022). This theory is relevant in this study since the consequences of information asymmetry and insider lending, as well as unsecured loans, have further developed moral hazards, resulting in a high level of NPLs and hence credit risk in Nigeria (as discussed above). This eventually results in liquidity risk problems for commercial banks. The issue of adverse selection is being handled by credit reference bureaus minimize information asymmetry. Thus, commercial banks should possess more information on specific items they transact with borrowers in order to negotiate optimally in order to avoid NPLs.

### *Moral Hazard Theory*

Moral hazards refer to conditions leading to risks when bank customers provide misleading information in terms of financial statements or their credit capacity, or have hidden incentives to take risks that are unusual in an attempt to earn profits before the contractual term of settlement. The bank customer (i.e., the borrower) may not enter into the contract with the bank in good faith, giving misleading information about financial status or credit capacity. The theory postulates that the problem of moral hazard may result from information asymmetry between bank customers and banks, rendering it almost impossible to distinguish bad from good prospective borrowers (Richard, 2015).

## **METHODOLOGY**

### **Research Design**

This quantitative correlational research design examines the effect of loan assets classification on LDBFP in Nigeria in numerical terms, rooted in the positivist deductive paradigm. It applies theory to frame and thus understand the problem at hand, using systematic measurement and statistical analyses to obtain findings. Given the focal objective of the study, a quantitative research paradigm is considered appropriate for the study. The population of this study comprised of LDBs listed on

the NSE. According to the NSE Fact Book (2019), there are 14 LDBs in Nigeria, of which 10 were purposively sampled for data collection (based on the availability of data, as discussed previously).

### Model Specification

To test the study hypotheses, the study estimates the following multiple regression model:

$$FP = f(SSL, DL, LL) \quad (1)$$

However, the model is econometrically stated as:

$$FP = \alpha + \beta_1 SSL_{it} + \beta_2 DL_{it} + \beta_3 LL_{it} + \mu_{it} \quad (2)$$

Where FP = FP, SSL = SSLs, DL = DLs, LL = LL,  $\alpha$  = constant,  $it$  = firm  $i$  in time  $t$ ,  $\mu$  = error term, and  $\beta_1, -\beta_3$  = coefficients.

### Measurement of Variables

The measurements of the dependent variable (FP) and the independent variables (SSL, DL, and LL) are shown in Table 1.

**Table 1: Variables Measurement**

Variables	Type	Measurement	Construct
Financial performance (FP)	Dependent	Log of total assets	Adegbie & Otolaiye (2020), Bishnu (2019)
Substandard loan (SSL)	Independent	Aggregate SSLs for all banks within study period	Etale et al. (2016), Ozumrumba (2016)
Doubtful loan (DL)	Independent	Credit facilities declared by bank as doubtful during study period	Etale et al. (2016)
Loss loan (LL)	Independent	Total value of loans for which repayment period elapsed for 362 days	Etale et al. (2016), Muluwork (2016)

Source: Authors.

## RESULTS

### Descriptive Statistics

A descriptive statistic is an analysis of data that helps to describe, show or summarize the behavior of data in a meaningful way, which allows for simpler interpretation of the data. The outcomes in Table 2 indicate that FP, measured using ROA for LDBs in Nigeria, has an average value of 0.3019, with a standard deviation of 0.2050, and minimum and maximum likelihood estimation of 0.002 and 0.783, respectively. The value of the mean indicates that banks post an average of 30 kobo as ROA, while the maximum amount shows 0.78 Naira. However, the value of the standard deviation, which is not far from the mean, indicates a certain level of agreement in the data.

**Table 2: Descriptive Statistics**

	ROA	SSL	DL	LL
Mean	.3019	.0933583	0.693333	.05245
Std. Dev.	.2050996	.0812863	.1058622	.0359221
Maximum	.783	.381	.581	149
Minimum	.002	.001	.001	.003
Observations	120	120	120	120

**Source: STATA OUTPUT (2022).**

Table 2 indicates that the sample firms have an average SSL of 0.0933583, with standard deviation of 0.812863. This means that the mean percentage of SSLs for the banks (as logged) stood at 9%. The standard deviation shows that there is a low level of variance in the percentage of SSLs for the banks sampled. The minimum and maximum values of SSL are 1% and 38%, respectively. Furthermore, the descriptive statistics show that an average of 7% of loans in the studied period were doubtful (0.693333), and the standard deviation of 0.1058622 indicates that there is variance in the existence of DLs in the banks. This means the data is clustered around the mean. The minimum and maximum figures are 1% and 58% respectively.

The descriptive statistics in Table 2 show that the mean for LL is 0.05245, with a standard deviation of 0.359221. This means that the average LL rate within the studied period was 5%, and the standard deviation shows that the data is dispersed from around the mean, which signifies a level of agreement across the banks. The LL minimum and maximum values are 0.003 and 0.0149, respectively.

**Test for Multicollinearity**

Non-existence of multicollinearity is a key assumption of linear regression analysis. Multicollinearity occurs when the explanatory variables are not independent of each other, and it is examined using tolerance and variance inflation factor (VIF) values. The results of multicollinearity testing are shown in Table 3. It can be seen that there is no multicollinearity problem as the VIF values for all variables are less than 10, and the tolerance values for all the variables are greater than 0.10 (rule of thumb).

**Table 3: Tolerance and VIF Values**

Variables	VIF	1/VIF
SSL	1.03	0.974077
DL	1.01	0.989548
LL	1.04	0.964040
MEAN VIF	1.02	

**Source: STATA OUTPUT (2022).**



**Test for Heteroscedasticity**

Heteroscedasticity arises when the error terms along the regression are not equal. Heteroscedasticity was tested using Breusch Pagan test. Based on the results, it can be concluded that there is no problem of heteroscedasticity, as the chi squared distribution ( $\chi^2$ ) is 0.52, with a corresponding probability of 0.4705 (which is insignificant), implying absence of heteroscedasticity.

**Hausman Speciation Test**

In panel data analysis (the analysis of data over time), the Hausman test can help to choose between fixed or random effects models for interpretation. The null hypothesis is that the preferred model is random effects; the alternate hypothesis is that the model is fixed effects. Essentially, the tests look to see if there is a correlation between the unique errors and the regressors in the model. The null hypothesis is that there is no correlation between the two. Therefore, because of the homogeneity of data used in this study, which assumes that fixed effects and random effects models are similar, Hausman test is performed to determine which of the two models is more efficient.

The Hausman test is conducted to choose between fixed and random effect models. The results (Table 4) reveal that the chi square (is 4.96, and the prob>chisquare 0.01745 is insignificant; the probability of  $\chi^2$  indicates that the Hausman Test is in favor of random effect model. Consequently, Breusch Pagan lagrangian multiplier test was conducted to choose between fixed effect and pooled OLS. The results indicate that independent pooled OLS is preferable, as evidenced by the P-value of 0.1745.

**Table 4: Hausman Speciation Test**

	Coefficient (F)	Coefficient (R)	Difference (f-r)
SSL	.660917	.5737462	.0871708
DL	-.0866673	-.0348698	-.0517975
LL	.0913348	-.3209741	.4123089

**Source: STATA OUTPUT (2022).**

**Multiple Regression Analysis and Hypothesis Testing**

Multiple regression analysis was fitted to show the nature of the relationships between SSL, DL, and LL and FP, and the results were used to test the study hypotheses. Table 5 shows the pooled independent OLS regression model summary, indicating that 42% of changes in the LDBFP can be jointly accounted for by SSL, DL, and LL; the remaining 42% was attributed to variables not included in the model. Basically, the R-square value shows the level at which the explanatory variables explain the dependent variable. The value of F-statistics stood at 5.4773, with probability of  $\chi^2 = 0.000$ . The probability of  $\chi^2$  is significant at 1%, indicating that the model fits. This serves

as substantial evidence to conclude that the variables selected are suitable to study the effect of loan asset classifications on LDBFP in Nigeria.

**Table 5: Pooled Independent OLS Regression Result**

ROA	Coefficient	Std. Error	T	P-value
SSL	.5309069	.2318047	2.29	0.024
DL	-.0077671	.1765943	-0.04	0.965
LL	-.1989023	.0853307	-2.33	0.021
R-Squared	0.4463			
Adj. R-Squared	0.4217			
F-statistics	71.88			0.0001

**Source: STATA OUTPUT (2022).**

The first hypothesis states that SSLs have no significant effect on LDBFP in Nigeria. The results reveal a positive and significant relationship between SSLs and LDBFP in Nigeria ( $\beta = 0.5309069$ , p value  $<0.024$ ). This implies that a unit change in SSLs will lead to a significant positive increase in FP, while holding DLs and LL constant. Based on this, the study rejects the null hypothesis one ( $H_01$ ), which states that SSLs have no significant effect on LDBFP in Nigeria.

The second hypothesis states that DLs have no significant effect on LDBFP in Nigeria. The results reveal that DLs have a negative insignificant effect on LDBFP in Nigeria ( $\beta = -0.0077671$ , p value  $>0.965$ ). This implies that an increase in DLs decreases FP of DMBs by  $-0.00776$  units, while holding SSLs and LL constant. Based on this, the study accepts the null hypothesis two ( $H_02$ ), which states that DLs have no significant effect on LDBFP in Nigeria.

The third hypothesis states that LLs have no significant effect on LDBFP in Nigeria. The results reveal a negative but significant relationship between LL and FP ( $\beta = -0.1989023$ , p value  $<0.021$ ). This implies that a unit change in LL decreases FP by 19%, while holding SSLs and DLs constant. Based on this result, this study rejects the null hypothesis that LLs do not have any significant effect on LDBFP in Nigeria.

## DISCUSSION OF FINDINGS

The study found that substandard loans have positive significant statistical influence on financial performance of listed banks suggesting that the substandard loans can be used as a predictor of financial performance. This finding is in tandem with Sporta (2018) and contradicts that of Okoh, Inim and Idachaba (2019). The result of the study using multiple regression analysis technique reveals that doubtful loans have a negative and insignificant effect on financial performance of deposit money banks in Nigeria. Doubtful loans are expected to influence financial performance

negatively because these loans have become non-performing and as such banks must make provisions for them out of profit figures. This goes a long way in reducing the posted profit figures of banks. This finding is in line with that Okoh, Inim and Idachaba (2019)

## **CONCLUSION AND RECOMMENDATIONS**

This study found that SSLs have a statistically significant positive impact on LDBFP, suggesting that SSLs can be used as a predictor of FP. This finding is in tandem with the results of Sporta (2018), but contradicts those of Gabriel et al. (2019). The results of multiple regression analysis reveal that DLs have a negative but insignificant impact on LDBFP in Nigeria. DLs are expected to influence FP negatively, because these loans have become non-performing, thus banks must make provisions for them out of profit figures. This goes a long way in reducing the posted profit figures of banks, in line with the findings of Gabriel et al. (2019).

The overall outcomes of this study suggest that there is a significant positive association between loan asset classification and FP. In particular, the results from standardized regressions show that SSLs have a positive significant influence on FP. The study therefore concludes that SSLs play a vital function in improving the LDBFP in Nigeria. Because SSLs are still serviced in terms of interest payment, as performance is triggered positively when such payments are made, this class of loan assets should be monitored closely. The study makes the following recommendations based on the findings.

Firstly, the study provided statistical and empirical evidence to support those SSLs have a significant influence on LDBFP in Nigeria. Based on this, the study recommends that loans granted to customers susceptible to inadequate cash flow to meet current maturing debt should be closely monitored for recovery actions.

Secondly, the findings support the assertion that DLs have an insignificant influence on the FP of banks in the area covered by the study. Based on this, it is recommended that banks should implement measures that include the eradication of identified weaknesses.

Thirdly, the study's empirical evidence posits that it is highly unlikely that LL will contribute positively to FP, due to their significant negative effect.

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