Economic and Financial Review

Volume 39 | Number 2 Article 2

6-1-2001

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Recommended Citation
Udegbunam, R. I. (2001). Examining the internal factors determining the disparity in loan performance across the commercial banks in Nigeria. Economic and Financial Review, 39(2) 82-120

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EXAMINING THE INTERNAL FACTORS DETERMINING THE DISPARITY IN LOAN PERFORMANCE ACROSS THE COMMERCIAL BANKS IN NIGERIA.

BY

DR. RALPH I. UDEGBUNAM

ABSTRACT

The Nigerian banking industry experienced severe loan problems and unprecedented losses in the 1990s. The severity of the loan problems varied across banks due largely to differences in the banks' financial strategies (or specific - attributes). This paper examines the empirical relationship between these strategies and problem loans at these banks. A simple model is specified and estimated, using a pooled cross-sectional data.

The empirical evidence strongly suggests that differences in management quality and level of credit risk are the key determinants of problem loans and loan losses at the Nigerian commercial banks in the mid-1990s. However, there is also an evidence of indirect role of credit policy, which appears to suggest that collaterization of loans is not a sufficient guarantee for loan repayment. Undoubtedly stringent credit requirements may lead to problems of adverse selection and loan delinquencies.

I. INTRODUCTION

The Nigerian banking industry experienced serious problems in the 1990s. Recent financial deregulation provided the impetus for the unprecedented expansion both in size and number of bank and non-bank financial institutions. The aftermath of this explosion in the number of financial institutions, and the resultant intense competition, especially in traditional banking arena, were widespread financial distress, panic, and bank failures. In addition, banks were also faced with persistent economic downturn, virulent inflation, heightened political instability, escalating incidences of fraud and defalcation, and worsening economic and financial conditions of their corporate customers.

The consequences of all these are an increasing number of delinquent borrowers, an unprecedented increase in non-performing loans and loan losses, a sharply decreasing average profitability, and an increasing rate of bank failure. Indeed a large number of particularly new banks failed during the period, and many were financially distressed due mainly to loan losses. But despite that banking problems were

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widespread, a significant number of these banks recorded high performance in terms of loan portfolio and profitability. That is, while some banks became financially distressed and many failed because of astronomical rise in non-performing loans and charge offs, a large number of banks appeared to be recording high loan performance and profitability. The policy question is, what are the underlying causes of this disparity in the banks' loan portfolio performance? Can it be attributed to external or exogenous factors beyond the banks' control, such as economic, regulatory, and political conditions, or to the banks' internal factors (or unique characteristics), such as credit policy and capital adequacy?

Certainly, the answer to this question will be of great importance to the banking public, the bank management, and the regulators. Recent studies by Keeton and Morris (1987), Berger and Deyoung (1997), and Jordan (1998) suggest that, for United States banks, both external and internal factors account for the variation in loan portfolio performance. They show that while a substantial part of the variations in problem loans and loan losses is due to differences in local economic conditions, an equally significant part of it is as a result of difference in the banks' internal attributes. A similar study by Huh and Kim (1994) for Japan and Korea find evidence that is not totally consistent with the findings of the above studies that used a sample of U.S. commercial banks.

It must be noted, however, that United States has predominantly unit banking system that usually restricts banks to operate in a particular locality often with a single office. In such a system, local economic condition is necessarily an important determinant of bank performance. In contrast, Nigeria has predominantly branch banking system that does not restrict but permits a single bank to have a network of branches often scattered all over the country. In this system local economic conditions and other exogenous events are not expected to exert a significant differential effects in the bank financial performance.

The primary purpose of this paper is to isolate the internal factors that account for the disparity in loan performance across the commercial banks in Nigeria. Despite its importance for regulatory policy, I am unaware of any previous empirical research in Nigeria that explicitly investigated the factors that determine the differences in the

severity of loan problems at the commercial banks since deregulation. This study represents an attempt to provide this needed insight into the nature of the relationship between the banks' financial strategies and loan performance. The rest of the paper is organized as a follows: Section II provides a brief review of the literature. Section III presents a brief discussion of particularly bank - specific factors that cause variations in loan problems at the commercial banks. In Section IV the empirical methodology and data for the study are described. Section V presents and discusses the empirical results. Some policy implications of the results are discussed in section VI, and Section VII concludes the paper.

II. REVIEW OF THE LITERATURE

In Nigeria not much has been done to examine the factors that determine the wide disparity in the severity of loan problems at the Nigerian Commercial Banks especially in the 1990s. In contrast, there is a fairly voluminous literature on the issue of loan quality problems in more advance economics, especially United States of America. Notable among these are studies by Watro (1987), Keeton and Morris (1987), Nuh and Kim (1994), Berger and Deyoung (1997), Jordan (1998), and Keeton (1999).

Most of these studies proposed that the variation in problem loans and loan losses across commercial banks is determined mainly by general economic and financial conditions, differences in regional economic conditions, regulatory and supervisory policies, and bank internal factors. However a larger number of these studies appears to emphasize that the disparity in problem loans and losses among commercial banks depend largely on bank internal factors, such as management quality, bank size, portfolio composition, cost control, credit policy, capital adequacy, and credit risk.

Different empirical methodologies have been used by these researchers to ascertain the validity of these propositions. Some of these studies are based on a simple descriptive statistical analysis. Specifically, Keeton and Morris (1987), Watro (1987), and Jordan (1998), employed a variety of simple descriptive statistics in their analysis. Using essentially t-tests of differences in the means of indicator variables, and sometimes a canonical correlation analysis which determines the maximum

correlation between two sets of variables, these studies tried to evaluate the causes of variability in the severity of loan problems among commercial banks. Another more frequently used methodology is a multivariate statistical technique, principally a simple multiple regression analysis, based on a simple equation model. For example, the studies by Huh and Kim (1994), and Keeton (1999) adopted this approach. However, the work by Keeton (1999) is among a genre of studies that used vector autoregression (VAR) in their analysis.

Although these studies used different empirical approach and different samples and data periods, they seem to share a common methodology in the construction and use of data. They evaluated bank loan portfolio performance mainly on the basis of various financial ratios. These ratios are usually computed from banks' balance sheets and income statements, or from the call reports of income and financial conditions that banks periodically file with the regulators. Cross - sectional data, computed for a given sample period, or cross-sectional data pooled over different sample periods have been generally used by these studies.

The evidence provided by these studies has not been totally consistent. In particular, external factors such as national and regional economic conditions, market concentration, and regulatory policies are found by a sizable number of the studies to be less significant determinants of differences in loan portfolio performance among commercial banks. However, the studies by Watro (1987), Keeton and Morris (1987), Berger and Deyoung (1997), and Jordan (1998) provide evidence that strongly suggests that for United States, both external and internal factors are almost equally important determinants of loan portfolio performance. In contrast, the studies by Huh and Kim (1994) for Japan and Korea, Iyoha and Udegbunam (1998) and Udegbunam (2000) for Nigeria, appear to suggest that internal factors are the key determinants of banks overall portfolio performance. Overall, there appears to be an overwhelming evidence of powerful effects of bank internal factors on bank performance differences; all the studies cited above concluded that bank portfolio performance depends to a large extent on bank internal characteristics.

III. THE CAUSES OF PROBLEM LOANS AND LOAN LOSSES

A variety of factors, some internal and some external, are responsible for variations in problem loans and loan losses at the commercial banks. Internal or bank-specific factors are those factors that are directly related to the individual bank operating strategies. They reflect the bank's overall credit policy, management quality, risk preferences, capital adequacy, level of leverage, structure of loan portfolio, level of abuses, fraud and embezzlement, and internal culture. This set of factors are under the control of the bank management. External factors which are outside the direct control of the bank management include: economics, social and political conditions, regulatory and policy environment and the market structure. Based on our presumption that the major causes of variations in the severity of loan problems at the commercial banks in Nigeria are bank-specific or internal factors, and that cross - sectional data are used for the study, we focus the discussion on internal factors.

Poor Management Quality

The most important cause of recent astronomical rise in problem loans and loan losses at the Nigerian commercial banks is poor management quality. To a large extent the success or failure of a bank depends on the quality of its management (see Pantalone and Platt, 1987; Graham and Horner, 1988; Seballos and Thompson, 1990; Iyoha and Uegbunam, 1998). Bank managers make a myriad of decisions in respect of allocation of bank resources, internal control, operating expenses, strategic planning, and loan polices. The surge in the number of new banks since deregulation brought with it, shortage of skilled bankers, high labour turnover, and employment of inexperienced managers by banks. Thus poor management of especially the new banks explains the high rate of problem loans and loan losses at these banks (see CBN/NDIC, 1995; Udegbunam, 1999)

Asset Quality Problem - High Credit Risk

Poor asset quality is largely also a repercussion of poor management quality. Making a loan that has a high probability of default may be deliberate, or may be due to poor job of evaluating the borrowers' credit worthiness. However, the deterioration in the quality of the banks' assets is partly the result of unfavorable economic and political conditions. Table 3.1. shows the officially reported non-performing loans for the period 1989 to 1996. Both the absolute size of doubtful loans and advances, and the ratio of doubtful loans and advances - to - total loans and advances indicate serious loan problem in the banking industry. In particular, the ratio of doubtful loans and advances to total loans and advances for the distressed banks suggest that the major cause of the distress was high credit risk.

Table 3.1: Asset Quality of Insured Banks.

Year	All Insured Banks			Distressed Banks		
	Loan & Advances N'm	Doubtful Loans & Advances N'm	Ratio of Doubtful Loans to total loans	Loan& Advances N'm	Doubtful Loans & Advances N'm	Ratio of Doubtful Loans to Total loans
1989	23125	9427	40.8	4270	2867	67.1
1990	26905	11905	44.1	65005	4660	72.8
1991	32879	12817	39.0	5380	4113	76.5
1992	41436	18816	45.4	11556	7489	64.8
1993	80416	32858	41.0	-	-	-
1994	109070	46933	43.0	-	-	-
1995	175900	57000	32.9	-	-	-
1996	213600	72400	33.9	-	-	-

Source: NIDC Annual Report and statement of Accounts (various issues)

Capital Adequacy problem

Bank capital performs a number of very important functions. It provides for asset expansion, absorbs losses, provides cushion against risks, protects uninsured portion of depositors funds, and maintains public confidence in a bank. The recent deterioration of the banks asset quality, which was largely due to high risk tolerance, has had adverse effect on the capital and earnings. Most of these banks were initially grossly undercapitalized; the mounting problem loan and losses worsened the situation, as many banks failed due to severe capital erosion.

High Financial Leverage

A bank operates with a high degree of financial leverage if it has large amounts of debts or borrowing. High financial leverage is closely related to high capital risk, as it exposes the banks to large interest payments, a significant claim on the cash flows that must be met when the bank is encountering losses. This aggravates capital erosion.

Poor Credit Policy:

A banks credit policy is an important determinant of its long-term performance and survival. Although banks may, with heightened competition, reduce their credit standards, poor credit policy often reflects poor management quality. It is closely associated with high credit risk, high loan losses, and poor performance.

IV. METHODOLOGY

The objective of this study is to specify and test a simple model relating problem loans at the commercial banks to the factors that have been suggested as the major causes, using the banks' balance sheet and income statements data. The explicit goal of the study is to examine the role of bank-specific attributes or internal factor in the problem loans and loan losses at the commercial banks in Nigeria. We focus on bank internal factors because since, with branch banking system, the banks operate in the same economic, political geographical, policy, and regulatory environment, they are exposed to the similar external factors.

Following recent studies by Jordan (1998), and Huh and Kim (1994), a simple multiple regression model is specified to test the relationship between the banks' problem loans and bank - specific attributes such as capital adequacy, credit policy, management quality, level of leverage, and credit risk. However, unlike Jordan, Huh and Kim, this is a cross-sectional study that focuses on the banks' internal characteristics. The problem loans rate is specified as:

$$PLRi = \alpha + \beta\acute{x} + e$$

Where PLRi is the problem loan rate of bank I; x is a vector of independent variables (bank-Specific attributes), B is a vector of parameters to be estimated, a is an intercept term, and e is the stochastic error term, The elements of the vector x as defined in equation (4.2) below, are: BER, EQRA, LAR, LDR, UNSLL, LLPEQ, LATML, NITA, PTEA, and EXLR.

Given the elements of the vector x, equation (4.1) can be expressed as:

$$PLR_i = \alpha + \beta_1 BER + \beta_2 EQRA + \beta_3 LAR + \beta_4 LDR + \beta_5 UNSLL + \beta_6 LLPEQ + \beta_7 LATML + \beta_8 NITA + \beta_9 PTEA + \beta_{10} EXLR + \beta_{11} UNLTA + e \quad 4.5$$

$$\beta_1, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_{10}, \beta_{11} > 0; \quad \beta_2, \beta_8, \beta_9 < 0$$

Where PLR_i, as defined in equation (4.1), is measured, for the purpose of this study, in two different ways:

(i) NPLA = Non-performing loans-to-total assets ratio;

(ii) NPLL=Non-performing loans-to-total loans ratio;
and

BER = Borrowing – to – Equity ratio;
EQRA = Equity – to – risk assets ratio;
LAR = Loans – to – assets ratio;
LDR = Loans – to –deposit ratio;
UNLTA = Unsecured loan – to –total assets ratio;
UNSLL = Unsecured loans – to – loans ratio;
LLPEQ = Loans loss provision – to – equity loans ratio;
LATML = Loan above 12 months – to – total loans ratio;
NITA = Net income – to – total assets ration (ROA)
PTEA = Profit – to – earning assets ratio;
EXLR = Expenditure – to – total liability ratio.

Equation (4.2) is the expanded version of equation (4.1), indicating that the problem loan rate will change if any of the variable of the specified model changes.

Explanatory Variables And Data

In this study a variety of financial ratios which are derived from publicly available sources —— balance sheet and income statement of the sample banks — are used to characterize the factors determining problem loans and loan losses at the Nigerian commercial banks. These ratios, as the elements of the x vector in equation (4.1), are the explanatory variables of the model. As shown in Table 4.1, the financial ratios consulting the variable are categorized into five specific areas of bank performance: capital adequacy, leverage, credit policy, credit risk, and management quality.

Table 4.1: Definition of Variables

Variable	Financial Ratio	Expected Signs
Problem Loan Measures		
1. NPLA	Non-performing loans/Assets	
2. NPLL	Non-performing loans/Total loans	
Capital Adequacy		
1. EQRA	Equity / Risk Assets	Negative
Leverage		
2. BER	Borrowing /Equity	Positive
Credit Policy		
3. UNLTA	Unsecured loans/total Asset	Positive
4. UNSLL	Unsecured loans/Total Loans	Positive
5. LLPEA	Loan loss provision / Equity	Positive
6. LATML	Loan above 12 months/ Total loans	Positive
Credit Rick		
7. LAR	Loans/ Assets	Positive
8. LDR	Loans / Deposits	Positive
Management Quality		
9. NITA	Net income / Asset	Negative
10. PTEA	Profit/EARNING / Assets	Negative
11. EXLR	Expenditure/Total Liabilities	Positive

The a priori signs of the coefficients on the variables (financial ratio) listed in table 4.1, suggest the relationship between the measures of problem loans (NPLA and NPLL) and these exogenous variable. It is expected that the severity of loan problems at the Nigeria commercial banks will be positively related to the financial ratio measuring leverage, poor credit policy, credit risk, and poor management quality (EXLR). On the other hand it is expected that the severity of loan problems will be inversely related to the variables measuring capacity adequacy (adequate capital), good credit policy, and high management quality. Specifically, the indicators of the severity of commercial banks loan problems, non-performing loans/Assets (NPLA), and non-performing loans/total loans (NPLL), are expected to have positive relationship with borrowings/equity (BER), all the measures of credit policy (UNLTA, UNSLL,

LLPEA, LATML), all the measure of credit risk (LAR, LDR), and expenditures. total liabilities (EXLR); but the problem loans indicators are expected to be inversely related to equity/risk assets (EQRA), net income/assets (NITA), and profits/earning assets (PTEA).

Based on the above expected relationships, the severity of banks loan problems will increase with increase in the variable measuring Leverage (BER), poor credit policy (UNLTA, UNSLL, LLPEA and LATML), Credit risk (LAR and LDR), and poor management quality (EXLR). On the other hand, the better capitalized a bank is, the greater the earnings and profitability, and the better the quality of a bank assets, the less are the probabilities of severe loan problems. The quality of management is crucial in credit administration, as it determines to a large extent the soundness of credit policy, and thus the overall asset quality. Poor credit policy manifests in loan problems, the severity of which is measured by the percentage of non-performing loans, change-offs, and the consequent capital erosion. Banks experiencing falling profitability and poor operating performance tend to have high propensity to take greater credit risks (that is, a high loans-to-assets, or loans –to-deposits ratio), in order to holster their profits. These banks often end up with chances of severe loan problems.

Undoubtedly, differences in individual bank loan problems and therefore loan losses are also determined by bank size factors and location. But as argued by Udegbunam (2000), the use of total assets and total deposits as denominators in computing most of the financial ratios has considerably controlled for differences in bank size, banks in Nigeria are not restricted in their geographical location. Banks are free to operate in any state or location of their choice. In fact some of the large banks have network of branches all over the country. For these reasons, it is assumed that differences in loan problem due to location are not significant; also, as banks operate in the same political, economic, policy, and regulatory environment, they are almost equally exposed to any problem arising from these factors. The financial ratio used for this study largely incorporate the effects of these factors on bank loan problems. Thus, bank internal characteristics are assumed to be the most important factors determining the magnitude of problem loans at the Nigerian commercial banks.

The sample consists of 24 commercial banks that have complied with the

recently issued prudential guidelines and the sample period is 1995 to 1996. The guidelines require banks to report non-performing loans; that is, to classify the loans portfolio into performing; non-performing; substandard, and bad. A pooled cross-sectional data for these two years are used for model estimation, as time series data for non-performing loans are not available.

V. THE EMPRICIAL RESULTS

The model is estimated for each of the two measures of commercial banks' problem loans and loan losses-non-performing loans-to-assets ratio (NPLA), and non-performing loans-to-total loans ratio (NPLL). In each case, two different estimation methods are used: ordinary least square (OLS) method, and inverse interpolation method. The estimation results for NPLA, as a dependent variable, are reported in tables 5.1 and 5.2, while the results for NPLL are reported in table 5.3 and 5.4. It is interesting to note that in terms of overall fit the model performs reasonably well. The results for the two independent variables and from the two estimation methods are consistent both in terms of parameter signs, and the number of statistically significant parameter estimates. However, the results obtained using inverse interpolation method are slightly better than the results from OLS estimation method; this surprisingly suggests the presence of a little problem of serial correlation in the OLS estimations.

The Results for NPLA As a Measures of Problem Loan Rate At The Commercial Banks

The reported three sets of results in each of the table 5.1 and 5.2 show that the model consistently explains about 64% of the variations in commercial banks non-performing loans; this is fairly impressive for an essentially cross-sectional analysis. Thus, this implies that about 64% of differences in non-performing loans across commercial bank in Nigeria is explained by differences in the banks

operational efficiencies, as embodied in the financial ratios used. As already noted, the Durbin Watson (D.W.) statistic indicates that there is a slight problem of serial correlation in regression results presented in table 5.1. To ameliorate this problem, the model was re-estimated using inverse interpolation method, and the results are presented in table 5.2. Also multicollinearity, which is often present in cross-sectional data, seems to be a little problem. Since the results presented in table 5.2 are slightly better than the OLS results in table 5.1, we base our analysis on result in table 5.2.

In column 1 of table 5.2, the estimation results, using all the eleven explanatory variables, are presented; columns 2 reports the result obtained using eight explanatory variables (dropping BER, EQRA, and LLPEQ), and column 3 reports the results obtained using only five explanatory variables. For each set of results, t-ratios are reported in parentheses below each parameter estimate, with asterisk denoting various levels of significances for a test of the hypothesis that the parameter estimate is zero. The observed sensitivity of the t-statistics of some of the coefficient estimates to dropping of these variables is an indication of the presence of multicollinearity (see Farrar and Glauber, 1967).

Table 5.1 Estimation results for NPLA Model, by OLS method.

Independent Variable	1	2	3
INTERCEPT	-0.08596 (-1.2478)	-0.05495 (-1.3602)	-0.05358 (-1.5437)
BER	0.00176 (0.4528)		
UNLTA	-0.11877* (-1.6509)	-0.11529* (-1.6866)	-0.1290** (-1.9674)
EQRA	0.03887 (0.7184)		
LLAR	0.14506 (0.7805)	0.1569 (0.7395)	
LDR	0.15317* (1.5206)	0.17733** (1.9259)	0.20044** (2.9200)
UNSLL	-0.0455 (-0.6917)	-0.04543 (-0.7230)	
LLPEA	-0.00495 (-0.1329)		
LAMTL	0.01672 (0.4464)	0.01704 (0.4764)	
NITA	-0.47704* (-1.5999)	-0.52014** (-1.9174)	-0.4136* (1.7467)
PTEA	-0.2844** (-2.5515)	-0.27745** (-2.8932)	-0.31586*** (-3.7974)
EXLR	1.1000*** (3.8857)	1.0034*** (5.1918)	1.0412*** (5.9809)
Adjusted- R^2	=0.6244	0.6485	0.6635
SE.	=0.0811	0.07783	0.0762
F. Statistics	7.9531	11.8383	19.5325
D.W	1.6157	1.6696	1.7096

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Table 5.2 Estimation results for NPLA Model, by Inverse Interpolation

Independent Variable	1	2	3
INTERCEPT	-00835 (-1.2334)	-0.0544 (-1.3741)	-0.0626 (-2.103)
BER	0.00115 (0.3091)		
UNLTA	-0.1298* (-1.7751)	-0.1244* (-1.8014)	-0.1635** (-2.6718)
EQRA	0.0384 (0.7575)		
LAR	0.19036 (1.0442)	0.1677 (1.086)	
LDR	0.1745 * (1.8050)	0.1911 ** (2.145)	0.2723 ** (4.6491)
UNSLL	-0.03516 (-0.5271)	-0.0319 (-0.5086)	
LLPEA	-0.0026 (-0.0733)		
LAMTL	0.0045 (0.1208)	0.0015 (0.0423)	
NITA	-0.6567 ** (-2.2082)	-0.70174** (-2.6185)	-0.5275** (-2.2725)
PTEA	-0.2388** (-2.2067)	-0.2286** (-2.5338)	-0.2087 *** (-2.9057)
EXLR	1.0671*** (3.6739)	0.9879*** (4.8906)	0.9428*** (5.5053)
Adjusted- R^2	0.6225	0.6476	0.6738
SE.	0.08182	0.0779	0.0750
F. Statistics	7.3198	10.5976	14.8718
D.W	1.7791	1.8357	1.9252

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Of the eleven explanatory variables in column 1 of table 5.2, five are statistically significant, it is remarkable that the same five variable (UNLTA, LDR, NITA, PTEA and EXLR) are found to be statistically significant in column 2 out of eight explanatory variables, and in column 3 the five variables are more strongly statistically significant, with the dropping of six other variables from the model. Clearly, in terms of level of significance of the coefficient estimates of these five variable, the adjusted – R^2, and Durbin-Watson statistics, the performance of the model increases with successive dropping of three explanatory variables in column 2, and six variables in column 3. The increasing improvement of the coefficient estimates of these variables as less significant variables are dropped, is an indication that some of these variables are inter-correlated.

Column 3 of table 5.2 reports the results of the preferred problem loans model on which we largely base our analysis. This model, apart from substantially reducing the problem of multicollinearity is more parsimonious, as it achieves maximum goodness of-fit with minimum number of variables. The coefficient on the five explanatory variables is highly statistically significant and, with the exception of one (UNTLA), they consistently received their expected sign. That is, of the five financial ratios, only one has coefficient with counter intuitive sign.

The results appear to suggest that differences in management quality, and level of credit risk are the key determinants of variations in loan problems and loan losses among commercial banks in Nigeria. That is, the high loan losses at some commercial banks and recent wave of bank failures are largely a reflection of differences in the quality of management and the management risk preferences. There is an overwhelming evidence that the variables measuring management efficiency (NITA, PTEA, and EXLR) have strong influence on the performance of banks' loan portfolio, and therefore the size of problem loans and loan losses. The results indicate a consistently negative and significant relationship between earning efficiency (NITA), or asset utilization of the banks and problem loans. This implies that increase in earnings would most likely bring about a significant reduction in problem loans. Specifically, the results suggest that a 10 percent increase in return on assets (ROA) would be followed by an averaged of 6 percent reduction in the occurrence of problem loans in

commercial banks. Similarly, the results suggest a consistently strong negative relationship between profit efficiency (PTEA) and problem loans, thus implying that increases in bank profitability would, most likely, result in reduced occurrences of problem loans at the banks. A 10 percent increase in profitability would be expected to cause about 2 per cent decline in the size or problem loans in ***corirant*** to the relationship between the above two variables (NITA and PTEA) and problem loans, the result rightly indicates a positive relationship between operating cost (EXLR) and problem loans.

With high operating cost (cost inefficiency), declining revenue, and falling profitability, banks trend to exhibits an excessively tolerant attitude towards credit risk. This was why, as operating cost sky – rocketed, and profitability sharply fell with deregulation and associated intense competition, a large number of banks failed because of excessive risk tolerance and consequent high level loan losses (see Doguwa, 1996; Udegbunam, 1999).

The empirical evidence also suggests that commercial bank's preferences for credit risk, indicated by LDR, significantly contribute to differences in problem loans and loan losses at these banks. This implies that banks that take excessive credit risks are much more likely to encounter serious loan problems than banks that are moderately aggressive in their loan portfolio. In fact, recent studies by Iyoha and Udegbunam (1998) and Udegbunam (2000) indicte that asset quality problems, an inherent danger of excessive risk taking, was a key factor in bank failures in Nigeria in the early 1990s. During this period lending standards fell with heightened competition occasioned by deregulation. Banks tended to display an excessively tolerant attitude towards credit risk in order to bolster their declining profitability. The evidence from these studies shows that some of these banks became financially distressed, as loan losses and change-offs rose astronomically with serious consequences on the bank's capital.

Surprisingly, the coefficient on unsecured loans-to-total assets ratio (UNLTA) has consistently counter intuitive sign, although statistically significant. Our *a priopri* expectation is that banks with high ratio of unsecured-loans to total assets would have poor credit policy (loss credit standards) and are therefore more exposed to loan

problems than banks with lower ratio. But the empirical evidence appears to run counter to this expectation. Clearly, securing a loan does not guarantee it's repayment, it is earnings and long-term profitability of the borrower that are the best sources of loan repayment (see Nakamura, 1991). Thus, an undue emphasis on collateral at the expense of other measure of soundness of a loan, such as proper documentation, monitoring, and early identification of problem, may actually lead to increased loan problems. In other words, collateral per se does not ensure loan repayment and is therefore not a substitute for good credit management.

The evidence provided by these results suggest that capital adequacy, measured by equity/risk assets (EQRA) and leverage, measured by borrowing/equity (BER), do not offer any significant help to the explanation of the differences in loan problems and loan losses among commercial banks in Nigeria. Also the evidence provides somehow not too clear support for the view that differences in loan problems across commercial banks are determined by the banks' credit policy. The implication of this finding is that management remains the most critical factor in bank portfolio performance. It takes a high quality management to formulate good credit polices and to ensure compliance with these policies.

The Results for NPLL As a Measure of Problem Loan Rate at the Commercial Banks.

The results reported in table 5.3 and 5.4, which are obtained using NPLL as dependent variable, are virtually the same with the results presented in tables 5.2 and 5.3. Table 5.3 presents the results obtained using OLS estimation method, while in table 5.4 we have the results obtained by inverse interpolation method. The use of inverse interpolation method is to correct for what appears to be a mild serial correlation problem.

As in the case of NPLA model, there are three sets of results in each of the tables 5.3 and 5.4; column 2 and 3 of each of these tables report the results obtained by successively dropping the variables BER, EQRA, LAR UNSLL AND LLPEQ, whose coefficient estimates are not statistically significant. These results show that the NPLL

model is able to explain about 55% of the variation in commercial banks non-performing loans. Again, since the result presented in table 5.4 is slightly better than the OLS results in table 5.3, the analysis is based on the results in table 5.4. Also, as in the case of NPLA, column 1 of table 5.4 reports the results obtained using all the eleven explanatory variables, column 2 reports the result obtained using eight explanatory variables, and in column 3 we have the results obtained using only six of the explanatory variables. Again, the best results are in column 3 of the table, it is more parsimonious because it achieves a better fit with minimum number of variables.

It is interesting to observe that the five variables: viz, UNLTA, LDR, NITA PTEA and EXLR, are again consistently statistically significant. Interestingly, also, the signs of the coefficient estimates of these five variables are perfectly in accord with the NPLA model results discussed in the previous section. However, unlike the NPLA results, the variables LATML is found to be significant at the 10% level, though with unexpected negative sign. That is, in the NPLL results, the estimated coefficients on two of the variables (UNLTA and LATML) measuring credit policy are statistically significant, but like the two less significant variables (UNSLL and LLPEQ), are with negative signs.

This evidence appears to refute the view that banks with high ratio of unsecured and long-term loans would have more problem loans and loan losses than banks with low ratios. As we have argued in the case of unsecured loans, the logic of this apparently implausible evidence is that although collateral can induce repayments from borrowers who can pay, it is not a reliable source of loan repayment if the borrower defaults. The road to foreclosure of a collateral is tortuous; collateral can be of value only if the lender can actually make a valid claim, impound, and dispose of it quickly in the event of default (see Nakamura, 1991). It is also argued that imposition of stringent credit requirements may lead to problem of "adverse selection," where a high proportion of risky borrowers than safe borrowers could meet the initial credit requirements but later defaults (see Lacker, 1994). Clearly collateral alone is not a sufficient guarantee for loan repayments; it must be in combination with close monitoring of the borrowers' financial conditions, and minimum operating capital requirements for borrowers. Thus, it may not be surprising that all the variables measuring credit policy, have negative signs on their coefficients.

Table 5.3 Estimation results for NPLA Model, by OLS Method

Independent Variable	1	2	3
INTERCEPT	0.03895 (0.1397)	0.0715 (0.435)	0.07501 (0.4742)
BER	0.0034 (0.21197)		
UNLTA	-0.4724* (-1.6167)	-0.4,373* (-1.5361)	-0.4768* (-1.7486)
EQRA	0.0926 (0.4172)		
LAR	-0.3411 (-0.5340)	0.3167 (0.4660)	
LDR	0.5545 (1.4546)	0.3988 (1.3093)	0.3917 (1.3430)
UNSLL	-0.2127 (-0.7960)		
LLPEA	-0.0023 (-0.1484)	-0.0067 (-0.0948	
LAMTL	-0.9129 (-0.6029)	-0.1566 (-1.4145)	-0.1556 (-1.4294)
NITA	-1.7113 (-1.4002)	1.9664** (-1.8659)	-1.9530** (-1.8930)
PTEA	-1.4411*** (-3.4173)	-1.3972*** (-1.8659)	-1.4033 *** (-1.8930)
EXLR	4.3030*** (3.6739)	4.0444*** (4.8906)	04.0247*** (5.3578)
Adjusted- R^2 SE F. Statistics D.W	0.5329 0.3302 5.8742 1.8182	0.5640 0.5640 9.6842 1.6726	0.5745 0.5745 11.5765 1.6719

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

Table 5.4 Estimation results for NPLA Model, by Inverse Interpolation Method

Independent Variable	1	2	3
INTERCEPT	0.0415 (0.1505)	0.0753 (0.4888)	0.8337 (0.5690)
BER	0.0025 (0.1614)		
UNLTA	-0.5408* (-1.8186)	-0.5911** (-2.1665)	-0.5893** (-2.1856)
EQRA	0.1070 (0.4954)		
LAR	-0.2591 (-0.4024)	0.4635 (0.6765)	
LDR	0.5800* (1.5350)	0.5835** (2.0210)	0.5670** (2.0730)
UNSLL	-0.1512 (-0.5572)		
LLPEQ	-0.0016 (-0.1078)	-0.0013 (-0.1884)	
LAMTL	-0.1288 (-0.8435)	0.1967 (-1.7244)	-0.1951* (-1.7355)
NITA	-2.1476* (-1.7328)	2.7426* (-2.5741)	-2.7161* (-2.6027)
PTEA	-1.3625*** (-3.2179)	-1.1604*** (-3.4433)	-1.1763*** (-3.6281)
EXLR	4.3545*** (3.5823)	4.0991*** (4.9094)	4.0633*** (5.0732)
Adjusted- R^2	0.5226	0.5455	0.57202
SE	0.3338	0.3257	0.3161
F. Statistics	5.2875	6.6405	8.8521
D.W	1.8032	1.8741	1.9683

* Significant at the 10% level
** Significant at the 5% level
*** Significant at the 1% level

The evidence provided by the results in columns 2 and 3 of table 5.4 strongly suggests that differences in problem loans and loan losses among the commercial banks in Nigeria are largely determined by variations in six of the financial ratios used; the six ratios used, are UNLTA, LDR, LATML NITA, PTEA, and EXLR. The results indicate that excessive credit risk tolerance on the part of bank managers, measured by Loans/Deposits Ratio (LDR) leads to increase in problem loans. Banks with high ratio of loans-to-deposits exhibits greater tendency to make loans with a higher probability of default. This result is also in accord with the general belief that loans have much greater default risk than other bank assets.

Not surprisingly, the results again consistently provide strong support for the "management qualities" hypothesis. That is, the evidence strongly suggests that poor management quality is the major driving force behind the problem loans at the Nigeria commercial banks. Poor management quality manifests in different ways including the managers' inability to make sound loans, control operating cost effectively raise revenue to ensure adequate profit. Thus, the estimated negative relationship between net income/assets (NITA) and the severity of loans problems is an evidence in support of poor management quality, which characterized the Nigeria banking sector in the early 1990s (see Iyoha and Udegbunam, 1998; Udegbunam, 1999). Indeed, managers at financially troubled banks often tried to bolster the banks sharply declining profitability by taking excessive risk. The problem with this strategy (high risk tolerance) is that the probability of good return on assets (ROA) is small, while there is a high probability of losses. This was partly why, in the early 1990s, most of these bank become financial distressed and many failed.

In contrast to the result recently reported by Berger and Deyoung (1997), and Jordan (1998), there is a strong evidence of negative relationship between profit efficiency, measured as profits/earning assets (PTEA), and the problem loan rate (PLR). This evidence is in accord with the management efficiency hypotheses, inefficient management usually has difficulty in making sound loans and in controlling costs. The result is low profitability and rising problem loans. Also, there is a strong evidence of positive relationship between cost efficiency, measured as total expenditure/total liabilities (EXLR) and the problem loan rate. Again this evidence supports the

proposition that poor management quality, through cost inefficiency and poor loan portfolio performance, exerts a strong positive effects on problem loan rate. That is, as already noted inefficient management finds it difficult to contain cost and increase revenue and profitability.

In conformity with the NPLA model results reported in table 5.2 and 5.3, capital adequacy as measure by equity/risk assets (EQRA) ratio, and leverage, measured by borrowing/equity (BER) ratio are found to have trivial effects on the problem loan rate. None of these two variables exerts any statistically significant effect on the size of problem loan at the banks. This evidence is somewhat surprising. While it is argued that managers of poorly capitalized banks tend to be more aggressive in their loan portfolio, which leads to loan losses (see Kane, 1989, Keston, 1999) recent studies by Furlong (1992) and Jordan (1998) find a positive relationship between bank capital and the size of bank loan portfolio. The only conclusion we can draw from these apparently contradictory findings is that capital ratio may not be a leading indicator of potential problems in banks.

VI. POLICY IMPLICATIONS

The dramatic increase in problem loans and loan losses at the Nigerian Commercial banks since the early 1990s present a serious challenge to bank management, regulators and policymakers. The surge in the number of new banks and nonbank financial institutions, and the expansion of the existing banks since deregulation, generated intense competition in the banking industry. Apart from stiff competition in the financial services offered, banks also competed aggressively for the small pool of available qualified and experienced personnel in the banking industry. The immediate consequences are high operating cost, high labour turnover, and sharply falling profitability (see Udegbunam, 1999)

The empirical evidence presented above appears to suggest that the banks responded to declining profitability and shortage of qualified bankers by pursuing riskier strategies in their lending, staff recruitment and other personnel policies. That is, to bolster dwindling profits most of the banks tended to be increasingly inclined to take greater

credit risk, and to recruit poorly trained and inexperienced "Zombie" managers. Some of the banks, in particular the new ones, aggressively competed for qualified bankers by offering salaries far above the industry average, and this mounted further upward pressure on operating cost. The increased deterioration of the loan quality, mounting loan losses, and the fragility of the entire banking system, stemming from high credit risk poor management quality, have wide implications for management, and official regulatory and supervisory policies.

A first step to achieving a safe and sound banking practice that will minimize loan losses, increase efficiency, and promote financial stability, is to install a strong corporate governance. A bank's board of director has many important responsibilities. These responsibilities include hiring of the bank's management team, formulating policies, setting objectives, and ensuring management compliance with policies. Thus the installation of a strong board of directors is undoubtedly a first line of defense against potential banking problems, including credit quality problems.

In addition, there is need for constant evaluation and strengthening of the supervisory framework for assessing management competence. In this ever changing banking and financial environment management – focused supervisory framework should be flexible and adaptable. With adequate supervisory framework and regular monitoring, banks will be encouraged to have on their boards people with good education, relevant experience, integrity and courage. The members of the board should not only be experienced and active, they should also have vested interest by means of strong ownership position in the banks. With greater financial stakes, members of the board would most likely have greater motivation to complement official supervision by closely monitoring and supervising the bank's management.

The board and senior management should set policies that will ensure that potential employees of the bank are adequately screened for a good and relevant education, a track record, and integrity. A good personnel policy could encourage efficiency and integrity; it should make provision for training, adequate compensation, and other performance incentives. The bank senior management should ensure that adequate compensation performance incentives, and the entire corporate culture go down the lines of management.

The strong evidence of high credit – risk provided by this study appears to suggest that both internal credit risk management and official supervisory framework for assessing credit risk exposure of these banks are not adequate. With rapidly changing banking market structure and increasing complexity of the loan market, there is need for a more dynamic approach to credit risk management and indeed the entire internal control system. This approach should provide, among other things, a comprehensive guide for standard practices regarding credit risk management, such as credit limits, credit standards or criteria, credit risk monitoring, and audit and control procedures. The regulators and the banks' management should ensure that banks comply with prudential regulations, applicable laws and regulations, and official lending policies and procedures. It is the joint responsibility of the banks' management and regulators to ensure that future credit quality problems are avoided through a sound credit risk management and internal control system.

VII. CONCLUSION

This paper examines the determinants of differences in problems loans at the commercial banks in Nigeria, in the mid-1990s, the period of widespread financial distress and bank failure. It is recognized that there are two groups of factors that constitute the driving force behind the problem loans at the commercial banks. First are the external (or exogenous) factors, which are outside the control of the bank management, such as general economic condition, social and political environment, and policy and regulatory environment. Second are the internal (or endogenous) factors that are largely within the control of the management, such as lending policy, level of leverage, and level of risk tolerance. An important and perhaps valid assumption is that since the banks are not localized but have network of branches all over the country, they are exposed almost equally to the external factors. In other words, differences in the banks' problem loan rate are assumed to be determined primarily by differences in the banks' internal factors, or what we have referred to as financial strategies.

With this assumption, a simple model is formulated and estimated using pooled cross-sectional data. The evidence from the estimation results strongly suggests that differences in management quality and level of credit risk are the key determinants of problem loans and loan losses at the Nigeria commercial banks in the mid – 1990s. Of the eleven financial ratios used to proxy bank internal characteristics, four appear to be most critical factors determining differences in problem loan rate and loan losses among commercial banks. Of the four critical factors, three (NITA, PTEA and EXLR) are indicators of management quality, and one (LDR) is an indicator of credit risk. That is, there is overwhelming evidence that poor management quality and high credit risk are the major driving force behind the problem loan at the Nigeria commercial banks. Thus, the persistent high loan losses at some of the banks and recent wave of financial distress and bank failures are largely the result of poor management quality and the management's increased incentive for excessive credit risk.

An additional notable finding is the somehow indirect but important role of credit policy in loan performance. Of the four financial ratios used to proxy credit policy, two (UNLTA and LAMTL) are found to individually exert significant but unexpected negative effect on problem loan rate. However, for the loan rate measured by NPLA, only one (UNLTA) of the indicators of credit policy is statistically significant with counter intuitive sign. The implication of this apparently implausible finding, is that securing a loan can induce repayment from the borrowers who can pay, but clearly collateral is not a reliable source of repayment if the borrower defaults. In fact, heavy reliance on collateral and other stringent credit requirement may lead to problem of "adverse selection", hence the negative parameter estimates of these two financial ratios.

Finally, the evidence shows that capital adequacy and financial leverage have individually only trivial effect on loan performance. Overall, the finding of this study suggests that management quality is the most critical factor determining performance difference among commercial banks. It take a high quality management to formulate a sound credit policy; a prudent credit administration and risk management can significantly alleviate the present problems in the Nigeria banking industry.

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