

Lending Rate, Bad Debt and Credit Management in Nigeria Commercial Banks: A VAR Analysis

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Abstract

This paper examines the causes of bad and doubtful debt in Nigeria commercial banks. It presents a framework to x-ray the risk and to validate the checks and balances to prevent or rather reduce the risk. The study uses both primary and secondary tools for data collection to determine causes of bad debts. Analysis of Variance (ANOVA) and Vector Autoregressive (VAR) model were applied to validate the result spanning the period 1993(Quarter 1) to 2011(Quarter 4). The Impulse response shows that incessant increase in interest rate is a strong and statistically important factor that causes bad debt in Nigeria commercial banks. Bank's Management should establish sound lending policies, adequate credit administration procedure, effective and efficient machinery to monitor lending function with established guidelines, reduce interest rates on lending etc.

Keywords

Bad Debt, Lending Rate, Credit Management, VAR, Nigeria

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1. Introduction

The Nigerian banking industry has been faced with lots of debates and arguments about its rising and falling status, mergers and acquisitions, recapitalization and nationalization of banks, failed banks tribunal and so on since early 1980s. In June 2012, the former Finance Minister, Anthony Ani, predicted that “the merged banks will eventually die” (Daily Sun, June 18, 2012). The underpinning was a lasting solution to the crisis that seems to engulf the banking industry. Moreover, the banking industry has been known for its intermediation role in providing financial assistance needed in the economy. This role is normally carried out in many ways, for example, granting of loans and advances to customers, which constitute the major part of bank lending. Apart from loans and advances, there are other forms of banking or bank credits or bonds issued by banks for and on behalf of customers. Banks are merely custodians of the money they lend; hence interest must be paid to depositors and dividends to the investors.

Credit management can be seen as an integral part of lending and as such in its absence, good loans can turn bad. It is expedient to note that the importance of credit management cannot be over-emphasized and good credit management requires the establishment of adherence to and of sound and efficient credit policies of government. For banks to be successful, their corporate credit appraisal, disbursement, adequate monitoring and repayment must be assured. After Lehman's collapse, the uncertainty regarding bank's potential losses increased sharply, along with market risk aversion (Angelini et al, 2011; Albertazzi and Marchetti, 2010; De Mitri et al, 2010). But experiences over the years have shown that inadequate credit analysis and sound judgment of loans application have resulted in unperforming loans. Santos (2011) analyzes the market for syndicated corporate loans, which is a quite specific segment of the credit market, highly dominated by large firms. In providing credits for business ventures, banks should as a matter of importance take all necessary steps to ensure that advances are granted to those customers who can and will make

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judicious use of loans so that repayment will not become a problem. Some scholars focused on the period after Lehman's default, which can reasonably be considered an expected shock. The place of loans and advances in the affairs of banks can be explained by referring to the fact that loans and advances are the largest single item in the assets structures of Nigeria commercial Banks (Ani 2012; *Nwankwo* 1980).

Economists' instinct and conventional wisdom in the banking community would support the idea that secured loans are less risky and, therefore, should carry lower interest rates. However, some papers find an unexpected positive relationship between interest rates and guarantees (Udell, 1990). This result has two major implications: that secured loans are typically made to borrowers considered ex-ante riskier by banks, and that the presence of warranties is insufficient to offset such higher credit-risk (Pozzolo, 2004). The role of collateral and guarantees in lending relationship has been widely discussed, and different conclusions have been reached. Under perfect information, the bank can distinguish between different types of borrowers, has perfect knowledge about the riskiness of their investment projects, therefore there is no need for guarantees. Under asymmetric information, however, collateral and personal guarantees play a role in solving different problems that may arise (Oro and Uesugi, 2006).

The research report dealt with a timely topic that involves an important economy in Africa, especially at this point when oil glut is a major challenge. Moreso, the findings and recommendations of the article will be very useful to the new Governor of Central Bank of Nigeria who is trying very hard to reduce the amount of bad loan by publishing the names of chronic debtors.

An important limitation of this research is that the banks found it difficult to release sensitive data to the researchers because it could lead to exposing some secret and private information of the banks.

2. Statement of the Problem

One of the ways to totally avoid bad debts is to refuse to lend money at all. If banks refuse to lend at all, then the issue of profitability is cancelled which is the main purpose of a business unit. Credit must be adequately managed so that banks could remain in business. The provisions for bad and doubtful debts rise steadily in banks' annual reports which send bad signals to investors within the economy. The cases of failed banks in the economy over the years have made the investors lose confidence in the banks. Hence, the existing evidence in Nigeria, points to a decline or stagnation of private investment during the immediate past reform years.

The industries usually make short term planning as opposed to long term planning which tends to hamper their forecast and projection into the future activities and earnings. The success of any programme in bringing about a sustainable recovery in economic activity in an economy depends crucially on the behavior of investment in the aftermath of the reform process. In Nigeria, many reform programmes have been undertaken in the banking industry with little or no impact on the investment behaviour. The behaviour of private investment has been identified as a factor for assessing the reform outcome. The existing evidence in Nigeria, points to a decline or stagnation of private investment during the immediate past reform years (World Bank 1988, Harriggen and Mosley 1991, Green Way and Morrissey 1992; Gunning; 1994; Collier 1995, Dehn, 2000; Lomi and Sisay, 2001).

3. Objective of the Study

The major objective of this study is to determine the transmission mechanism through which bad and doubtful debts hampers economic performance in Nigeria. The specific objectives are:

- To investigate the impulse response of bad debts and interest rate on shocks in Nigeria Commercial Banks.
- To examine the cause and effects of bad debts on bank's performance, investors and the economy.

4. Literature Review

Researchers have written a number of papers showing the effect of default risk on loan terms in general equilibrium (Onwudiegwu (2001); Geanakoplos (2002) and Dubey et al (2003)). Also, rate of inflation has link with the real interest to be paid by the borrowers. If inflation is higher than the interest rate, it will mean that the lending bank would be paying borrowers to take its loans. The close monitoring of borrowers to ensure a loan is not diverted to unproductive use, though costly, has a lot of bearing on ability of the borrower to repay. Chatterjee et al (2002) presents a fully specified model of unsecured credit with an endogenous risk of bankruptcy that is able to match a number of facts in the household loan market. According to Olayinka (1999) other securities pledged by customers wishing to borrow from the bank is their money in either saving, current or time deposits; especially if the account has a regular cash flow usually from any salaries or wages or even other private sources. Thus, when a commercial bank is approached for loans, special guidelines have to be followed. For example, some banks use the PAPERS and 5C's criteria of credit lending. P-Person, A-Amount, P-Purpose, E-Equity, R-Repayment, S-Security. 5C's are character, capacity, capital, collateral and condition.

As should be expected in most business enterprises in developing economies the banking industry has certain factors that are militating against the effective performance of their lending function. Most of the people operating various businesses in Nigeria are poorly educated. They are ignorant of the difficulties to be encountered if loans are mismanaged. Explaining to such business men and women ways and means of improving their account with the bank before asking for loan is usually a mere waste of time. They would prefer to offer kickbacks than to understand the simple operation of the system (Okoh 1997). Furthermore, the credit departments of some banks do not have the required level of man power and the will needed to perform difficult and technical transactions involved in lending.

The banking sector has a difficult task to assume her expected role in the development and growth of the economy. To activate the potentials of banks in the economy, there is the need to employ certain pro-active measures (Egwuatu (2004)).

Prior to the year 2004, the bank's capital base was about two billion naira. A family can therefore contribute that sum and register / own a bank and begin to gather deposits from the public. Managing the fund becomes a problem because there may not be liquid enough to cater for the financial needs of the public. This leads to frequent bank failure. The aim of the Apex bank was therefore, to shore up the financial base of the banks in the country beyond fragile level. Edozie (2005) pointed out that due to the frequency of bank failure in Nigeria the CBN decided to increase the capital base of the banks to twenty five billion naira to make the banks stronger financially and to be more liquid. The banks that could not make it, merged with two or more banks to recapitalize. Some banks acquired other banks to recapitalize so as to be stronger financially.

According to the "Lazy Bank Hypothesis" (Manove et al, 2001), the presence of a high level of guarantees weakens the bank's incentive to evaluate the profitability of a planned investment project.

The Keynesian investment theory and the Mckinnon-shaw (1973) savings and investment hypothesis constitute the theoretical basis for the use of interest rate policy in stimulation of the economy via investment. The Keynesian theory implies that low interest rate, as a component of cost of funds, encourages borrowing for investment. Some empirical findings are inconsistent with these facts (Green and Villanueva 1991, negative relationship between interest rate and investment, studies by others (Serven and Solimano 1993, Van wijubergen 1985) have shown that in repressed financial markets.

Inderst and Muller (2006) discuss a model with different

types of lenders: local lenders, who have soft and non-contractible information advantages. Longhofer and Santos (2000) argued that guarantees and monitoring are complements when banks take senior positions on their small business loans. Similarly, the empirical analyses of Jimenez et al (2006) find that the use of collateral is less likely in more concentrated markets. Ono and Uesugi (2006), who analyze the small business loan market in Japan, reach similar results. They find that guarantees are more likely to be pledged by riskier borrowers. Pozzolo (2004) argues that when testing the relationship between inside collateral and outside collateral, and between real and personal guarantees. He finds that real guarantees are not statistically related to the borrower risk and as such potentially consistent with the hypothesis that inside collateral is used as a screening device to solve the adverse selection problem. Jimenez et al (2006) find direct evidence of a negative association between collateral and the borrower's risk. They also discovered that borrowers with longer banking relationships pay lower interest rates and are less likely to pledge guarantees.

Skully (1997) also in his study on Fiji and other countries in the region stressed that the availability of finance has constraint for private investment in Fiji.

Shegolar and Thomas (1999), Mandel (2000) diagnosed of the Nigerian Banking system, and discovered that securities held by banks before lending is made to any individual, corporation or government often demanded by banks for loans and advances in the country have been shown to be quite unsatisfactory.

5. Methodology, Materials and Sources of Data

This section discusses the methodology and theoretical significance of the study.

The research design and strategies adopted for this research are both empirical and analytical. It employs quarterly time series data spanning from 1993 to 2011. The Vector Autoregressive (VAR) Model was used to analyze the time series data; while the Analysis of Variance (ANOVA) was used for the cross-sectional data. The primary data (direct oral Interviews, questionnaires) and secondary data (banks annual statements, Journals, Magazines, Newspaper, periodicals, CBN brief series, bullion magazines etc.) were used.

The VAR model was adopted because it is the best model for investigating differences in transmission mechanism and impulse responses among variables. Adebisi and Adeyemi (2006) opined that VAR models serve as a flexible approximation reduced form of any wide variety of

simultaneous structural models. VAR model of two endogenous variables with only one lag in each variable with the constants suppressed can be written as:

$$\begin{aligned} X_{1t} &= a_{11}X_{1t-1} + a_{12}X_{2t-1} + \ddot{E}_{1t} \\ X_{2t} &= a_{21}X_{1t-1} + a_{22}X_{2t-1} + \ddot{E}_{2t} \end{aligned} \quad (1)$$

Where X_{1t} and X_{2t} represent the relationship between the interest rate and the bank profitability (liquidity). \ddot{E}_{1t} and \ddot{E}_{2t} are error terms, which are ‘white noise’.

In practice, there would be more than two endogenous variables and often more than one lag. In this case with k endogenous variables and p lags, we can write the VAR model in matrix notation as:

$$X_t = A_1X_{t-1} + A_pX_{t-p} + \ddot{E}_t \quad (2)$$

Where X_t are its lag values, and \ddot{E}_t are $k \times k$ matrices of constant to be estimated.

Using two equation systems (1), we can write the system in terms of lag operator L as:

$$\begin{aligned} \begin{bmatrix} 1 & -a_{11}L & -a_{12}L \\ -a_{11}L & 1 & -a_{22}L \end{bmatrix} \begin{bmatrix} X_{1t} \\ X_{2t} \end{bmatrix} &= \begin{bmatrix} \ddot{E}_{1t} \\ \ddot{E}_{2t} \end{bmatrix} \\ \begin{bmatrix} X_{1t} \\ X_{2t} \end{bmatrix} &= \begin{bmatrix} 1 & -a_{11}L & -a_{12}L \\ -a_{11}L & 1 & -a_{22}L \end{bmatrix}^{-1} \begin{bmatrix} \ddot{E}_{1t} \\ \ddot{E}_{2t} \end{bmatrix} \\ &= \frac{1}{\forall} \begin{bmatrix} 1 & -a_{11}L & -a_{12}L \\ -a_{11}L & 1 & -a_{22}L \end{bmatrix} \begin{bmatrix} \ddot{E}_{1t} \\ \ddot{E}_{2t} \end{bmatrix} \end{aligned}$$

Where:

$$\begin{aligned} \forall &= (1 - a_{11}L)(1 - a_{22}L) - (a_{12}L)(a_{21}L) \\ &= 1 - (a_{11} + a_{22})L + (a_{11}a_{22} - a_{12}a_{21})L^2 \\ &= (1 - H_1L)(1 - H_2L) \end{aligned}$$

Where H_1 and H_2 are the roots of the equation and $H^2 - (a_{11}H + a_{22}H) + (a_{12}a_{21}) = 0$

The convergent expansion for X_{1t} and X_{2t} in terms of \ddot{E}_{1t} and \ddot{E}_{2t} is obtained when H_1 and H_2 are less than unity. Once the condition for stability is satisfied, X_{1t} and X_{2t} can be expressed as a function of the current and lagged values of \ddot{E}_{1t} and \ddot{E}_{2t} which are referred to as the impulse response functions (Adebiyi and Adeyemi 2007). Impulse response functions show the current and lagged effects over time of change \ddot{E}_{1t} and \ddot{E}_{2t} on X_{1t} and X_{2t} .

Two results obtainable from VARs, which are useful for analyzing the transmission mechanism, are the impulse response functions and the forecast error variance decompositions. The impulse responses tell us how macro variables respond to shocks in the policy variables while the variance decompositions show the magnitude of the variation in the macro variables due to the policy variables. VAR models are routinely used to perform impulse response analysis, which allows us to measure the various period impacts of Y_{t-1} on Y_{1t} and Y_{2t} . Impulse response analysis requires a vector moving average (VMA) representation of a VAR. The VMA allows us to trace out the time path of the various shocks on the variables of the VAR system. To produce reliable VAR estimates and impulse response analysis, variables of the model are required to be stationary, that is, they should not have unit roots.

6. Presentation and Discussion of Findings

Since the focus of this study is to determine the cause of bad debt in Nigerian banks, it provides an empirical insight into the relationship between bank liquidity and interest rate using regression analysis.

Table 1. Regression Results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig	95% Confidence Interval for B	
	B	Std. Error				Beta	Lower Bound
1(Constant)	1.056	0.033		31.549	0.000	0.9774	1.123
	-0.010	0.009	-0.123	-1.068	0.289	-0.029	0.009

Table 2. Regression results

Model	R	R ²	Adjusted R ²	Standard Error of Estimates	Sum of Squares	DF	Mean Square	F	Sig
1	0.123(a)	0.015	0.002	1.978					
Regression					4.461	1	4.461	1.140	0.289 (a)
Residual					289.486	74	3.912		
Total					293.947	75			

Source: Author’s computation from the questionnaire

Table 1 suggests that the null hypothesis of no co-integration between liquidity and interest rate can be rejected at 5% level. Given the strong evidence that the series are stationary and do co-integrate. It could be seen that 97.7% positive response were of the opinion that increase in interest rate on loans (lending rate) and advances is a contributing factor to problem loans. While 2.3 % negative responses agitated that increase rate on loans does not contribute to problem loan and advances in Nigeria commercial banks.

Furthermore, Table 2, when regression is applied in testing the above hypothesis, suggests that the null hypothesis is rejected which implies that a high interest rate on loans and advances has bearing or is a contributing factor to increasing amount of bad and doubtful debts in Nigeria commercial banks.

The paper is therefore of the opinion that, this was the reason the central bank of Nigeria introduced interest rate policy and sectorial allocation of credits; which determines a fixed rate of interest to be charged by banks on some sectors of the economy. This is to monitor the rate of interest charged by banks in extending credits to its customers.

To further verify the empirical findings, the study estimates an unrestricted vector autoregressive model in levels using four lags of each variable and including a constant. The VAR results vary across pattern (table 3) suggests that between 1993 and 1996 (first quarter) the interest rate was negatively signed with the profitability (Liquidity). The same response

goes between 2001 and 2004 (third quarter) and 2005 to 2008(fourth quarter). We noticed a deviation in response of the borrowers between 1997 and 2000 (second quarter) which might be as a result of the reduction in interest rate (Mordi 2008). The VAR result in 2009 to 2011(fifth quarter) shows the same positive sign at the second quarter but the response of the borrowers to interest accruable and or repayment of the loan was not encouraging. This may not be unconnected to the fact that big wigs in the banks collect kickbacks from the borrowers before loans are approved which make them lose the moral character and courage of pursuing the borrowers to repay the loan as at when due (Agu 2010).

It is equally worth noting that the period 1985 – 2008 contain period of policy shift and structural breaks which the study has not reflected. For example, the period between 1985 – 1995 cover a regime of more flexible prices (interest rate and exchange rate) in Nigeria and hence, these variables are volatile. The period 1999 – 2004 was characterized by full deregulation, while 2004 – 2008 was the period of banking and financial sector reforms.

The table and graphs below equally suggest that (looking at the ratio of loan & advances to deposit, Bank balances with CBN and balances due to other banks), one can infer that the banks have a huge unperforming loan. The huge unperforming loan may not be unconnected to one of the reasons the CBN Governor recently fired some Managing Director of banks in Nigeria.

Table 3. Regression Estimates Dependent variable: Liquidity (profitability)

Intercept	-1.8763 (-2.311)	2.0324 (1.874)	-1.7251 (-2.634)	-1.8623 (-2.482)	1.6013 (2.653)	-1.7211 (-2.044)
INTEREST RATE	-0.4241 (-2.423)					-0.4015 (-2.053)
DEPOSIT		0.0221 (0.546)				0.0121 (0.352)
LOAN & ADVANCES			-0.6192 (-3.532)			-0.5328 (-2.764)
BALANCES WITH CBN				-0.3017 (-0.0993)		-0.1017 (-1.063) -0.2132 (-1.782)
BALANCES DUE TO OTHER BANKS					-0.2221 (-1.936)	
F(stat)	0.4623	0.4012	0.5432	0.4553	0.3362	0.564
R	0.1256	0.3543	0.756	0.5463	0.5463	0.765
SE	0.987	0.876	0.987	0.765	0.564	0.576
T(stat)	31.4	27.6.6	44.5	34.6	536.7	36.8
R ²	0.59	0.61	0.74	0.60	0.63	0.68
	1stqtr 1993-1996	2ndqtr 1997-2000	3rdqtr 2001-2004	4thqtr 2005-2008	5thqtr 2009-2011	

Source: Authors computation (from CBN Annual Reports and Statement of Accounts (Various Issues). z- statistic in brackets

7. Summary of Findings, Recommendations and Conclusion

7.1. Summary of Findings

Lending is one of the major functions of banks though the most risky. Yet any bank that wants to remain in business must lend. Due to the fact that bank's primary function is to act as intermediary between savers and borrowers, the barometer for measuring their earnings is interest from lending. Lending is a risk. Granting of credit is risk that can be viewed as the most important risk which Nigerian banks face bearing in mind the staggering size of their non-performing assets. Credit risk therefore is the risk which could occasion a loss for a bank due to a default by a customer in meeting its obligation. The survey confirmed the increasing existence in the amount of bad and doubtful debts in Nigeria Commercial Banks of which the major causes are: Inadequate close monitoring of the borrowers to ensure proper utilization of fund, Incessant increase in interest rate (lending rate), Lack of adequate knowledge of the loan seekers etc.

The effects of these bad debts as revealed by the survey were:

Bad debts destroy loan which are banks earning assets. They are the source of earning as well as the essential determinants of the liquidity and ultimate solvency of the bank. It is these earnings that translate into cash, which of course is the life and blood of any business. Eating them up therefore, amounts to slamming death certificates on banks.

Due to the fact that the higher the bad debts written off from the profit of the bank, the lower the net profit and, therefore, the amount available for distribution as dividends to shareholders and, in fact, the amount ploughed back into the business to enhance its future revenue earning capacity.

Loss of substantial portion of deposit Reduction on the amount available for shareholders as dividends due to reduction on profits occasioned by bad debts.

7.2. Recommendations

Banks Management should establish sound lending policies, adequate credit administration procedure and an effective and efficient machinery to monitor lending function with established guidelines.

Reduction of interest rates on lending. The character and financial statement of the borrower must be properly studied.

The Central Bank of Nigeria should re-introduce interest rate regulation on banks.

Banks should be making public the names of bad and doubtful debtors (by compilation of bad debtors' black book in banks).

Finally, the financial institutions should all together, set up credit bureau system which is a form of data bank where every bank will submit the names of its defaulting customers for references by others. This will equally frustrate multiple borrowing from banks for the same purpose by the dubious customers.

7.3. Concluding Remarks

The relationship between bad debt, interest rate and credit management has been highly researched. So other scholars in Nigeria interested in monetary economics should re-investigate the causality and long-run effects of interest rate on bank credit default using the "Bound Testing Approach".

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