International Review of Business Research Papers
Vol. 3 No.5 November 2007 Pp.434-448

Indicators of Bank Credit to the Domestic Economy (1970-2002): An Econometric Approach

Sebastian Ofumbia Uremadu*

This study has utilised the ordinary least squares (OLS) framework to determine relevant variables that do impact on the allocation of direct credit to the Nigerian economy within the period 1970-2002. Our investigation method involves regression tests and analyses. Results from empirical analysis strongly reveal that demand deposit liabilities (DDL) had the most significant and positive influence on direct banks' credit allocations in Nigeria. The other dominant factors are the balances with Central Bank of Nigeria (BWCBN) and maximum lending rate (MLR) both of which exhibited a negative influence on bank credit to the economy. Bank investments (BSTI) in government securities, an indirect credit extension, showed a negative impact on commercial banks' credit to the domestic economy. Paper therefore submits that efforts should be intensified, through government monetary policy, to ensure that the banking system is stable so as to attract maximum deposit liabilities and reduce their investments in government securities while the Central Bank of Nigeria, on its own part, should lower legal reserve requirements (LRR) and minimum rediscount rate (MRR) to enable banks moderate their balances with the CBN in a bid to create additional credit in the system at affordable lending rates. With our suggestions adopted and the government creating the right political and economic environment for businesses to thrive, Nigeria will, most likely, experience a boom in her economic growth and development pursuit in the 21st century.

Field of Research: Banking, Credit, Developing Economies.

1. Introduction

Access to credit has a positive impact on economic growth and affects the distribution of income. The evidence that finance is a constraint on development is overwhelming as studies have shown that a significant positive correlation exists between variables which capture troughs in the financial system, such as the ratio of money supply to GDP, or the ratio of banking system credits to the private sector to GDP, on the one hand, and the level of per capita growth and income, on the other (Alade, et al, 2003).

In the 1980s, most developing countries intervened substantially in the financial sector by setting interest rates for savings and lending, as well as directing the allocation of credit in the economy, to accelerate and direct them to areas of high economic and social priority (Olashore, 1988 and Otu, et al, 2003). By the early 1990s, however, it became apparent that the approach was counter-productive as the repressed financial sector could no longer mobilise loanable funds for investment.

*Sebastian Ofumbia Uremadu, Banking and Finance Dept., Covenant University.
E-mail: sebauremadu@yahoo.com

Financial sector reforms were, therefore, introduced to correct the problems caused by financial repression. Such reforms included interest rate liberalisation and the removal of ceilings and other controls on credit allocation. The reforms were expected to have a positive impact on savings mobilisation and credit allocation. However, in Nigeria, as in many other developing countries, the ratio of credit to GDP has not increased significantly.

The quantity, quality and cost and availability of loanable funds have continued to constrain the expansion of businesses and self-employment (which are effective channels of job creation). Furthermore, a significant proportion of credit transactions in Nigeria still take place in the informal markets, despite government's efforts aimed at channelling credit to the productive sector, through the deposit money banks (DMBs) and the setting up of development banks. Amidst all the problems highlighted above, there is still lacking a radical or profound study on the determinants of bank credit in Nigeria in a bid to capture core variables to target for needed banking system's credits to the economy. The present study will fill this vacuum created, over these years, in this regard.

The objective of this paper therefore is to identify core determinants of commercial banks' credit in Nigeria, and to suggest measures which could contribute to its increase. We shall thus pursue in the next section the literature review and the theoretical framework for discussing the subject in question. In Section 3, cointegration analysis of ordinary least square (OLS) multiple regression is discussed in which both multivariate equation and natural logarithmic models are used for our empirical analysis. An empirical analysis, using OLS modelling technique, evaluates the main determinants of direct bank credit allocations in Nigeria as well as analyses results of evaluation in Section 4, while Section 5, concludes the paper.

2. Literature Review and Theoretical Framework

The concept of loanable funds in economics is central to the theory of interest rate. It explains how the demand for, and supply of credit decides the financial market interest rate. Bannocks, et al, (1998) defined loanable funds as money available for lending to individuals, governments and institutions in the financial markets. It comprises the current savings of private individuals and firms, dishoarding, and any increase in money supply made available by the actions of depository institutions, governments and monetary authorities in the financial markets. Thus, loanable funds represent a flow of money into the financial markets for loans of all kinds. According to Pearce (1992), loanable funds or credit is strictly the term used for funds that are available for lending in the money and capital markets, and is usually considered within the context of the theory of interest rate. According to Uremadu (2005), loanable funds results out of planned and mobilised savings. Accumulated savings when invested translate into capital formation which is a stock of real productive asset (Uremadu, 2005). Capital formation is the backbone for real economic growth and development of developing economies (Jhingan, 1984).

The modern theory of loanable funds, which was developed by Wicksel and elaborated

by Pigou, Ohkin and other neo-classical economists, has its roots in the classical theory of interest rate (Levacic and Rebman, 1983 and Otu, et al, 2003). In its simple version, the theory explains the determination of interest in terms of the demand for, and supply of credit.

The rate that equilibrates the financial market is that which equates the supply of credit, through savings from present income plus net increase in money supply in a given period; the demand for credit arises from the investment demand for real capital expenditure, plus net hoarding during the period (Ajayi and Ojo, 1981).

According to Alade, et al (2003), empirical evidence suggests that there are various factors affecting the demand for, and supply of credit. These factors include the following: public sector deficit, private/corporate savings, regulatory and monetary policies, the level of economic activity, inflationary expectations and the structure of the financial system. Each of these factors is briefly but fundamentally discussed below.

i. Public sector deficit

Government borrows in order to finance the shortfall between its revenue and expenditure. It may be in the form of borrowing from the banking sector or, alternatively, from the private sector and sale of government securities. As a result, the supply of funds from household savings increases, but at a rate less than the increase in government demand and this leads to the "crowding out" of other borrowers (Alade, et al, 2003).

The secondary effect may come through a change in the nominal anchor interest rate, which is usually designed to address the problem of overheating of the economy. Thus, in the medium to longer term, the raising of the nominal anchor rate would signal high rates of interest on borrowing.

ii. Savings

Private and corporate borrowings are meant to bridge the financing gap between revenue and consumption/investment expenditures. However, private savings accumulate from both current income and abstinence (or deferment) from current consumption by households, while corporate and business savings emanate from increases in the retained profits of corporations and firms, thereby, affecting the demand/supply of credit in the financial markets (Jhingan, 1984).

iii Regulatory and monetary policies

The regulatory actions of the monetary authorities, particularly with regard to the conduct of monetary policy stance, affect the availability of credit in the economy. Since the monetary policy stance impacts on the reserves of deposit money banks, their portfolio management in response to policy action affects the flow of credit. As a matter of fact, if legal reserve requirement (or cash reserve ratio) is high, commercial banks will be left with little cash or credit to advance or create for loanable funds and vice versa (Jhingan, 1984 and Uremadu, 2000). The lending capacity of deposit money banks is constrained further when part of the deposits mobilised is sterilised by the central bank,

through reserve requirements, partly for prudential reasons and partly for monetary control purposes.
This implies that less money is available to deposit money banks (DMBs) for lending operations. This implicit taxation is passed on to borrowers in the form of higher interest rates, which further affects the demand for, and supply of loanable funds.

iv. Level of economic activities

Changes also occur in the demand for, and supply of loanable funds due to the level of economic activity. On one hand, an increase in demand for loanable funds by businesses, due to optimistic economic projections, leads to increased interest rates if there is no complementary increase in the supply of loanable funds. On the other hand, an economic slow down leads to a decrease in demand for loanable funds by individuals and firms.

v. Inflationary expectations

Inflationary expectations also play an important role in the demand for, and supply of credit. Speculation about the future price levels and interest rates may induce demand for, and supply of credit. The initial effect is that the supply of loanable funds would contract, as lenders would not be willing to lend at negative real rates of interest (Edminster, 1980; Adekanye and Soyibo, 1991; Chete, 1999 and Uchendu,1993). Financial intermediaries would also shift their portfolio away from loan assets. The corollary is that spending to acquire consumer durables and real estate would rise as purchasers increase/expedite spending to beat inflation and pay higher prices on the assets, thereby increasing the demand for credit.

vi. The structure of financial system

Finally, the structure of the financial system can influence the volume of loanable funds. A shallow and repressed market portends weak intermediation and low funds mobilisation, while a highly deepened market engenders the reverse (Tobin, 1979). Similarly, the size and structure of the informal sector may promote or hinder the availability of loanable funds: the larger the size of the informal market (as we have in Nigeria), the less the availability of loanable funds in the banking system, and vice versa. Insofar as savings affect the supply of loanable funds, the health of the banking system is an important explanatory variable for savings too. For example, during a banking crisis, public confidence in the banking system wanes and household savers are reluctant to put their money in depository institutions. Indeed, loss of confidence in the system can cause a run on banks and affect the supply of loanable funds (Alade, et al, 2003).

2.1 Theoretical Issues on the Model

Here we pursue a theoretical explanation of the various variables as shall be contained in our model for the estimation of banking system's credit to the domestic economy. They are discussed as follows hereunder.

i. Commercial Bank Loans (ie. Banking System's Credits), BSTCr

Commercial banks generate profits by rendering services, attracting and retaining deposits, processing payments in a prompt and efficient manner, and putting to profitable use those funds that, in the management's judgement, are not immediately needed (Compton, 1983). One of the basic obligations perceived by every bank is the need to serve the credit requirements of customers and the community, and banks translate that credit function into a wide variety of loans and investment operations to meet that obligation. Luckett (1984), put the above view in a similar but more fascinating way that:

> It is clear that bankers themselves regard lending activities as lying at the heart of commercial banking. Not only are loans a very profitable type of asset for the bank to hold in terms of sheer earning power, they have the additional advantages of attracting deposits and providing a necessary service to the community.

In every manufacturing industry, profits result when a company obtains some form of raw materials, processes them and converts some into saleable merchandise, and markets its product at a price above all the manufacturing, selling, and overhead costs. Banks operate in an identical way. Their raw material is their deposits, which they use to generate profits. When banks judiciously extend credit to meet the legitimate needs of their markets, they are doing nothing more than fulfilling their traditional role as the principal source of funds for every type of borrower.

Loans represent by far the largest source of bank income; typically, they provide 60 to 70 per cent of total revenue. They have an equivalent importance on the bank's balance sheet, usually accounting for two-thirds of total assets (Compton, 1983).

ii. Commercial Bank Investments (BSTI)

By investments is meant government securities held by banks. Bank investments are generally regarded as a residual claimant on bank funds; that is, they are considered to be the lowest priority of bank assets. Only after a bank has taken care of its primary reserve needs and has met all the legitimate loan demands of its customers does it turn its attention to longer-term investments (Luckett, 1984 and Uremadu, 2000). Indeed, in some of the tight money episodes of recent years, many large banks had no investments at all; primary reserves and loans had exhausted their funds.

While Nigerian banks may hold investments in corporate bonds, only a few banks do so globally (Luckett, 1984). For all practical purposes, bank investments are held in three types of securities: FGN bonds (ie. TBs), municipal securities and State Development Stocks.

iii. Bank Deposits (ie. Commercial Bank Liabilities), DDL

This is discussed under two sub-headings hereunder:

(1) Demand deposits:

By demand deposits of commercial banks is meant all deposits that are legally payable on demand - that is, whenever the depositor wants. In general terms, with some minor exceptions, demand deposits may be thought of as deposits subject to transfer by cheque. They are the primary means of payment for economic transactions and are sometimes called by their alternate name, transactions accounts (Luckett, 1984).

(2) Savings and time deposits i.e. Demand Deposits (DD) versus Time Deposits (TD)

At a commercial bank, the deposit may be made into either a current or a savings account, or it may be used to establish a time deposit relationship (Compton,1983). Current account deposits are made because the customer intends to withdraw the funds in the very near future to meet current expenses. On the other hand, savings and time deposits are made because the funds will not be needed for a period of time and are being set aside for future goals or emergencies.

iv. Fractional Reserve System (LRR or CRR) and the Demand Deposit Balances with the Central Bank, BWCBN

In countries that use the fractional reserve system like Nigeria, commercial banks are required to carry (cash) reserves equal to a certain per cent of their time and demand deposits. These reserves must be in the form of cash in the vault or deposited with the central bank.

Mathematically, required reserve ratio (RRR) is computed thus:
Let required reserve ratio = r%;
Volume of Time Deposit (T) and Demand Deposit (D) = T+D;
Therefore Required reserve ratio (to be maintained by banks) = R

Hence,

$$R = r(T+G) \qquad \ldots 1$$

Banks depend largely on the amount of their cash reserve ratio (CRR); whether high or low, to create credit or money in the economy (Uzoaga, 1981), provided huge leakages do not occur in the economic system (Otu, et al, 2003). Serious leakages can manifest in three ways to hinder banks' creation of deposits (or credits) thus:

(1) the public's increased demand to hold cash;
(2) sales of government securities to the banks; and
(3) movements of funds to other financial institutions.

With these above qualifications in mind commercial banks can create enough credit so long as they keep enough cash (or cash substitutes) with the central bank to meet foreseeable demands upon them (Uremadu, 2000). As a matter of fact, commercial banks are unlike other financial institutions in being able to do this and it is essential that

bankers are prudent people to avoid misuse of this unique ability they have.

v. Interest Rates on Bank Lending (MLR)

Another possible implication for monetary management is the impact of interest rate on formal credit. Whenever the demand for credit is not satisfied in the formal sector, a marginal increase in the demand for loanable funds will lead to an increase in rates of interest on lending. Besides, under direct controls, the imposition of ceilings on domestic credit and compulsory holding of government securities by banks, which could influence the volume of credit available or granted, could "compel borrowers" who could not source their credit from the formal sector to patronise informal markets (eg. such as Esusu, Bam or Adashi) thereby pushing up interests on borrowing (Otu, et al, 2003). It then means that interest rate will have a negative relationship with banking system's credit to the economy.

3. Methodology and Research Design

An OLS time series analysis was utilised to establish the determinants of banking system's credit to the Nigerian economy. The banking system's credit is the dependent variable while the explanatory variables are banks' investments in financial assets, demand deposit liabilities, balances with the Central Bank of Nigeria and maximum lending rate. This relationship with the expected signs of the coefficients is expressed as follows:

$$BSTCr = f(BSTI, DDL, BWCBN, MLR) \quad \ldots 2$$

where BSTCr is the volume of banking system's credit to GDP; BSTI is the volume of banking system's investments to GDP; DDL demand deposit liabilities; BWCBN is balances with Central Bank of Nigeria and MLR is the maximum lending rate. e is the error term to be included in equation (3). The banking system credit to GDP used in this context is the *direct* commercial banks' credits to the economy which excludes indirect extension of credit to the economy by banks purchasing government securities.

Hence, the multivariate specification of the equation for estimation in our model is as follows:

$$BSTCr = \lambda_o - \lambda_1 BSTI + \lambda_2 DDL - \lambda_3 BWCBN - \lambda_4 MLR + e \quad \ldots\ldots 3$$

Transforming equation (3) to the natural logarithms, we also obtain:

$$InBSTCr = \lambda_o - \lambda_1 InBSTI + \lambda_2 InDDL - \lambda_3 InBWCBN - \lambda_4 InMLR + e \quad \ldots. 4$$

where λ_o is the regression constant; λ_1, λ_2, ... λ_4, are the regression coefficients of the explanatory variables; InBSTCr is the natural logarithm of the dependent variable, while InBSTI, InDDL, InBWCBN and InMLR, are the natural logarithms of the independent variables.

The transformed log-linear equation (4) and linear equation (3), both will be estimated

using the OLS regression method. The use of log-linear in equation (4) improves the validity of estimates and conclusions based on them. Indeed, Amadi and Osaro (2000), Ekpo (1997), Friend and Puckett (1964), Boyd and Schonfeld (1977) and Ezirim (2000), all agree that the use of the log-linear equations aims at reducing, if not completely removing, the hetrosdasticity error, which may result from unscaled magnitudes on both sides of the equations.

Secondary data are used to estimate the above model equations (3) and (4). The data employed are extracted from different sources and these include the CBN Economic and Financial Statement of Accounts and Annual Reports (various years), CBN Statistical Bulletin Volume 13 (December, 2002) and Annual Reports and Statement of Accounts from National Planning Commission. In addition to the publications mentioned above, library materials relevant to the topic were used.

In order to analyse the data, the models were estimated using the OLS regression procedure. Specifically, we used the Econometric Views (ie. E-Views) Computer package for the purpose of our programming, which yielded results for the regression coefficients and associated statistics. As such the coefficient of determination (R^2), adjusted R^2 and the F-statistics were generated to test the goodness of fit whereas the parameter estimates were employed to test the relationship existing between the dependent and independent variables. The Durbin-Watson statistic (DW) enabled us to test for presence of auto-correlation.

4. Discussion of Findings

4.1 Presentation and analysis of regression results

Table 1 is the empirical results for the OLS modelling of determinants of banking systems credit in Nigeria.

Table 1: Modeling: BSTCr Function by OLS

Variable	Coefficient	St.Error	T-Statistic	Prob,
λ_o (Constant)	7790.114	8917.430	0.873583	03898
BSTI	-0.168278	0.134601	-1.250191	0.2216
DDL	0.858509	0.119679	7.173439*	0.0000
BWCBN	0.200395	0.366964	0.546088	0.5893
MLR	-100952.5	58479.14	-1.726300**	0.0953
R^2 = 0.994231		99.42%		
R^2 Adjusted = 0.993407		99.34%		
DW Stat =1.200015		1.120		
F-Statistics =1206.394		1206.394		
Sum squared resid =9.68E+09		9.68E + 09		
S.E. of regression = -368.5287		-368.5287		
Prob(F-Statistic) = 0.000000		0.000000		

Note: * Significant at the zero per cent level
** Significant at the 5 per cent level

The outcome of our regression for the model linear equation (3) is stated below:

$$BSTCr = 7790.114 - 0.168278BSTI + 0.858509DDL - 0.20039BWCBN - 100952.5MLR \quad \ldots 5$$
$$(0.873583) \quad (-1.250191) \quad (7.173439) \quad (0.546088) \quad (-1.726300)$$

$R^2 = 0.994231$
Adj $R^2 = 0.993407$
F-Statistic = 1206.394
DW Stat = 1.200015

*, ** indicate 0 and 5 per cent levels of significance, where the variables are the student t-ratio values.

From the results depicted in Table 1 above, the descriptive statistics (R^2, Adj.R^2, F-statistic and DW Stat) are significance as they are within acceptable bounds. Specifically, R^2 reveals that the explanatory variables account for 99.42% of the variables in the volume of *direct* commercial banks' credit to domestic economy within the period under review. This is a good fit. Equation (3) also shows that it is a useful model as specified since the whole equation was found to be statistically significance as F-Statistic = 1206.394; Prob (F-statistic) = 0.000000; R^2 = 99.42%, R^2 Adj 99.34%, although the intercept was not significant. The value of DW Stat = 1.200015 demonstrates the null hypothesis of no serial correlation is not rejected at the 5% level of significance.

In line with *apriori* expectation, the volume of demand deposit liabilities (DDL) is very significant at 100% confidence level in influencing commercial banks' credit to the domestic economy during the period studied. Maximum lending rate (MLR) is significant at 95% in explaining banks' credit performance in Nigeria. Hence, a 1% change in demand deposit liabilities will have a more than a proportionate impact on the volume of bank credit to the economy. It then means more demand deposit liabilities the better performance of the banks.

Results as revealed by Table 1, show that three of the variables (BSTI, DDL and MLR) are correctly signed in line with their hypothesised signs, while only one variable (BWCBN) had the wrong sign. This reverse expectation is due to two reasons: (i) leakages in the economic and financial systems because the bulk of the deposits mobilised by the informal credit market are given out to borrowers with insignificant proportion being channelled to the formal financial market. This informal credit contributes to higher level of currency outside banks, which implies higher velocity of money and therefore more money being created than estimated even though commercial banks' compulsory deposits with the Bank (ie. CBN) rise. This is a distortion in the system as activities in the informal market can adversely affect the formal sector activities. The above implication is in agreement with Otu, et al (2003) and Uremadu (2005)'s findings. Demand deposit liability (DDL) and balances with the

Central Bank of Nigeria (BWCBN) are the similarly related variables, however, while the former increases banks' credit or credit creation, the latter decreases it, and in an atmosphere of uncontrolled informal credit market, distortions can lead to rise in bank credit as balances with the Central Bank of Nigeria (BWCBN) rise.

Significance of demand deposit liabilities (DDL) is proper and good for the banking system and the economy because of two reasons: (i) commercial banks will grant more credit to the productive sectors of the economy from their major sources of funds - the volume of their deposit liabilities and can create more credit from demand deposits provided the legal reserve requirements (LRR) are low. (ii) Banks also earn interest(s) on their assets which include, in the main, the amount of their liabilities. It is a fact that profitability of the banking sector depends on their ability to go into debt – the bigger their debt, the more their profits (Jessup, 1980 and Uremadu, 2005).

Equally of note, significance of maximum interest rates on lending (MLR) in influencing banking credit is in order. Whenever the Central Bank raises the minimum rediscount rate (MRR), this triggers banks to push up their interest rate. This trend will discourage borrowers from getting loanable funds and this will impact adversely on the economy in general (Otu, et al, 2003).

Finally, the insignificant relationship of banking system's investments with banking system's credit is at variance with results of Uremadu (2005)'s study which records significant influence, though wrongly signed. Its insignificant influence on direct banks' credit here, though with the right sign could only be attributed to the fact that some leakages which distort government control exist in the financial system. The result is that increasing banking system's investments to GDP which lowers direct banks' credit is made up for by the credit provided by the informal market. This neutralises government monetary management activities, so to speak (Otu, et al, 2003).

To further improve the validity of our OLS regression estimates and conclusions derived from equation (3), we can now relay results of model equation (4) effected by use of the log-linear method.

4.2 Analysis of results from OLS estimation

Table 2 relays results for the natural log-linear OLS model equation (4) as follows:

Table 2: Modeling: InBSTCr Function by OLS

Variable	Coefficient	St.Error	T-Statistic	Prob,
λ_o (Constant)	-1.680331	0.516833	-3.251208*	0.0030
InBSTI	-0.020392	0.047939	-0.425365	0.6738
InDDL	1.227591	0.080663	15.21876*	0.0000
InBWCBN	-0.129731	0.036670	-3.537850*	0.0014
InMLR	-0.108050	0.113352	-0.953228	0.3486
R^2 = 0.995986 Ω		99.60		
R^2 Adjusted = 0.995413Ω		99.54		
DW Stat =1.475343Ω		1.475		
F-Statistics =1737.065Ω		1737.07		
Sum squared resid =0.629621		0.629621		
S.E. of regression = 0.149955		0.149955		
Prob(F-Statistic) = 0.000000		0.000000		

Note: * Significant at the zero per cent level

The results of our regression analysis for the natural log-linear equation (4) model are displayed below:

$$\begin{aligned} \text{InBSTCr} = 1.680331 &- 0.020392\text{InBSTI} + 1.227591\text{InDDL} \\ &(-3.251208) \quad (-0.425365) \quad (15.21876) \\ &- 0.12731\text{InBWCBN} - 0.108050\text{InMLR} \\ &(-3.537850) \quad (-0.953228) \end{aligned} \qquad \ldots 6$$

R^2 = 0.995986
Adj R^2 = 0.995413
F-Statistic = 1737.065
DW Stat = 1.48

Similarly, results depicted in Table 2, show that the descriptive statistic (R^2, Adj R^2, F-statistic and DW stat) are very significant. In particular, R^2 reveals that the explanatory variables account for 99.60% of the changes in the quantum of banking system's credit in Nigeria. This also portrays a good fit.

Model equation (4) also illustrated that it has been a useful model as specified since it was ascertained to be statistically significance (F-stat = 1737.065; Prob(F-stat = 0.000000), and the intercept was highly significance at 0.00 (zero) per cent level.

Besides, the value of DW stat = 1.475343 revealing no serial correlation and implies that the null hypothesis is not rejected at the 5% level of significance.In general, results from the regression of natural logarithmic equation (4) have demonstrated remarkable improvements in the values of the descriptive statistics like R^2, Adj R^2, SE-regression; Sum of squared resid; DW stat; F-statistic; Prob(F-stat) and made significant the values of two of the explanatory variables; DDL (demand deposit liabilities) and BWCBN (balances with Central Bank of Nigeria).

In line with our economic thinking, all the variables had their right hypothesised direction of signs. However, results from Table 2, show that both demand deposit liabilities and balances with the Central Bank are very significant at 100% confidence level in impacting on banking system's credit to the domestic economy. This is in agreement with our *apriori* expectations. BSTI (bank investment in government securities) like in equation (3) was never significant in influencing credit allocation in Nigeria. As to maximum lending rate (MLR), though not significant in influencing credit allocation in the present natural log-linear model equation (4), its attaining the right hypothesised sign evidences that it meets our economic reasoning that if interest rates on lending are rising, they will have negative impact on the banking system's credit allocation to the economy. On the other hand, balances with Central Bank became very significant as well as attained its direction of hypothesised sign in natural log-linear equation (4), has satisfied our economic expectations that excess balances left with the Central Bank do counter monetary management intentions to allocate adequate credit to the domestic economy. This result affirms findings of Uremadu (2005)'s study which show BWCBN to be significant at the 5% confidence level.

Finally, all these improved values which resulted from applying natural logarithms to our initial linear equation (3) to derive equation (6), are very significance indeed, and they have underscored the importance of our inclusion of the natural logarithms in the above model used to carry out our tests of hypotheses and analysis. Banking system's investment (BSTI) results in both models (3) and (4), contradict Uremadu (2005)'s findings which show BSTI to be significant in influencing BSTCr. However, for the fact that this variable exhibited right signs in both models' results, evidences its relevance as a critical variable in determining banking system's credit in Nigeria. Moreover, bank investment securities differ from direct bank loans in two respects as stated in Koch (1992): (i) loans typically exhibit the greatest credit risk, and (ii) bank investments generally exhibit less credit risk because the borrowers are predominantly federal, state and local government units. As such, banking system's investments assume a very important factor that is critical in determining the volume of banks' credit to the economy.

5. Conclusion

The outcomes of our empirical analysis from both model equations (3) and (4) clearly established some policy issues thus: (i) that the level of demand deposit liabilities (DDL) has a positive and very significant direct relationship with the quantum of banking system's credit allocated to the domestic economy; (ii) that balances with Central Bank of Nigeria (BWCBN) and maximum lending rate (MLR), both have negative and significant impact on commercial banks' credit allocations in Nigeria, and (iii) that bank investment securities (BSTI) have a critical role to play in determining banks' direct

credit to the domestic economy because uncontrolled investments in bank investment securities do cut down money available for direct banks' loans as in previous studies of Koch (1992) and Uremadu (2005). As such, the main objective of this study was to determine empirically the factors affecting banking system's credit to the domestic economy and suggest measures which contribute to its increase. To a reasonable degree, we have achieved this objective.

References

Ajayi, S. and O. Ojo, 1981, *Money and Banking Analysis of Policy in the Nigerian Context*, London: George Allen & Unwin Ltd

Alade, S.O., M. Ajayi, C.I. Enendu and E. Idowu 2003. "The Supply of, and Demand for Loanable Funds" in: *CBN Contemporary Economic Policy Issues in Nigeria* edited by O.J. Nnanna, S.O. Alade and F.O. Odoko, Garki, Abuja: CBN

Bannocks, G. et al 1998, *Dictionary of Economics*, Lagos: Pengium Books Ltd

Chete, L.N. 1999. "Macroeconomic Determinants of Private Savings in Nigeria", *NISER Monograph Series* No. 7, pp.1-4

Compton, E.N. 1983, *Principles of Banking*, USA: American Bankers Association

Ezirim, B.C. 2000. "External Debt Overhang and Economic Performance of Nigeria: An Empirical Investigation", *Nigerian Journal of Monetary Economics*, Vol. 3, No. 1, March 2000) pp.30-37

Edminster, R.O. 1980, *Financial Institutions: Markets and Management*, New York: McGraw-Hill Book Company

Jessup, P.F. 1980, *Modern Bank Management*, New York: West Publishing Company

Jhingan, M.L. 1984, *Money, Banking and International Trade*, 5th ed. Delhi: Vikas Publishers Ltd

Koch, T.W. 1992, *Bank Management* 2nd ed. Orlan, Florida: The Dryden Press, p.112

Levacic, R. and A. Rebman,1983, *Macroeconomics: An Introduction to Keynesian Neoclassical Controversies*, New York: MacMillan and ELBS Publishers Ltd

Luckett, D.G. 1984, *Money and Banking*, Singapore: McGraw-Hill Book Company

Olashore, O. 1988, *Perspectives on Finance, Banking and Economic Policy*, Ibadan: Heinemann Educational Books (Nigeria) Limited

Ojo, M.O. 2001, *Principles and Practice of Monetary Management in Nigeria,* Abuja: CBN

Otu, M.F., E.N. Egbuna, E.A. Essien and M.K. Tule 2003. “Informal Credit Market and Monetary Management in Nigeria”, *CBN Research Department Occasional Paper* No. 29 (October 2003) pp.62-63

Pearce, D. 1992, *MacMillan Dictionary of Modern Economics*, Ibadan: MacMillan Publishers Ltd

Soyibo, A. and F. Adekanye 1991. "The Real Interest Rate in Nigeria: Its Measurement and Implications for Monetary Policy", *Nigerian Financial Review,* Vol. 1` No. 4, (Jan. - March, 1991) pp, 27-44.

Tobi, J. 1979. "Financial Intermediaries and Money Supply" in M.J.C. Survey; *Macroeconomics Themes: Edited Readings in Macroeconomics*, England: Oxford University Press

Uchendu, O. A. 1993. "Interest Rate Policy, Savings and Investment in Nigeria ", *CBN Economic and Financial Review*, Vol. 31, No. 1 (March, 1993) pp. 34-35.

Uremadu, S.O. 2000, *Bank Management: Basic Issues in Money, Bank Lending and Credit Administration*, Benin City: Mindex Publishing Company Ltd

----- 2000, *Modern Public Finance: Theory and Practice,* Benin: Mindex Publishing Company Ltd

----- 2005. "Interest Rate Regimes and Savings Mobilisation in Nigeria", Ph.D. Thesis submitted to the Department of Banking and Finance, University of Nigeria, Enugu Campus, Enugu State

---------- 2005. “Determinants of Banking Systems Credit to the Nigerian Economy in a Liberalised Financial System: An Empirical Analysis”, for publication in *BIJAR*, BUK Kano

Uzoaga, W.O. 1981, *Money and Banking in Nigeria*, Enugu: Fourth Dimensions Publishers Ltd.

Appendix I

Table 3: Determinants of Banking Systems Credit in Nigeria
1970-2002

Year	BSTCr (N'M)	BSTI (N'M)	DDL (N'M)	BWCBN (N'M)	MLR %
1970	351.4	533.8	624.8	18.5	8.00
1971	502.0	324.9	657.1	6.5	10.00
1972	619.5	418.5	793.7	15.9	10.00
1973	753.5	424.4	1,013.0	15.4	10.00
1974	938.1	778.3	1,693.9	262.6	10.00
1975	1,537.3	832.0	2,839.2	703.9	9.00
1976	2,122.6	1,391.1	4,164.4	905.2	10.00
1977	3,074.7	2,016.5	5,235.2	630.0	6.00
1978	4,109.8	1,573.5	5,302.6	516.9	11.00
1979	4,618.7	2,628.4	6,967.8	444.7	11.00
1980	6,379.2	344.8	10,009.1	1,128.5	9.50
1981	8,604.8	2,350.2	10,676.9	890.3	10.00
1982	10,277.0	3,406.9	12,018.9	1,495.6	11.75
1983	11,100.0	5,730.4	13,938.5	810.2	13.50
1984	11,503.4	9,237.8	15,734.8	568.4	13.00
1985	12,170.3	10,875.8	17,597.1	340.1	11.75
1986	15,701.5	5,223.3	18,137.6	470.0	12.00
1987	17,531.9	8,712.6	23,086.7	1,636.9	19.20
1988	20,044.9	7,565.2	29,065.0	1,355.1	17.60
1989	22,221.2	4,606.4	27,164.9	1,118.0	24.60
1990	26,083.9	10,067.8	38,777.3	2,473.9	27.70
1991	31,762.4	7,453.5	53,208.7	2,210.6	20.80
1992	41,810.0	6,767.0	75,047.7	24,196.2	31.20
1993	48,056.0	31,192.0	110,453.6	35,516.6	18.32
1994	92,624.0	40,444.0	142,537.5	41,588.5	21.00
1995	141,146.0	22,695.0	178,962.1	47,012.4	20.79
1996	169,242.0	49,751.0	214,359.8	52,802.3	20.86
1997	230,600.0	42,861.5	280,028.7	50,460.2	23.32
1998	272,895.5	52,993.8	314,303.5	47,144.1	21.34
1999	353,081.1	193,412.9	476,350.9	96,630.1	27.19
2000	08,302.2	285,294.4	702,104.5	132,654.3	21.55
2001	796,164.3	192,731.8	928,326.9	254,151.4	21.55
2002	954,628.8	435,601.0	1,100,710.3	245,284.2	26.65

Source: (i) CBN Economic and Financial Statement of Accounts and Annual Reports (Various)

(ii) CBN Statistic Bulletin Vol. 13 (December 2000)