Analysis of Bank Intermediation activities on Economic Growth in Nigeria- a Co-integration Approach

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Abstract
In developing countries like Nigeria, banks activities are germane to economic growth through the financial services they render. The study specifically evaluated the effect of bank intermediation activities on economic growth in Nigeria. Secondary data were explored through Central Bank of Nigeria Statistical Bulletins within the period of 1983 and 2014. Descriptive statistics such as mean, median and mode etc. and econometric statistics like Ordinary Least Squares (OLS) were used to analyse the data obtained. The multiple regression result showed that the computed F-statistic with corresponding probability value (F (5, 26) = 364.23, Prob> F = 0.0002) and adjusted R^2 (0.9832), indicated that loan and advances (β =6.217539), and money Supply (β =6.50541) have positive effect on economic growth at p≤0.05. The result of co-integration test using trace statistic suggests a long-run relationship among the variables (Ho:n=3 that is, 26.4902<29.68). It was concluded that financial intermediation by banks had statistically significant impact on economic growth of Nigeria. It is recommended that there should be an improvement on the interest paid to depositors on their deposits with banks and that Government should formulate policy that is aimed at raising money supply so that it would increase Gross Domestic Product. Finally, the Federal Government and Monetary Authority should correspondingly use expansionary fiscal and monetary policies to magnify the volume of loan and advances that are given to both public and private sector.

Key words: Bank Intermediation, loan and advances, Economic Growth, GDP, Money supply, Central Bank of Nigeria.

1. Introduction

Evidence from literature show that financial intermediaries play important roles in the growth of the real economy by channelling funds from savers to borrowers in a manner to facilitate investment in physical capital, spur innovation and the creative process. Also, the efficiency and effectiveness of economic policy is positively associated with how well financial markets operate. Through their financial activities, financial intermediaries increase efficiency and effectiveness in many ways for example by decreasing leakages in savings (Safiat, 2013). Financial intermediaries transfer funds from those who have savings to those who can put them into use productively (Kaitohutohu, 2004).

The Central Bank of Nigeria (CBN) in 2012 introduced cashless policy in order to modify the cash-driven economy and condensed operational costs usually passed on to customers through other means. This was planned to promote financial intermediation, eliminate incidence of corruption emanate from ineffective credit delivery system and also to lessen the amount of cash payment and boost electronic payment. Financial intermediation is the process

by which intermediaries provide a linkage between surplus units and deficit units in the economy. Surplus units are firms/individuals who have excess funds above their immediate needs while those who need this fund for immediate investment programmes are referred to as deficit units. It is the financial intermediaries that develop the facilities and instruments which make this lending and borrowing possible (Akinsulire, 2010).

Officially, Gross Domestic Product (GDP) is the most popular measure of the output of a country. GDP indicates the market value of all officially recognized final goods and services produced within a nation at a specified time period (Emeka, 2009). The thrust of this study is to explore the effect of financial intermediation activities by banks on economic growth of Nigeria.

Statement of the problem
In Nigeria, financial reforms was implemented as part of their wide-range market oriented economic reforms since the late 1980's (Uboh, 2005). Globally, the financial intermediation activities of banks mirror their unique roles as the instrument of growth in any economy. Central Bank of Nigeria (CBN) have imbued the total of N600 billion naira into the Nigerian banking sector to recapitalize the banks that have liquidity crisis and credit crux caused by excessive lending, extravagance and sleaze (www.Groundreport.com). The recent audits of the Nigerian banks by the Central Bank of Nigeria (CBN) have exposed the inefficiency and ineffectiveness of the banking sector and revealed that majority of these banks were ill managed and that corruption has almost destroyed the system. As a result, the CBN committed himself into cleaning the financial mess (Emeka, 2010). Precisely, factors that motivate credit growth and delivery in the economy are largely under researched. This is considered very important to ensure that financial institutions have the desired effect on the economy as a whole. There is a dearth of information on the effect of bank intermediation activities on economic growth in Nigeria since the introduction of merger of banks in 2005. This study aims to fill significant gaps on this issue especially with respect to financial institution.

Research hypotheses
Ho1: Bank intermediation activities has no influence on economic growth in Nigeria.

2. Literature Review and Conceptual Explanation
2.1 Theory of Delegated Monitoring and Financial Intermediation
One of the theories of financial intermediation that relates to the role of banks is monitors of borrowers. For the fact that monitoring credit risk is costly, that is probability that borrowers default, is costly, it is effective and efficient for surplus units such as depositors to delegate the task of monitoring to proficient agents such as banks because banks have proficiency and economies of scale in processing information on the risks of borrowers and as depositors would find it difficult and costly to undertake such activity. Hence, they delegate such responsibility to the banks.

An intermediary such as commercial bank is delegated the task of costly monitoring of loan contracts carved with firms who borrow from it. It has overweight cost advantage in collecting the information because the alternative is either duplication of effort if each lender monitors directly or a free-rider problem in which case no lender monitors. As a result, financial intermediation theories are generally grounded on some cost advantage for the intermediary (Diamond, 1984).

2.2 Theory of Multiple-Lending

Evidence from literature showed that banks should be less inclined to share lending that is, loan syndication in the presence of well-developed equity markets and after a process of consolidation. Both outside equity and mergers and acquisitions increase banks' lending capacities, thereby reducing their need of greater diversification and monitoring through share lending (Carletti *et al*, 2006; Ongene & Smith, 2000; Karceski *et al*, 2004; Degryse *et al*, 2004). This theory has a great implication for Nigeria banks in the light of the recent 2005 consolidation exercise in the banking industry.

2.3 Concept of Financial Intermediation

Financial intermediation is the process by which intermediaries provide a linkage between surplus units and deficit units in the economy. Afolabi (1998) posits that for financial intermediation to succeed, three qualities are essential and this are: cost, convenience and confidence. Finance is germane for different purposes by different organizations, individual sand other economic agents. In order to provide the needed finance, there are varieties of institutions rendering financial services. Such institutions are called financial institutions. Commercial banks are among such institutions that render financial services. This is known as direct finance (Akinsulire, 2010). The shortcomings of direct financing as identified by Buckle and Thompson (1998) include but not limited to;

   i.   Different requirements by lenders and borrowers
  ii.   Transaction costs
 iii.   Problems arising out of information asymmetries.

Mathews and Thompson (2008) also identified four criteria that distinguish financial intermediaries especially banks from other financial institutions, and these include;

   i.   The liabilities that is, deposits are specified for a fixed sum which is not related to the performance of the portfolio
  ii.   The deposits are short-term and of a more shorter term than their assets
 iii.   A high proportion of their deposits are chequeable (can be withdrawn on demand)
 iv.   Their liabilities and assets are largely untransferable. As a result, it enables the financial intermediaries to reduce or eliminate the problems associated with direct financing.

3. Methodology

The study area is commercial banks in Nigeria. This study therefore, focuses on these banks because they contributed majorly to economic growth using country aggregate level annual data from Central Bank of Nigeria. Secondary data was used for this study. The data covered 32 years period, that is, between 1983 and 2014. The Data generated were analysed through descriptive statistics while formulated hypothesis were analysed through econometric Statistics such as multiple regression at 0.05 level of significance. Augmented Dickey Fuller test and co-integration test were also used to test for the presence of stationarity and to establish long run relationship of the variables.

Model Specification

The models shall take a general form of a multiple regression model expressed as follows:

$$Y = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \dots \alpha_n X_n + \qquad \dots (3.1)$$

Where Y is economic growth or GDP = dependent variables, X_1-X_n are independent variables α_0 is constant and α_1-α_n represents coefficient of independent variables.

Model:
To achieve the objective- "evaluate the effect of bank intermediation activities on Nigerian economic growth", the model specified as:

$$Y=f (MS, LA, TBD, PSC, NBB) \qquad\qquad\qquad … (3.2)$$

Explicitly, the model is specified as:

$$GDP_t= \alpha_0 + \alpha_1 MS_t + \alpha_2 LA + \alpha_3 TBD_t + \alpha_4 PSC_t + \alpha_5 NBB_t + \mu_t \qquad ... (3.3)$$

MS- Broad Money supply
LA- size of credit (Loan and Advances)
TBD-Total bank deposits
PSC- Private Sector credit (Economic volatility)
NBB-Number of bank branches
t= time subscript
μ_t - White noise residual /Error term in time t.
α_0 and α represent regression constant and regression coefficient of the variables.

4. Result and Discussion
Unit root test

The unit root test was carried out by using Augumented Dickey-Fuller (ADF) with STATA 11 version to investigate the stationarity of the series (Dickey and Fuller, 1981). The test results shown in table 1 indicated that all the series are integrated at difference of order one "I(1)". As a result, the existence of unit root test in all the series showed that the relationship would be spurious if stated at level.

Table 1: Unit Root Test

Unit root test			
Variables	**Order of Stationarity**	**Augmented Dickey Fuller test statistics**	**Decisions**
GDP	0	4.695	Stationary
GDP	1	3.421	Stationary
CPS	0	-8.31	Stationary
CPS	1	-0.754	Non Stationary
LA	0	5.723	Stationary
LA	1	3.292	Stationary
NBB	0	2.606	Stationary
NBB	1	1.221	Stationary
TBD	0	7.551	Stationary
TBD	1	4.826	Stationary
MS	0	9.828	Stationary
MS	1	2.959	Stationary

Test critical values: ADF test are 1%, -2.652, 5% -1.950, 10% -1.602
Source: Researcher computation, 2016 using STATA version 11

Descriptive Statistics
Table 2 below showed the descriptive statistics of variables used in this study. This indicated that GDP is the most volatile with 25606.77 standard deviation followed by Money supply with 5218.324 standard deviation while the Number of bank branches is the least volatile at about 1505.675 standard deviation. It could also be observed that all the variables displayed a high

level of consistency as their median values were falls within the minimum and maximum values of the series.

Table 2: Descriptive Statistics

Stats	Gdp	Cps	La	Nbb	Tbd	ms
Mean	16550.31	2649.969	1931.213	2981.063	1894.32	3426.897
Median	4434.23	391.565	221.15	2379.5	201.765	558.55
Sd	25606.77	4617.875	3399.63	1505.675	3156.582	5218.324
Max	89043.62	17128.98	12544.62	5807	11936.69	17680.52
Min	110.06	11.67	8.6	1101	8.08	17.69
Skewness	1.754402	1.911296	1.850644	.7805179	1.738955	1.488581

Source: Researcher computation, 2016 using STATA version 11

Analysis of the effects of bank intermediation activities on Nigerian economic growth.
Table 3 below showed the effects of bank intermediation activities on Nigerian economic growth. A unit rise in CPS, LA and MS increases the level of Gross Domestic Product (GDP) by .0551791,6.217539 and 6.50541 units, suggesting that there is positive relationship between GDP and each of CPS,LA and MS. The result is significant for all the above variables except for CPS since their p-value is less than 0.05. The relationship between NBB, TBD and GDP is negative suggesting that if GDP increases, NBB and TBD reduce. The adjusted R^2 coefficient (0.9832) which is the coefficient of determination indicates that the explanatory variables accounted for 98% of the variation in the influence of GDP on Credit to Private sector (CPS), Loan and Advances (LA), Number of Bank Branches (NBB), Total bank Deposit (TBD), and Money Supply (MS) in Nigeria for the period under review. This result remains robust as indicated by the high value of adjusted R^2, which is 0.9832 (i.e. ≈ 98%). Thus, the regression has a good fit.

Table 3: The Regression Result of the effects of Bank Intermediation Activities on economic growth.

Dependent variable	Independent variables	Coefficient	Standard Error	T	P>|t|	[95%Conf. interval]	
GDP	CPS	.0551791	.3190876	0.17	0.864	-.6007148	.7110731
	LA	6.217539	1.201418	5.18	0.000	3.7477988	8.68709
	NBB	-3.00641	1.483833	-2.03	0.053	-6.056473	.0436535
	TBD	-8.166772	2.415505	-3.38	0.002	-13.13191	-3.201631
	MS	6.50541	1.595215	4.08	0.000	3.226399	9.784422
	constant	6536.103	2886.275	2.26	0.032	603.2788	12468.93

| R-squared = 0.9859 | Adj R-squared = 0.9832 | Prob> F = 0.0002 | F(5, 26) = 364.23 | | | Root MSE = 3317.3 | |

Source: Researcher computation, 2016 using STATA version 11

Co-integration Test

From the result presented in the table 4 below, for the trace statistic, it either rejects the null hypothesis of no co-integration among the variables or it does not reject the null hypothesis that there is five co-integration relation among the variables. Start with Ho:r = 0. If it rejects, repeat for Ho: r= 1. When a test is not rejected, stop testing and that value of r is the estimate used for the number of co-integrating relations. In this test, Ho:= 3 which is not rejected at the 5% (26.4902<29.68).The number of co-integration vectors with three lags is equal to three i.e rank (п=3). Since the rank is equal to 3 which is greater than zero and less than the number of variables, the series is co-integrating among the variables and this suggest a long run relationship among the variables.

Table 4: Johansen Co-integration Test using trace statistics

Maximum rank	parms	LL	eigenvalue	trace statistic	critical value 5%
0	42	105.62884	.	138.7478	94.15
1	53	131.98556	0.82746	86.0344	68.52
2	62	149.70365	0.69309	50.5982	47.21
3	69	161.75767	0.55229	26.4902*	29.68
4	74	171.15571	0.46556	32.9048	15.41
5	77	174.97576	0.22483	7.6941	3.76
6	78	175.00274	0.00180		

* means 3 cointegration equation
Source: Researcher computation, 2016 using STATA version 11

5. Conclusion and Recommendation
Conclusion

The results of this study revealed a statistically significant impact of bank intermediation activities on the economic growth in Nigeria. This, therefore, suggest that the performance of the financial intermediaries influences economic growth. This conclusion is in line with results reported by Waqabaca (2004). Beck, *et al*., (1999) found out that credit to private sector indicate the capacity and efficiency of financial intermediaries in allotting funds to finance economic growth. The result of ADF unit root test showed that the stationarity of all the variables has been established. The Johansen co-integration test result showed that long run relationship exists among the variables.

The banking intermediation activities indices in the study explain a greater proportion in changes in the economic growth, however, it was found out that the indices that have insignificant effect and unexpected relationship with economic growth, indicating that banking intermediation role has not been completely impacted on the Nigerian economy. This is due to the level of economic and complexity in implementing banking intermediation that hinders their roles from achieving the desired results.

Recommendations

In order to adequately address the problem of continuous financial system imbalances in the banking sector the following policy recommendations are being suggested:
  i. There should be an improvement on the interest paid to depositors on their deposits with banks. In the same vein, commissions and interests paid by customers on some bank transactions should be minimized.

ii.   The Federal Government and Monetary Authority should respectively use expansionary fiscal and monetary policies to expand the volume of loan and advances that are given to the production sector such as agricultural, manufacturing and mining sectors in Nigeria, thus, if done, will stimulate increase in output in these sectors and also contribute significantly to economic growth.

Suggestions for further study

In view of this, this thesis suggests that a component analysis of the financial sector of the Nigerian economy be carried out with a view to having a better understanding of the insignificant effect of the private sector credit and the performance of the commercial banks. In addition, this thesis also suggests the expansion of the above model to accommodate more explanatory variables. The application of more advanced econometric techniques such as the Johansen Vector Autoregressive Model (VAR) estimation technique or the component analysis approach may be used for a more robust result.

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