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Modelling the financial intermediation function of commercial banks investment and economic growth in Nigeria

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Abstract
This paper examined the impact of financial intermediation function of the commercial banks on economic growth in Nigeria using the annual time series data from 1987 to 2016 by employing the Engle-Granger technique for the estimation of the error correction model, pearson correlation and the Vector auto regression model. Following a detailed time series analysis, the findings reveal that the commercial bank financial intermediation function has a positive relationship with economic growth in Nigeria but this relationship is not significant and the regression results shows that as important as all the variables are to economic growth, they have not actually impacted real GDP. The study also showed that the interest rate is a very important factor to credit since it has a significant negative relationship with the credit to the private sector, capital stock and money supply. We therefore recommend that commercial banks credit department advance more credit to private sector used for economic activities that will impact the real economy like the manufacturing and agricultural sectors and the government can also encourage economic growth by introducing incentives like tax holiday, low export duties amongst others to the participants in the sectors that boost the real economy.

Keywords: Economic growth, financial intermediation, real gross domestic product

Introduction
Financial intermediation involves institutions that raise funds by borrowing for on-lending. Financial intermediation makes the transfer of funds from the surplus sector to the deficit sector simple while financial intermediaries are firms that pool the savings or investments of many people and lend or invest the money to other companies or people to earn a return; (Afolabi 1998). Furthermore, financial intermediaries create liquidity that drives the economy by borrowing short term and lending long-term. Basically, it is the root institution in the saving – investment process.

Banks assume an important intermediary role by providing an increase in investments of a high proportion of externally generated funds but the fundamental question has been if the level of capital provided by the commercial bank to finance investment exerted any effect on economic growth given the fact that the availability of investible funds is one of the key factors in the growth process of any economy (Kenn-Ndubuisi and Akani; 2015) [18].

Growing economies place more responsibilities on their financial sector in order to mobilize the needed capital for investment. On the other hand, any economy existing without sustained funding is likely to have a very passive financial sector due to the lack of incentives put in place for investment. Doubt exists as to the sufficiency of commercial bank credits and investment adequacy for the purpose of achieving the desired economic growth especially in a developing country like Nigeria.

The relationship between the financial sector and economic growth has aroused a lot of debate in finance and economic literatures resulting into a vast global pool of empirical works. Some are of the opinion that the banks through their intermediation activities contribute to economic growth such as Mckinnon, 1973 [22]; Shaw, 1973 [25]; Levine, 1997 [19] while others disagree like Stiglitz, 2000.

In developing economies such as Nigeria, the study is still an on- going research with empirical works such as Ugbaje & Ugbaje (2014) [30], Acha (2011) [1], Iwedi and Igbanibo (2015) [16], Oleka, Sabina and Onyeze (2014) [24] amongst others. These authors have looked at the relationship between financial intermediation of the banking sector deposit and credits

as a whole and economic growth but this study intends to investigate the contribution of the commercial banks intermediation functions in Nigeria with the inclusion of the interest rate which affects the propensity to borrow.

It is against this backdrop that this study seeks to advance from previous works by investigating the contribution of the commercial banks financial intermediation functions and economic growth in Nigeria by employing the real gross domestic product (RGDP) as a measure for economic growth because it has been adjusted for price changes (i.e. inflation) from an annual time series data (1987 - 2016) from the central bank statistical bulletin and the security and exchange Nigeria statistical bulletin.

Review of Literature

The financial intermediation theory was first formalized in the works of Goldsmith (1969) [14],

Shaw (1973) [25] and Mckinnon (1973) [22], financial markets were seen as key players in economic development and the difference level of economic growth across countries were ascribed to the service capacity of their financial institutions. The theories of financial intermediation include:

The traditional theory: this theory is based on information and costs approaches, Benston and Smith (1976) [5] was among the first works that investigated the relationship between the functions of financial intermediation in an economy and the existence of the transaction costs. Ezirim (1996) [13] listed the traditional banking functions of intermediation to include;

- The depository function that covers the demand deposit, savings deposit and time deposit.
- The lending and investment functions that cover the outflow side of the intermediation process. They handle the direct credit and investment in financial and real assets.

Modern Theory: Advancement in the financial system brought about the introduction of the secondary market credit and mortgage markets, the modern market came into existence to take care of this new scope through the modification of the traditional theory. The two concepts that formed this theory include; the concept of liquidity provision which is based on the model of Diamond-Dybvig (1983) [10] and the concept of risk management from the theory of Wharton School of Pennsylvania University.

Empirical Review on Financial Intermediation and Economic Growth

Emmanuel and Odum (2019) tested the effect of financial intermediation on the development of the economy using data spanning from 1986–2017. The result from the auto-regression distributed lag (ARDL) showed that credit to private sector does not contribute positively to the development of the economy.

Ekejiuba, Mathew and Adegboye (2017) modeled the long run relationship between the financial intermediation and economic growth in Nigeria using data from 1986-2014. Result of the vector error correction model suggested that financial intermediation has a long run relationship with economic growth in Nigeria.

Bah *et al* (2016) [4] studied the impact of financial intermediation on economic growth in West Africa using the panel data framework from 1985 to 2013. The result showed that broad money (M2) and the level of financial intermediation (M3) impact positively on growth in the region.

Suleiman and Aluko (2015) [28] tested the causality between financial intermediation and economic growth using the Toda – Yamamoto Granger non-causality test from 1990 to 2013. The result shows that causality is absent between financial intermediation and economic growth.

Iwedi *et al* (2016) [17] examined the long run and short run dynamics between financial intermediation development and economic growth in Nigeria using time series data from 1970-2015 and employing the VAR testing approach, Johansen co integration testing technique and Engle and granger causality test for analysis. The results indicate that there is a presence of long run equilibrium between financial intermediation development indicators and economic growth. The study concludes that M2 to GDP exert more influence on the Nigeria economy than the credit to private to GDP.

Iwedi and Igbanibo (2015) [16] modeled the relationship between financial intermediation functions of banks and economic growth in Nigeria with data from 1970-2014 by using credit to private sector, banks deposit liabilities, and money supply for bank financial intermediation functions. The analysis revealed a long run relationship between the bank financial intermediation measures and the gross domestic product in Nigeria.

Chinweoke *et al* (2014) [8] analyzed the effect of financial intermediation and economic growth in Nigeria using data from 1992 to 2011. The result discovered that financial intermediation has a significant positive effect on economic growth.

Oleka, Sabina and Onyeze (2014) [24] studied the impact of intermediation roles of banks on the performance of the real sectors of the Nigerian economy using twenty (18) banks for an eight-year period (2005-2013). The study found out that the banking sector intermediation has significantly improved the GDP component of the manufacturing sector. Hence, the bank intermediation role has contributed marginally to the overall growth of the real sectors for sustainable development.

Ugbaje & Ugbaje (2014) [30] examined the financial sector development and economic growth in Nigeria from 1990 to 2010. The study employed Vector Error Correction (VEC) model to ascertain the direction of causality between financial sector development and economic growth in Nigeria. The study found strong positive relationship between financial sector and economic growth.

Tonye & Andabai (2014) [29] examined the relationship between financial intermediation and economic growth in Nigeria using data spanning from 1988-2013. The findings include a long-run equilibrium relationship between economic growth and financial intermediation.

Shittu, (2012) [26] examined the impact of financial intermediation on economic growth in Nigeria using a Time series data from 1970 to 2010. The paper established that financial intermediation has a significant impact on economic growth in Nigeria.

Acha (2011) [1] investigated the role that the banks play in economic growth using bank deposits and bank credit to the

private sector as variables for bank intermediation. The regression result confirms that banks through their intermediation function contribute to economic growth in Nigeria.

Odhiambo (2008) tested the causal relationship between finance and economic growth in Kenya from 1969 to 2005 by adopting two econometric techniques; the dynamic tri-variate granger causality test and the error correction model. This study concludes a one-way direction causality, from economic growth to finance, exists in Kenya. In other words, finance plays a minor role in the attainment of economic growth in Kenya. Wolde-Rufael (2009) using data from 1966 to 2005 from Kenya had a contrary opinion to Odhiambo (2008) by using a different econometric technique, the Quad-variate Vector Autoregressive (VAR) framework and data from 1966 to 2005; the study concludes the presence of a two-way directional causality exists in Kenya.

Methodology

This study used secondary data collected from the official publications of Central bank of Nigeria and the Securities and Exchange Commission. Vector auto regression was used to test the long run relationship between the variables collected annually from 1987 to 2016.

Dependent Variable: Real gross domestic product (RGDP)

RGDP is a macroeconomic measure of the value of economic output adjusted for price changes (i.e inflation). The adjustment transforms the money-value measure nominal GDP into an index for quantity of total output. With inflation, GDP does not actually reflect the true growth in an economy.

Independent Variables: Broad money supply (M2 / GDP)**,** commercial bank private credit to nominal GDP**,** commercial bank deposits**,** capital stock which is represented by gross fixed capital formation and interest rate (IR)

Model Specification

Following a detailed review of previous studies and improving on them, economic growth is expressed as a function of financial intermediation, Ft, and a set of control variable, Z. This is expressed by the equation below;

$$Yt = f\{Ft, Zt\} \quad (1)$$

$$Y_t = \alpha + \beta F_t + \delta Z_t + \varepsilon_t \quad (2)$$

From above; Y_t is the growth rate of real gross domestic product; Ft is the financial intermediation indicators, while Z_t is the set of other growth determinants. The parameters include; α, β, and δ. E_t is the residual term.

In specifying the models for this study, the following alphabets were used to denote respective variables.

RGDP = Real gross domestic product per capita (Proxy for Growth)
CBCPS = Commercial bank credits to private sector
CMD= Commercial bank deposits
M2 = Broad money in ratio to GDP
GFCF = Gross fixed credit formation proxy for capital stock
IR = Interest rate

The equation will be re-written thus in line with the objectives of this study

$$RGDP_t = \beta o + \beta_1 M2_t + \beta_2 CBCPS_t + \beta_3 CMD_t + \beta_4 GFCF_t + \beta 2INTR_t + U_1 \quad (3)$$

The study will also be testing the following hypothesis

- **Ho_1:** Commercial bank deposit has no significant effect on economic growth in Nigeria.
- **Ho_2:** Money supply has no significant effect on economic growth in Nigeria.
- **Ho_4:** Commercial bank credit to private sector has no significant effect on economic growth in Nigeria.

Result and Discussion

Unit root test

Variable	ADF Test Statistic	P-value	Remark
RGDP	-4.595731	0.0010	Stationary
CMCPS	-3.283397	0.0897	Non-Stationary
M2	-3.050164	0.1373	Non-Stationary
INFR	-3.973019	0.0250	Stationary
GFCF	3.499576	0.9996	Non-Stationary
INTR	-3.447861	0.0646	Non-Stationary
CMD	-4.592826	0.0012	Stationary

From the above result, it is clearly shown that four out of the seven variables under study are non stationary; hence their cointegration will be examined.

Cointegration

Cointegration is the regression of variables with unit root whose the residual of the regression are without unit root. It is an indication of long-run equilibrium or relationship between non stationary variables. The cointegration test for the non-stationary variables under study was conducted.

Table 1: Descriptive Statistics

	RGDP	CMCPS	M2	GFCF	INTR	CMD
Mean	4.943667	12.95333	17.33	1522.807	13.00333	66
Median	5.1	11.1	17.15	287	13.25	66.9
Maximum	11.36	36.9	38	7847	26	85.7
Minimum	-0.69	5.9	8.6	8.8	6	38
Std. Dev.	3.060835	6.900611	6.28606	2230.884	4.871839	11.63176
Skewness	0.196472	1.811671	1.53525	1.595038	0.573364	-0.59916
Kurtosis	2.624988	6.423747	5.99487	4.402273	3.025627	2.972402

Table 2: Pearson Correlation

		RGDP	CMCPS	M2	GFCF	INTR
CMCPS	Pearson Correlation	.234				
	Sig. (2-tailed)	.214				
	N	30				
M2	Pearson Correlation	.285	.931**			
	Sig. (2-tailed)	.127	.000			
	N	30	30			
GFCF	Pearson Correlation	.215	.631**	.439*		
	Sig. (2-tailed)	.254	.000	.015		
	N	30	30	30		
INTR	Pearson Correlation	-.244	-.628**	-.556**	-.679**	
	Sig. (2-tailed)	.195	.000	.001	.000	
	N	30	30	30	30	
CMD	Pearson Correlation	.155	.167	.234	-.252	-.239
	Sig. (2-tailed)	.414	.378	.213	.179	.204
	N	30	30	30	30	30

Table 3: Granger Casuality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
CMD does not Granger Cause CMCPS	28	0.06515	0.9371
CMCPS does not Granger Cause CMD		0.33862	0.7163
GFCF does not Granger Cause CMCPS	28	9.75735	0.0009
CMCPS does not Granger Cause GFCF		5.66957	0.0100
INTR does not Granger Cause CMCPS	28	2.88458	0.0762
CMCPS does not Granger Cause INTR		4.46251	0.0230
M2 does not Granger Cause CMCPS	28	0.72536	0.4949
CMCPS does not Granger Cause M2		0.65956	0.5266
RGDP does not Granger Cause CMCPS	28	0.50047	0.6127
CMCPS does not Granger Cause RGDP		1.42962	0.2599
GFCF does not Granger Cause CMD	28	0.35988	0.7016
CMD does not Granger Cause GFCF		1.26956	0.2999
INTR does not Granger Cause CMD	28	0.13878	0.8711
CMD does not Granger Cause INTR		0.39096	0.6808
M2 does not Granger Cause CMD	28	0.54601	0.5866
CMD does not Granger Cause M2		0.42832	0.6567
RGDP does not Granger Cause CMD	28	1.72722	0.2000
CMD does not Granger Cause RGDP		0.16415	0.8496
INTR does not Granger Cause GFCF	28	0.30041	0.7434
GFCF does not Granger Cause INTR		2.34856	0.1180
M2 does not Granger Cause GFCF	28	4.50366	0.0224
GFCF does not Granger Cause M2		7.97004	0.0023
RGDP does not Granger Cause GFCF	28	0.32046	0.7290
GFCF does not Granger Cause RGDP		0.46765	0.6323
M2 does not Granger Cause INTR	28	4.44720	0.0233
INTR does not Granger Cause M2		2.04219	0.1526
RGDP does not Granger Cause INTR	28	1.06270	0.3619
INTR does not Granger Cause RGDP		1.28461	0.2959
RGDP does not Granger Cause M2	28	0.67470	0.5191
M2 does not Granger Cause RGDP		2.05615	0.1508
Research findings from E-views version 8			

Findings

Table 1 represents the descriptive statistics while table 2 is the correlation result for the explained variable and the explanatory variables. The probability of each is presented in parenthesis. All the explanatory variables are positively correlated with the growth rate of the real GDP, except interest rate. Commercial bank credit to private sector (CMCPS) is positively correlated with Broad money supply, M2 is positively correlated to CMCPS and CMD. CMD is positively correlated to CMCPS and M2 supporting Bah *et al* (2016) [4], In addition, none of the variables has a significant relationship with RGDP even though they are positively correlated.

Table 3 is the result of the granger causality test which states that GFCF granger cause CMCPS and M2 granger cause GFCF. In both case, a unidirectional causality was observed while a bidirectional causality exists between M2 and INTR.

Test of Hypothesis

Ho_1: Commercial bank deposit has no significant effect on economic growth in Nigeria.

The result of the regression model of Investment bank deposit on Economic growth is given by

$GDP_t = 3.75 + 0.000078CMD_t - 0.048INTR_t + U2$
t [0.595] [0.279] [-0.076]
$R^2 = 0.115$ F –ratio = 0.812

The above result showed insignificant coefficients. Hence since the coefficients are not significant ($p>0.05$). We however do not reject the hypothesis but rather, we conclude that commercial bank deposit has no significant effect on economic growth at $\alpha = 0.05$ level of significance within the period under review.

Ho_2: Money supply has no significant effect on economic growth in Nigeria.

$GDP_t = 4.088 + 0.105M2_t - 0.019INTR_t + U_2$
t [1.255] [0.985] [-0.03] $R^2 = 0.136$
F –ratio = 1.367
Here again the coefficient of M2 and INTR are insignificant ($p>0.05$). therefore at $\alpha = 0.05$ level of significance, we state that Money supply has no significant effect on Economic growth within the period under review (investigation).

Ho_3: Commercial bank credit to private sector has no significant effect on economic growth in Nigeria.

$GDP_t = 1.412 - 0.348CBCPS_t + 0.000001GFCF + 0.424M2$
t [0.701] [-1.153] [1.186] [1.484]
$R^2 = 0.135$ F = 1.358

It was observed from the above regression estimated model that the coefficient of CBCPS, GFCF and M2 are not significant ($p>0.05$) at $\alpha = 0.05$ level of significant. We therefore do not reject the hypothesis but rather we conclude that Commercial bank credit to private sector do not have a significant effect on the economic growth within the period under review.

5. Conclusion and Recommendation

This paper examined the relationship between financial intermediation function of the Commercial bank investment and economic growth in Nigeria. Following a detailed time series analysis, the findings reveal that financial intermediation has a positive relationship with economic growth in Nigeria but this relationship is not significant. Secondly, the coefficient of the regression analysis shows that the independent variables have no impact on economic growth (using RGDP as proxy) in Nigeria indicating that the independent variables had a positive relationship to RGDP that is not significant. The study admits that as important as the commercial bank financial intermediation interventions is to economic growth curled from the role they play in its attainment, they have not actually impacted real GDP; it might be that credit is either mismanaged or directed into non-economic activities that has no impact on the real economy. Therefore, the study recommends that:

1. Commercial banks credit department should advance more credit to private sector used for economic activities that will impact the real economy like the manufacturing and agricultural sectors.
2. The study also showed that the interest rate is a very important factor to credit since it has a significant negative relationship with the credit to the private sector, capital stock and money supply. Central Bank of Nigeria should re-look into the minimum rediscount rate (MRR), which serves as a benchmark from which banking lending and borrowing rates take their cue since prevailing interest rate can either encourage or discourage investment and borrowing.
3. The Government can give incentives like tax holiday, low export duties amongst others to the participants in the sectors that boost the real economy to encourage growth.

References

1. Acha IA. Financial Intermediation by Banks and Economic Growth in Nigeria. Journal of Economics and Sustainable Development. 2011a 2(4):129-139.
2. Agbada OA, Osuji C. An Empirical Analysis of Trends in Financial Intermediation and Output in Nigeria. Global Journal of Management and Business Research, 2013; 13(9):2249-4588.
3. Allen F, Gale D. Financial Markets, Intermediaries and Intertemporal Smoothing. Journal of Political Economy. 1997; 105:523546.
4. Bah BA, Yibing D, Kone A, Mohamed K. A Study on the Impact of Financial Intermediationon Economic Growth: Panel Evidence from West Africa. 2016; 4(1):27-55.
5. Benston GJ, Smith CW. A Transaction Cost Approach to the Theory of Financial Intermediation. Journal of Finance 1976; 31:215-231.
6. CBN, Annual Report, 2014 http://www.cenbank.org/OUT/2015/PUBLICATIONS/REPORTS/RSD/AR2015/ANNUAL%20REPORT%202015.HTML
7. CBN, Statistical Bulletin, Special edition, 2014, http://www.cenbank.org/OUT/PUBLICATIONS/STATBULLETIN/STD/2015/STABUL L%20-%20VOL.SEEN.PDF
8. Chinweoke N, Onyedikachi M, Nwabekee CE. Financial Intermediation and economic Growth in Nigeria (1992 – 2011). The Macrotheme Review. 2014; 3(6):124-142.
9. Demirguc-Kunt A, Levine R. Bank-based and Market-based Financial Systems: Crosscountry Comparisons. The World Bank, 1999.
10. Diamond D, Dybvig P. Bank Runs, Deposit Insurance and Liquidity. Journal of Political Economy. 1983; 91:401-419.
11. Diamond DW. Financial Intermediation and Delegated Monitoring. Review of Economic Studies. 1984; 51:393-414.
12. Emecheta BC, Ibe RC. Impact of Bank Credit on Economic Growth In Nigeria: Application Of Reduced Vector Autoregressive (VAR) Technique. European Centre for Research Training and Development UK, 2014; 2(9):11-21, 2053-4094.
13. Ezirim BC. Finance Dynamics: Principles, Techniques and Applications. Markowitz Centre for Research and Development, Port Harcourt, Academic Press, 2005.
14. Goldsmith R. Financial Structure and Development. New Haven, CT: Yale University Press, 1969.
15. Hao C. Development of Financial Intermediation and Economic Growth: the Chinese Experience, China Economic Review, 2006; 17(4):347-362.
16. Iwedi M, Igbanibo DS. Modeling Financial

Intermediation Functions of Banks: Theory and Empirical Evidence from Nigeria. Research Journal of Finance and Accounting. 2015; 6(18):159 -174.
17. Iwedi M, Okey-Nwala PO, Kenn-Ndubuisi JI, Adamgbo SLC. Financial Intermediation Development and Economic Growth: Empirical Evidence from Nigeria. Institute for Research Publications Journals of Business and Economics. 2016; 2(2):2518-6698.
18. Kenn-Ndubuisi JI, Akani HW. Effects of Recapitalization on Commercial Bank Survival in Nigeria; Pre and Post Camel Analysis. European Journal of Accounting, Auditing and Finance Research. 2015; 3(9):12 -30.
19. Levine R. Financial Development and Economic Growth: Views and Agenda. Journal of Economic Literature. 1997; 35(2):688-726.
20. Levine R, Loayza N, Beck T. Financial Intermediation and Growth: Causality and Causes. Journal of Monetary Economics. 2000; 46:31-77.
21. Liaw, Thomas K. The Business of Investment Banking: A comprehensive overview. John Wiley & Sons, Inc. McGraw Hill, 2006.
22. Mckinnon R. Money and Capital in Economic Development, Washington. The Brooking institute, 1973.
23. Merton R, Bodie Z. Conceptual Framework for Ananlyzing the Financial Environment. The Global Financial System a Functional Perspective. Ed. by Dwight B. Crane*et al*. Boston, 1999.
24. Oleka CD, Sabina EA, Onyeze CN. The Empirical Study of the Impact of Intermediation Roles of Banks on Economic Growth: A Case Study of Nigerian Experience. Humanity and social sciences Journal. 2014; 9(2):49-60.
25. Shaw E, Financial Deepening in Economic Development, New York: Oxford University Press. R. (1957) Technical Change and the Aggregate Production Function. Review of Economics and Statistics, 1973, 312-330.
26. Shittu AI. Financial Intermediation and Economic Growth in Nigeria. British Journal of Arts and Social Sciences. 2012; 4(2), 2046-9578.
27. Stiglitz J. Economic Growth Revisited Industrial and Corporate Change. 1994; 3(1):65-110.
28. Suleiman LA, Aluko OA. Financial Intermediation and Economic Growth: A Test for Causality in Nigeria. Banks and Banks systems. 2015; 10(4).
29. Tonye O, Andabai PW, Financial Intermediation and Economic Growth in Nigeria, 1988 - 2013: A Vector Error Correction Investigation, Mediterranean Journal of Social Sciences. 2014; 5(17), 2039-2117.
30. Ugbaje DO, Ugbaje HE. Empirical Study of Financial Sector Development on Economic Growth in Nigeria (1990-2010), International Journal of Public Administration and Management Research (IJPAMR). 2014; 2(3):2350-2231.
31. Vishnevsky V, Matyushin A, Annenkov I. Modern approaches to the theory of Bank intermediation. Scientific works of DonSTU. Series: economic. 2008; 2(34):12-22.
32. Zaghdoudi T, Ochi A, Soltani H. Banking intermediation and economic growth: Some evidence from MENA Countries, Advances in Management & Applied Economics. 2013; 3(4):51-57, 1792-7552.