DETERMINANTS OF FINANCIAL INTERMEDIATION AND ITS IMPLICATIONS ON ECONOMIC GROWTH IN NIGERIA

Ochuko S. Alagba[1]
Egugbo Rita Uzoma[2]
&
Sunny Abimaje Ihiabe[3]
[1,2] Department of Banking and Finance,
Faculty of Management Sciences
Dennis Osadebay University, Asaba, Delta State

[3]Department of Entrepreneurship Studies,
Faculty of Management Sciences
National Open University of Nigeria, Jabi, Abuja-Nigeria

Corresponding Author's Email: emurovwo@gmail.com

Abstract
This study investigated the determinants of financial intermediation and its implication on economic growth in Nigeria from 1995 to 2019 using the Auto-regressive Distributed Lag (ARDL) Approach. Various financial intermediation determinant proxies considered include total bank deposit (TBD), private sector credits (PSC), broad money supply (BMS), and interest rate spread (IS) against real Gross Domestic Products. We sourced information from the CBN statistical bulletin and World Bank data bank from 1995 to 2019. The unit root test reported mixed integration while the ARDL bound Cointegration test reported that financial intermediation determinants and growth are related on the long run. Specifically, the short run ARDL result reported that past values of TBD, PSC, and BMS exerted direct impact on the Nigerian economy. However, past values of INS impaired the economic growth of Nigeria. Also, in the case of ARDL Long run Coefficient, only TBD and BMS induced growth positively and significantly on the long run. Hence, we conclude that TBD and PSC induce growth only if the money in circulation and interest rate spread are low. It is on this premise; the study recommends that banks should increase her deposit mobilization and accumulation outlets since it is growth inducing both in the short and long run. Again, banks should more credit facilities to the private sector since it is growth inducing both in the short and long run.

Keywords: Determinants, Financial Intermediation, Economic Growth, Real Gross Domestic Product, Auto-regressive Distributed Lag Approach.

Introduction
Globally, one major task of developing countries is to achieve a higher rate of economy growth. To achieve this salient goal, policy makers, every nation strives to have a proper and up to date financial sector. In other words, one topic that has generated a lot of debate in literature of finance is the role of financial intermediation on the economic growth of both developed and developing countries. A financial intermediary is a financial institution such as bank, building society, insurance company, and investment bank or pension funds that facilitates the channeling of funds between lenders and borrowers indirectly. Again, financial intermediaries are also essential in increasing total factor productivity by directing investments to the most productive projects and monitoring them in a cost efficient way. Through the process of financial intermediation mobilize deposits from depositors/savers and allocate credit facilities to borrowers/investor for investments that will lead to economic development.

Leyla, and Aytan (2015) opined that financial system is growth promoting when the size of financial market is medium and growth of financial sector decreases per capita GDP when

financial intermediaries are poorly or excessively developed. As espoused by Divine, Omankhanlen and Godswill (2020), no country can achieve higher economic growth without an efficient financial system. This suggests that adequate financing is partly a key determinant of economic growth. By extension, different organizations, individuals and economic agents need funding for that concern to serve different purposes.

Furthermore, Samuel, John, Ethelbert, and Michael (2020) opined that for financial intermediation to aid development, there must be an efficient financial system and efficient awareness should be created among the banking populace, as well as among the non-banking populace, so as to mobilize more deposits within the banking system. This means that financial intermediation mitigates the costs associated with information acquisition and the conduct of financial transactions through the level of lending rate and credit to private sector in accelerating development in an economy. Despite the removal of restrictions militating against efficient financial intermediation through various financial reforms, lending rate has remained persistently high, while credit to private has remained low. Notably, one of the widespread opinion on the link between financial intermediation and economic growth lay emphasis on the key functions of financial systems in the saving – investment and growth nexus. These include acting as an effective channel for:

(a) Moving of cash from the excessive units of the economic to the deficit units by mobilizing resources and ensuring an effective transmission of cash into real productive capital;
(b) Transformation of major portfolio of savers and investors while delivery enough liquidity to the economy as demand upsurge and
(c) Mitigating the risks from the economic system through methods of risk diversification and pooling.

Most of the study works that analyze the relationship between financial intermediation and economy growth primarily focus their emphasis on the impact and relationship of financial intermediation and economic growth in Nigeria, channeling their research in different sector of the economic, like the agricultural sector, others focus their attention on banks alone. More so, while different experts acknowledged that financial intermediation drives growth others have argued that growth drives financial intermediation instead. Notably among them are the works of Adewole, Adekunle, Nwankwo, Ogbadu and Olukotun (2018), Benjamin (2019), Samuel, John, Ethelbert, and Michael (2020), Divine, Omankhanlen and Godswill (2020), Charle, Felicia, Jonathan, Felix, Adedoyin, Ifeoma & Onyinye (2021), and Ogunlokun, (2021). Apparently, the results of these studies remained mix and contrasting. However, both reality and research have proved that relationship between the financial sector and growth does not fully reflect how well the financial intermediaries serve economic agents in stimulating productivity and capital accumulation. This made us to ask: what are the determinants of financial intermediation and what are its implication on the economic growth in Nigeria? It is on this premises that additional aspects of financial system such as the determinant of financial intermediation and its implication on economic growth as a whole, should be taken into account in order to shed light into the relationship between financial intermediation and economic growth. Accordingly, the specific objectives of this study are to:

i) Assess the effect of credit to total bank credit on real gross domestic product in Nigeria;
ii) Investigate the contribution of private sector credit on real gross domestic product in Nigeria;
iii) Examine the effect of broad money supply interest rate on real gross domestic product in Nigeria
iv) Examine the effect of interest rate spread on real gross domestic product in

Specifically, this study provides a full detailed analysis which would aid the public to completely comprehend the determinant of financial intermediation in Nigeria and ultimately financial Intermediation role. Further, this study will help them appreciate the contributions of the banking industry to the Nigerian economy. This study goes a long way as it will reposition the Nigerian financial system. Finally, since the rationale behind every research work is to build on existing knowledge, this study will increase our understanding on the construct.

For ease of comprehension, the study is structured into five sections. Section one is the introductory section, and delves into the general principles behind the determinant of financial intermediation and economic growth. Section two and three

covers the review of related literature and methodology. Meanwhile, section four and five covered discussion and findings, conclusion and recommendations gotten from the discussions and conclusion reached.

Review of Related Literature

Conceptual Clarification and Linkages

Financial Intermediation is very essential in any financial system in that it help to transfer funds from surplus units to deficit units. According to Organisation of Economic Cooperation and Development (OECD), financial intermediation is an effective operation wherein an institutional unit incurs liabilities on its very own account for the reason of acquiring financial assets through undertaking financial transactions on the market. As asserted by (Andrew and Osuji, 2013), financial intermediation includes the transformation of mobilized deposits liabilities through financial intermediaries consisting of banks, into bank assets or credits facilities such as loan including mortgage and overdraft. It is virtually the procedure whereby financial intermediaries' absorb cash from depositors and lend equal amount out to debtors for investment and other economic development purposes that will spur economic growth.

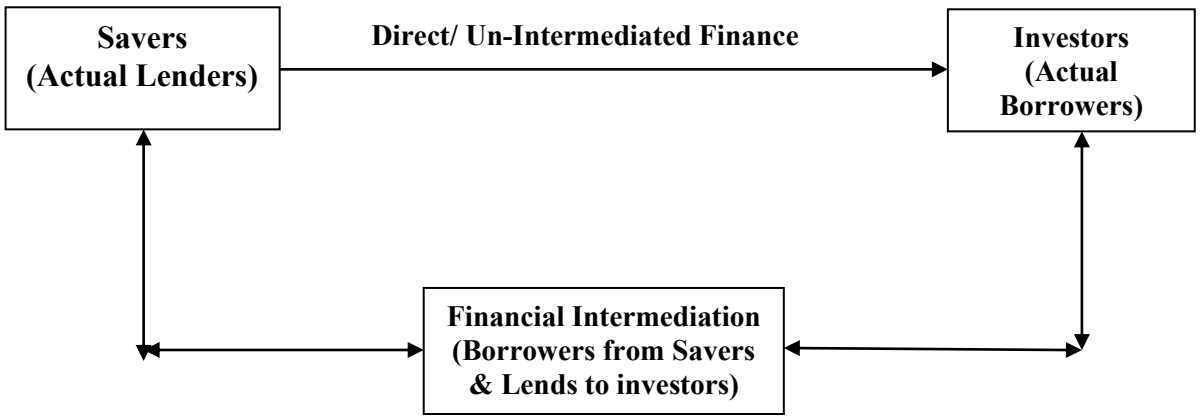
Ogunlokun, Ayodele and Liasu (2021), financial intermediation without a doubt refers to the system of mobilizing idle fund by the means of financial intermediaries from savers to borrowers. This means that financial intermediation is a proactive activity by which a financial institution unit incurs liability on its own account in other to acquire financial assets by involving in financial transactions on the market.

Samuel, John, Ethelbert, and Michael (2020) asserted that financial intermediation is the procedure of taking in cash from depositors, and lending same to borrower with a view to stimulate investments. In like manner, Sulaiman and Aluko (2015) conceptualized that financial intermediation is a pathway by which economic assets are channeled from savers to investors and that banks act as conduit for financial intermediation and they are seen as financial intermediaries.

On the other hand, economic growth is the process of expanding the sizes of country wide economies, the macro-economic indications, particularly the real GDP. However, economic growth can either be positive, negative, or zero. Positive growth occurs when macro-indicators are higher than population growth while negative growth is the direct opposite. Meanwhile, zero growth occurs if macro-indicators equal population growth (Investopedia, 2020).

Furthermore, it is very vital to note that this does not rule out the possibility of a causal relationship in the reverse direction (Sahoo, 2014).

Figure 1: Financial Intermediation Process



Source: Akimulegun and Dare (2009)

Theoretical Underpinning

In any research endeavor, several theories may be required that relate to the variables of the study and that form the base upon which a study is rested. The theory used as a hypothetical basis to explain the connection between financial intermediation determinants and the economic growth the supply leading theory**.** This is theory

asserts that financial development (development of the financial intermediation process) drives growth. Accordingly, the effect runs from financial development to economic growth and it is caused by an improvement in the efficiency of capital accumulation or an increase in both savings and investment.

By way of application, the supply financial assets, liabilities and related financial services by financial institutions would result to demand for these financial assets, liabilities and other related financial services. This turn propels the growth process.

Empirical Review

Despite the countless related studies, the degree of relationship between both constructs seems to be inconclusive. This motivated us to review related studies presented in the foregoing paragraphs with close attention on gap in literature:

Ogunlokun, Ayodele and Lisua (2021) examined the effect of financial intermediation on the growth of agricultural sector in Nigeria between 1992 and 2017. Variable considered include: Commercial Bank Credits to Agricultural sector (CBC A), Commercial banks' G ross Saving deposits (CGSD), Microfinance Bank Credits to Agricultural sector (MBCA), Microfinance banks' Gross Saving Deposits (MGSD) and Deposit Interest Rate (DIR) against Agricultural sector output (AGOUT). Data was sourced from CBN Statistical Bulletin. The result showed that in the long run, all the financial intermediation variables were positively and insignificantly stimulating agricultural performance in Nigeria.

Charle, Felicia, Jonathan, Felix, Adedoyin, Ifeoma and Onyinye (2021) empirically investigated the impact of financial intermediation of economic growth in Nigeria from 1994 to 2018. Variables considered includes: bank deposit, bank reserves, and bank credits against Per-capita GDP. Data was sourced from World Bank and the Nigerian Bureau of Statistics (NBS). Findings showed that bank deposit is positively and significantly related to GDP. One short fall of this study is that the researchers used development proxy in place of economic growth proxy. Hence, this study is faced with variable perturbation.

Divine, Omankhanlen and Godswill (2020) in a study on the effect of financial deepening on Nigeria's growth for 38 years covering 1981-2018. Variables considered include: time, savings deposit, money supply, and private credit sector against real gross domestic product. Data was sourced from CBN Bulletin. The ARDL estimation technique was applied. From the regression result, the researchers affirmed out that though long run relationship existed among study variables but was also found to be highly statistically significant. However, our study focused on how financial intermediation determinants proxies other than financial depending proxies affect economic growth.

Samuel, John, Ethelbert, and Michael (2020) focus on the determinants of the financial intermediation cost in pre and post-bank consolidated era. Variable considered includes: Credit to the private sector (CPS), Total deposit (TD), and Interest Rate (IR) against GDP. It was discovered that there was a significant relationship between total deposit and GDP in Nigeria. Interest rate was also found to have a significant effect on gross domestic product in Nigeria. One short fall of this study is that the researchers did not specify if GDP captured is real or nominal. Hence, this study is faced with variable mis-presentation.

Benjamin (2019) examines the effect of financial intermediation on economic growth within the East African Community (EAC) using panel data over the period 1985-2017. The Dynamic Ordinary least square models are estimated since they control for heterogeneity, serial correlation, small sample bias and endogeneity in the presence of long run relationship. The results indicate that financial intermediation has a positive and significant effect on economic performance of the EAC countries in the long run. Among the controls, capital formation and FDI also have positive effects on growth while the growth of the population reduces the per capita income. This study may not be able to capture issues regarding the financial intermediation process in Nigeria since what is obtainable in Nigerian banking industry may differ from what is obtainable in EAC.

Adewole, Adekunle, Nwankwo, Ogbadu and Olukotun (2018) examined the relationship between Financial Intermediation and the performance of Microfinance banks in Nigeria.

Variables considered includes: Total Loans, Total Deposit and Total Asset and Capital Employed against Deposit Mobilized. Data were sourced from the Central Bank of Nigeria Statistical Bulletin. The regression analysis was adopted for this study. It was discovered there was a significant relationship between Total loans of Microfinance banks and deposit mobilized by Microfinance banks in Nigeria. However, our study deviated in terms of geographical scope.

Tari and Oliver (2017) examined the effect of financial deepening on the Nigerian economic growth from 1970–2013. The study adopted the Toda–Yamamoto augmented Granger causality test and reported that the growth-financial deepening nexus in Nigeria follows the supply-leading hypothesis. This means that it is financial deepening that leads to growth and not growth leading financial deepening. However, our study focused on how financial intermediation determinants proxies other than financial depending proxies affect economic growth.

Iwedi, Okey-Nwala, Kenn-Ndubuisi & Adamgbo (2016) examined the time dynamics between financial intermediation and economic growth in Nigeria from 1970-2015. Variables considered includes: bank deposits, Credits and Broad money against RGDP. The VAR testing approach was adopted for the study. The results indicate that there is a presence of long run equilibrium between financial intermediation indicators and economic growth.

Arising from the foregoing, we hypothesize:

i) Total bank credit does not impact on RGDP in Nigeria significantly;
ii) Private sector credit does not impact on RGDP in Nigeria significantly;
iii) Broad money supply does not impact on RGDP in Nigeria significantly.
iv) Interest –rate-spread does not impact on RGDP in Nigeria significantly.

Methodology

In a bid to fully quantify our topic of interest, we sourced information from the CBN statistical bulletin and World Bank data bank from 1995 to 2019. Variable considered include Real GDP at constant price, total bank deposits, private sector credits, broad money supply, and interest rate spread (lending rate less deposit rate).

Furthermore, to ascertain if the variable of interest stationary or not, we subjected the model to unit root test vis-à-vis Augmented Dicker Fuller test and then proceeded to ARDL bound co-integration test and then having affirmed that the variable of interest integrated at level (1(0) and (1(1), we moved on to the ARDL regression Model proper having done post-diagnostic test. All in an attempt to test the validity of the regression result. Implicitly, our model of the study is expressed as:

$$RGDP = \beta_0 + \beta_1 TBD + \beta_2 PSC + \beta_3 BMS + \beta_4 INS + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where:

RGDP	=	Real Gross Domestic Product
TBD	=	Total Bank Deposit
PSC	=	Private Sector Credit
BMS	=	Broad Money Supply
INS	=	Interest Rate Spread
β_0	=	Intercept
β_1-β_4	=	Coefficient of the parameter estimates.
μ	=	Stochastic variable/error term.

To ensure that the model is well captured, the ARDL estimation technique is specified as:

$$\Delta \log RGDP_t = \alpha_0 + \alpha_1 \Delta \log RGDP_{t-1} + \sum_{i=0}^{m} (\Delta TBD_{t-1}) + \sum_{j=0}^{n} (X_j \Delta logPSC_{t-j}) + \sum_{k=0}^{p} (\partial k \Delta logBMS_{t-k}) + \sum_{k=0}^{p} (\partial k \Delta logINS_{t-k}) + ECTt - 1 + \xi t$$

Note: All variables were logged for purposes of uniformity and also to avoid multi-collinearity.

Table 1: Operationalization of Target Variables alongside apriori expectation

Variables	Proxy	Source	Justification	Expectation
Economic growth	Real GDP at constant price	CBN statistical bulletin (2019)	It captures economic growth.	NIL
Financial Intermediation	Total Bank Deposit	CBN statistical bulletin (2019)	It captures the receiving side (acceptance and accumulation) of banks.	Positive
	Private sector Credits	CBN statistical bulletin (2019)	It captures the giving out (credit expansion) of banks.	Positive
	Broad Money Supply	CBN statistical bulletin (2019)	It captures financial depth	Positive
	Interest Rate Spread	World Bank (2019)	It captures financial intermediation cost	Negative

Source: Researcher's Compilation (2021)

Note: The financial intermediation determinants proxies cited above were chosen because they tend to cover more of the financial intermediation activities of the DBMs and that it is believed that they spur economic growth. As such, we expect that most of them will contribute positively to economic growth proxy (GDP).

Results and Discussion

Pre-test (Unit Root Test and ARDL Bound Cointegration Test)

Basically, when non stationary series (data) are used in regression analysis, there exists a danger of obtaining regression results that are spurious. To avoid this problem, we submitted the model to stationarity test. The abridged results are presented in the table 1 below:

Table 1: Summary of ADF test for All Study Variables

AT LEVELS					
Study Variables	**ADF T-Test**	**ADF** Test critical values @ 5% level	Prob.*	Order of Integration	**Conclusion**
Real GDP	- 0.349561	-2.976263	0.9766	1(0)	**Unit Root**
Bank Loans and Advances	-2.215556	-2.971853	0.2055	1(0)	**Unit Root**
Private Sector Credit	-4.017080	-2.971853	0.0045	1(0)	**Stationary**
Broad Money Supply	-2.126706	-2.971853	0.2363	1(0)	**Unit Root**
Interest Rate Spread	-1.857068	-2.971853	0.3466	1(0)	**Unit Root**
FIRST DIFFERENCE					
Study Variables	**ADF T-Test**	**ADF** Test critical values @ 5% level	Prob.*	Order of Integration	**Conclusion**
Real GDP	-4.660819	-2.981038	0.0010	1(1)	**Stationary**
Bank Loans and Advances	-4.896350	-2.976263	0.0005	1(1)	**Stationary**
Private Sector Credit	-6.379020	-2.981038	0.0000	1(1)	**Stationary**
Broad Money Supply	-5.348832	-2.976263	0.0002	1(1)	**Stationary**
Interest Rate Spread	-5.275435	-2.976263	0.0002	1(1)	**Stationary**

Source: Extracted From E-view 9.0 (2020)

The table above (1) reveals reported summary of the unit root carried out. The decision here is that the critical value should be greater than the test statistics value for unit root to exist. The ADF test shows that Private Sector Credit attained stationarity at levels. However, when subjected further, Real GDP, Bank Loans and Advances, Broad Money Supply, and Interest Rate Spread attained stationary at first difference 1(1). This shows that the variables under study are very fit

model for the empirical study because the variable data series have equal variance and equal mean overtime 1995-2019. This is indicative that this study rejects the null of non-stationarity since the statistics evidenced that all the variables used for Model integrated either at 1(0) or 1(1). As stated by Ogunlokun, and Liasu (2021), that if a linear combination of 1(1) or 1(0) exist in Stationarity tests, we proceed to ARDL Bound cointegration test. The ARDL Bound Co-integration test is therefore presented below:

Table 2: ARDL Bound Cointegration Test

Date: 05/23/21 Time: 00:49		
Sample: 1995 2019		
Included observations: 25		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	4.562376	4
Critical Value Bounds		
Significance	**I0 Bound**	**I1 Bound**
5%	2.45	3.61

Source: Economic Views Version 9.0. (2020)

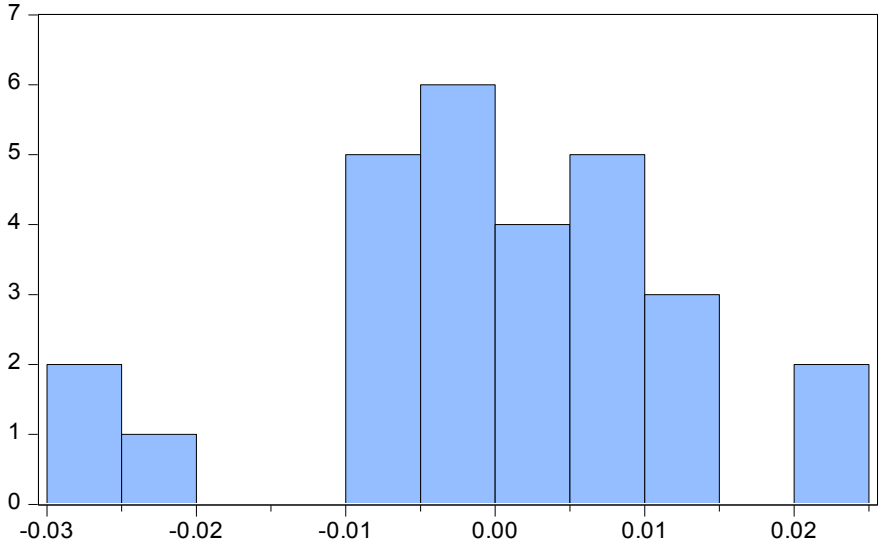
The ARDL bound co-integration test in table 2 above clearly affirmed that the estimated 4.562376 calculated f-statistics value weighs far higher than the estimated 3.61 upper bound (I1) value @ 5%. Hence, we concluded that the variables of the model are co-integrated and has long run equilibrium relationships. In this wise, we conclude that financial intermediation determinants proxy and economic growth related on the long run.

Regression Analysis:

Before ascertaining the appropriateness, accuracy, and validity of the statistical inferences to be drawn for the study, the results were subjected to multi-collinearity and serial correlation. They are presented below:

Table 3: Robustness Test of All Study Variables

TEST	Chi-Square/F-statistics	P-value	**Decision**
Breusch-Pagan Test	0.806968	0.5570	Presence of Homoskedasticity
Reset Test	3.605252	0.0714	Model is correctly specified



Source: Extracted From E-view 9.0 (2021)

The heteroscedasticity test above shows that its p-value is greater than 5%, reaffirming the assumptions number four of classical linear regression model which states that the disturbances reflecting in the population regression function are homoscedastic. Also, the Ramsey Reset test reported that the model is fit for prediction while the normality test reported that the model is normally distributed.

Having checked that the data satisfied the regression model characteristics, we moved on to present and discuss the ARDL Cointegrating and Long Run Form. Accordingly, the results are presented in table 4 below:

Table 4: Short Run and Long run Dynamics

Dependent Variable: RGDP				
Selected Model: ARDL(1, 0, 0, 0, 0, 0)				
Date: 05/23/20 Time: 16:28				
Sample: 1995 2019				
Included observations: 25				
Cointegrating Form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(BLA)	0.064123	0.015920	4.027761	0.0007
D(PSC)	0.129693	0.043872	2.956140	0.0078
D(BMS)	0.000704	0.004069	0.172898	0.8645
D(INS)	-0.001453	0.012773	-0.113759	0.9106
CointEq(-1)	-0.179100	0.051403	-3.484222	0.0023
Cointeq = RGDP - (0.3580*BLA + 1.2760*PSR -0.0308*EXCR -0.0081 *INS + 2.0456)				
Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
BLA	0.358027	0.031012	11.544909	0.0000
PSC	1.276020	0.489129	2.608757	0.0168
BMS	-0.030778	0.016228	-1.896597	0.0724
INS	-0.008113	0.072457	-0.111967	0.9120
C	2.045628	0.616311	3.319151	0.0034
		Durbin-Watson stat		1.625612
R-squared	0.997817	F-statistic		1306.018
Adjusted R-squared	0.997053	Prob(F-statistic)		0.000000

Source: Extracted From E-view 9.0 (2021)

As shown in table 4 above, the Intercept of the model (C) otherwise known as autonomous or constant stands at 5.071947 and it is statistically insignificant at 5% level having had a p-value of 0.1408. The means that if all the regressors are held constant (equals zero), the regressed will still be positive and significant. Furthermore, the R-squared (R^2) which stood at 0.938125 shows that the model has a high predictive power signposting that the model can be trusted upon to make valid conclusions. This was reaffirmed by the high adjusted R-squared (R^2) value of 0.997053 suggesting that even if the loss in the degree of freedom (n-k), the model is still relevant. Meanwhile, the Durbin Watson test estimated at 2.216000 is within the accepted threshold of no serial correlation. Hence, we can confidently conclude that the model is fit for prediction in all respects.

As expected, the Error Correction term in table 4 above is rightly signed since its coefficient is less than 1 ((-0.134903), and it is statistically significant 5%. This implies that the previous period deviation from the long-run equilibrium is corrected in the current period at an adjustment speed of approximately 13.49%.

To further buttress this, the f-statistics passed the significant test at 5%. This suggest that, financial intermediation determinants proxies on the overall are growth inducing. Meanwhile, bank loans and advances, and private sector credit are positively (directly) related to growth while interest-rate-spread is negated related to growth both on the short and on the long run as expected. The implication of this is that bank loans and advances, private sector credits are growth inducing while high interest rate spread is growth

retarding. Meanwhile, broad money supply though positively related to growth on the short run, on the long run, the coefficient value (-0.030778) became negative. By implication, high velocity of money in circulation retards growth over time.

More so, total bank deposits and private sector credit were significant in both short and long run since their p-values estimated at 0.0000, 0.0168, 0.0007, and 0.0078 were less than 5%. This implies that total deposit and private sector credits are strong determinants of economic growth. This reaffirmed the finance maxim which states that the banking industry remains the hub of growth. This result reaffirmed the submissions of the supply leading theory which postulates that the supply financial assets, liabilities and related financial services by financial institutions would result to demand for these financial assets, liabilities and other related financial services. This in turn propels the growth process.

On the overall, this study supports the findings of Charle, et'al (2021); Samuel et'al (2021); Divine et'al (2020); Iwedi, et'al (2016); but deviate from Ogunlokun et'al (2021)

Conclusions and Recommendations

This study is rich both in content and context. Hence, it is said to have added to our understanding on the nexus between financial intermediation determinants proxies and economic growth in Nigeria. Various Financial intermediation determinants growth inducing proxies considered include total bank deposit, broad money supply, broad money supply, and interest rate spread against real GDP. Based on the findings of this study presented in earlier section, we conclude that total deposit and private sector credit induce growth only if the money in circulation and interest rate spread are low. It is on this premise, the study recommends that:

i) Banks should increase her deposit mobilization and accumulation outlets since it is growth inducing both in the short and long run.
ii) Banks should more credit facilities to the private sector since it is growth inducing both in the short and long run.
iii) Effort should be made to reduce the high volumes of funds outside the banking industry.
iv) To ensure that the banking industry support the growth of the Nigerian economy, the mother body (CBN) must ensure that the interest rate spread is kept at bare.

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