ANALYSIS OF THE IMPACT OF DEPOSIT MONEY BANK'S FINANCING ON GROSS DOMESTIC PRODUCT PER CAPITA OF NIGERIA USING THE ARDL MODEL

Ibrahim Mohammed Lawal
Dept of Economics, Faculty of Social Sciences
University of Maiduguri, Borno State
Ibrahimruqqy@gmail.com

Amos Caleb
Dept of Economics, Faculty of Social Sciences
University of Maiduguri, Borno State
amoscaleb2k@gmail.com

Habib Ahmed Abdullahi
Dept of Banking and Finance, Faculty of Mgt Sciences
University of Maiduguri, Borno State

Abstract
This study examines the impact of Deposit Money Bank (DMB) financing on GDP per Capita (GDPPC) of Nigeria for 37years (1982-2019). Quantitative research method was utilized where by econometric tools such as unit root, Autoregressive Distributive Lag (ARDL) model, and granger causality test were employed. Secondary data obtained from World bank and Central Bank of Nigeria Data base was used. The study revealed that all the variables adopted for this study [GDPPC, Credit to Private Sector (CPS), Total Deposit Liabilities (TOD), Manufacturing Output (MAO), Prime Lending Rate (PLR), Population Growth (POPGR)] are stationary and also the bound test revealed that there exists a long run relationship at 5 percent level of significance. Also, the R-square is 0.55 which implies that 55% of the ARDL model is been explained by the independent variables. Furthermore, the finding reveals that CPS, TOD, MAO, POPGR, PLR have a positive relationship to GDPPC but only PLR and POPGR that are statistically significance. Also, the study reveals that CPS and GDPPC have neither a unidirectional or bidirectional relationship. Additionally, the Error Correction Model (ECM) coefficient is statistically significant which is CointEq (-1) is -0.87. This implies that GDPPC has a speed of adjustment of 87% to return to equilibrium if there are deviations from CPS, TOA, MAO, PLR and POPGR. The study concluded that the Banks financing has a marginal positive impact on the GDPPC. Therefore, the study recommends that, the monetary authorities should sustain PLR as this will motivate banks to increase their lending especially to the real sector of the economy which invariably stimulate growth.

Keywords: GDP Per Capita, DMB Financing, Nigeria, ARDL, Prime Lending Rate

1.0 Introduction

The role of Deposit Money Banks (DMB's) in any economy of the world, Nigeria inclusive, cannot be relegated to the background as it plays a critical role of financial intermediation which is considered as the nucleus for the survival of any economy. These roles span majorly from mobilizing funds from the surplus sector and channel it to the deficit sector with the expectation that it could trigger economic growth and development.

In analyzing this impact, early literatures such as the works of Schumpeter (1911), Patrick (1966), Gurley and Shaw (1957), Goldsmith (1969), Lucas (1988), Greenwood and Jonanovic (1990), King and Levine (1993), Levine and Zervos (1998), Rajan and Zangales (1998), Beck, Dermirgic-Kunt and Levine (2004) have revealed that the relationship or the impact between Bank financing and economic growth tends to be positive and linear. On the contrary, recent related studies such as works of Law and Singh (2014), Arcandi *et al* (2012), Elya *et al* (2018) and Haini (2021) have used both linear and non-linear specifications with control variables and concluded that such relationship is non-linear which was a cue that was taken from the works of Kuznets (1955) of an inverted U-Shaped association between economic growth and income inequality.

Subsequently, within the domain of the impact that exists between these finance and growth raises another contention as regards to their impact direction whether it is supply leading, demand following or bi-directional. However, It is supply leading when finance leads to growth which was supported by the works of McKinnon (1973), King and Levine (1993) and Bayoumi and Melender (2008). Also, it is demand following when there is a disconnection between activities of banks on growth. This implies that its growth that leads to financial development which is contrary to the supply leading hypothesis. This was supported by the works of Gurley and Shaw (1967), Goldsmith (1969) and Oluitan (2012). Further studies revealed that the relationship is bi-directional which is supported by the works of Demetriades and Hussein (1996) and Odedokun (1998) to mention but a few.

Consequently, a review of these previous studies depicts little or none of these works were country owing to the fact that they were carried out in countries other than Nigeria like China, UK, USA Cameroon to mention but a few. So, it will be unfair to generalize the outcome of their study to the context of Nigeria. In addition, owing to the debate surrounding the impact direction, that is, causality relationship between finance and growth also triggered the need for the study in order to ascertain the direction of such relationship within the context of Nigeria domain. It is against this background that this study was carried out to examine the linearity or non-linearity and as well as the causality relationship between the DMBs Credit and Gross Domestic Product of Nigeria.

However, the study is structured into five (5) sections. Section one is introduction. Section two and three comprised of literature review and methodology respectively, while section four is results and discussions and five covered the conclusion aspect.

2. Literature Review

There are several literatures on the nexus between Bank financing and economic growth and most of which stressed that the impact is positive and or linear as obtained in the works of Schumpeter (1911), Patrick (1966), Gurley and Shaw (1957), Goldsmith (1969), Lucas (1988), Greenwood and Jonanovic (1990), King and Levine (1993), Levine and

Zervos (1998), Rajan and Zangales (1998), Beck, Dermergue-Kunt and Levine (2004). But the paradigm is gradually shifting grounds from the initial stance because not all economic relationship is linear. Thus, efforts are now shifted to the non-positivity impact of such economic relationship. Among such works is the study by Guangdong and Binwei (2021) which revealed that there exist a non-linearity relationship between finance and economic growth in China economy as it presented an S-shaped relationship where total loans and private credit tend to have an opposite effect on the economic growth of China.

In a similar vein, Elya, AbuHassan and Nor (2018) examined the non-linear relationship between financial development and economic growth in about 65 developing countries while adopting the works of Kuznets (1955) and the Generalized methods of moment (GMM). The study revealed that non-linearity existed as in the U-shaped for all financial indicators, domestic credit to private sectors, liquid liabilities, private credit to Deposit Money which implies that the higher the credit to private sectors leads to growth prior to the turning point which afterwards will be harmful to growth.

Law and Singh (2014), in their study on whether too much finance harms growth while adopting secondary data for 30 years and dynamic panel threshold. The study reveals that beyond the threshold private credit will no longer contribute to economic growth. Likewise, Oro and Paul (2018) investigate the non-linear relationship between financial development economic growth and growth volatility in Nigeria for 30 years. Their works revealed that financial development and growth volatility has a U-shaped with growth. This further implies that financial development has a negative relationship with growth until at the threshold point and non-linearity but positively afterwards. Similarly, other studies include Arcandi *et al* (2015), Aghion *et al* (2005), Asongu (2011), Cechetti and Kharroubi (2012) and Samargandi *et al* (2015) to mentioned but a few that have also aligned to the non-linearity or U-shaped relationship between finance and economic growth.

Moreover, Tabash and Dhankar (2014a) in their study carried out in Qatar revealed that Islamic banks' financing is positive related to economic growth and their relationship is uni-directional which is neither demand nor supply leading hypothesis. In a related study carried out in UAE by Tabash and Dhankar (2014b) also revealed that there is a strong positive association between Islamic banks' financing and economic growth and the causal relationship happens only in one direction. Meanwhile, Abduh and Chowdhury (2012) stressed that in both short and long run Islamic banks' financing have a positive and significant relationship with economic growth.

Additionally within the domain of the direction of their impacts, reference can be made to the works Akpasung and Babalola (2011) in their study in Nigeria, concluded that private sector credit has positive relationship to growth and there exist a unidirectional causality relationship from GDP to private sector credit and from industrial production to economic growth. More so, Belinga, Zhou, Doumbe, Gahe and Gofe (2016) carried out study on Cameroon using VECM model while adopting time series data for 44 years. They concluded that there exists a unidirectional relationship between domestic credit to private sector, bank deposit to growth at per capita. Thus, portraying that advocating for a sustainable monetary policy that will be skewed towards increasing credits will invariably have a positive impact on growth. In another related study conducted by Awad and Karaki (2019) in Pakistan stressed that there exist a long-run relationship between bank credit and growth and there exist a unidirectional causality relationship from GDP to bank lending.

3. Methodology

The study adopted a quantitative approach. Secondary data was used for the study for a period of 37years (1982– 2019). The data were obtained from the database of World Bank and Statistical bulletin of the Central Bank of Nigeria (CBN). Variables considered for the study were adopted and modified from the works of Abduh and Chowdhury (2012), Akpansung and Babala (2011), and Haini (2021). However, the dependent variable is Gross Domestic Product per capita (GDPPC) growth rate whereas Credit to Private Sector (CPS) growth rate was used as a proxy to DMB financing, Total Deposit liabilities growth rate (TOD), Prime Lending rate (PLR), Manufacturing Output growth rate (MAO) and population growth rate (POPGR) served as independent variables which were all measured in their percentages (%).

Consequently, Linear Model was adopted to express the mathematical relationship between these variables;

GDPGC = f (CPS, TOD, PLR, MAO, POPGR) ----------(3.1)

The functional relation can be written as;

$Y_t = \beta_0 + \beta_1 X_{it} + \mu_t$ ---------- (3.2)

While the linear equation form can be;

$GDPPC_t = \beta_0 + \beta_1 CPS_t + \beta_2 TOD_t + \beta_3 PLR_t + \beta_4 MAO_t + \beta_5 POPGR_t + \mu_t$ ---------- (3.3)

Where GDPGR: Gross Domestic Product Per Capita
CPS: Credit to Private Sector
TOD: Total DMB Deposit Liabilities
PLR: Prime Lending Rate
MAO: Manufacturing Output Growth Rate
POPGR: Population Growth Rate
μ_1: Error Term.

Subsequently, Descriptive Statistics was used to presents a summary statistics about the variables. This take into cognizance the sample means, maximums, minimums, standard deviations, skewness, kurtosis and Jarque-Bera statistics.

Pre-testing was such as Unit root and lag Selection criteria test was conducted.

Unit root Test: This test is conducted to ascertain the stationarity in a time series. A series is said to be stationary if a change in time does not result to a change in the behaviour of the distribution. Thus, its statistical features such as the mean, variance, standard deviation, autocorrelations are constant over time. In detecting the stationarity of a series, the study applied the Augmented Dicker Fuller (ADF) and Philips Pherron Test (PP) under the following hypothesis at 5% level of significance.

Ho: Series has a unit root and it is not stationary

H1: Series has no unit root and it is stationary

Decision rule: if the ADF or PP statistics is greater than the critical values, Ho is rejected and vice versa. Also, if the P-value is less than 5%, Ho is rejected and vice versa.

However, since unit root indicates a mixture of combination of series of I(0) and I(1) as shown in table 4.1.2, the Autoregressive Distributive Lag (ARDL) Model was

considered appropriate for adoption as supported by the works of Pesaran & Shin (1999); Pesaran, Shin, & Smith,(2001). The ARDL model is specified as follows:

$$\Delta Y_t = \beta_0 + \Delta Y_{t-1} + \Delta X_{t-1} + \theta_1 Y_{t-1} + \theta_2 X_{t-1} + \mu_t \quad \text{---------- (3.4)}$$

Where*:*

βi ,λi: Short-run coefficients

θ_1, θ_2 : ARDL long-run Coefficients

μ_t: Disturbance term

Diagnostic testing was also conducted to ascertain the stability of the model and whether or not there is presence of serial correlation. Subsequently, the Granger causality test was used to determine whether one time series is useful in forecasting another. Granger causality concept (Granger, 1969) states that if two variables (say: X, Y) are co-integrated and each is individually integrated of order one, i.e. I(1). Then either X causes Y if and only if the past values of X help to predict the changes of Y or Y causes X if and only if the past values of Y help to predict the changes of X. Econometric software adopted was E-view 10 for the analysis and the Excel Software with CSV (Comma Separated Value) format was used in inputting the data.

4. Results and Discussions

4.1.1 Unit Root Test:

The unit root test was conducted to ascertain the stationarity of the variables. Under this test the Augmented Dicker Fuller (ADF) and the Philips Peron (PP) test was conducted.

Table 4.1: Unit Root Test Output

	Augmented Dicker Fuller			Philips Perron Test			
	Level		First Diff	Level		First Diff	
Variables	**Intercept**	**Trend & Intercept**	**Intercept**	**Intercept**	**Trend & Intercept**	**Intercept**	**Order of Integration**
GDPPC	-4.044 0.003**	-	-	-4.044 0.003**	-	-	I(0)
CPS	-4.611 0.0007**	-	-	-4.642 0.0006**	-	-	I(0)
TOD	-3.428 0.0162	-	-	-3.428 0.0162**	-	-	I(0)
MAO	-1.209 0.6601	-1.508 0.808	-7.611 0.000**	-1.174 0.675	-	-7.469 0.000**	I(1)
PLR	-2.347 0.1637	-5.385 0.0006**		-3.525 0.0127**	-	-	I(0)
POPGR	-1.766 0.3902	-1.747 0.708	-3.182 0.0294**	-1.568 0.4882	-1.701 0.7307	-3.538 0.0125**	I(1)

Source: EViews 10 ** 5% Level of Significance

Based on the decision criteria, Real gross domestic product per Capita (GDPPC), Credit

to Private Sector (CPS), Total deposit and Prime Lending Rate were all stationary at levels where as Manufacturing output and population growth were stationary at their first difference d at 5% level of significance

Table 4.2: Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-588.8793	NA	23345997	33.99311	34.25974	34.08515
1	-459.4570	207.0757	115869.0	28.65469	30.52110*	29.29897
2	-410.3675	61.71258*	66387.16*	27.90671	31.37292	29.10325*
3	-370.7009	36.26661	94279.22	27.69719*	32.76318	29.44597

Source: EViews 10

From table 4.1.2 it shows that majority of the lag selection criteria LR, FPE, and HQ has asterisk (*) sign on lag 2 which implies that the appropriate lag for the study is two (2).

4.1.3 Descriptive Statistics

Table 4.3: Descriptive Statistics

	GDPPC	CPS	TOD	MAO	PLR	POPGR
Mean	1.797	24.732	23.597	14.199	17.844	2.609
Median	4.320	19.585	18.410	13.930	17.570	2.605
Maximum	30.590	90.760	59.400	21.100	29.800	2.720
Minimum	-43.370	-3.810	-6.530	6.550	9.250	2.520
Std. Dev.	18.162	21.321	16.696	5.135	4.350	0.066
Skewness	-0.476	1.608	0.666	0.001	0.373	0.139
Kurtosis	2.617	5.676	2.578	1.358	3.864	1.711
Jarque-Bera	1.665	27.708	3.090	4.270	2.064	2.755
Probability	0.435	0.000	0.213	0.118	0.356	0.252
Sum	68.270	939.820	896.690	539.550	678.081	99.150
Sum Sq. Dev.	12204.970	16818.960	10313.860	975.763	700.092	0.161
Observations	38	38	38	38	38	38

Source: EViews 10

From table 4.2, it was observed that CPS, TOD, MAO, PLR and POPGR are positively skewed its median is less than the mean where as GDPPC is negatively because the median is greater than the corresponding mean. More so, GDPPC, TOD, MAO and POPGR series are platykurtic because its kurtosis values is less than 3 (**Rule of Thumb**-Normal skewness is 0; Mesokurtic-Kurtosis of 3). This is supported by its probability values of the Jarque-Bera statistic which is greater than 0.05 (H_0: The distribution is normal; H_1: The distribution is not normal) thereby making the series to have a normal distribution (Asteriou and Hall, 2011). While CPS is leptokurtic because it has Kurtosis value of 5.6 which is greater than 3. This is supported by its probability values of the Jarque-Bera statistics which is highly significant. Thus, the distribution for CPS is not normally distributed.

4.1.4 ARDL Regression

Table 4.4: ARDL Regression Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDPPC(-1)	0.123061	0.153288	0.802807	0.4291
CPS	0.075084	0.155504	0.482846	0.6331
TOD	0.215156	0.182041	1.181910	0.2475
TOD(-1)	-0.373565	0.183575	-2.034947	0.0518
MAO	0.876377	1.765776	0.496313	0.6237
MAO(-1)	-2.436698	1.752804	-1.390171	0.1758
PLR	1.775152	0.678341	2.616901	0.0144
POPGR	308.9262	119.9452	2.575561	0.0158
POPGR(-1)	-387.4593	117.4522	-3.298867	0.0027
C	199.8293	136.5853	1.463037	0.1550

R-squared	0.553676	Mean dependent var	2.261892
Adjusted R-squared	0.404902	S.D. dependent var	18.18161
S.E. of regression	14.02577	Akaike info criterion	8.345129
Sum squared resid	5311.498	Schwarz criterion	8.780512
Log likelihood	-144.3849	Hannan-Quinn criter.	8.498622
F-statistic	3.721578	Durbin-Watson stat	1.990994
Prob(F-statistic)	0.003807		

Source: EViews 10

Table 4.3 shows the ARDL regression output. It reveals that only CPS, TOD and MAO are positively related to GDPPC which is in line with *apriori* expectation, but they are statistically insignificant because they contradict the rule of thumb of t-value of 1.96, a p-value greater than 5 percent. This means that for every one percent increase in CPS, TOD and MAO, they will contribute to GDPPC as thus CPS (0.07%), TOD (0.21%) and MAO (0.87%) respectively. While PLR and POPGR are positively related to GDPPC and statistically significance owing to the fact that their t-values is greater than 1.96 which is further confirmed by a p-value less than 5 percent. This implies that PLR and POPGR contributes to GDPPC as follow (1.7%) and (308%) accordingly. In addition the lag of TOD and POPGTR has a negative relationship to GDPPC and they are statistically significance which was confirmed by a p-value of less than 5 percent. This implies that their respective past values have an impact on the current performance of GDPPC. More so, the R-square is 0.55 which implies that 55% of the model is been explained by the explanatory variable. The f-statistic is significance because the p-value of F-statistic is less than 5%. DW statistic is approximately 2 which implies that there is no autocorrelation.

4.1.5. ARDL- Bound Testing for Co-integration

The ARDL bound test was further conducted to ascertain whether or not there is a long run relationship. This was conducted under the following hypothesis;

Ho: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$ (There is no long run levels relationship)

Decision Rule: if the F-value is below or less than I(0), H_0 will be rejected implying that there is no long-run relationship. Also if F-value is above I(0) bound, H_0 will be rejected and conclude that there is a long run relationship.

Table 4.5: ARDLBound Test for Cointegration Test Results

Test Statistic	Value	K

F-statistic	6.10	4
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	2.306	3.353
5%	2.734	3.92
1%	3.657	5.256

Source: EViews10 Output

Table 4.4 shows the ARDL co-integration test of whether there exists a long run relationship between the series. Based on the outcome, it depicts that there exists a co-integration relationship between the series. This is because F-statistic (6.10) is greater than the upper and lower critical bounds values [I (0) and I (1)] at 5 percent level of significance.

4.1.6. Long-Run Coefficients

Table 4.6: Output of Long run Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CPS	0.085621	0.177152	0.483318	0.6328
TOD	-0.180638	0.278092	-0.649561	0.5215
MAO	-1.779281	0.687552	-2.587848	0.0154
PLR	2.024259	0.840988	2.407002	0.0232
POPGR	-89.55369	56.37982	-1.588400	0.1238
C	227.8713	156.2977	1.457932	0.1564

EC = GDPPC - (0.0856*CPS -0.1806*TOD -1.7793*MAO + 2.0243*PLR
-89.5537*POPGR + 227.8713)

Source: EViews 10

Table 4.5 depicts the long run relationship coefficients and it revealed that in the long run it's only MAO and PLR that is statistically significant and met the apriori expectation which is confirmed by a p-value of less than 5%. However, CPS, TOD and POPGR have negative signs which imply that their relationship to GDPPC in the long run is an inverse and they are statistically insignificant owing to the fact that their respective p-value is greater than 5%.

4.1.7. Error Correction Model (ECM)

The ECM was conducted to correct the deviation of actual values from the long-run equilibrium values.

Table 4.7: Error Correction Model Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TOD)	0.215156	0.126577	1.699804	0.1007
D(MAO)	0.876377	1.407656	0.622579	0.5388
D(POPGR)	308.9262	96.68203	3.195280	0.0035
CointEq(-1)*	-0.876939	0.121358	-7.226057	0.0000
R-squared	0.645536	Mean dependent var		0.686216

Adjusted R-squared	0.613311	S.D. dependent var	20.40191
S.E. of regression	12.68678	Akaike info criterion	8.020804
Sum squared resid	5311.498	Schwarz criterion	8.194958
Log likelihood	-144.3849	Hannan-Quinn criter.	8.082202
Durbin-Watson stat	1.990994		

Source: EViews 10

From table 4.5, it clearly shows that the ECM satisfies the criteria that the CointEq (-1) must be NEGATIVE and statistically significant as evidence. CointEq(-1) is -0.87 and has a p-value of less than 5%. This implies that the dependent variable (RGDP) has a speed of adjustment of 87% to return to equilibrium if there are deviations from the explanatory variables.

4.4. Diagnostic Testing

The following Diagnostic test was conducted as shown in Table 4.7

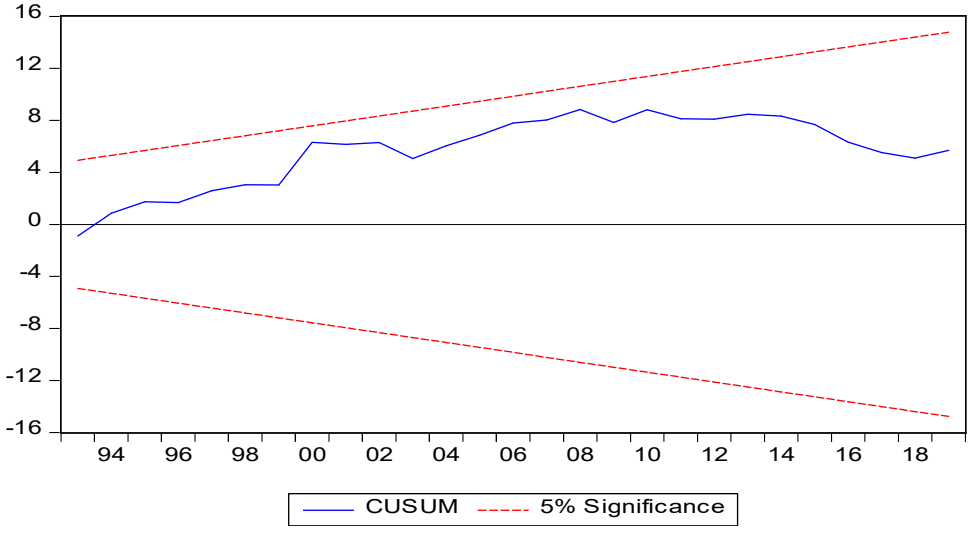
Table 4.7: ARDL Diagnostic Results

Test Statistic	Result
Serial Correlation $\chi 2(2)$:	0.726 [0.695]
Normality (Jarque-Bera)	7.287 [0.607]
Heteroscedasticity $\chi 2(2)$	4.102 [0.128]

Source: EViews 10 Output

Despite, the white hetroskedasticity test had already been checked at the point of running the ARDL model. However, other diagnostic tests were conducted indicates that the ARDL model is free from serial-correlation, heteroscedasticity problems and misspecification because all these tests conducted have their p-value(s) greater than 0.05, which implies the acceptance of null hypothesis that there is no serial correlation, no heteroscedasticity and its normality. Furthermore, to check the stability of the model, the cumulative sum of recursive residuals (CUSUM) tests was conducted were conducted as displayed in figure 4.1

Figure 4.1: CUSUM Test



From the figure 4.1 , it clearly shows that the model is stable since the CONSUM plots is within the lower and upper bounds as against a scenario if the plots of the CUSUM break in the lower or upper bounds, then such a parameter is said to be instable (Tang and Lean, 2007).

4.5. Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
CPS does not Granger Cause GDPPC	36	0.51899	0.6002	Accept Ho
GDPPC does not Granger Cause CPS		0.81786	0.4507	Accept Ho
TOD does not Granger Cause GDPPC	36	2.35435	0.1117	Accept Ho
GDPPC does not Granger Cause TOD		0.68868	0.5098	Accept Ho
MAO does not Granger Cause GDPPC	36	0.29606	0.7458	Accept Ho
GDPPC does not Granger Cause MAO		4.67045	0.0169	Reject Ho
PLR does not Granger Cause GDPPC	36	0.44925	0.6422	Accept Ho
GDPPC does not Granger Cause PLR		1.23437	0.3049	Accept Ho
POPGR does not Granger Cause GDPPC	36	1.23576	0.3045	Accept Ho
GDPPC does not Granger Cause POPGR		0.29866	0.7439	Accept Ho
TOD does not Granger Cause CPS	36	9.30579	0.0007	Reject Ho
CPS does not Granger Cause TOD		2.01393	0.1506	Accept Ho
MAO does not Granger Cause CPS	36	0.18808	0.8295	Accept Ho
CPS does not Granger Cause MAO		0.45024	0.6416	Accept Ho
PLR does not Granger Cause CPS	36	3.91900	0.0304	Reject Ho
CPS does not Granger Cause PLR		0.11839	0.8887	Accept Ho
POPGR does not Granger Cause CPS	36	0.93336	0.404	Accept Ho
CPS does not Granger Cause POPGR		0.05812	0.9436	Accept Ho
MAO does not Granger Cause TOD	36	3.51477	0.0421	Reject Ho
TOD does not Granger Cause MAO		1.32697	0.2799	Accept Ho
PLR does not Granger Cause TOD	36	2.71213	0.0821	Accept Ho
TOD does not Granger Cause PLR		1.73489	0.1931	Accept Ho
POPGR does not Granger Cause TOD	36	0.81678	0.4511	Accept Ho
TOD does not Granger Cause POPGR		0.03813	0.9626	Accept Ho
PLR does not Granger Cause MAO	36	0.27190	0.7637	Accept Ho
MAO does not Granger Cause PLR		1.89342	0.1676	Accept Ho
POPGR does not Granger Cause MAO	36	0.52511	0.5967	Accept Ho
MAO does not Granger Cause POPGR		0.79198	0.4619	Accept Ho
POPGR does not Granger Cause PLR	36	0.04939	0.9519	Accept Ho
PLR does not Granger Cause POPGR		3.91081	0.0306	Reject Ho

Source: EViews 10

Table 4.8 shows the granger causality among series. GDPPC and MAO, TOD and CPS, PLR and CPS, MAO and TOD, PLR and POPGR all have a unidirectional relationship among each other which was supported by a p-value greater than 0.05..Subsequently, CPS, TOD, MAO, PLR, POPGR does not granger cause GDPPC be it bidirectional or unidirectional. This is owing to the fact that their respective p-values are less than 5 percent.

4.2 Summary of Major Findings

Firstly, the variables such as GDPPC, CPS, PLR and TOD , are stationary at levels and

MAO and POPGR at their first differences. Also, the bound test revealed that there exists a long run relationship among the variables since the calculated F-statistic is higher than the upper critical bounds value [I(1)] at 5 percent level of significance. In addition, the R-square is 0.55 which implies that 55% of the ARDL model is been explained by the independent variables and also there is no autocorrelation because the DW statistics is 2, no heteroscedasticity and the series distribution is normal.

Secondly, study revealed that the relationship between bank financing which was proxied by Credit to private sector and GDP per capita tends is positive or linear which implies that an increase in CPS will also lead to an increase in GDPPC. However, the CPS tends to be statistically insignificance under the period considered due to its t-value less than 1.96 and p-value greater than 5 percent. However, this might be attributed to the fact that the CPS less channeled to the real sector of the economy and with an increasing population without a corresponding increase in productivity. Despite this, the outcome of the study corroborates with the works of Schumpeter (1911), Patrick (1966), Gurley and Shaw (1957), Rajan and Zangales (1998), Goldsmith (1969), Lucas (1988), Greenwood and Jonanovic (1990), King and Levine(1993), Levine and Zervos (1998), Beck, Dermergue-Kunt and Levine (2004), Samson and Elias(2010), Tabash and Dhankar (2014a), Tabash and Dhankar (2014b), Belinga et al (2016),Akpa, Nwosu and Eweke (2017).

Thirdly, the result reveal that CPS and GDPPC does not have neither a unidirectional relationship nor bidirectional relationship which implies that GDPPC does not affects CPS or CPS does not affect GDPPC under the period considered. This outcome contradicts the works of Belinga *et al* (2016), Akpasung and Babalola (n.d) and Awad and Karaki (2019). Subsequently, CPS and TOD, PLR and CPS, GDPPC and MAO have a unidirectional relationship which is in tandem with aprori expectation.

Fourthly, the ECM fulfils the criteria of NEGATIVITY of the coefficient and its statistically significant as evidence. CointEq (-1) is -0.87 and has a p-value of less than 5%. This implies that the dependent variable (RGDP) has a speed of adjustment of 87% to return to equilibrium if there are deviations from the independent variables

5. Conclusion and Recommendations

The paper investigates the impact Deposit Money Banks Financing on the GDP per capita of Nigeria using the ARDL Model. However, based on the findings, the study concluded that Credit to Private Sector (CPS), PLR and POPGR have a positive or linear relationship to GDPPC but in terms of their statistical significance only PLR and POPGR possessed such attributes. This implies that little or no CPS was not channeled to the real sector of the Nigerian economy which could have contributed to the GDPPC but on the other hand, the CPS alone is not adequate to bring the desired growth as other indicators such as political stability and security to mention but a few could be relevant.

Consequently, the study recommends the following as thus; firstly, the monetary authorities should sustain PLR as this will motivate DMBs to increase their lending or credit to the real sector of the economy which invariably will have impact on growth. Secondly, both Government and Non-governmental organization needs to advocate policies and programmes that could developed her population owing to the fact the human capita development or a knowledge based economy is relevant towards attaining growth.

Thirdly, Government should encourage and support the development of Small and

Medium enterprises as this could lead to an increase in the country's manufacturing output which will invariably result to growth. Fourthly, the monetary authorities need fine-tune her policy especially the monetary policy especially the interest on deposit so as to encourage fund or deposit mobilization from the surplus unit to investment and productive purposes, thus stimulating growth.

References

Abduh, M., &Chowdhury, N.T. (2012). Does Islamic Banking Matter for Economic Growth in Bangladesh? *Journal of Islamic Economics, Banking and Finance*, 8(3), 105-108.

Aghion, P., &Howitt, P. (1998).Endogenous Growth. Cambridge, Mass.: MIT Press

Akpasung, A.O &Babalola, S.J (2011). Banking Sector Credit and Economic Growth in Nigeria: An Empirical Investigation.*CBN Journal of Applied Statistics* . 2(2) 51-61

Arcandi, J., Berkes, E., &Panizza, U.(2012). Too Much Finance?International Monetary Fund. Research Department.

Asongu, S. A. (2011). Financial and Growth: Schumpeter Might be Wrong in Our Era. New Evidence from Meta-analysis. MPRA No. 32559.

Asteriou, D & Hall, S.H (2011).*Applied Econometrics* (2Eds).Newyork. Palgrave Macmillan. 180-189.

Awad, I &Karaki (2019). The impact of bank lending on Palestine economic growth: an econometric analysis of time series data. *Financial Innovation*, 5(14).1-24

Bayoumi T. &Melander O. (2008), Credit Matters: Empirical Evidence on US Macro-Financial Linkages, *IMF Working Paper*.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2004).A New Database on Financial Development and Structure, *World Bank Economic Revie*w, 14, 597-605.

Belinga, T, Zhou, J, Doumbe E, Gahe, Z, S, Koffi, Y, S. (2016). Causality Relationship between Bank Credit and Economic Growth: Evidence from a Time Series Analysis on a Vector Error Correction Model in Cameroon. *12th International Strategic Management Conference, ISMC 2016, 28-30* October 2016, Antalya,Turkey

Cecchetti, G., &Kharroubi, E. 2012.Reassessing the Impact of Finance on Growth. *BIS Working Papers* No. 381, Bank for International Settlements

Demetriades, P. O., & K. A. Hussein. 1996. "Does Financial Development Cause Economic Growth? Time-series Evidence from 16 Countries." *Journal of Development Economics* 51 (2): 387–411. doi:10.1016/S0304-3878(96)00421-X.

Elya, N. A., Abuhassan, S.M.N., &Tamat, H.M.R (2018). Nonlinear Relationship between Financial Development and Economic Growth: Evidence from Post Global Financial Crisis Panel Data. *JurnalEkonomi Malaysia 52(1) 2018 15 – 30*

Granger C. W. J., (1969). "Investigating causal relations by econometric models and cross-spectral methods". *Econometric* 37(3):424-438.

Goldsmith, R.W. (1969). *Financial Structure and Development*. New Haven: National Bureau of Economic Research.

Greenwood, J. & B. Jovanovic. (1990). Financial development, growth and the distribution of income. *Journal of Political Economy*. 98(5): 1076- 1107.

Guangdong and Binwei (2021). The Non-Linearity between finance and economic growth: A literature review and evidence from China. *Asia-Pacific Economic Literature*, 35(1)

Gurley, J.G. & E.S. Shaw (1957). Financial aspects of economic development. *American Economic Review*, XLV (4, September).

Haini, H. (2021): Examining the nonlinear impact of the banking sector on economic growth: evidence from China's Provinces, *Journal of Chinese Economic and Business Studies*, 1-19 .DOI: 10.1080/14765284.2021.1943193

Johansen, S and Juselives, K (1990). Maximum likelihood estimation and inference on cointegration with application for the demand for money. *Oxford Bulletin of Economics and Statistics,* 52, 169-210

King, R.G. & R. Levine. (1993). Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics,* 108 (3): 717-38

Kuznet, S. (1955).Economic Growth and Income Inequality. American Economic Review, 45(1), 1-28

Law, S.H., N. Singh (2014). Does too much finance harm economic growth? *Journal of Banking and Finance* 41, 36–44.

Levine, R. and S. Zervos.(1996). Stock market development and long-run growth, *The World Economic Review,* 110(2): 323-340.

Lucas, R. E. (1988). On the Mechanics of Economic Development. *Journal of MonetaryEconomics.*22. 3-42.

McKinnon R. (1973), Money and Capital in Economic Development (Washington: The Brookings Institute).

Odedokun, M. O. (1998), Financial intermediation and economic growth in developing countries, Faculty of Commerce, University of Swaziland,Swaziland.

Oluitan, O. R. (2012), Bank Credit and Economic Growth: Evidence from Nigeria, *International Business and Management*, 5(2).

Oro, U.O & Paul, A (2018). Non-linear relationship between financial development, economic growth and growth volatility: evidence from Nigeria. Available at: https://www.preprints.org. Retrieved on 20/08/2021

Patrick, H. (1966). Financial development and economic growth in underdeveloped countries. *Economic Development Cultural* Change 14, 174–189

Pesaran, M. H., &Shin,Y. (1999). An autoregressive distributed lag modeling approach to cointegration analysis. In Strom, S. (ed.), Econometrics and economic theory in the 20th century (pp. 371- 413). The Ragnar Frisch centennial symposium econometric society monographs (No. 31). Cambridge: Cambridge University Press.

Pesaran, M. H., Shin, Y., & Smith, R. (2001). Bound testing approaches to the analysis of level relationship. *Journal of Applied Econometrics, 16*(3), 289- 326.Rajan, R.G., and Zingales, L., (1998).Financial Dependence and Growth. *The American Economic Review*, 88(3), 559-586.

Samson, O.O & Elias, A. U (2010) Financial Sector Development and Economic Growth: Empirical Evidence from Nigeria**.** *Central Bank of Nigeria Economic and Financial Review* 48(3). 91- 124.

Samargandi, N., Fidrmuc, J., &Ghosh, S. (2015). Is the Relationship between Financial Development and Economic Growth Monotoni? Evidence from a sample of middle-income countries.*World Development* 68: 66–81.

Schumpeter, J (1911). *The Theory of Economic Development*, Cambridge, Mass,: Harvard University Press.

Tabash, I.M., &Dhankar, R.(2014a). Islamic Finance and Economic Growth: an Empirical Evidence from UAE.*Journal of Emerging issues in Economic, Finance and Banking*, 3,1069- 1082.

Tabash, I.M., &Dhankar, R.(2014b). Islamic Finance and Economic Growth: an Empirical Evidence from Qatar.*Journal of Applied Economics and Business*, 2(1), 51- 67.

Tang, C. F., & Lean, H. H. (2007). "Is Phillips curve stable in Malaysia? New empirical Evidence". *Malaysian Journal of Economic Studies,* 44(2).95-105