A Correlational Analysis of Private Sector Credit, Exchange Rate and Economic Growth in Nigeria: 1986-2016

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ABSTRACT

This paper examined the correlational analysis of private sector credit, exchange rate and economic growth in Nigeria: 1986-2016. The aim is to determine whether there is significant correlation between private sector credit, exchange rate and economic growth in Nigeria. The study used time series data from 1986-2016 drawn from Central Bank of Nigeria (CBN) statistical bulletin 1986-2016, The data was analyzed using Pearson correlation technique and descriptive statistics. The Pearson correlation result of the correlation analysis indicates that the variables are linearly correlated among themselves. The result of correlation analysis indicates that the variables are linearly correlated among themselves. Credit to the private sector has a positive and significant relationship with gross domestic product in Nigeria for the period under review. Exchange rate has a positive and significant relationship with gross domestic product in Nigeria for the period under review. Money supply has a positive and significant relationship with gross domestic product in Nigeria for the period under review.

Keywords: Manufacturing sector, Volume of Bank credit, Economic Growth, Exchange rate and Interest rate.

INTRODUCTION

The concept of economic growth has been defined by many experts from many perspectives. [1] defines economic growth as the increase in the market value of the goods and services produced by an economy overtime. [1] write that economic growth means the steady process by which the productive capacity of the economy is increased overtime to bring about rising levels of national output and income. Economic growth may be defined as the increase in the real national product or output over time [2]. In his own view , [3] defines economic growth as a long –term rise in capacity to supply increasingly diverse economic goods to its population, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands .Economic growth during any given time period can be expressed as dy/y. First and foremost,

economic growth should mean that an ever increasing quantity of goods and services is available for meeting the economy' needs over time In order words, to be meaningful, economic growth should cause an improvement in the economic welfare of the people of a country and should be accompanied by distribution of the national product in favour of the poor. This is possible only if the rate of growth of output exceeds the rate of growth of population in the economy. According to some economists, however, the per capita real income is a better measure of economic growth, From the concept of per capita real income the other related concept of growth, is the real GNP per unit of labour input or per combined labour-capital unit. This concept emphasizes changes in the economy's productivity over time. Economic growth over time may either be due to an improvement in the qualitative performance (productivity) of the given inputs or due to the quantitative increase in the economy's factor endowments or it may be due to a combination of both these factors .For example, while the economy's total labour force increase over time, its productivity may also increase. The performance of the economy's capital stock may improve while it grows over time. Whatever may be the factors responsible for economic growth, it will be reflected in upward shift of the production possibilities curve or

the production frontier of the economy assuming that all resources are optimally employed [2].According to [4], the provision of credit with sufficient consideration for the sector's volume and price system is a way to generate self-employment opportunities. This is because credit helps to create and maintain a reasonable business size and as well expand the business to take advantage of economy of scale. Individuals and families also take credit to buy and pay for goods and services [5].Economic growth and development accordingly to Nwakoby and [6] depends essentially on a country's ability to invest and make efficient and productive use of its resources. Economic growth has long been considered an important goal of economic policy with a substantial body of research attempting to explain how this goal can be achieved. It is one of the important factors that improve living standards in developing countries [7]. Economic growth and development accordingly to [6] depends essentially on a country's ability to invest and make efficient and productive use of its resources. There are different research findings regarding the relationship of various economic variables and economic growth in Nigeria and other places for example [8] found an insignificant negative relationship between financial intermediary development and economic growth in Nigeria in the long-run and

significantly negative in the short-run while [9] in his findings revealed that there is a positive long and short-run relationship between (BF) and economic growth in Saudi Arabia.The aim of this research is to find the statistical relationship between credit to the private sector, exchange rate and economic growth in Nigeria.. The remaining parts of this paper is as follows-Empirical Review, Methodology, Empirical Results and analyses and Conclusion.

Empirical Review

[10] examined the relationship between banking sector credit and economic growth in Nigeria from 1970-2008. They found that private sector credit impacted positively on economic growth during the sample period while lending rate impeded economic growth.

[8] empirically examined the relationship between financial intermediary development and economic growth in Nigeria over the period 1981–2011. The author used auto-regressive distributed lag (ARDL) approach to co-integration analysis and provided evidence that the relationship between financial development and economic growth in Nigeria is insignificantly negative in the long-run and significantly negative in the short-run which is not significantly different from what has been observed generally in oil-dependent economies.

Using an autoregressive distributed lag (ARDL) approach to cointegration, [10] investigated the relationship between private sector credit and economic growth in Saudi Arabia for the period of 1974-2012. The study used six variables such as, GDP, private sector credit (BF) , and commercial bank's deposits (DS), government expenditure (G), inflation rate (CPI) and open economy (OPE) as control variables. The findings revealed that there is a positive long and short-run relationship between (BF) and economic growth in Saudi Arabia.

[11], analyzed the relationship between private sector credit and economic growth in Nigeria for the period of 1974-2010. Using Autoregressive Distributed Lag (ARDL) bound F-test for cointegration approach, the study found that a long run equilibrium relationship exists between private sector credit and economic growth. They also found that there is no causal relationship between private sector credit and economic growth in Nigeria, a significant relationship exists between the duo and recommended comprehensive policies and strong legal framework to facilitate the disbursement and recovery of private sector credit.

[12], investigated the relationship between exchange rate and economic growth in Nigeria from 1970–2010. The authors used ordinary least squares regression and correlation and stipulated

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that exchange rate has a strong impact on economic growth. They also established that exchange rate liberalization was good to the Nigerian economy as it promotes economic growth.

[13] examined the relationship between exchange rate regimes and output growth in Nigeria from 1970 to 2014. The study employed the Generalized Method of Moments (GMM) to estimate economic growth equation as a result of endogeneity problem. The findings of the study revealed that exchange rate regimes indeed matter in terms of real economic performance in Nigeria.

[14], explored the relationship foreign exchange rate and economic growth in Nigeria for the period of 2000-2014. The authors used multiple regression analysis and discovered among others that real exchange rate has a significant negative influence on economic growth in Nigeria.

METHODOLOGY

The analysis is based on descriptive statistics and Pearson product moment correlation (PPMC) using annualized data of the gross domestic product, credit to the private sector exchange rate, and money supply covering 1986-2016. The study used descriptive statistics and Pearson correlation procedures. The Pearson correlation was used to ascertain the degree of relationship that exist between gross domestic product, credit to the private sector exchange rate, and money suppl in Nigeria..ThePearson's product moment coefficient of simple correlation is computed as:

$$\rho_0 = \frac{w_a \sum_{i=1}^{w_a} z_i Y_{i-} \left(\sum_{i=1}^{w_a} z_i\right)\left(\sum_{i=1}^{w_a} Y_i\right)}{\sqrt{\left[w_a \sum_{i=1}^{w_a} z_i^{2} - \left(\sum_{i=1}^{w_a} z_i\right)^2\right]\left[w_a \sum_{i=1}^{w_a} Y_i^{2} - \left(\sum_{i=1}^{w_a} Y_i\right)^2\right]}}$$

Where,

w_a is the number of sample observations used in the study

$$\frac{n\sum XY - (\sum x)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}.$$

RESULTS AND ANALYSES

Table 1:   Summary of Descriptive statistics of the variables under study

Variable	No of obs.	Mean	Std dev.	Skewness	Kurtosis	Prob. (JB)
GDP	31	23383.34	32303	1.35	3.27	0.0087
CPS	31	4476.20	6594.33	1.31	3.24	0.0113
EXCHR	31	88.83	70.29	0.21	2.00	0.4656
M2	31	4842.21	6626.22	1.24	3.13	0.0192

SOURCE: Researcher's extract from E-views output

The results of the descriptive statistics above show that the average value of GDP, CPS, and EXCHR stood at ₦23383.34 billion, ₦4476.20 billion, ₦88.83 per USD, and ₦4842.21 billion, respectively. The corresponding high standard deviations indicate that the series are highly volatile within the period.

The respective Skewness and Kurtosis measures of departure from symmetry and peakness of the distribution respectively shows that all the variables under investigation are skewed to the right while there is excess kurtosis (k>3) in GDP, CPS, and M2 dataset. In line with the skewness and kurtosis statistics, the Jarque-Bera test confirmed that GDP, CPS, and M2 do not follow a normal distribution while EXCHR does over the period

Result of Test of Linear Association

Table 2: Covariance Analysis: Ordinary

Sample: 1986 2016
Included observations: 31

Correlation t-Statistic Probability	LGDP	LCPS	LEXCHR	LM2
LGDP	1.000000			

LCPS	0.989742	1.000000		
	37.30627	-----		
	0.0000	-----		
LEXCHR	0.942326	0.927627	1.000000	
	15.16173	13.37432	-----	
	0.0000	0.0000	-----	
LM2	0.992264	0.997879	0.944891	1.000000
	43.04289	82.54855	15.54257	-----
	0.0000	0.0000	0.0000	-----

The result of correlation analysis indicates that the variables are linearly correlated among themselves. Credit to the private sector has a positive and significant relationship with gross domestic product in Nigeria for the period

under review. This shows that credit to the private sector helps the economy to grow. Exchange rate has a positive and significant relationship with gross domestic product in Nigeria for the period under review. This shows that exchange rate helps the economy to grow. Money supply has a positive and significant relationship with gross domestic product in Nigeria for the period under review. This shows that money supply helps the economy to grow.

CONCLUSION

The descriptive statistics of the variables used in the study show that on the average gross domestic product in Nigeria from 1986-2016 is #23383.34 billionwith a corresponding high standard deviation of 32303 in billions of naira. The average credit to the private sector from 1986-2016 is #4476.20 billionwith a high corresponding standard deviation of 6594.33. The average value of exchange rate in Nigeria from 1986-2016 is #88.33 per USD with a corresponding standard deviation of 70.29. The money supply stands at #4842.21 billion with a highcorresponding standard deviation of6626.22 for the period of study. The standard deviation shows a large statistical dispersion.The result of correlation analysis indicates that the variables are linearly correlated among themselves. Credit to the private sector has a positive and significant relationship with gross domestic product in Nigeria for the period under review. Exchange rate has a positive and significant relationship with gross domestic product in Nigeria for the period under review. Money supply has a positive and significant relationship with gross domestic product in Nigeria for the period under review.

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APPENDIX

YEARS	GDP (₦'B)	CPS (₦'B)	EXCHR (1₦/USD)	M2(₦'B)
1986	134.60	15.25	2.0206	23.81
1987	193.13	21.08	4.0179	27.57
1988	263.29	27.33	4.5367	38.36
1989	382.26	30.40	7.3916	45.90
1990	472.65	33.55	8.0378	52.86
1991	545.67	41.35	9.9095	75.40
1992	875.34	58.12	17.2984	111.11
1993	1089.68	127.12	22.0511	165.34
1994	1399.70	143.42	21.8861	230.29
1995	2907.36	180.00	21.8861	289.09
1996	4032.30	238.60	21.8861	345.85
1997	4189.25	316.21	21.8861	413.28
1998	3989.45	351.96	21.8861	488.15
1999	4679.21	431.17	92.6934	628.95
2000	6713.57	530.37	102.1052	878.46
2001	6895.20	764.96	111.9433	1,269.32
2002	7795.76	930.49	120.9702	1,505.96
2003	9913.52	1,096.54	129.3565	1,952.92
2004	11411.07	1,421.66	133.5004	2,131.82
2005	14610.88	1,838.39	132.1470	2,637.91
2006	18564.59	2,290.62	128.6516	3,797.91
2007	20657.32	3,680.09	125.8331	5,127.40
2008	24296.33	6,941.38	118.5669	8,008.20
2009	24794.24	9,147.42	148.8802	9,411.11
2010	54612.26	10,157.02	150.2980	11,034.94
2011	62980.40	10,660.07	153.8616	12,172.49
2012	71713.94	14,649.28	157.4994	13,895.39
2013	80092.56	15,751.84	157.3112	15,160.29
2014	89043.62	17,129.68	158.5526	17,679.29
2015	94,144.96	18,674.15	193.2792	18,901.30
2016	101,489.49	21,082.72	253.4923	21,607.68

Source: CBN statistical Bulletin, 2016