

Commercial Bank's Credit and Interest Rate on Nigeria's Economy 1981-2017.

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ABSTRACT

This work explored Commercial Bank's Credit and Interest Rate on Nigeria's Economy over the period 1981-2017. The study employed the Augmented Dickey-Fuller test for stationarity in the time series and variance decomposition techniques. The variance decomposition revealed that Commercial Bank's Credits to Private Sector and Interest rate has no influence on the economy both in the short and long run. The work recommends that; (i) The Central Bank of Nigeria (CBN) should review commercial bank interest rates to private sectors downwards possibly to a single digit (ii) Government should encourage commercial banks in the provision of interest free loans.

Keywords: Commercial Bank, Interest Rate, Variance, Decomposition

INTRODUCTION

Economics is made up of various economic agents competing for scarce resources available within the economy in order to achieve their objectives [1]. The requirements of each economic agent within the economy vary according to their functions. To meet these pressing needs, however, each economic agent competes for the limited financial resources available in the financial system [2]. For example, cooperative organizations require funds to purchase machinery and equipment required for the production of goods and services, while farmers require credit to purchase seeds, insecticides, fertilizers, and the construction of various types of farm buildings [3]. Government agencies seek credit in order to meet a variety of recurring and capital expenditures. Individuals and families, on the other hand, use credit to purchase goods and services [4]. Commercial banks invest customer deposits in various short-term and long-term investment outlets in order to make a profit; however, the majority of such deposits are used for loans. As a result, the more loans and advances they make to borrowers, the more profit they make [5]. Economic growth has long been regarded as an important goal of economic policy, with a substantial body of research devoted to explaining how it can be attained. [6] wrote one of the

earliest works on banking performance and economic growth, arguing that financial (banking) services are crucial in promoting economic growth. Production, in his opinion, requires credit to materialize, and one can only become an entrepreneur by first becoming a debtor. The entrepreneur's first priority is credit. According to Schumpeter, the typical debtor in a capitalist society is the entrepreneur [7]. Based on Schumpeter's strong foundation, a plethora of empirical studies, particularly in advanced economies, have been conducted to ascertain the relationship between banking sector performance and economic growth. Empirical studies in Nigeria that have explicitly focused on banking sector performance and economic growth have produced mixed results. Some of these studies suggest that the performance of the banking sector has had a positive and significant impact on economic growth. The primary goal of this research is to determine the impact of commercial banks' credit and interest rates on economic growth. The economy continued to deal with issues such as interest rates and import substitution; with price stability at the forefront of the CBN's new leadership, it meant that exchange rate stability was an initiative that would be sustained [8].

Conceptual Framework Interest Rates

The interest rate, according to Keynes, is the reward for not hoarding but for parting with liquidity for a specific period of time. The lending rate is more important in Keynes' definition of interest

rate. According to [2], interest rate is defined as the return or yield on equity or the opportunity cost of deferring current consumption into the future.

Bank Performance and Economic Growth

Among other indicators, banks' performance can be seen in their level of efficiency and ability to manage costs and post healthy profit figures, but more importantly, in their ability to create money. Improved lending to various sectors of the economy as a result of increased capital base; stronger banks

with healthier balance sheets; innovation in banking products/service delivery; improvement in technology and globalization of industry operations in the short term; employment generation, particularly at the middle and lower levels of the industry

Empirical Literature Review

[3] used time series data from 1980 to 2008 to investigate the impact of monetary policy instruments on bank performance in Nigeria. Bank total loan was defined as a function of the minimum policy rate, cash reserve ratio, liquidity ratio, inflation, and exchange rate in the study model. A regression model based on the Engle-Granger two-step co-integration approach was used in the study. They discovered that the interest rate, inflation rate, and exchange rate all had a positive effect on bank loans, whereas the liquidity ratio and cash reserve ratio had a negative effect. They came to the conclusion that monetary policy instruments are ineffective stimulators of bank lending in Nigeria. [7], investigates the role of bank credit in stimulating output in the real sector, as well as the factors that prompt financial intermediation in the economy: the Nigeria experience. Real GDP and real private sector credit growth are the variables used. It was discovered that a reserved causation exists between real output and financial development. As a result, it is recommended that the government ensure proper integration of the financial sector in order for it to be capable of significantly intermediating in financial processes for the real sector of the economy. [6], investigates the relationship between commercial bank credit indicators and Nigerian rural

economic growth. The study was conducted between 1982 and 2009, and the variables used were gross domestic product, commercial bank loans to rural areas, and rural deposits with commercial banks. The result indicates that at least one co-integration relationship existed among the variables in the model. The results of the multi-variant co-integration test indicated that commercial bank credit indicators and rural economic growth indicators are co-integrated. In other words, these variables tend to move together in the long run. It is therefore recommended that the monetary authority in Nigeria task commercial banks with concentrating the resources of rural areas in their domain in order to improve economic activities of the sector of the economy, agriculture should be developed in rural areas in Nigeria, and rural dwellers should be encouraged to deposit more of their funds with commercial banks in order to improve economic activities of the sector of the economy. [5] examined the impact of total bank credit on Nigerian economic growth using the ordinary least square technique and co integration analysis. According to their findings, total bank credit and the inflation rate have a significant relationship with economic growth, though the inflation rate has a negative relationship while total bank credit has a positive relationship. [4] conducted a

study in Nigeria and discovered a strong positive correlation between bank credit and GDP, concluding that there is a one-way relationship running from GDP to banking sector credit. Using ADF, Johansen co-integration, and ECM, [3] conclude that only credit allocated to the production sector has a significant positive effect on growth. [5] investigated the impact of bank credit on the growth of the Nigerian economy from 1986 to 2012; the results of the OLS regression revealed a long-run negative and

significant relationship between GDP and TBCPS. M2, which was used as a control variable, has a positive and significant long-run impact on GDP. The variables' short-run dynamics indicate that TBCPS have a negative and insignificant short-run impact on GDP. The granger causality test results indicate that causation runs from GDP to TBCPS and not the other way around, indicating unidirectional causality. TBCPS and M2 were also found to be bidirectionally causal.

METHODOLOGY

The methodology employed in this study is that of vector autoregressive (VAR) analysis developed by [5]. The General basic model of VAR (p) has the following form

$$y_t = \mu + \psi dD_t + A_1 y_{t-1} + \dots + A_p y_{t-p} + \mu_t \dots \dots \dots (1)$$

Where y_t is the set of K time series variables $y_t = (y_t, \dots, y_{kt})$ A_t 's are (K x K) coefficient matrices, μ_t is a vector of the deterministic term, D_t is a vector of nonstochastic variables and $\mu_t = (u_{1t} \dots \dots \mu_{kt})'$ is an unobservable error term. Equation (1) is general enough to accommodate variables with stochastic trends, it is not the most suitable type of model if interest centers on the cointegration relations is the vector error correction model (VECM).

$$\Delta y_t = \Psi D_t + \Gamma_1 \Delta y_{t-1} + \dots + \Gamma_{p-1} \Delta y_{t-p+1} + \alpha u_{t-1} + u_t \dots \dots \dots (2)$$

Where $\alpha = (\alpha_1, \alpha_2, \dots, \alpha_k)$

To provide an empirical insight into commercial bank's credit and interest rate on economic growth a modified work of [6] is presented below

$$GRGDP = f (CBPSGDP, CPS, TPS, INT, GRM2) \dots \dots \dots (3)$$

we estimate Six-variable in our VAR model using GRGDP, CBPSGDP, CPS, TPS, INT, GRM2.

Forecast error Variance Decomposition

Forecast error variance decomposition of the variables gives information about shocks that can forecast variables better. In practice, forecast error variance decompositions are popular tools for

Our basic model of VAR (p) has the following form

$$y_t = \mu + A_1 y_{t-1} + \dots + A_p y_{t-p} + \mu_t \dots \dots \dots (4)$$

Where $y_t = (GRGDP_t, CBPSGDP_t, CPS_t, TPS_t, INT_t, GRM2_t)$ is the set of 6 time series variables, A_j are (6x6) coefficient matrices, μ is vector of deterministic terms and $\mu_t = (\mu_{1t}, \dots, \mu_{5t})'$ is an unobservable error term. The corresponding vector error correction model (VECM) for equation (4) is:

Where;

$$\Delta y_t = \Gamma_1 \Delta y_{t-1} + \dots + \Gamma_{p-1} \Delta y_{t-p+1} + \alpha u_{t-1} + u_t \dots \dots \dots (5)$$

Where $\alpha = (\alpha_1, \alpha_2, \dots, \alpha_4)$

Where;

- GRGDP = Growth Rate of Gross Domestic Product;
- CBPSGDP = The ratio of Commercial Bank's Private Sector Credit to GDP
- CPS = Commercial Bank's Credits to Private Sector;
- TPS = Total Private Savings
- INT = Interest rate;
- GRM2 = Growth Rate of Broad money supply.

interpreting VAR models. The h-step forecast error for the y_t variables in terms of structural innovations $\varepsilon_t = (\varepsilon_{1t}, \dots, \varepsilon_{kt})' = B_{st}^{-1}$

can be represented as ψ_{ij}^n , denotes the ij^{th} element of ψ_n .

$$\psi_0 \varepsilon_{t+h} + \psi_1 \varepsilon_{t+h-1} + \dots + \psi_{h-1} \varepsilon_{t+1}$$

Estimation Procedure

The estimation begins with Augmented - Dickey fuller (ADF) unit root test to confirm the stationarity states of the variable then the variance decomposition is used to see the effect of innovations on the model.

EMPIRICAL RESULTS AND DISCUSSION

Unit root test

Table 1: Result of Unit Root Test

VARIABLES	CRITICAL VALUES 5%	ADF T-STATISTIC	ORDER OF STATIONARY	REMARK
GRGDP	-2.948404	-3.956034	1(0)	Stationary
CBPSGDP	-2.951125	-4.886752	1(1)	Stationary
CPS	-2.976263	-6.831088	1(1)	Stationary
TPS	-2.986225	-5.646192	1(1)	Stationary
INT	-2.948404	-2.926116	1(0)	Stationary
GRM2	-2.951125	-3.953470	1(0)	Stationary

Source: Author's Analysis

Table 1 presents the result of stationarity test using the Augmented Dickey-Fuller test of stationarity. The result indicated that the growth rate of GDP (GRGDP), INT and GRM2 are integrated of order I(0) at 5

% level of significance meaning stationarity at level, while CBPSGDP, CPS and TPS were stationary after the first difference that is I(1). The null hypothesis of non-stationary is rejected.

VAR Model Forecast Error Variance Decomposition.

The results of variance decomposition in our VAR Model reveal the forecast error in each variable that can be attributed to shocks in other variables over a ten year

period. The most important source of variations in each forecast error is its own innovations.

Table 2, variance decomposition of GRGDP

Variance Decomposition of GRGDP:

Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	4.065832	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000
2	4.280739	95.92445	0.250628	2.097293	0.528788	0.769741	0.429100
3	4.976418	87.04709	2.190427	2.688592	2.197869	3.725311	2.150715
4	5.048136	84.82841	2.580333	2.760502	3.297066	3.655303	2.878384
5	5.270435	80.83314	2.369692	2.613728	5.962698	4.928817	3.291929
6	5.356615	79.58891	2.321384	2.542024	6.477818	5.805286	3.264583
7	5.412203	78.77433	2.304519	2.496007	6.610685	6.580684	3.233772
8	5.429274	78.41776	2.298634	2.505759	6.665415	6.888818	3.223615
9	5.448738	77.91377	2.318470	2.753981	6.618471	7.059169	3.336136
10	5.471442	77.27603	2.360967	3.015035	6.694778	7.082071	3.571119

Source: Author's Analysis

From the table above, in the short run, GRGDP's own shock accounts for 87.4%

variation to GRGDP. CBPSGDP, CPS, TPS, INT and GRM2 contributed 2.1%, 2.7%,

2.1%, 3.7%, and 2.5% respectively to the fluctuations in GRGDP. In the long run GRGDP's own shock dropped to 77.2% while that of CBPSGDP, CPS, TPS, INT and Table 3, variance decomposition of CBPSGDP

GRM2 to 2.3%, 3%, 6.6%, 7% and 3.6% respectively accounted to the fluctuation in GRGDP.

Variance
Decomposition of
CBPSGDP:

Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	1.219457	3.556764	96.44324	0.000000	0.000000	0.000000	0.000000
2	1.903133	1.569955	53.57903	0.968719	18.92389	0.004197	24.95421
3	2.730083	0.782621	27.00379	3.130692	34.18781	1.761756	33.13333
4	3.284264	2.092122	19.09775	3.910418	40.32968	4.094635	30.47539
5	3.570920	4.209011	16.67275	4.768711	40.93154	6.381673	27.03632
6	3.849459	6.692302	15.84919	6.397797	38.60208	8.590835	23.86780
7	4.122668	7.177731	16.18462	8.370405	36.79675	9.502940	21.96756
8	4.405779	6.954999	16.10787	9.413019	36.67322	9.812623	21.03827
9	4.698207	6.807645	15.57333	9.947706	37.24582	10.09225	20.33324
10	5.009728	6.877978	15.03610	10.61416	37.37762	10.45520	19.63895

Source: Author's Analysis

From the table above, in the short run, innovations on CBPSGDP were not mainly caused by its individual shock (27%), similarly shocks to GRGDP, CPS, TPS, INT and GRM2 caused 0.7%, 3.1%, 34%, 1.7% and 33% fluctuation in the ratio of Commercial Bank's Private Sector Credit to GDP. In the long run, own shock of the ratio of Commercial Bank's Private Sector

Credit to GDP declined significantly to 15%, while shocks to GRGDP, CPS, TPS, INT and GRM2, accounted for an increase in the fluctuation of the ratio of Commercial Bank's Private Sector Credit to GDP by 6.8%, 1067%, 37%, 10.4% and 19.6% respectively.

Table 4, variance decomposition of CPS

Variance
Decomposition of
CPS:

Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	627.5446	0.163887	52.69275	47.14336	0.000000	0.000000	0.000000
2	1006.125	0.200546	36.34503	33.79602	14.88704	0.938299	13.83306
3	1471.522	0.448952	24.12176	26.06085	27.03519	1.368884	20.96437
4	1911.538	1.529748	17.77634	22.58173	33.17505	2.754960	22.18217
5	2363.406	3.404072	15.15738	21.69305	34.65390	4.348601	20.74299
6	2831.213	4.710179	14.25333	21.58433	34.53140	5.632410	19.28835
7	3342.663	5.487521	13.94434	21.35099	34.40255	6.526943	18.28766
8	3894.611	5.870057	13.68119	20.90280	34.65197	7.178001	17.71597
9	4494.869	6.151344	13.39229	20.40706	34.98693	7.728604	17.33379
10	5142.409	6.355526	13.15065	20.01384	35.25162	8.198333	17.03003

Source: Author's Analysis

From the table above, own impulse of CPS accounts for 26.1% fluctuation in CPS,

shocks to GRGDP, CBPSGDP, TPS, INT and GRM2 accounts for 0.4%, 24%, 27%, 1.3%,

and 20.9% fluctuations in CPS GRGDP, CBPSGDP, TPS, INT and GRM2 respectively. In the long run, CPS own accounted for fluctuation in CPS by 6.3%, shock dropped to 20%, similarly shock of 13%, 35%, 8.1% and 17 % respectively.

Table 5: variance decomposition of TPS

Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	372.2791	0.009342	25.95608	17.42712	56.60746	0.000000	0.000000
2	543.2422	6.082872	16.43600	17.63587	36.67933	6.769924	16.39601
3	935.8871	2.671504	18.11359	30.53038	23.74632	2.802809	22.13540
4	1179.528	1.712890	14.31833	25.21751	32.79793	2.605392	23.34796
5	1416.846	4.343067	12.48106	21.81408	36.65538	4.239016	20.46741
6	1684.419	6.296728	12.50527	22.29873	34.34374	5.955281	18.60026
7	2021.611	6.391099	13.27573	22.89784	32.76857	6.493402	18.17336
8	2361.605	5.976439	13.18475	21.90596	34.12021	6.741844	18.07080
9	2720.919	6.318909	12.72363	20.70381	35.29526	7.405680	17.55272
10	3116.246	6.729509	12.59103	20.31609	35.22344	8.071229	17.06871

Source: Author's Analysis

From the table above, in the short run, TPS's own shock accounts for 23.7% variation to TPS. GRGDP, CBPSGDP, CPS, INT and GRM2 contributed 2.6%, 18.1%, 30%, 2.8%, and 22% respectively to the

fluctuations in TPS. In the long run TPS's own shock dropped to 35.2% while that of GRGDP, CBPSGDP, CPS, INT and GRM2 to 6.7%, 12%, 20%, 8% and 17% respectively accounted to the fluctuation in TPS.

Table 6 variance decomposition of INT

Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	4.432815	0.015753	0.583133	12.28190	23.22309	63.89612	0.000000
2	5.128769	0.081376	9.365493	9.406506	22.28008	58.41572	0.450825
3	5.310785	3.296105	9.280824	8.987954	20.78612	55.62052	2.028479
4	5.405991	3.300899	9.433661	8.722465	20.46244	56.09207	1.988467
5	5.480515	5.445424	9.431210	8.513256	19.94409	54.72969	1.936328
6	5.521308	6.543440	9.301294	8.555762	19.68295	53.94235	1.974207
7	5.560998	7.041586	9.255193	8.654711	19.50699	53.17513	2.366386
8	5.595540	7.243609	9.173574	8.611670	19.75434	52.52967	2.687136
9	5.634590	7.659959	9.057068	8.521208	19.99272	51.93575	2.833295
10	5.674797	8.056489	9.000498	8.541764	20.04009	51.41833	2.942822

Source: Author's Analysis

From the table above, in the short run, innovations on INT were not mainly caused by its individual shock of 55%, similarly shocks to GRGDP, CBPSGDP, CPS, TPS, and GRM2 caused 3.2%, 9.2%, 8.9%, 20% and 2% fluctuation in Interest rate. In the long run, own shock of Interest

rate declined to 51%, while shocks to GRGDP, CBPSGDP, CPS, TPS, and GRM2, accounted for an increase in the fluctuation of Interest rate by 8%, 9%, 8%, 20% and 2.9% respectively.

Table 7 variance decomposition of INT

Variance Decomposition of GRM2: Period	S.E.	GRGDP	CBPSGDP	CPS	TPS	INT	GRM2
1	13.57333	0.025845	0.021657	0.092639	16.98290	6.731992	76.14497
2	17.73090	6.686922	7.279672	0.070493	12.81461	12.27809	60.87022
3	18.90104	7.888343	13.08123	1.550545	13.01476	10.87018	53.59495
4	20.41927	10.84996	12.50778	1.917228	14.06097	9.354603	51.30946
5	21.34077	12.00283	11.70759	2.158468	17.45500	8.572423	48.10369
6	21.53983	11.98116	11.89738	2.313067	17.69602	8.846696	47.26568
7	21.69332	12.07024	11.84180	2.798056	17.57879	9.033695	46.67742
8	21.81162	11.97771	12.15913	3.328421	17.39005	8.948680	46.19602
9	21.86743	12.02301	12.19652	3.334359	17.54245	8.904102	45.99956
10	21.90752	11.99090	12.17196	3.334516	17.72604	8.907806	45.86877

Cholesky Ordering: GRGDP CBPSGDP CPS TPS
INT GRM2

Source: Author's Analysis

From the table above, own impulse of GRM2 accounted for 53.5% fluctuation in GRM2, shocks to GRGDP, CBPSGDP, CPS, TPS and INT accounts for 7.8%, 13%, 1.5%, 13%, and 10.8% fluctuations in GRM2 respectively. In the long run, GRM2 own

shock dropped to 45.8%, similarly shocks of GRGDP, CBPSGDP, CPS, TPS and INT accounted for fluctuation in GRM2 by 11%, 12%, 3.3%, 17% and 8.9 % respectively.

CONCLUSION AND RECOMMENDATIONS

This study investigated Commercial Bank's Credit and Interest Rate on Nigeria's Economy from 1981 to 2017. The empirical findings from the Variance decomposition, revealed that Commercial Bank's Credits to Private Sector and Interest rate has no influence on the economy both in the short and long run. The following incisive recommendations are given below.

- The Central Bank of Nigeria (CBN) should review commercial bank interest rates to private sectors

downwards possibly to a single digit, with this in place the private sector will be encouraged and the economy will be in the path of growth.

- Commercial banks should provide interest free loans, demand less of collateral and shorten the time it takes to process loan requests from legitimate customers. This will ensure that no time is lost in the production process as a result of credit difficulties.

REFERENCES

1. Adeniyi, O.M. (2006). Bank Credit and Economic Development in Nigeria: A Case Study of Deposit Money Banks. Jos: University of Jos.
2. Agbaje. (2014): The role of Banks' in capital formation and Economic growth: the case of Nigeria, Ota, Ogun state: Covenant University.
3. Akano, A. & Kazeem H. (2014). Bank contribution to economic growth in Nigeria. The Certified National Accountant Journal volume 22 (6)

4. Egbetunde (2012): Banks' Credit and Rural Development in Nigeria (1982-2009). International Journal of Finance and Accounting 2012.
5. Marshal, I., Igbaniho, D.S. and Onuegbu, O. (2015) Causality modeling of the banking sector credits and economic growth in Nigeria. IIARD International Journal of Banking & Finance Res 1(7):1-12.
6. Modebe, N. J., Ugwuegbe, S. U. & Ugwuoke, R.O. (2014) The Impact of Bank Credit on the Growth of Nigerian Economy: A Co Integration Approach. Research Journal of Finance and Accounting, Vol.5, No.10, pp.8795
7. Ogege, S. and Boloupremo, T. (2014). Deposit Money Banks and Economic Growth in Nigeria. Financial Asset and Investing, (1), 41-50
8. Solomon, O. (2012). Credit risk management as a tool for bank survival. www.independent.academia.edu.