
BANKING SYSTEM CREDIT AND ECONOMIC ACTIVITIES IN NIGERIA

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Abstract

This paper tends to explore how banking system credits have prompted economic activities in the Nigerian economy. We got annual time series data for the period from 1960 to 2012 from the Central Bank of Nigeria (CBN) database; and used the multiple linear regression technique. First, the Johansen co-integration test, in their first differences, indicates one co-integrating equation at the 0.05 level. As a result, we can establish that there exists a long-run relationship between GDP, Production and Commercial activities in Nigeria. Second, the F-statistics from the adjusted Equation estimation test show that both the lagged terms of the variables are statistically different from zero; hence previous production and commercial activities can engender economic growth. Third, the Pairwise Granger causality test exhibit that there exist a bi-directional causality from Production to Commerce and from Commerce to Production; and a uni-directional relationship from GDP to Production. However, there is no causation from Commerce to GDP or from Production to GDP. The results are to a certain extent consistent with previous studies on Bank credits as it relates to Economic growth. Thus, it recommends that the government needs to be more policy-proactive in making the Nigerian productive and commercial sectors more competitive to attain global benchmark.

Keywords: *Banking system credits, economic growth, Commerce, Production, VAR model.*

1. Introduction

Generally, the primary role of banks is the sustainable growth and development of economic activities through providing funds for investors. These funds are known as bank credits which assist in stimulating investments in the economy. Bank credits help simplify activities such as Agriculture, Forestry and Fishery, Manufacturing, Mining and Quarrying, Real Estate and Construction, Domestic Trade, Imports and Exports; and most importantly provide capital for Small and Medium scale Enterprises. This expectation is consequent upon the fact that there is acute shortage of capital, especially in the developing countries of the world. For many years, theoretical discussions about the importance of credit development and the role that financial intermediaries play in economic growth have occupied a key position in the literature of developmental finance. In the view of Shaw (1973), financial or credit development can foster economic growth by raising savings, improving efficiency of loanable funds and promoting capital accumulation.

Modern economy is said to be a credit economy. For bank credit to be efficient and effective as to achieving sound economic growth, the banks need to have a secured and stronger capital base. This is because the availability of bank credit grants corporations the opportunity to expand on production and output which in turn buildup on the profits that banks get through interest payments. Empirical studies have shown that the liquidity which

credit offers is a factor in the production function due to its responsibility in expediting business dealings, trade and specialization. Japan depended greatly on the banking system credit to revamp its war-torn economy in the 1950's (Agbada 2010).

In furtherance, the Federal Government of Nigeria has put in place policies to encourage borrowings to cause sustainable growth in the economy. In the area of Agriculture, the Agricultural Transformation Agenda includes: the introduction of Rural Financing (RUFIN) to strengthen the Micro Finance Banks (MFBs) and Micro Finance Institutions (MFIs) by enhancing the access by the rural populace to services that improve agricultural productivity and Micro-Small Rural Enterprises; also is the Nigeria Incentive-Based Risk-Sharing System for Agricultural Lending (NIRSAL) designed to build long term capabilities, 'de-risk' agricultural financing value and institutionalize agricultural lending. Nigerian farmers are opportune to use 'e-wallet' to receive fertilizers and seeds through the Growth Enhancement Scheme. For Commerce, the Government was involved in the following to boost economic trade and investments: The Nigerian Industrial Revolution and the National Enterprise Development Programme; foreign investment inflows; SMEs, specialized telecommunication providers, local raw materials availability, sustained democratic principles, enhanced security for life and property, and infrastructures.

The prime interest in this paper is to extend previous research to examine if banking credits have actually triggered economic activities in Nigeria specifically in the areas of Production and General Commerce. A multiple linear regression model is adopted with annual time series data from 1960-2012 sourced from a well renowned database i.e. the Central Bank of Nigeria (CBN) statistical bulletin; and is free of any measurement bias. The paper contributes to knowledge by using an up-to-date data in order to make proper generalizations on how Productive and Commercial activities have actually driven the GDP of Nigeria. In addition, employing a more robust test to this study will allow us to make a more accurate estimate on how a condition will be in the future. For example, if we ask ourselves the likely impact on the GDP over the next 1 year of a 2 percentage point increase in Production and a 1% rise in Commercial activities.

The rest part of this paper is organized as follows: a review of related literature is presented in section 2. Sources of data; methodological framework of the existence of long run equilibrium relationship among the variables, equation estimation and causality issues are detailed in section 3 while the results are put on view in section 4. The last section concludes the paper.

2. Banking System Credit and Economic Growth

In developed and developing economies of the world, banking system credit gives rise to innovation and economic growth by identifying and funding productive investments. The banking system plays an important role of promoting economic growth in the country through the process of financial intermediation. Economists have acknowledged that the financial system, with banks as its major component, provides linkage for the different sectors of the economy and encourage high level of specialization, expertise, economies of scale and a conducive environment for the implementation of various economic policies of government intended to achieve non-inflationary growth, exchange rate stability, balance of payment equilibrium, high levels of employment and overall poverty reduction. Banks provides an avenue of saving surplus funds and then lend out to the needy (firms and individuals) in the form of loans and overdrafts.

The role of banks in the economic development has dominated discussions in the literature, and there seem to be a general agreement that the intermediary role of banks help to boost economic development. According to Nzotta (2004), the financial sector serves as a

catalyst to economic development through various institutional structures. The system vigorously seek out and attract the reservoir of savings and idle funds and allocate some to entrepreneurs, businesses, households and government for investment projects and other purposes with a view of making positive returns. This forms the basis for economic development. Akintola (2004) identified banks' traditional roles to include financing of agriculture, manufacturing and syndicating of credit to productive sectors of the economy. Adekanye (1986) ascertain that in making credit accessible, banks are supplying a great social service because through their actions, production is improved, capital investments are increased and a higher standard of living is accomplished, which is an indicator of economic development.

Finance literature provides support for the argument that countries with better and efficient financial systems grow faster while inefficient systems bear the risk of bank failure. Schumpeter (1911) put the role of financial intermediaries at the centre of economic development. He argued that the banking system acting as financial intermediaries play a pivoted role in economic development through the instrumentality of allocation of savings thereby improving productivity, technical change and the rate of economic growth. He believed that efficient allocation of savings through identification and funding of entrepreneurs with the best chances of successfully implementing innovation products and production process are tools to achieving this objective. Akpansung and Babalola (2011) investigate the relationship between banking sector credit and economic growth in Nigeria over the period 1970-2008. The causal link between the pairs of variables of interest were established using Granger causality test, while a two-stage least squares estimation technique was used for the regression. The results of the analysis indicate that private sector credit impacts positively on economic growth over the period of coverage. In another study by Muhsin and Eric (2000) find that causality runs from economic growth to financial development when bank deposit, private sector credit or domestic credit ratios are alternatively used as proxy for financial development. They therefore concluded that growth seems to lead financial sector development.

The endogenous growth literature also supports the argument that financial development has a positive impact on economic growth. This growth model asserts that well functioning financial systems are able to mobilize household savings, allocate resources efficiently, diversify risks, enhance the flow of liquidity and provide an alternative to raising funds through individual savings and retained earnings. In a study by Greenwood and Jovanovic (1990), cited in Ajie (2006), the informational role of financial intermediation in an endogenous growth model is crucially related to productivity and growth of capital. Several scholars (Mckinnon 1973, Shaw 1973; Fry 1988; King and Levine 1993) have supported the above postulation with respect to the significance of banks to the growth of the economy. They used macro or sector level data such as the size of financial intermediation or of external finance relative to GDP and find that financial development has a significant positive impact on economic growth. Another study by Adelokun (2010) examine the relationship between financial sector development and economic growth in the Nigerian emerging market for the period 1980-2008 using the Error Correction Model and Granger Causality test; and find that financial development promotes economic growth, with evidence of causality running from economic growth to the development of financial intermediaries. Hence, the progression of the financial sector development, including diversification of financial instruments should be followed to expedite economic development in Nigeria.

A one-time study by Agbada (2010) argues that all economic units need liquid fund to successfully operate; hence the availability of bank credit is an important source of real money balance. That is, bank credit is a major source of liquidity for financing production and running the economy. In addition, both theoretical and empirical studies have shown that

real money balance could be included as a factor in the aggregate production function. For instance, Sinai and stoke (1972) successfully employed the Cobb Douglas (CD) production functions to examine the potential significance of real money balance in the production function and explain its contribution to GDP. Thus, output (GDP) is a function of real balances (M) and other factors of production. Consequently, the level of output at any given time depends on the level of real money balance (i.e. availability of credit to boost liquidity) and other factors of production. Taylor (1983) find that the inclusion of a credit factor in Cobb – Douglas production functions directly reflects the contribution of financial institution to aggregate production of any economy and this is done through the granting of loans and advances to the productive sectors of the economy.

Most researches done on the link between bank credit and economic growth have been quite mixed. Krishnankutty (2011) analyze the relationship between bank credit and economic growth using the panel data for North East India from 1999-2007 and find that bank credit to different segments of North East India have less impact on economic growth; this he attributed to default in payment and lack of monitoring by the authority. Boyreau-Debray (2005) make evidence for a negative correlation between growth and banking debt due to the fact that Chinese banks were mobilizing and pouring funds into the declining parts of the Chinese state enterprise, and hence, the system has not been growth promoting. A re-examination by Favara (2003) of the analysis of Levine, Loayza and Beck (2000) use the panel estimation technique and reported that the relationship between financial development and economic growth is at best weak. According to him, there is no indication that finance spurs economic growth, rather for some specifications, the relationship is puzzlingly negative. Therefore, the effect of finance on economic growth is ambiguous and not robust to alternative dynamic specification. This he attributed to the fact that credits does not have a first order effect on economic growth. Most recently, Ayadi *et al* (2013) assess whether an improvement in institutions would lead to more growth and if financial development impacts growth when institutions are of a better quality using panel data analysis for the years 1970-2009, including countries from both developed and developing regions and institutional variables. They also used new quantity e.g. the size and liquidity of the financial sector; and quality e.g. Bank efficiency measures of financial development to assess potential links with economic growth. They observed that financial sector development is positively correlated with growth. Thus, the step-up of institutions is a key factor to growth. Also, Nwanyanwu *et al* (2010), specifically sought to find out total domestic credit of deposit money banks injected into the Nigerian economy and their impact on the country`s economic growth. Their findings revealed that the marginal productivity coefficient of bank credit to the domestic economy is positive but insignificant; implying that banks credit did not affect the productive sectors sufficiently for the latter to impact significantly on the Nigerian economy. Consequently, could dwindling bank credits be responsible for a poor GDP? Or the banks not really carrying out the objective of lending?

3. Data and Methods

Stochastic trends exist in time series data which may either be permanent or transitory i.e. mean reverting. In this study, we put to use an ADF and Phillips-Perron Unit Root test of Stationarity to determine this trend and how it can be removed using the first differencing regression method. This helps to render the data stationary. We also conducted the Johansen test of cointegration on the first differenced data to ascertain if a genuine long-run or equilibrium relationship exists between the variables; then an equation estimation methodology to evaluate the relationship in the short-run and between GDP (proxy for Economic Growth) and variables such as Production and General Commerce, in the Nigerian

economy. In furtherance, the Pairwise Granger Causality Test was performed to measure precedence and information content; and show if changes in a variable y_1 cause changes in y_2 , then lags of y_1 should be significant in the equation for y_2 . This goes to prove that y_1 “Granger causes” y_2 or there exist a “unidirectional causality” from y_1 to y_2 . Conversely, if changes in a variable y_2 cause changes in y_1 , lags of y_2 should be significant in the equation for y_1 . Thus, there exists a “bi-directional causality”. If y_1 Granger cause y_2 , but not vice versa, then variable y_1 is strongly exogenous. Finally, if neither set of lags are statistically significant in the equation for the other variable, then y_1 and y_2 are independent.

Production comprises of Agriculture, forestry and Fishery; Manufacturing; Mining and Quarrying while General Commerce encompasses Real Estate and Construction; Bills Discounted; Domestic Trade; Exports and Imports; and GDP is a proxy for Economic Growth. Annual time series data is used for the period from 1960 to 2012 giving a total of 53 observations; sourced from the Central Bank of Nigeria (CBN) statistical bulletin; and is set free of any prejudice. The sample will be estimated using the E-views7 statistical software.

Consequently, it is anticipated that GDP is linked to Production and commerce, hence the time series data, to be able to attain the correlation between the current value of one variable and the past values of others. Thus;

$$D(\text{GDP}_t) = \beta_0 + \beta_1 D(\text{Production}_t) + \beta_2 D(\text{Commerce}_t) + \varepsilon_t \dots \dots \dots \text{eqn. 1}$$

Where;

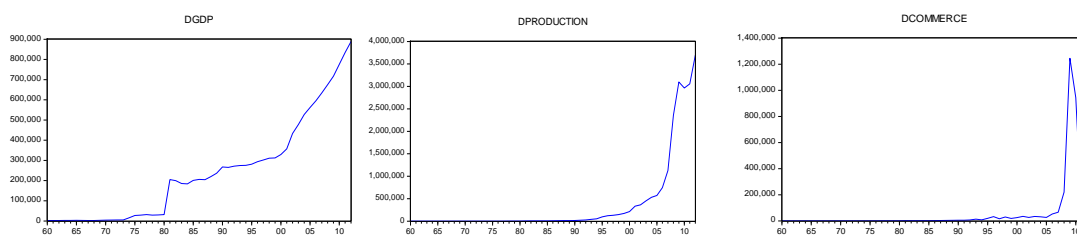
- D(GDP_t) = the first difference of Gross Domestic Product at time t
- D(Production) = the first difference of Production at time t
- D(Commerce) = the first difference of General Commerce at time t
- β_0 = the intercept
- β_1 and β_2 are parameter estimates
- ε_t = an uncorrelated stochastic error term

The following are a prior expectations of the coefficient of the models = $\beta_1, \beta_2 > 0$. Hence, a positive relationship is expected between GDP, Production and General Commerce.

4. Results

A graphical investigation of time plots of the variables in figure 1 gives us an overview of the data. GDP has shown an upward but wavering trend during the period. However, there was a sharp rise in the 80’s that led to a stable and increasing growth rate. The production line plot also shows an upward trend with less volatility over the years while the General commerce exhibited an increasing trend but with periods of sharp volatilities coupled with a downward trend from 2008-2011 due to the global economic meltdown and other macroeconomic instability.

Figure 1: GDP, PRODUCTION AND GENERAL COMMERCE 1960-2012



Source: Author’s computation

Table 1 is a descriptive analysis of the various variables. The mean of GDP, Production and Commerce are 240481.4, 56476.02, and 385362.1 respectively. The Jarque–Bera test is a goodness-of-fit test and shows that the calculated test statistic and its p-values of 8.219141 (0.016415), 1303.540 (0.000000) and 128.8341(0.000000) exceed the critical value of 5.99 from the χ^2 distribution at the 0.05 percent level. Thus D(GDP), D(Production) and D(General Commerce) do not follow a normal distribution.

Table 1: DESCRIPTIVE ANALYSIS OF GDP, PRODUCTION AND GENERAL COMMERCE

	DGDP	DCOMMERCE	DPRODUCTION
Mean	240481.4	56476.02	385362.1
Median	205222.0	2754.800	9353.900
Maximum	888893.1	1245079.	3695962.
Minimum	2489.000	41.10000	35.60000
Std. Dev.	247967.3	212169.9	899680.9
Skewness	0.964082	4.827242	2.627933
Kurtosis	3.063700	25.29514	8.542187
Jarque-Bera	8.219141	1303.540	128.8341
Probability	0.016415	0.000000	0.000000
Sum	12745516	2993229.	20424191
Sum Sq. Dev.	3.20E+12	2.34E+12	4.21E+13
Observations	53	53	53

Source: Author's computation

Using the E-Views7 statistical software, we carried out both ADF and PP test for examining the order of integration of the variables. In table 2, the ADF and PP test statistic of -5.384707 and -5.392578 is more negative than the critical values at the 5% significant level. Thus, GDP at first difference is stationary. That is, GDP has no unit root and so we reject the null hypothesis. Second, the ADF and PP test statistic of -4.157960 and -3.489422 is more negative than the critical values at the 5% significant level. That is, Production has no unit root and hence the null hypothesis of the unit root in the first differences is credibly rejected. Third, the ADF and PP test statistic of -9.897927 and -15.92736 at first difference is more negative than the critical values at the 5% significant level. That is, General Commerce has no unit root and so the null hypothesis of a unit root in the test regression residuals is strongly rejected.

The results however show that all the three variables are stationary at their first differences confirming the presence of transitory stochastic trends.

Table 2: UNIT ROOT TEST OF STATIONARITY

Variables	ADF			PP			Order of Integration
	Critical values @	t-statistics	Prob.	Critical values @	t-statistics	Prob.	
D(GDP)	5% = -2.919952	-5.384707*	0.0000	5% = -2.919952	-5.392578*	0.0000	1(1)

D(PROD.)	5% = - 2.921175	-4.157960*	0.0019	5% = -2.919952	-3.489422*	0.0012	1(1)
D(COMM.)	5% = - 2.921175	-9.897927*	0.0000	5% = -2.919952	-15.92736*	0.0000	1(1)

Source: Author's computation

The Johansen co-integration table indicates one co-integrating equations at the 0.05 level. As a result, we can establish that there exists a long- run relationship between GDP, Production and Commercial activities in Nigeria. This is because the trace statistic of 217.2466 is evidently more than the 5 percent critical level of 29.79707. However, an Equation Estimation test will help us reveal the relationship in the short-run and between the independent and dependent variables.

Table 3: JOHANSEN TEST OF COINTEGRATION

VARIABLES	EIGEN VALUE	TRACE STATISTIC	0.05 CRITICAL VALUE	P-VALUES
D(GDP)	0.982713	217.2466	29.79707	0.0001
D(COMMERCE)	0.182139	10.29808	15.49471	0.2585
D(PRODUCTION)	0.000860	0.043903	3.841466	0.8340

Source: Author's computation

Using an adjusted Equation estimation technique, we examine the short-run individual relationship between the variables and this offers us a comprehensive statistics on how well the model fits. Individually, General Commerce and Production is positive but insignificant. In addition, Adjusted R^2 proves that 98% of variation in GDP is caused by General Commerce and Production. F statistic of 796.9419, under the null hypothesis that the various lagged coefficients are simultaneously equal to zero is very high and relevant. Thus, variables y_1 and y_2 are jointly significant in affecting GDP. The Durbin-Watson statistic of 1.982149 is close to the traditional benchmark of 2. On the whole, the summary statistics are helpful in demonstrating that this model is appropriate for forecast and policy purposes.

Table 3: EQUATION ESTIMATES OF GDP, PRODUCTION AND GENERAL COMMERCE.

	DGDP(-1)	DCOM(-1)	DPRO(-1)
Coefficient	1.035618	0.003279	0.006984
Probability	0.0000	0.9353	0.8566
T-stat.	34.39829	0.081570	0.181663
S.E	0.030107	0.040197	0.038444
SUMMARY STATISTICS			
R2	0.988588		
Adj. R2	0.987347		
F stat	796.9419		
Prob.	0.000000		
Durbin-Watson stat.	1.982149		

Source: Author's computation

The Granger Causality Test

The results in Table 4 present proof of a Pairwise Granger causality tests. The first and second lines of each case refer to bi-variable Granger causality test. The results show that there is a bi-directional causality from Production to Commerce and from Commerce to Production; and uni-directional causality from GDP to Production. This goes to say that production which is the real sector of an economy spurs up commerce and when more trading activities takes place, then more good and services will be produced to meet up consumer demands. The uni-directional causality from GDP to Production shows that the growth of the Nigerian economy is precondition to productive ventures. Furthermore, we can say that causality from GDP to Commerce is vastly insufficient displaying a p-value of 0.0553.

Table 4: GRANGER CAUSALITY TEST

Null Hypothesis	F-Statistic	Prob.
DCOMMERCE does not Granger Cause DGDP	0.51561	0.4761
DGDP does not Granger Cause DCOMMERCE	3.85601	0.0553
DPRODUCTION does not Granger Cause DGDP	1.04470	0.3118
DGDP does not Granger Cause DPRODUCTION	6.10133	0.0170
DPRODUCTION does not Granger Cause DCOMMERCE	10.1657	0.0025
DCOMMERCE does not Granger Cause DPRODUCTION	39.7087	8.E-08

Source: Author's computation

5. Summary and Conclusion

The Production and General Commerce sectors in the Nigerian economy have experienced an unfavourable growth due to inadequate allocation of credit; lack of infrastructural development and unfavourable government policies. Previous studies have investigated the pros and cons of the impact of production, personal, and commerce on the GDP but not as much of the relationship that exist between the variables.

In our paper, we examine the empirical relationship that exists between the GDP, Production and General Commerce. The Johansen co-integration test indicates one co-integrating equations at the 0.05 level. As a result, we can establish that there exists a long-run relationship between GDP, Production and Commercial activities in Nigeria. Second, the F-statistics from the adjusted Equation estimation test show that both the lagged terms of the variables are statistically different from zero; hence previous production and commercial activities can engender economic growth. Third, the Pairwise Granger causality test exhibit that there exist a bi-directional causality from Production to Commerce and from Commerce to Production; and a uni-directional relationship from GDP to Production. However, there is no causation from Commerce to GDP or from Production to GDP.

A current publication on the 'Real Sector Watch' by the Lagos Chamber of Commerce and Industry (LCCI) reveal that the manufacturing sector records a negative confidence index of 10% in the first quarter of 2014. This represents an 8% negative increase from -2% Business Confidence Index (BCI) of 2013. Also, Agriculture had a -1% confidence level in 2013 proving that bank lending to the Agricultural sector is far below the total bank lending. Accordingly, some of the sources of uncertainties that have affected the confidence levels are: Sticky access to credit, Influx of fake and substandard products, Preference for foreign manufactured goods, Regulatory infractions, Worsening public power supply, High

cost of doing business and inhibitive activities of government regulatory / monitoring agencies. In another study by BGL Research and Intelligence on Macroeconomic & Capital market review for 2012-2013, they find that Agriculture declined to 3.89% in the third quarter of 2012 from average quarterly growth of 5.68% in 2010 and 2011. The declining performance of the agricultural sector may not be unconnected with a combination of stifled incentives for investment in the sector due to lack of appropriate financing, skills development and misaligned policy. Also, manufacturing contribution to GDP remained low at 3.5%; highlighting the impact of high operating cost and structural constraints in the economy.

It is worth mentioning that the real sector of any economy is that which has the production of goods and services through joint use of raw materials and other production factors such as land, labour and capital; or by means of production procedure. Manufacturing remains the pivot on which the real sector gyrates because it, alongside agriculture is where the action lies for developing economies. Agriculture holds the key to the economic prosperity and food security in Nigeria.

We recommend that the Government should give more precedence to credit policies that will boost up agricultural and commercial activities thus creating new value-generating opportunities. These will build-up on infrastructural development as well as employment generation for more Nigerian youths to be involved in farming and the sale and processing of farm produce. In conclusion, the government needs to be more policy-proactive in making the Nigerian productive and commercial sectors more competitive to attain global benchmark.

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Appendix A

YEAR	GDP	PRODUCTION	COMMERCE
1960	2,489.00	35.6	44.5
1961	2,501.20	43.8	41.1
1962	2,597.60	59.3	61.7
1963	2,825.60	71.3	76.2
1964	2,947.60	99.4	97
1965	3,146.80	111.5	99.8
1966	3,044.80	70.9	183.3
1967	2,527.30	67.7	164.8
1968	2,543.80	61.7	117.8
1969	3,225.50	67	103.6
1970	4219	116	167.5
1971	4715.5	178	221.2
1972	4892.8	222.6	222.2
1973	5310	286.7	267.1
1974	15919.7	395.7	284.9
1975	27172	677.2	403.7
1976	29146.5	1115.5	531
1977	31520.3	1676.6	712
1978	29212.4	2289.3	868.7
1979	29948	2788.4	863.7
1980	31546.8	3795.3	1209.3
1981	205222	5088.9	1475
1982	199685	6003.5	1826.5
1983	185598	6372.4	1727.2
1984	183563	6674.9	1822.7
1985	201036	7272.2	2051.3
1986	205971	9353.9	2754.8
1987	204807	10527	3037.4
1988	219876	12379.9	3616.2
1989	236730	13640.5	4222.3
1990	267550	15678.3	4838.7
1991	265379	20039	5101.6
1992	271366	27201.9	7392.5
1993	274833	40692.9	13494
1994	275451	52580.9	7613.1
1995	281407	95441	19442.9
1996	293745	120551.7	32998.2
1997	302023	131373.4	16368.7
1998	310890	146761.6	29770.2
1999	312184	171489.2	18772.1
2000	329179	214612.3	25307.4
2001	356994	333212.2	34532.5
2002	433204	363494.4	26709.2
2003	477533	452388.8	34467.4
2004	527576	530907.9	31347
2005	561931	573131.9	26427.3
2006	595822	746663.1	52686.3
2007	634251	1127868	66551.1
2008	674889	2352897	220073.5
2009	716949.7	3098030	1245079
2010	775525.7	2964450	943189.4
2011	834,000.83	3057221	36179.55
2012	888,893.06	3695962	65612.83

Source: Central Bank of Nigeria (CBN) Statistical Bulletin
(Various Issues)