

## Monetary Policy- Growth Nexus in Nigeria: An Empirical Analysis

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### Abstract

*This study is designed to empirically analyse the impact of monetary policy on economic growth in Nigeria (1981-2014). Data for the study were obtained from secondary sources and analysed using multiple regression method, ADF unit root test, Johansen Co-integration test and Error Correction Mechanism (ECM). Results revealed that all the variables were not stationary at their level form rather became stationary after first differencing hence they are integrated of order one  $I(1)$ . Results also showed that a long-run relationship exists among the variables and indicated the presence of one co-integrating vector in the model. In exploring the short-run dynamics of their relationships to determine the speed of adjustments, using parsimonious error correction mechanism (ECM), the result showed that the impact of monetary policy on economic growth was significant and concludes that monetary policy could be used to achieve sustainable economic growth; if properly applied. The study therefore recommends that government should encourage local production, reduce dependence on imports, diversify the economic base and compliment monetary policy with fiscal policy measures to reduce inflation and increase growth potentials.*

**Keywords:** *Monetary Policy, Economic Growth, Monetary Transmission, Broad Money.*

### Introduction

Monetary policy is one of the key drivers of economic growth through its impact on economic variables. Economic growth is essential in an economy as it reduces poverty as well as improves standard of living. The growing importance of monetary policy has made its effectiveness in influencing economic growth a priority to most governments (Khabo 2002, Cittadino et al, 2007).

Despite the lack of consensus among economists on how monetary policy actually works and on the magnitude of its effects on the economy, there is a remarkable strong agreement that it has some measureable effects on the economy (Nkoro, 2005). Monetary policy is a combination of measures designed to regulate the value, supply and cost of money in an economy, in consonance with the expected level of economy activity (Folawewo and Osinubi, 2006). For most economies, the objectives of monetary policy include price stability, maintenance of balance of payment equilibrium, promotion of employment and economic growth via output growth and sustainable development.

The pursuit of price stability invariably implies the indirect pursuit of other objectives such as economic growth, which only take place under conditions of price stability and allocative efficiency of the financial markets. Monetary policy aims at ensuring that money supply is at a level that is consistent with the growth target of real income, such that non-inflationary growth is assured. Monetary policy influences economic growth through aggregate spending, changes in money supply and interest rates which in turn influence consumer spending and investment decisions. Consequently, aggregate demand changes in response to monetary policy adjustments.

Monetary policy is known to be a vital instrument deployed for the maintenance of **domestic** price and exchange rate viability as a critical condition for the achievement of a sustainable economic growth and external viability (Amasomma et al, 2011). On a yearly basis, the monetary authority formulates guidelines geared towards the enhancement and development of policy variable designed to ensure optimal performance of the banking industry. However, in the implementation of monetary policy, certain instruments are used by the Central Bank of Nigeria (CBN). These include open market operation (OMO), minimum reserve requirements, bank rate, liquidity ratio etc. There have been various regimes of monetary policy in Nigeria. Sometimes monetary policy is tight and at other times it is loose, mostly used to stabilize prices.

Nigeria's monetary policy experiences could be divided into two broad policy regimes. The direct method of control (1960-1993) and the indirect control (1993-date). The direct control method was characterized by quantitative

ceilings on credit, administered interest rate and exchange rates aggregate sectoral allocation of credit and stabilization securities (Mordi, 2006, Obadan, 2006). Under this regime, the economy was divided into preferred and less preferred sectors and banks were required to allocate a given proportion of their credits to different sectors. The rationale was to moderate aggregate demand by controlling the volume and cost of credit that goes into the economy (Ojo, 2013, Oyakhilomen and Rekwot, 2014).

Indirect method of control employs market-based instruments and requires some level of market infrastructural development to be effective. It relies on the power of monetary authorities to influence the availability and rate of return on financial assets. Two broad regimes could be indentified during the indirect method of monetary management namely; indirect control during consolidation era (1993-2005) and indirect control during post-consolidation era (2006-date).

Economic growth is one of the cardinal objectives of monetary policy and every nation strives to attain a sustainable level of growth which will translate into economic development resulting to poverty and unemployment reduction and improvement in the standard of living and social welfare of citizens.

It is worthy of note that Nigeria's GDP which is the proxy for economic growth has been on the increase overtime and it has competed favorably among other nations in the world and Africa in particular. However, an issue of concern is the level of poverty ravaging Nigerians. In addition to the above problem, the country's per capita income level, a measure of standard of living is among the lowest among the developing nations (World Economic Outlook, 2014). This raises research questions thus: Has monetary policy any influence or impact on economic growth in Nigeria? If yes, to what extent? If no, why? The main objective of this paper is therefore to determine monetary policy impacts on economic growth and the extent to which growth index responds to changes in monetary policy in Nigeria. It is therefore hypothesized in the null form that monetary policy does not have any significant impact on economic growth in Nigeria.

## **2.0 Review of Empirical Literature**

Empirical literature abounds on the impact of monetary policy on economic growth in the developing and developed countries. This section therefore critically reviews previous studies in this area.

Chuku (2009), used a structural vector auto regressive model with quarterly data from 1986-2008 to measure the effectiveness of monetary policy on economic growth in Nigeria. The study discovered that monetary policy has neutral and fleeting effects on growth. Cheng (2007) examined the impact of monetary policy on economic growth of Kenya using quarterly data from 1997-2005 findings indicated that variations in the monetary policy indicators especially short-term interest rates impacted significantly on growth.

Asoro (2011) examined the impact of monetary policy on growth in Nigeria using quarterly data. The result indicated that the effect of monetary aggregates such as money supply and short-term interest rates are greater, more predictable and faster on economic growth. The study therefore recommends monetary policy for economic stabilization.

The conclusion of the study of Afaro (2013), contradicted position of Asoro (2011), when he redefined the original measures adopted for some of the policy variables, the result showed that monetary policy had insignificant influence on economic growth. Also when Alison (2013) extended the original data used in Asoro (2011) study, the empirical research found that monetary policy had less influence on growth. Though, Sampson (2013) was of the opinion that Alison's (2013) data suffered the problem of hetroscedasticity and suggested that the regression should be estimated in percentage first difference form.

In order to resolve the controversy, John and Sampet (2014) carried out empirical study on the relative effectiveness of monetary policy on growth of some developing countries in sub-saharan Africa and found that monetary policy exert greater impact on economic growth of these countries. However, the result of the study could not be generalized for the developing countries since they have significant different economic and political structures.

Anasoro (2012) used a cross-sectional data from three developing African countries namely Nigeria, Kenya and Ghana and found that monetary policy exerted significant impact on Gross Domestic Products. Ajayi (1974) investigated the potency of monetary and fiscal policies on economic growth in Nigeria (1960-1970) using ordinary

Least square (OLS) method, and his result which was in line with that of Anderson and Jordan (1968) revealed that monetary policy actions are much larger and more predictable and influential on economic growth than fiscal policy actions. Asogu (1998) adopted St. Louis equation and provided estimates, based on the first differences and percentage changes of the data. The results also included the beta and elasticity co-efficient to facilitate direct comparisons. The result of the estimate revealed that the co-efficient of money supply a proxy for monetary policy were statistically significant. This confirmed the hypothesis that monetary policy actions impact significantly on economic growth.

Familoni (1998) argued that before monetary policy could produce the desired impact on economic growth, highly integrated and monetized economy and regular information, network systems are indispensable. Antwi, Mills and Zhao (2013) study the impact of monetary policy on growth in Ghana for the period of 1990-2010 using co-integration and error correction models with annual data. Findings revealed that long-run economic growth is largely explained by monetary policy. The estimated co-efficient of the ECM indicates a mild speed of adjustment to equilibrium.

Rafar and Solomon (2010), empirically analysed the impact of monetary policy variables such as broad money supply ( $M_2$ ), Treasury bill rate (TBR), interest rate (IR), and minimum rediscount rate (MRR) on economic growth in Ghana using data for the period (1980-2008) and employed Johansen co-integration test for long-run relationship and ECM for short-run dynamics, the findings indicate that monetary policy exerts significant impact on growth index of the economy both in short and long-run.

Turkur and Gernick (2012) examined the impact of monetary policy variables on economic growth in Pakistan, through annual time series data which spanned from 1981-2010. Using the multiple regression technique, the findings revealed that monetary policy impacts on growth significantly. The money supply had positive significant influence on growth, while interest rate, monetary policy rate and cash reserves had negative significant impact on growth. The conclusion was that economic growth in Pakistan was driven by the changes in the monetary policy variables.

Zafar and Zakid (2013) examine the effects of some key monetary policy variables on economic growth in Kenya. Employing multiple regression framework and time series data over the period 1959-60 to 1996-97, the quantitative evidence shows that monetary policy is an important pre-condition for accelerating growth. The results also suggest that monetary policy rate is negatively related to economic growth suggesting that monetary policy action is the best alternative to accelerate growth and reinforce the importance of sensible long-run growth-oriented policies to obtain sustainable growth.

Kolawole (2013), asserted that monetary policy action is fundamental basis of sustainable economic growth in Nigeria. A macroeconomic stability, to a large extent guarantees economic well-being of the people. He empirically examined the growth-effects of macro-economic stability in Nigeria. Using time series data for the period 1980-2011 and adopting various econometric techniques such as Granger causality test, Error Correction Mechanism (ECM), the results reveal that monetary policy significantly impacts on Nigeria's economic growth. The study concluded that for sustainable growth to be achieved in Nigeria, monetary policy must be well formulated and implemented as required.

### **3.0 Research Methodology and Sources of Data**

The appropriateness of the models specified, the robustness of the analytical tools employed and the design of the research, all jointly determine the acceptability and reliability of research findings. In view of this fact, this research employed the ex-post-facto design since it relies solely on the use of secondary data. The Secondary data were collected from Central Bank of Nigeria (CBN) statistical bulletin (2014), reviews and Annual Reports of CBN as well as National Bureau of Statistics etc. Data on variables such as Gross Domestic Products (GDP), and monetary policy variable such as money supply, monetary policy rates, Treasury bill rates and cash reserve requirements, were collected and analysed.

#### **3.1 Specification of The Model**

A study of this nature concerning the determination of the impact of monetary policy on economic growth requires the assemblage of variables such as money supply, monetary policy and Treasury bill rates, cash reserve ratio etc. This is in line with literature that monetary policy is concerned with regulation of value, cost and availability of credit

in the economy. Thus the functional relationship between the dependent and independent variables is stated as follows:

$$\text{GDP} = \text{MOP, MPPR, TBBR, RCR} \quad (1)$$

Transforming to multiple relationship, we have;

$$\text{GDP} = b_0 + b_1\text{MOP} + b_2\text{MPPR} + b_3\text{TBBR} + b_4\text{RCR} + U_t \quad (2)$$

Where

|               |   |  |
|---------------|---|--|
| GDP           | = | Gross Domestic Product (a proxy for economic growth) |
| MOP           | = | Money Supply   |
| MPPR          | = | Monetary Policy Rate                                 |
| TBBR          | = | Treasury bill Rate                                   |
| RCR           | = | Cash Reserve Ratio                                   |
| $U_t$         | = | Error Term   |
| $b_1$ - $b_4$ | = | coefficients   |

$b_1 > 0, b_2 < 0, b_3 < 0, b_4 < 0.$

### 3.2 Method of Data Analysis

This study adopted the following methodology namely; unit root tests, co-integration test, and Error correction mechanism (ECM).

#### 3.2.1 Unit Root Test

The Augmented Dickey Fuller (ADF) test was used to ascertain the time series properties of the variables and to establish the order of stationarity. This was to avoid the problem of spurious regression estimates.

A series that exhibits a stochastic trend will not be stationary and cannot be forecast far in the future. Stationary series will constantly return to a given value and no matter the starting point, in the long-run, it is expected to attain that value (Hall, 2001)

#### 3.2.2 Co-Integration Test

This study adopted the Johansen (1991) co-integration method. A non-stationary series could be made stationary by differencing once or twice. This is referred to as integrated series. It could be integrated by order one denoted by 1(1) or order 2, denoted as 1(2). That variables are co-integrated implies that they share a long-run relationship and will move closely together over time. This means that there is some degree of convergence in the long-run.

#### 3.2.3 Error Correction Mechanism (Ecm)

The Engel and Granger Error correction model (ECM) technique was adopted for this research. We therefore, re-specify the model to include the ECM term as follows:

$$\text{GDP} = d_0 + d_1\text{MOP} + d_2\text{MPPR} + d_3\text{TBBR} + d_4\text{RCR} + \text{ECM}_{t-1} + U_t \quad (3)$$

The reason for this is that it has been noted that the body of statistical estimation theory is based on asymptotic convergence theorems which assume stationarity of series. However, econometric tools are increasingly brought to bear on non-stationary data which are not even asymptotically consistent with the idea of convergence.

#### 4.0 Data Analysis and Discussion of Findings

**Table A: Level series OLS Multiple Regression Results**

| Dependent variable:GDP      |             |                     |          |          |  |
|-----------------------------|-------------|---------------------|----------|----------|--|
| Method: Least Square        |             |                     |          |          |  |
| Date 02/05/2016: Time 12.40 |             |                     |          |          |  |
| Sample: 1981-2014           |             |                     |          |          |  |
| Included observation: 34    |             |                     |          |          |  |
| Variables                   | Coefficient | Std. error          | t-stat.  | prob     |  |
| C                           | 0.090293    | 0.008906            | 10.13420 | 0.0000   |  |
| MOP                         | 0.034484    | 0.009691            | 3.55610  | 0.0021   |  |
| MPPR                        | -0.125926   | 0.025196            | -4.99740 | 0.0002   |  |
| TBBR                        | -0.001042   | 0.000297            | 3.54260  | 0.0022   |  |
| RCR                         | -0.106940   | 0.041540            | -2.54440 | 0.0185   |  |
| R-Squared                   | 0.802404    | Mean dep. Var.      |          | 0.56724  |  |
| Adj-R-Squared               | 0.723401    | S.D. dep. Variable  |          | 0.045402 |  |
| S.E. of Reg.                | 0.024407    | AKaike info. crit.  |          | -4.51044 |  |
| Sum sq. resid.              | 0.010040    | Schuartz crit.      |          | -4.07440 |  |
| Log. Likelihood             | 74.4120     | Hannan-quinn crit.  |          | -4.21104 |  |
| F- statistic                | 10.17504    | Durbin Watson Stat. |          | 1.1745   |  |
| Prob (F-stat)               | 0.000014    |                     |          |          |  |

Source: Author's computation

In table A, the estimated model indicates a co-efficient of determination of 80.2 per cent and adjusted R-squared of 72.3 percent. This implies that the monetary policy variables explain about 80.2 per cent variations in growth index (GDP). Therefore monetary policy can be used to predict growth in Nigeria. The model is significant given the probability of F(stat) of 0.000014. Money supply (MOP) has positive and significant relationship with growth index while, MPPR, TBBR and RCR had negative and significant relationship with growth index in line with appriori expectation. The Durbin-Watson statistic of 1.1745 indicates presence of positive auto-correlation. Given the above results, the level series OLS regression results should be accepted with caution because it signifies the existence of some time dependence in the level series data which could lead to spuriousity or estimation errors. Hence the stationarity property of the level series data is therefore examined.

#### 4.1 UNIT ROOT TEST

The Augmented Dickey Fuller (ADF) unit root test was adopted to test for stationarity property of the level series data based on the hypothesis that the variables have a unit root.

**Table B: ADF Unit Root Test Results**

| Variable | ADF Statistics | 5% Critical Level | 1% Critical Level | Order of Integration |
|----------|----------------|-------------------|-------------------|----------------------|
| GDP      | -6.4204        | -3.4206           | -4.7042           | 1(1)                 |
| MOP      | -7.5264        | -3.4262           | -4.4221           | 1(1)                 |
| MPPR     | -6.7042        | -3.0042           | -4.3246           | 1(1)                 |
| TBBR     | -7.6640        | -3.4764           | -4.2247           | 1(1)                 |
| RCR      | 5.5660         | -3.2425           | -4.4426           | 1(1)                 |

Source: Author's computation

The Augmented Dickey Fuller (ADF) unit root test indicates that the hypothesis of a unit root is rejected since all the variables were stationary at first differencing and their ADF statistics were more negative than their critical values at 1% and 5% levels. Thus all the variables are integrated of order one i.e  $I(1)$  and this indicates long-run relationships among the variables

## 4.2 CO-INTEGRATION TEST

**Table C: Johansen Co-integration Test Results**

| Date 02/05/2016: Time 1:45<br>Sample (adjusted): 1984-2014<br>Included observation: 31 after adjustments<br>Trend assumption: Linear deterministic trend<br>Series: GDP, MOP, MPPR, TBBR, RCR<br>Lag interval (in first difference): 2 to 2<br>Unrestricted co-integration Rank Test (Trace) |       |             |                     |                     |         |
|--|-------|-------------|---------------------|---------------------|---------|
| Hypothesized CE(s)   | no of | Elgen value | Trace Statistic     | 0.05 critical value | Prob.** |
| None*  |       | 0.73104     | 87.9630             | 67.7129             | 0.0005  |
| At most 1  |       | 0.54240     | 48.2404             | 46.7640             | 0.0346  |
| At most 2  |       | 0.36740     | 25.4200             | 27.1406             | 0.1802  |
| At most 3  |       | 0.24110     | 9.62240             | 16.4029             | 0.2406  |
| At most 4  |       | 0.04670     | 1.142204            | 2.54002             | 0.2764  |
| Trace test indicates 1 co-integrating equation at 0.05 level<br>* denotes rejection of the hyp. at the 0.05 level<br>** Mackinnon-Haug-Michelis (1999) P-values<br>Unrestricted co-integration Rank Test (Max. Elgen Value)  |       |             |                     |                     |         |
| Hypothesized RE(s)   | no of | Elgen value | Max-Eigen Statistic | 0.05 critical value | Prob.** |
| None   |       | 0.73104     | 34.6404             | 30.6704             | 0.0067  |
| At most 1  |       | 0.54040     | 26.4564             | 27.5406             | 0.1048  |
| At most 2  |       | 0.36740     | 21.2705             | 20.1407             | 0.3140  |
| At most 3  |       | 0.24110     | 13.1140             | 10.7204             | 0.3127  |
| At most 4  |       | 0.04670     | 3.7400              | 1.1406              | 0.02640 |
| Max-elgen test indicates 1 co-integrating equation(s) at 0.05 level<br>* denotes rejection of the hyp. at 0.05 level<br>** Mackinnon-Haug-Michelis (1999) P-values   |       |             |                     |                     |         |

Source: Author's computation

The Johansen's co-integration results above indicate that there is evidence of a long-run relationship among the variables. The result also shows at least one co-integrating equation used to model the relationship.

## 4.4 ERROR CORRECTION MECHANISM (ECM)

In this study, the Error Correction Mechanism (ECM) is used to tie short-run dynamics of the co-integrating equations to their long-run static state in order to capture the short-run fluctuations.

**Table D: The Parsimonious Error Correction Mechanism (ECM) Results**

| Dependent variable: $\Delta$ GDP           |             |                     |          |          |  |
|--|-------------|---------------------|----------|----------|--|
| Method: Least Square                       |             |                     |          |          |  |
| Date 02/02/2016: Time 2:05                 |             |                     |          |          |  |
| Sample: 1986-2014                          |             |                     |          |          |  |
| Included observation: 29 after adjustments |             |                     |          |          |  |
| Variables                                  | Coefficient | Std. error          | t-stat.  | prob     |  |
| $\Delta$ (GDP(1))                          | 1.17640     | 0.21400             | 5.50201  | 0.0000   |  |
| $\Delta$ (MOP (-1))                        | 0.000321    | 0.00054             | 4.01260  | 0.0005   |  |
| $\Delta$ (MPPR(-4))                        | -1633.120   | 460.420             | -3.67601 | 0.0014   |  |
| $\Delta$ (TBRR(-4))                        | -1710.400   | 396.447             | 4.35402  | 0.0004   |  |
| $\Delta$ (RCR(-4))                         | -1164.664   | 351.4203            | -3.03640 | 0.0054   |  |
| ECM (-1)                                   | -0.13640    | 0.06244             | -2.21040 | 0.0342   |  |
| C  | -340.440    | 754.1600            | -0.45402 | 0.6422   |  |
| R-Squared                                  | 0.79564     | Mean dep. Var.      |          | 2762.300 |  |
| Adj-R-Squared                              | 0.725440    | S.D. dep. Variable  |          | 5404.102 |  |
| S.E. of Reg.                               | 3004.100    | AKaike info. crit.  |          | 19.4040  |  |
| Sum sq. resid.                             | 1.98E +06   | Schuartz crit.      |          | 19.4942  |  |
| Log. Likelihood                            | -264.110    | Hannan-quinn crit.  |          | 19.4320  |  |
| F- statistic                               | 14.5406     | Durbin Watson Stat. |          | 1,98240  |  |
| Prob (F-stat)                              | 0.000001    |                     |          |          |  |

Source: Author's computation

Results obtained from table D above, indicate that about 79.5 per cent of the total variation in economic growth in Nigeria is explained by monetary policy indicators in the model. This implies potency of policy towards growth. The model is significant given the prob (F-stat) of 0.000001. The co-efficient of the ECM (-0.136) is rightly signed. This implies that monetary policy does influence growth index of the economy in Nigeria; indicating about 0.136 speed of adjustment annually. The Durbin-Watson statistic of 1.98 indicates absence of both serial and auto-correlation.

Money supply at lag has a positive and significant relationship with GDP. This is in line with the works Michael and Ebibai (2014), Onyeiwu (2012). However, this is contrary to the findings of Udude (2014). The MPPR and RCR indicate negative and significant relationships with growth. Also TBRR shows negative and significant relationship with economic growth index. This implies it is a good predictor of growth in Nigeria.

## 5.0 Conclusion and Recommendations

The overall results of the study indicates that money supply shows positive and significant relationship with growth while Treasury bill rate, monetary policy rate, and cash reserve ratio indicate negative and significant relationship with economic growth. The conclusion drawn from the results is that monetary policy is good predictor of economic growth in Nigeria thereby rejecting the null hypothesis. However, due to the existence of time lags, the effect of policy on growth may be delayed.

Based on the research findings, we therefore recommend as follows:

First; the Central Bank of Nigeria (CBN) should encourage the introduction of more financial instruments that are flexible to meet risk preferences of operators in the financial sector. Second, due to the existence of time lags, the monetary authority should avoid policy inconsistency or somersault in order to ascertain the impact of policy decision before a change is contemplated. Third; monetary policy should be formulated in such a way that its objective is well defined. This is because the ability of the CBN to pursue an effective monetary policy in a globalized and rapidly integrated financial market environment depends on several factors which include instituting appropriate legal framework, institutional structure and conducive political environment.



Finally, monetary policy must be well aligned or complimented with sound fiscal policy measures to speedily realize its loudable objectives in the country.

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**APPENDIX (DATA)**  
**MONETARY POLICY AND GROWTH INDEX (1981-2014)**

| <b>YEAR</b> | <b>GDP<br/>(₦M)</b> | <b>MOP<br/>(₦M)</b> | <b>MPPR<br/>(%)</b> | <b>TBBR<br/>(%)</b> | <b>RCR<br/>(%)</b> |
|-------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| 1981        | 94.33               | 16161.7             | 6                   | 5                   | 9.5                |
| 1982        | 101.01              | 18093.6             | 8                   | 7                   | 10.7               |
| 1983        | 110.06              | 208791.1            | 8                   | 7                   | 7.1                |
| 1984        | 116.27              | 23370               | 10                  | 8.5                 | 4.7                |
| 1985        | 134.59              | 26277.6             | 10                  | 8.5                 | 1.8                |
| 1986        | 134.6               | 27389.8             | 10                  | 8.5                 | 1.7                |
| 1987        | 193.13              | 33667.4             | 12.75               | 11.75               | 1.4                |
| 1988        | 263.29              | 45446.9             | 12.75               | 11.75               | 2.1                |
| 1989        | 382.26              | 47055               | 18.5                | 11.75               | 2.9                |
| 1990        | 472.65              | 68662.5             | 18.5                | 11.75               | 2.9                |
| 1991        | 545.67              | 87499.8             | 14.5                | 15                  | 2.9                |
| 1992        | 875.34              | 12085.5             | 17.5                | 21                  | 4.4                |
| 1993        | 1089.68             | 198479.2            | 26                  | 26.9                | 6                  |
| 1994        | 1399.7              | 266944.9            | 13.5                | 12.5                | 5.7                |
| 1995        | 2907.36             | 318763.5            | 13.5                | 12.5                | 5.8                |
| 1996        | 4032.3              | 370333.5            | 13.5                | 12.5                | 7.5                |
| 1997        | 4189.25             | 427931.3            | 13.5                | 12                  | 7.8                |
| 1998        | 3989.45             | 525637.8            | 14.31               | 12.95               | 8.3                |
| 1999        | 4679.21             | 699733.7            | 18                  | 17                  | 11.7               |
| 2000        | 6713.57             | 1036077             | 13.5                | 12                  | 9.8                |
| 2001        | 6895.2              | 1315869             | 14.31               | 12.95               | 10.8               |
| 2002        | 7795.2              | 1599485             | 19                  | 18.88               | 10.6               |
| 2003        | 9913.52             | 1985192             | 15.75               | 15.05               | 10                 |
| 2004        | 11411.07            | 2263588             | 15                  | 14.21               | 8.8                |
| 2005        | 14610.88            | 2814846             | 13                  | 7                   | 9.7                |
| 2006        | 18564.32            | 4027902             | 10                  | 8.8                 | 2.6                |
| 2007        | 20657.32            | 5809827             | 9                   | 6.91                | 2.8                |
| 2008        | 24296.33            | 8550430.3           | 9.75                | 7.65                | 1.7                |
| 2009        | 24794.24            | 10730800            | 7.44                | 6.13                | 1.3                |
| 2010        | 54204.8             | 115255.3            | 6.25                | 10.25               | 1.0                |
| 2011        | 63258.58            | 12172.49            | 12                  | 16.75               | 8.0                |
| 2012        | 71186.52            | 13895.39            | 12                  | 17.2                | 12                 |
| 2013        | 80222.13            | 15160.29            | 12                  | 13.34               | 12                 |
| 2014        | 90424.16            | 17170.48            | 13.5                | 13.20               | 12                 |

*Source: CBN Statistical Bulletin (various issues)*