

DOES GOVERNMENT BORROWING INFLUENCE NATIONAL DEVELOPMENT: EVIDENCE FROM NIGERIA?

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Abstract

The study ascertained whether external debt and national development indices in Nigeria are significantly related. The study used an ex-post facto research design and covered the period of 1999-2019. Data relating to GNP, external debt, capital expenditure, and currency rate were obtained from the Central Bank of Nigeria Statistical Bulletin. The data obtained is analysed using the Ordinary Least Square Method (OLS). The diagnostic test made use of the Augmented Dickey Fuller (ADF) unit root test, co integration, and error correction technique. The result shows a link between the GDP, foreign exchange rates, and capital expenditures. Also, a strong correlation between external debt and economic growth exists. The implication of the findings is that countries should only borrow from abroad if it is absolutely necessary and this should be used for profitable endeavors, rather than for social services. Furthermore, the marginal output of the loan should always surpass the interest payments and Government should boost anti-corruption agencies to lower thefts and corruption.

Keywords: Development, Debt, Finance, Public, Infrastructure

Introduction

The struggle for growth and sustainability of the economy remains an indispensable fundamental need that characterizes economic pursuit by virtually all nations. It is financially believed that development could be best achieved through proper fund utilization and adequate financing (Olaleye, 2016). Adequate finance often times are not fully generated locally and therefore prompts the quest for sourcing the fund in other places. Since the government of Nigeria has specific duties to perform, it does rely on foreign debt/domestic debt to augment domestic savings and income shortfalls.

This in turn causes the ongoing increases in the debt stock at an alarming rate, Nigeria, like any other country, faces the challenge of limited capital (Akinola, 2013). However, the term public debt is used to refer to the debt that a government incurs when it borrows money. It is referred to as "reproductive" debt when it is used to finance the purchase of assets or infrastructure such as factories, electrical refineries, and so on. Governments, usually borrows from outside (foreign) and the CBN (local) from one period to another to meet certain needs such as financing deficit budgets, huge capital project, procuring war materials, servicing of loan, providing employment opportunities,

for emergencies, for meeting the needs of balance of payments disequilibrium and so on. Governments, like individuals and households, cannot always meet expenses from its income as it would. Some of the component of government borrowing is fiscal deficit, market loans, borrowing calendar, short term loans amongst other components. A total of 54,071 billion was owed by the Nigerian government in 2020. Nigeria's government debt grew from 4,319 billion in 2001 to 54,071 billion in 2020 at an average annual growth rate of 17.57 percent (NBS, 2021). Infrastructure consists of basic needed services that must be established for development to occur.

It is evident that the importance of infrastructure in this country, even under previous administrations, cannot be overstated. Infrastructure development is the construction of basic foundational services in order to stimulate economic growth and quality of life improvement. It is the standard by which democratic leaders' success is measured, and also, the foundation of democratic governance (Olatoyebi, 2017). According to Atolagbe (2016), the demand for infrastructure development is greater than the available resources to provide infrastructure. Anyanwu (2016) highlighted that the creation of this fund is considered as crucial since it supports domestic investment and, as a result, accelerates economic growth and development in Nigeria. Adegbite (2015) opines that Nigeria relies largely on external

Literature Review

Government Borrowing

There has been a lot of discussion over the relationship between government borrowing and the country's overall debt load. Borrowing by international financial institutions such as the International Monetary Fund (IMF) and the World Bank

aid to support its development programmes. Notably, Nigeria's current economic situation prevents it from engaging in borrowing. The growing external debt represents a new direction in Nigeria's debt profile with the federal government being swayed in its favour due to the high cost of finance in the country (Onwuamaeze, 2017).

Bearing in mind the critical importance of government borrowing, Onwuamaeze (2017) wrote that many had wished that Nigeria never relapsed into the era of borrowing spree after exiting the \$30 billion debt issue by the London and Paris Club of creditors in 2006. Despite numerous debts accumulated for meeting certain needs of various sectors from the year 1999 to 2019 in Nigeria, basic infrastructure remains in a critical condition which questions the need for and utilization of the debts so much accumulated. In essence, Bakare and Adegbite (2022) argued that borrowing from outside the country to promote national development is not a problem, but the problem is the misappropriation of such borrowed monies, which leads to the economic catastrophe. It has become a habit and a controversy in Nigerian politics to borrow money from abroad without first putting the money toward capital projects that will benefit the country's progress (Isijola, 2015). As a result, this study examines the extent to which Nigerian debt contributes to the country's economic growth.

was defined by Amone (2014), Kabir (2014), and Abu (2014) as government borrowing. Public debt is necessary when domestic financial resources are insufficient to finance public goods that improve welfare and generate economic growth. When a nation receives money from outside its borders, often in foreign currency, it is known as a public debt. It has become increasingly

common for governments to borrow money from the public sector. The use of external debt as a source of growth in a macroeconomic model is motivated by the dual-gap theory, which examines the savings gap and the foreign exchange shortfall (Bashir, 2017). With a savings and foreign exchange mismatch, it's clear that the expected level of economic growth will be unable to be supported without government borrowing. As a result, although it is dependent on the savings-investment or import-export imbalance, the role of government borrowing in economic growth has been established. The government will keep borrowing money until the gap between the marginal product of capital and the marginal cost of finance is narrowed (Olayiwola, 2016).

Over the years, the topic of government borrowing and development has dominated the Nigerian economic landscape, attracting the attention of financial professionals interested in conducting empirical research. The objective of external debt is to promote economic growth and development in Nigeria, however future large debt service obligations poses a grave threat to the country's economy. Therefore, economic academics have endeavored to analyse government borrowing, infrastructure development, and economic growth in Nigeria, and have arrived at a variety of conclusions.

Butkus and Seputiene (2018), in a research study discovered that good governance does not inevitably mitigate the negative consequences of debt. The study used System-Generalized Method of Moments (SYS-GMM) Estimator and data from 152 nations of the world for the period 1996-2016. Dombi and Dedak (2019) conducted a pan-European analysis utilising data from 1981 to 2016. They found that

long-term output is affected by public debt, and that the weight of public debt changes from nation to nation dependent on the savings rate and the population growth rate. In their study of Tanzania, Yusuf and Said (2018) analysed data from 1970 to 2015 utilising the Vector Error Correction Model (VECM), Granger Causality Test (GCT), Unit Root Test (URT), and Johansen Co-integration Test (JCT). It demonstrated a negative correlation between governmental debt and economic growth in Tanzania. They recommended that policyholders and the government avoid amassing external debt and stop hiding the reasons for its accumulation.

Yusuf and Said (2018) used the VECM, the Granger Causality Test (GCT), the Unit Root Test (URT), and the Johansen Co-integration Test (JCIT) in their study of Tanzania (JCT). The study found a link between Tanzania's government debt and the country's economic growth to be negative, they recommended that Policyholders and the government should avoid building up foreign debt and stop disguising the causes of it. Nwali and Nkwede (2016), using VECM and spanning data from 1961 to 2013, found that public debt has a negative impact on economic growth in Nigeria in both the short and long term. They recommended that Nigerian officials constantly work to and verify that the country's debt-to-GDP ratio does not exceed the international standard for debt sustainability. From 1990 to 2015, Lucy et al. conducted a study using data from Ghana. Using the Ordinary Least Square (OLS) method, they found a negative association between Ghana's economic output and its domestic and external debt. They argued against borrowing money from the government and instead advocated increasing the tax base.

Monogbe (2016) found that Nigeria's external debt had a large and positive impact on economic growth over the period 1981-2014, using OLS and the Error Correction Model (ECM). When the government is growing her borrowings through external debt, as suggested by the findings of Monogbe, they should use it with caution. Using the Johansen co-integration test, Osinubi and Olalere (2015) wrote a thesis on Nigeria's budget deficit, government borrowing, infrastructure development, and economic growth from 1980 to 2012. If debt-financed budget deficits are run to stabilise the debt ratio at the optimal sustainable level, debt overhang problems would be avoided and the advantages of government borrowing would be maximised, according to the findings of the study. This is the thesis that this study intends to debunk.

Theoretical Structure

The Neoclassical Growth Model

The neoclassical economic growth theory, such as the Solow model economic growth, indicates that the long-run economic growth rate is assumed to be fixed and proportional to the growth of the population or labour force. The idea is based on the assumption that there is a diminishing marginal return to capital, as well as constant returns to scale for a particular technology. Theoretically, both Keynesian and Neoclassical economists supplied excellent instruments for government intervention in carrying out essential duties of allocation, stabilisation, etc., especially when market mechanisms prove inefficient, which is government capital expenditure (Usman, 2011).

Methodology

Ex-post facto design is used in this study, and relevant database is retrieved.

Secondary sources were used in extraction of data, from Statistical Bulletin and Annual Report of the Central Bank of Nigeria (CBN). The specification of econometric model is based on economic theory and on any valuable information relating to the phenomenon being studied. Hence, the specification of model adopted will be based on the following functional relationship.

$$GFCF = f (FDBT, DDBT, EXR) \dots\dots\dots \text{equation i}$$

Where

GFCF = Gross Fixed Capital Formation (this is a function of Foreign Debt)

DDBT = Domestic Debt and

EXR = Exchange rate.

In order to capture the influence of the stochastic or random variable, the equation is explicitly transformed as

$$GFCF = \beta_0 + \beta_1 FDBT + \beta_2 DDBT + \beta_3 EXR + \beta_4 ER + \beta_5 BMS + \beta_6 INF + U_i \dots\dots\dots \text{equation ii}$$

Where:

$$ND = \beta_0 + \beta_1 FDBT + \beta_2 DDBT + \beta_3 EXR + \beta_4 ER + \beta_5 BMS + \beta_6 INF \dots\dots\dots \text{equation iii}$$

$$HCD = \beta_0 + \beta_1 DBT + \beta_2 DDBT + \beta_3 EXR + \beta_4 ER + \beta_5 BMS + \beta_6 INF \dots\dots\dots \text{equation iv}$$

$$PI = \beta_0 + \beta_1 DBT + \beta_2 DDBT + \beta_3 EXR + \beta_4 ER + \beta_5 BMS + \beta_6 INF \dots\dots\dots \text{equation v}$$

$$CE = \beta_0 + \beta_1 DBT + \beta_2 DDBT + \beta_3 EXR + \beta_4 ER + \beta_5 BMS + \beta_6 INF \dots\dots\dots \text{equation vi}$$

Where

HCD = Human Capital Development

PI = Poverty Index

CE = Capital Expenditure

FDBT = Foreign Debt

ER = External Reserve

B_0, B_1, B_2, B_3 , = Parameter Estimates

BMS = Broad Money Supply

U_t Error Term

INF = Inflation

Model Evaluation

Diagnostic tests of the model were carried out as follows;

Goodness of Fit of the Regression Line

In order to determine whether or not the regression plane is a good fit, the adjusted (R^2), also known as the coefficient of multiple determination corrected for degrees of freedom, was utilised. It illustrates or provides an explanation of the percentage of the total variation of the dependent variable that can be attributed to changes in the explanatory variables. It is used as a test to determine how well something fits. It shows the percentage of the total variable that is change in B_0, B_1, B_2, B_3 , it is given by the formula below.

$$R^2 = 1 - (1 - R^2) / N - K - 1$$

Here, we do not reject the null hypothesis if R^2 is greater than 0.05

Diagnostic Test Result

TEST TYPE	TEST VALUE
R^2	0.722199
Adjusted R^2	0.673176
Durbin —Watson Stat	1.041119
F — probability	0.0000
F — statistics	14.73166

Source: Authors Analysis, (2022)

Goodness of Fit of the Regression

The R^2 value of 0.722199 in Table 1 implies that the independent factors account for 72 percent of the changes in the dependent variable (GFCF). After adjusting for degrees of freedom, the modified R^2

For the analysis of data, the Ordinary Least Square (OLS) method of estimation was used. It was chosen because of its qualities as the Best Linear Unbiased Estimator (BLUE). Furthermore, the E-views econometric statistical package was used for this purpose. The ordinary least square approach was used to fit the data from the World Bank's World Development Indicators as well as the Central bank of Nigeria's Statistical Bulletin and Annual Records for the years 1999 to 2019. These records covered the period of time from 1999 to 2019.

Results

Diagnostic Tests

The model was tested for the goodness of fit of the regression line, overall significance of the regression, stationarity, heteroskedasticity, multicollinearity, autocorrelation, co-integration (long run relationship), normality, short run relationship (ECM) and specification. The regression result is presented below:

value of 0.673176 indicates that the independent factors explain about 67 percent of the dependent variable, Gross Fixed Capital Formation (GFCF). This was deemed acceptable for the study.

Overall Significance of the Regression

F-statistics were employed to evaluate the regression's overall significance. We reject the null hypothesis based on Table 1 above since the f-probability value, 0.000000, is less than 0.05. As a result, we draw the conclusion

that the explanatory factors significantly affect the dependent variable.

Stationarity Test

In order to find out whether the variables in the model are stationary, Augmented dickey- fuller (ADF) unit root test was conducted.

Table 2: Unit Root test results using the ADF Procedure

Variables	Level	1 st Difference	2 nd Difference	Order of integration
GFCF	-1.477264	-1.134378	-5.937167 ***	I(II)
FDBT	0.891258	-1.761271	-3.695394***	I(II)
DDBT	-3.362182*	-2.259157**	-4.688854***	I(1)
EXR	0.850288	-2.41189**	-4.123440	I(1I)
CriticalValues				
1%	-3.808546	-3.831511	-3.857386	
5%	-3.020686	-3.029970	-3.040361	
10%	-2.650413	-2.655194	-2.660551	

(*)(**)(***) indicates significance at 1%, 5%, 10% level respectively

Source: Authors Computation,(2022)

From the unit root result in Table 2, DDBT was stationary at 1st Diff. At 2nd difference, (GFCF), (FDBT), and (DDBT) were stationary. We therefore conclude that all the series used for the regression are stationary at the levels indicated.

Heteroskedasticity Test

White heteroskedasticity (no cross terms) was conducted to see if the error term in the regression model has a constant variance, which is shown in Table 3 below.

Table 3: Whites Heteroskedasticity Test

F-statistic	2.077095	Probability	0.1262
Obs*R-squared	8.900433	Probability	0.1529

Source: Authors Analysis

Table 3 shows the probability of the f- statistic as 0.1262, this is greater than 0.05 level of significance, as such we do not reject the null

hypothesis. Therefore we conclude that the variance of the error term is homoskedastic.

Multicollinearity Test

Pair wise correlation matrix was used to check for the problem of multicollinearity

among the independent or explanatory variables.

Table 4: Correlation Metrics

	GFCF	FDBT	DDBT	EXR
GFCF	1.000000	0.474554	-0.333918	-0.182868
FDBT	0.474554	1.000000	0.530686	0.686224
DDBT	-0.333918	0.530686	1.000000	0.947813
EXR	-0.182868	0.686224	0.947813	1.000000

Source: *Authors Analysis,(2022)*

Table 4 shows that the correlations between the variables are less than 0.8. But the correlation between DDBT and EXR which is 0.947813 is greater than 0.8. Hence, we conclude that there is a problem of multicollinearity.

Autocorrelation Test

Durbin Watson statistic was used to test the presence of autocorrelation i.e. it is used to test whether the subsequent values of the same variables are related.

Table 5: Autocorrelation Test Using Durbin-Watson Procedure

<i>Durbin Watson (d value)</i>	-	1.041119
<i>d_L (lower limit)</i>	-	1.026
<i>d_U(upper limit)</i>	-	1.669
<i>4-D_L</i>	2.974	
<i>4-D_U</i>	2.0226	

Source: *Author's Analysis,(2022)*

d_L and d_U values were obtained using Durbin Watson Statistical table, where:

n = no of observations

k = no of explanatory variables.

In table 5, the Durbin Watson statistic is 1.041119. Therefore, $D_L < d^* < d_U$ we then conclude that the test is inconclusive.

Long Run Relationship Test

Co-integration test was carried out to examine the long run relationship among the variables using Johansen co-integration test.

Table 6: Johansen Co-Integration Test

Eigenvalue	Trace Statistics	5 Percent Critical Value	1 percent Critical values	Hypothesized No. of CE(s)
0.796975	56.10793	47.21	54.46	None **
0.541887	25.81388	29.68	35.65	At most 1
0.383844	10.98172	15.41	20.04	At most 2

0.089472	1.780872	3.76	6.65	At most 3
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Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

() denotes rejection of the hypothesis at the 5%(1%) level*

Source: Authors Analysis

In conclusion, since the likelihood ratios of the variables are greater than the critical values at 5%, we say they are co-integrated.

Normality Test

The test of normality was conducted with JB (Jacque-Bera) to determine the whether the distribution was normally distributed and appropriate for the study. The result of this test is as presented in Table 7.

Table 7: Jacque-Bera Normality Test

Jacque-Bera

2.172149

Table 8: Error Correction Mechanism

Variables	Coefficient	Probability
C	22.75092	0.0002
ECM(-1)	0.385169	0.1225

Source: Authors Analysis,(2022)

From the result shown in Table 8 above, since the coefficient of the ECM (-1) which is 0.385169 is positive, and the probability is 0.1225 which is greater than 0.05 level of significance, we conclude that there is disequilibrium.

Regression Results

Table 9: Basic OLS Output

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	27.58168	5.349269	5.156159	0.0001
FDBT	0.003361	0.000651	5.159702	0.0001
DDBT	-0.000570	0.000802	-0.710870	0.4868
EXR	-0.067573	0.062057	-1.088883	0.2914

Source: Author's Analysis,(2022)

Probability

0.000000

Source: Authors Analysis,(2022)

Since the Jacque-Bera probability of 0.000000 is less than the 0.05 level of significance, we establish that the error term follows a normal distribution.

Short Run Relationship Test

The Error Correction Mechanism was used to check for equilibrium and disequilibrium in the model. The analysis was carried out as follows:

Estimation Equation:

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$$GFCF = C(1) + C(2)*FDBT + C(3)*DDBT + C(4)*EXR$$

Substituted Coefficients:

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$$GFCF = 27.5816779973 + 0.00336142305888*FDBT - 0.00057033338013*DDBT - 0.0675725791279*EXR$$

Test of Hypothesis

The hypothesis was tested for the significance of the independent variables using the students t-test at 0.05 level of significance as follows:

Hypothesis One

H₀: Foreign Government Borrowing does not have effect on infrastructural development in Nigeria.

Table 9 shows that the t-calculated of the estimated coefficient of the variable (FDBT) as 5.159702 this was compared with the t-tabulated value of 2.110 to test the hypothesis. Following the rule above, since t-tabulated is greater than t-calculated, we do not reject the alternative hypotheses hypothesis and conclude that Government Borrowing does have effect on infrastructural development in Nigeria.

Hypothesis Two

H₀: Domestic Government Borrowing has no effect on infrastructural development in Nigeria.

The t-calculated of the estimated coefficient of the variable (DDBT) in Table 9 is -0.710870, comparing with the t-tabulated value of 2.110 to test the hypothesis. Following the rule above, since t-tabulated is less than t-calculated, we do not reject the null hypotheses hypothesis and conclude that Government Borrowing has no effect on infrastructural development in Nigeria.

Hypothesis Three

H₀: Exchange rate does not guarantee infrastructural development in Nigeria.

The t-calculated of the estimated coefficient of the variable (EXC) in Table 4.9 is -1.088883, this was compared with the t-tabulated value of 2.110 to test the hypothesis. Following the rule above, since t-tabulated is less than t-calculated, we do not reject the null hypotheses hypothesis and conclude that Exchange rate does not guarantee infrastructural development in Nigeria.

Discussion of Findings

This study found that domestic debt (FDBT) and exchange rate (EXC) have little bearing on Nigeria's infrastructural development, while foreign debt has a significant impact on it. This suggests that domestic debt (FDBT) and exchange rate (EXC) are unimportant factors in determining infrastructural development in Nigeria, while exchange rate (EXC) is an important factor. Additionally, there is a positive association between foreign debt (FDBT) and the development of Nigeria's infrastructure; this advocates that as the value of the nation's foreign debt rises, so too will Nigeria's infrastructure.

On the other hand, domestic debt (DDBT) and exchange rate (EXC) have a negative association with Nigeria's infrastructure development; this proposes that a decline in the value of DDBT and EXC will result in a decline in Nigeria's infrastructure development.

Summary, Conclusion and Recommendation

This study examined government borrowing and national development in Nigeria from 1999 to 2019. It identified

important policy concerns that are important for decision-making in Nigeria's public sector financial management. The findings were detailed, and showed a strong correlation between government debts and infrastructure development.

Given that the borrowed money is still in the economy's circulation and makes up the total national income and consumption, this is not shocking. Domestic borrowing is a tool for economic stabilization and, most of the time, a source of funding for the government's budget deficit and other expansionary projects.

Borrowing for investment is heavily encouraged and supported by economic development theories, particularly in less developed economies where it can help to smooth the path of economic development. The fiscal policies of the Nigerian economy have mostly been modeled and planned with the aid of borrowed money.

Interestingly, the study's findings suggest that these funds have aided Nigeria's economic growth because it was established that domestic borrowing had a favorable and significant impact on the Human Development Index. However, the ability of the government to repay or service the debt, not borrowing by the government to finance development projects, is the goal. The results of this research indicates that this is Nigeria's main issue given that debt repayments represent a significant leakage and stifle the sustainability of economic benefits, particularly at the sub-national levels.

According to the results, the state government's careless handling of borrowed money is concerning because repayment results in a large leakage of the cash needed for investments and the implementation of public programmes. This has the inference that the government lacks the ability to

properly safeguard government monies, particularly the ones borrowed, profitably. It is also important to highlight that the constant need to service debt discourages private investment, which is harmful to achieving the necessary development. Still, it was established in this study that the impact of government expenses on private investment is either negligible or nonexistent.

This proves beyond a doubt that the private sector is free to raise all necessary capital for investment projects without intervention or influence from the executive branch of government. A strong private sector is essential for Nigeria to enjoy complete development, making the prevention of private investment from being crowded out.

In accordance with the study's conclusions, Nigeria should effectively borrow money, especially to close the savings-to-investment imbalance. The impact of domestic borrowing has not significantly reduced private investment in Nigeria. In light of the fact that no economy can prosper without private investment, it is imperative that the government and policymakers maintain these benefits.

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Appendix

Data Presentation

YEAR	GFCF (in Billion)	EXR (in Naira)	FDBT (in Billion)	DDBT (in Billion)	ER (in Million)	BMS (in Billion)	INF
1999	38.34181	92.6934	2,577.37	794.81	63,709.20	628.95	30.2
2000	34.10954	102.1052	3,097.38	898.25	91,089.20	878.46	32.2
2001	30.92589	111.9433	3,176.29	1,016.97	123,329.83	1,269.32	38.3
2002	27.58251	120.9702	3,932.88	1,166.00	103,104.08	1,505.96	43.3
2003	29.3868	129.3565	4,478.33	1,329.68	91,701.66	1,952.92	49.3
2004	27.11797	133.5004	4,890.27	1,370.33	144,753.06	2,131.82	56.7
2005	24.99612	132.1470	2,695.07	1,525.91	291,849.31	2,637.91	66.9
2006	26.16665	128.6516	451.46	1,753.26	449,473.06	3,797.91	72.4
2007	20.18004	125.8331	438.89	2,169.64	544,731.68	5,127.40	76.3
2008	18.85977	118.5669	523.25	2,320.31	701,674.60	8,643.43	85.1
2009	21.11545	148.8802	590.44	3,228.03	536,428.19	9,687.51	95.8

2010	16.81501	150.2980	689.84	4,551.82	448,268.46	11,101.46	108.9
2011	16.36056	153.8616	896.85	5,622.84	390,963.35	12,628.32	120.7
2012	14.95883	157.4994	1,026.90	6,537.54	457,105.93	15,503.41	135.5
2013	14.90391	157.3112	1,387.33	7,118.98	547,355.44	18,743.07	147.0
2014	15.8027	158.5526	1,631.50	7,904.03	446,644.00	20,415.61	158.8
2015	14.11217	193.2792	2,111.51	8,837.00	357,665.80	20,885.52	173.1
2016	15.10418	253.4923	3,478.91	11,058.20	312,652.43	24,259.00	200.3
2017	16.90813	305.7901	5,787.51	12,589.49	386,713.49	28,604.47	233.4
2018	24.55024	306.0802	7,759.20	12,774.40	534,300.80	29,774.43	261.6
2019	37.01548	306.9206	9,022.42	14,272.64	506,988.75	34,257.90	291.4

Source: CBN Statistical Bulletin 2019 Edition