



TREASURY BILLS AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This paper examined the influence of treasury bills on economic growth in Nigeria from 1985 to 2019. To achieve the above objective, secondary data on treasury bills, real gross domestic product, inflation rate and monetary policy rate were sourced from the statistical bulletin volume 30, 2019 of Nigeria's apex bank. The Autoregressive Distributed Lag (ARDL) technique was used as the main analytical tool. The ARDL Bounds test revealed the existence of long run relationship among the variables. In addition, the results showed that in the long run, treasury bills have negative and insignificant relationship with economic growth. But in short run, treasury bills have negative and significant relationship with economic growth. Moreover, in the long run, inflation rate has negative and significant relationship with economic growth. Meanwhile, in the short run, inflation rate has positive and significant relationship with economic growth. Interestingly, monetary policy rate has negative and insignificant relationship with economic growth both in the long and short runs. Based on these findings, the study concluded that treasury bills have the ability to increase economic growth in Nigeria if they are tailored towards enhancing investment potentials in the economy. Therefore, the study recommended that government should ensure that short-term funds raised through treasury bills issued and allotted are used to promote productive activities and enhance investment potentials in the economy which in turn will help to increase economic growth in Nigeria.

Keywords: Treasury Bills, Economic Growth, ARDL, Nigeria

INTRODUCTION

One of the objectives of government participation in the economy is the achievement of a sustained economic growth (i.e., promotion of economic growth). It is very important for the economy of a country to grow over time because without growth in the output of goods and services the citizens will have less goods and services to consume over the years (Akpakpan, 1999). In order to achieve adequate economic growth in the economy, governments need funds to provide internal security, economic services, social and community services, etc., which in turn will lead to an improvement in the standard of living of the citizenry. Hence, the necessity for the introduction of money market instruments including Treasury Bills (TBs). TBs are money market short term securities issued by the Central Bank, to raise short-term funds for the government. The maturity period for this instrument is from 91, 182 to 364 days. In Nigeria, TBs were issued for the first time in the year 1960. Currently, the major holders of TBs are the Central Bank of Nigeria itself and deposit money banks. TBs were created for the purpose of facilitating transactions between the surplus and deficit economic agents of the economy.

The introduction of TBs grew out of the need to match economic agents with surplus funds, with those in need of funds temporarily. Afiemo (2013) posits that TBs are short-term money-market debt securities issued by government through the central bank, with maturities of one year or below. They are sold at a discount and mature within three months to one year from the date of issue. The bills serve as the gauge for risk-free instruments in the money market as they are assured by government. They provide the government with a highly flexible and combatively cheap means of borrowing funds, and are issued through a competitive bid auction.

Treasury bills guarantee economic units the ability to invest more than they save, either by reducing their money balances, by selling financial assets, or by increasing their financial obligations (Ezirim, 2005). It encourages both saving and investment activities in the country. It also helps to facilitate the provision of financial resources needed for real investments. Thus, the TBs can be said to provide an indispensable conduit for the transformation of savings into real investment, accelerating the economy's growth and developing new business and jobs (Rose, 1997). TBs are means of raising funds for the day to day running of government activities. Government activities involve generating funds and using same to provide adequate security, social amenities, infrastructural facilities, etc., for the resident of the country.

The introduction of TBs has been impressive in terms of increase in funds raised for the government in Nigeria. Over the years, TBs have become important instruments for raising funds for the government in Nigeria. For instance, available data reveals a great improvement in the TBs offered, subscribed to, and allotted on yearly basis, in 2011, TBs offered, subscribed to, and allotted were N3, 048.49 billion, N6, 512.7 billion and N3, 048.5 billion respectively. In 2012,

total offers, subscriptions and allotments were N3, 609.65 billion, N8, 750.49 billion and N3, 609.65 billion, respectively. Nigerian Treasury Bills (NTBs) worth N3, 650.88 billion, N7, 573.45 billion, and N3, 650.88 billion were respectively offered, subscribed to, and allotted, in 2013.

In the year 2016, NTBs worth N4, 555.50 billion were offered and allotted, representing a marginal increase of N710.18 billion or 18.47%, above the 2015 level. The development was owed to the federal government's need to finance expansionary fiscal activities in 2016. Public subscription, stood at N8, 677.69 billion, demonstrating N624.63 billion or 6.71% decline, compared with the subscription of N9, 302.32 billion in the preceding year. In 2018, Nigerian Treasury Bills (NTBs) worth N3, 342.39 billion were offered and allotted, representing a decrease of N1, 153.08 billion or 25.7%, below the N4, 495.5 billion in 2017. In the year 2019, Nigerian Treasury Bills (NTBs) worth N3, 190.61 billion were offered and allotted,

In as much as the performance of TBs as instruments for raising funds for the government in Nigeria is encouraging, it remains difficult to find attempts to systematically assess the effect of TBs on economic growth in Nigeria from 1985 to 2019. Furthermore, a number of studies have been done on various aspects of the instruments of money market in Nigeria but not much appear to have been done on how TBs has affected economic growth in Nigeria from 1985 to 2019. In related terms, similar studies have lost touch on current realities of treasury bills. Thus, this study stands out to add to wherever scarce studies already existed in this aspect of money market instrument.

Furthermore, despite the enormous funds that accrue into the government treasury because of the impressive performance of TBs in terms of it contributions to total government's resources in Nigeria, the governments still complain of inadequate funds to embark on projects and citizens have always lamented of poor infrastructural facilities, low per capita income, inadequate economic growth, high rate of unemployment, etc., Thus, the Nigerian economy still performs below expectation. For instance, in 2016, the economy was under pressure. Real sector activities were significantly constrained by low crude oil production and price shocks, foreign exchange shortages and energy deficit, among others. Consequently, the economy contracted, as provisional data indicated that Real Gross Domestic Product (RGDP), measured at 2010 constant basic prices, declined by 1.5%, in contrast to 2.8% growth in 2015. Oil and non-oil sector output declined by 13.7 and 0.2%, respectively.

In 2017, the economy witnessed a mild recovery from recession. The Real Gross Domestic Product (RGDP), measured at 2010 constant basic prices, grew by 0.83%, in contrast to the contraction of 1.58% in 2016. In 2018, the real Gross Domestic Product (GDP), measured at 2010 constant basic prices, grew by 1.9%, compared with the growth of 0.8% in 2017. In

2019, the economy maintained a modest growth. The Real Gross Domestic Product (RGDP) measured at 2010 constant basic prices grew by 2.3%.

This state of affairs raises a pertinent question: what is the relationship between TBs and economic growth in Nigeria? This question pleads for an answer and this is the main concern of this study. This study also linked other variables such as interest rate and inflation rate with economic growth with the view of examining their impacts on economic growth of Nigeria. Most researchers have not bothered to investigate the extent to which TBs support or contribute to economic growth in Nigeria. Because increases in funds generated from TBs signifies that more money is available for economic growth. It is no longer news that citizens expect the funds raised from TBs to be used to finance government budget deficits. The Central Bank of Nigeria has also relied on TBs as a way of mopping up liquidity in the country as it continues to contend with inflation. By issuing more TBs bills the apex bank hopes to mop up more liquidity from the economy. The apex bank can also encourage higher yields for TBs as a way to combat inflation in the country. Therefore, the broad objective of this study is to examine the effect of treasury bills on economic growth in Nigeria from 1985 to 2019. Specifically, the study sought to examine the relationship between treasury bills and economic growth in Nigeria. The remaining parts of this paper were structured into review of related literature, methodology, results and discussion, conclusion and recommendations.

REVIEW OF RELATED LITERATURE

Endogenous Growth Theory

This growth theory attempts to model technology rather than assuming it to be exogenous (Chude and Chude, 2013). It is an arithmetical explanation of technological improvement that incorporated a new idea of human capital, knowledge and skills that assist workers to be more productive. Moreover, economic growth comes from technological progress, which is fundamentally the ability of economic agents to utilize their productive resources more effectively in excess of time through the process of learning. Furthermore, provisions of educational training, technical skills, medical care and creation of infrastructure for citizens are beneficial to economic growth and development. This is because the training of citizens will contribute to improve the educational level, discipline and productivity of the labour force. Human capital development has a high rates or increasing rates of return. Therefore, the rate of growth depends to a large extent on what (the type of capital) a country invests in. To record sustainable economic growth, public spending in human capital development - research and development (R&D), among others must be increased and this will enhance the country's growth and development. One of the implications of this theory is that availability of capital is

necessary for making investments in human capital and on research & development of new knowledge. Also, suitable policy concerning monetary rate and inflation rate has the ability to help the country achieve adequate economic growth (Inimino, Tubotamuno & Shaibu, 2017).

Review of Related Empirical Literature

Empirically, only a handful of scholars have investigated the association between treasury bills and economic growth. In their econometric analysis of the impact of developments in money market operations and economic viability in Nigeria in 2015, Agbada and Odejimi utilized Ordinary Least Squares Method to test data from secondary sources covering 1981 to 2011. They reported from the outcome of their study that treasury bills and banker acceptances have statistically significant relationships with GDP. Meanwhile, treasury certificate, certificate of deposit and commercial paper exhibited weak relationship with GDP.

Iwedi and Igbani (2015) utilized vector autoregression (VAR), Johansen cointegration, and Granger causality tests to examine the relationship between money market operations and economic growth in Nigeria from 1980 to 2013. The study found a positive significant short-run and long-run relationship between money market operations and economic growth in Nigeria. Also, causality flows from economic growth to money market operations but not vice versa.

Igbinosa and Aigbovo (2016) studied the impact of money market development on Nigerian economic development spanning 1986 to 2013. With the aid of error correction model and Granger causality test they found out that banker acceptances significantly influences economic development in both the short run and long-run respectively, while value of treasury bills and commercial papers as well as the monetary policy rate have significant impact on economic development only in the long run. They also discovered a unidirectional causality between money market variables and economic development.

Pavtar (2016) employed Ordinary Least Squares to analyze the relationship between money market and Nigerian economic growth from 1985-2014. It was evidently reported that treasury bill, treasury certificate have no significant effect on the gross domestic product.

Aminu, Bambur and Aliyu (2017) utilized Ordinary Least Squares technique to examine money market-growth nexus in Nigeria from 1999-2017. Money market was found to contribute significantly to the economic growth of Nigeria. Specifically, all instruments - treasury bills, certificates of deposits, bankers' acceptances have negative effect on economic growth.

Eze and Nera (2017) investigated the relationship between different money market instruments and the economic development of Nigeria from 1990-2014 based on error correction model. The study found that money market instruments including treasury bills have significant impact on the growth of the Nigerian economy.

Akarara and Eniekezimene (2018) studied the effect of selected money market instruments on the growth of the Nigerian economy. Using data obtained from the central bank of Nigeria statistical bulletin 2017, the study employed the Autoregressive Distributive Lag (ARDL) Bound Testing approach to co-integration. The result revealed no form of convergence among the variables in the long-run. However, the result revealed that money market variables are positively related to economic growth rate both in short and long run, except for certificate of deposit and commercial paper that has an inverse relationship with economic growth in the long-run.

Uruakpa (2019) studied the impact of money market instruments on economic growth in Nigeria from 1990 to 2017 using Ordinary Least Squares technique. The result revealed that treasury bills outstanding have positive and insignificant effect on economic growth. However, treasury bills rate has negative and significant effect on economic growth. Therefore, the study concluded that money market reform has helped to increase economic growth in Nigeria.

Faith, Hakeem and Samuel (2020) investigated the impact of selected money market instruments on economic growth from 1989-2019. The study employed multiple regression and Granger Causality Test to analyse data. The study found out that treasury bills and commercial papers have a positive relationship with GDP, but its effect is insignificant in the long run. But bank's acceptance and credit to the private sector has a positive and significant effect on GDP in the long run. In contrast, development stock has no significant effect on GDP in the short run and the long run with no granger causal relationship with GDP.

Ishola, Oni and Kolapo (2021) examined the impact of money market instruments on economic growth in Nigeria from 1990-2020. The study employed statistical techniques such as ADF, Unit Root Test, OLS, multiple-regression and Granger Causality Test. The study observed that bank acceptance and commercial paper granger cause Gross Domestic Product. Treasury bill, treasury certificate and commercial papers have a positive relationship with GDP, but its effect is insignificant in the long run. But banker's acceptance and certificate of deposits has a positive and significant effect on GDP in the long run. At the same time, development stock has no significant influence on GDP in the short and long run with no granger causal association with GDP.

Gbenga, Olorunleke, Tajudeen and Hamzat (2021) investigated the relationship between money market and economic growth using annual time series data spanning 1981-2018. The study used Fully Modified Ordinary Least Squares and Granger causality techniques. Empirical findings revealed the existence of a positive, strong and significant correlation between money market instruments and economic growth. The study also found that money market has positive and significant impact on economic growth in Nigeria. The granger causality test result revealed

the existence of unidirectional causality running from bankers' acceptances to economic growth and from commercial papers to economic growth. The test also indicated a bi-directional causality between treasury bills and economic growth. However, there is no causal link between certificates of deposits and economic growth. Likewise, there is no causality between treasury certificates and economic growth.

Akpotor and Egharevba (2022) analyzed the effect treasury bills issue on economic growth in Nigeria from 1986 to 2019 using Vector Error Correction Model technique. The findings revealed that treasury bills have insignificant negative effects on economic growth in Nigeria.

Stylized Facts on Treasury Bills in Nigeria

Treasury bills help to facilitate the provision of financial resources needed for real investments. The Nigerian Treasury Bills (NTBs) (91-, 182- and 364-day tenors) amounting to N3,048.49 billion, N6,512.7 billion and N3,048.5 billion respectively were offered, subscribed to, and allotted in 2011. The amount allotted increased by 52.1 per cent over the N2, 004.0 billion allotted in 2010. The over-subscription was attributed to the growing preference for risk-free government securities with their more attractive yields, following the various upward reviews of the MPR. Investors in NTBs by category, showed that DMBs took up N2, 001.2 billion (65.7 per cent), discount houses subscribed N344.9 billion (11.3 per cent), while mandate and internal funds got N702.6 billion (23.0 per cent). The average range of successful bid rates was between 5.56-16.99 per cent, compared with the range of 1.04 and 10.3 per cent in the preceding year. Matured NTBs repaid during the year amounted to N2, 597.7 billion, compared with the N1, 525.9 billion redeemed in 2010. Consequently, the value of NTBs outstanding at end December 2011 was N1, 727.9 billion, reflecting an increase of 35.3 per cent over the preceding year's level.

In 2012, total offers, subscriptions and allotments were N3, 609.65 billion, N8, 750.49 billion and N3, 609.65 billion, respectively. Nigerian Treasury Bills worth N3, 650.88 billion, N7, 573.45 billion, and N3, 650.88 billion were respectively offered, subscribed to, and allotted, in 2013. The amount subscribed to represent a decline of 13.45 per cent from the N8, 750.49 billion subscribed to in 2012, reflecting the low patronage by foreign investors. The bid-to-cover ratio of 2.07 in 2013 indicated investors' appetite for government securities.

In 2014, total NTBs offered, subscribed and allotted stood at 3,879.47 billion, 8,043.56 billion, and 3,879.47 billion, respectively, representing an increase of 6.3, 6.2 and 6.3 per cent over their values in 2013. The bid-to-cover ratio in 2014 was 2.07 which indicate investors' preference for risk-free government securities (CBN, 2014). A careful analysis of holdings of NTBs revealed that Deposit Moe yanks (DMBs) took up 1,985.03 billion (51.17%); discount

houses, 228.92 billion (5.90%); and Mandate and Internal Funds customers, 1,483.94 billion (38.25%). The Bank take-up in 2014 was 88.24 billion i.e., 2.33% (CBN, 2014).

In 2015, NTBs of 91-, 182- and 364-day tenors worth N3, 845.3 billion were offered and allotted, displaying a decline of N34.2 billion, or 0.88%, compared with N3, 879.5 billion in the previous year. Total public subscription stood at N9, 302.3 billion, representing an increase of 15.7% over the N8, 043.6 billion in 2014 (CBN, 2015). An examination of the holdings of NTBs disclosed that banks took up N2, 686.5 billion (69.9%); discount houses; N79.2 billion (2.1%); while Mandate and Internal Funds customers took up N999.5 billion (26 %). The CBN took the balance of N80.2 billion i.e., 2.1% (CBN, 2015).

In the year 2016, NTBs worth N4, 555.50 billion were offered and allotted, representing a marginal increase of N710.18 billion or 18.47%, above the 2015 level. The development was owed to the Federal Government's need to finance expansionary fiscal activities in 2016. Public subscription, stood at N8, 677.69 billion, demonstrating N624.63 billion or 6.71% decline, compared with the subscription of N9, 302.32 billion in the preceding year. The CBN attributed the lower patronage to low yields on investment in the first half of 2016. The tenors on offer were 91-, 182- and 364-day with bid rates, ranging from 3.0% to 15.44%, compared with the range of 3.63% to 15.9% in 2015. The bid-to-cover ratios for the various tenors were 1.40, 1.95 and 2.12 for the 91-, 182- and 364-day tenors, respectively. An indication of investors' preference for long-term maturities was the high (above 2.0) bid-to-cover ratio for the 364-day tenor was (CBN, 2016). In addition, analysis of holding Portfolio preferences led to reduced take-up by banks and a slight increase in mandate and internal customers' participation. Consequently, analysis of the holdings structure of investments in NTBs, in 2016, indicated that banks took-up N2,633.04 billion, representing 57.80% of total NTBs issued, as against N2,765.62 billion, representing 71.92% of NTBs issued in the preceding year. Mandate and Internal customers take-up accounted for 35.34%, compared with 25.99% in 2015. The CBN took the balance of 6.87% in 2016 (CBN, 2016).

According to the CBN, in 2017, NTBs worth N4, 495.5 billion were offered and allotted, representing a decrease of N60.03 billion or 1.3%, below the N4, 555.5 billion in 2016. The reduction in NTBs holdings reflected the strategic shift to external debt, which was deemed cheaper by the Debt Management Office (DMO). In 2016, total public subscription stood at N7, 178.38 billion, a decrease of N1, 499.31 billion or 17.28%, compared with N8, 677.69 billion in the preceding year. The tenors were for 91-, 182- and 364- day. The bid rates ranged from 13.00 to 14.00% for the 91-day, 15.00 to 17.50% for the 182-day and 15.57 to 18.98% for the 364-day tenors. In comparison, the bid rates in 2016 were from 4.00 to 15.44%, for the 91-day, 6.99 to 18.06%, for the 182-day and 8.05 to 18.70%, for the 364-day tenor. In General, rates trended

downward in the second half of 2017, due to liquidity surfeit and declining inflation (CBN, 2017). Moreover, the structure of investment (allotment) indicated that commercial and merchant banks took up N2, 550.04 billion or 56.7%, a slight reduction from N2, 633.04 billion in 2016. CBN branches accounted for N120.02 billion or 2.7%, mandate and internal funds customers, N1, 698.22 billion or 37.9% and CBN take-up amounted to N127.18 billion or 2.8% (CBN, 2017).

In 2018, NTBs worth N3, 342.39 billion were offered and allotted, representing a decrease of N1, 153.08 billion or 25.7%, below the N4, 495.5 billion in 2017. According to the annual economic report of the CBN in 2018, the reduction in NTBs holdings reflected the lower NTBs issues, coupled with the redemption of treasury bills worth N78.05 billion in December 2018. Total public subscription stood at N6, 713.78 billion, a decrease of N464.6 billion or 6.5%, compared with N7, 178.38 billion in the preceding year. The tenors were 91-, 182- and 364-day. The CBN attributed the low public subscription to the high frequency of Open Market Operation (OMO) auctions, which constrained banking system liquidity and the non-issuance of NTBs in December as maturing obligations were fully redeemed. The bid rates ranged from 10.00 to 12.55% for the 91-day, 10.30 to 13.93% for the 182-day and 10.70 to 14.45% for the 364-day tenors. In comparison, the bid rates in 2017 were higher at 12.95 to 14.00% for the 91-day, 15.00 to 17.50% for the 182-day and between 15.57 to 18.98% for the 364-day tenors (CBN, 2018). The structure of allotment of the instrument indicates that banks took up N 1,832.20 billion or 54.9 per cent, mandate and internal funds customers N 1,332.46 billion or 39.9%, while CBN branches and CBN take-up amounted to N175.72 billion or 5.3% in 2018 (CBN, 2018).

In the year 2019, NTBs worth N3, 190.61 billion were offered and allotted, representing a decline of N151.78 billion or 4.54, below the N3, 342.39 billion in 2018. The reduction in NTBs holdings reflected the federal government of Nigeria preference for longer term bonds. Total public subscription stood at N9, 608.87 billion, an increase of N2, 895.09 billion or 43.12%, compared with N6, 713.78 billion in the preceding year. The tenors were for 91- , 182- and 364-day. The higher public subscription was attributed to the high patronage of NTBs, due to the exclusion of local corporates and other investors including individual investors from purchasing OMO bills. The stop rates ranged from 4.00 to 11.00% for the 91-day, 5.00 to 13.50% for the 182-day and 5.50 to 15.00% for the 364-day tenors. In comparison, the stop rates in 2018 ranged from 10.00 to 12.55% for the 91-day, 10.30 to 13.93% for the 182-day and between 10.70 to 14.46% for the 364-day tenors (CBN, 2019). The structure of allotment of the instrument indicated that banks (including foreign investors) took up N1,769.42 billion or 55.46%, mandate and internal funds customers (including CBN branches) N1,261.39 billion or 39.53%, and merchant banks N86.35 billion or 2.71%. There was CBN take up of N73.45billion or 2.30% in 2019 (CBN, 2019).

Stylized Facts on Economic Growth in Nigeria

The growth of the economy remained relatively strong in 2011. The Real Gross Domestic Product (RGDP), measured in 1990 basic prices, grew by 7.4%, compared with 8.0% in 2010. Growth in 2011 was broad-based but driven mainly by the non-oil sector, which grew by 8.9%, while the oil sector grew by 1.5%. Agriculture grew by 5.7%, led by livestock and fishery. Wholesale and retail trade grew by 11.3% and building and engineering construction by 12.3%. The services and industrial sectors grew by 13.3 and 1.3%, respectively (CBN, 2011). In 2013, the RGDP, at 2010 constant basic prices, rose by 5.5%, compared with 4.2% in 2012. Growth in 2013 was attributed, largely, to the non-oil sector, which grew by 8.4%. Oil sector output fell by 13.1% (CBN, 2013).

In 2014, the growth momentum of the economy was sustained as RGDP, measured at 2010 constant basic prices, rose by 6.2%, compared with 5.5% in 2013. Growth in 2014 was driven, mainly, by the non-oil sector, which rose by 7.2%. Oil sector output fell by 1.3% due to domestic and global challenges. In 2015, the growth momentum of the economy moderated as RGDP, measured at 2010 constant basic prices, rose by 2.8%, compared with 6.2% in 2014. Growth in 2015, was driven, mainly, by the non-oil sector, which rose by 3.8%. Oil sector output fell by 5.5%. In 2016, the economy was under pressure. Real sector activities were significantly constrained by low crude oil production and price shocks, foreign exchange shortages and energy deficit, among others. Consequently, the economy contracted, as provisional data indicated that RGDP, measured at 2010 constant basic prices, declined by 1.5%, in contrast to 2.8% growth in 2015. Oil and non-oil sector output declined by 13.7 and 0.2%, respectively.

In 2017, the economy witnessed a mild recovery from recession. The RGDP, measured at 2010 constant basic prices, grew by 0.83%, in contrast to the contraction of 1.58% in 2016. The development was attributed largely to increased agricultural output enabled by CBN interventions, improved crude oil receipts, fiscal stimulus, as well as, improving business environment. Oil and non-oil sectors output grew by 4.79 and 0.47%, respectively. The economy witnessed sustained growth in 2018. The RGDP, measured at 2010 constant basic prices, grew by 1.9%, compared with the growth of 0.8% in 2017. The development was attributed, largely to fiscal stimulus due to increase in international price of crude oil, which led to increased infrastructural spending following sustained implementation of the Economic Recovery and Growth Plan (ERGP); sustained implementation of the Anchor Borrowers' Programme; increased capital inflow arising from improved investor confidence in the economy, improved access to foreign exchange; as well as, ameliorating inflationary pressures.

In 2019, the economy maintained a modest growth. The RGDP, measured at 2010 constant basic prices grew by 2.3%, compared with 1.9% in 2018. The development was attributed, largely, to surge in confidence, following the peaceful conduct of the 2019 general elections, the effective implementation of the 2019 budget, increased capital inflows, which helped to stabilize the foreign exchange market, as well as increased lending to the real sector, following CBN's directive to banks to maintain a minimum Loan-to-Deposit ratio of 60% in July 2019, which was raised to 65% by end-December 2019. In addition, sustained interventions in the real sector by the Federal Government and the CBN contributed to the growth outcomes in 2019. The oil and non-oil sectors grew by 4.6 and 2.1%, respectively.

METHODOLOGY

The study is quantitative in nature. The ex-post facto research design which is frequently employed as a substitute for true experimental research to test hypotheses about cause-and-effect relationships was employed. The study used secondary data from 1985 to 2019 for the analysis. Importantly, the researcher would have loved to cover from 1960 when treasury bills were issued for the first time in Nigeria to 2023 but because of paucity of data the researcher decided to cover for the period data were available. Therefore, the period 1985 to 2019 was chosen because of paucity of data. Data for the study were collected from the statistical bulletin volume 30, 2019 of Nigeria's apex bank. In order to carefully investigate the impact of treasury bills on economic growth in Nigeria, the study adapted the model of Akpotor and Egharevba (2022) who in their study of treasury bills and economic growth in Nigeria formed a model with Real Gross Domestic Product (RGDP) as a dependent variable while treasury bills, treasury bills rates, money supply and inflation rate were independent variables. This current study modified the model of Akpotor and Egharevba (2022). Therefore, the model for this study is presented thus:

$$RGDP_t = \alpha_0 + \alpha_1 TBS_t + \alpha_2 INF_t + \alpha_3 MPR + e_t \quad (1)$$

Where: RGDP is Growth Rate of Real Gross Domestic Product, Growth Rate of Treasury Bills, INF is Inflation Rate and MPR is Monetary Policy Rate (interest rate), α_0 = intercept parameter, e = error term, $\alpha_1 - \alpha_3$ = slope parameters.

On the a priori, it is expected that; $\alpha_1 > 0$ and $\alpha_2 - \alpha_3 < 0$

The techniques that were employed to analyze the data are: unit root test via Augmented Dickey Fuller test (ADF) and Autoregressive Distributed Lag (ARDL). The ADF unit root test helps to ascertain stationarity of the variables, and the general form of the ADF is presented thus:

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum \alpha_i \Delta y_i + \delta_t + U_t \quad (2)$$

Where: y is a time series, t is a linear time trend, Δ is the first difference operator, α_0 is a constant, n is the optimum number of lags in the independent variables and U is random error term.

In order to examine the short-and long-term relations between treasury bills and economic growth, Autoregressive Distributed Lag (ARDL) was used. The reason is that estimates provided by ARDL method avoid problems such as autocorrelation and endogeneity, they are unbiased and efficient. The ARDL model for this study is presented thus:

$$\begin{aligned} \Delta RGDP_{t,j} = & C_0 + C_1 RGDP_{t-1,j} + C_2 TBS_{t-1,j} + C_3 INF_{t-1,j} + C_4 MPR_{t-1,j} + \sum_{i=1}^{n1} a_{1i,j} \Delta RGDP_{t-1,j} \\ & + \sum_{i=0}^{n2} a_{2i,j} \Delta TBS_{t-1,j} + \sum_{i=0}^{n3} a_{3i,j} \Delta INF_{t-1,j} + \sum_{i=0}^{n4} a_{4i,j} \Delta MPR_{t-1,j} + \lambda ECM_{t-1} + \mu_t \\ & - - - - - (3) \end{aligned}$$

Where Δ is the difference operator while μ_t is white noise or error term, n is the optimal lag length, $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ represent the short run dynamics of the model and c_1, c_2, c_3, c_4 are the long run elasticities and μ_t is the error term. ECM_{t-1} is the error correction term obtained from the co-integration model.

The error coefficients (λ_1) show the rate at which the co-integration model corrects its previous period's disequilibrium or speed of adjustment to restore the long run equilibrium relationship. The coefficient of ECM is expected to be negative and statistically significant. A negative and significant ECM_{t-1} coefficient implies that any movement in short run between the explained and independent variables will converge back to the long run relationship.

RESULTS AND DISCUSSION

The empirical analysis focused mainly on estimation of the regression model and post estimate test.

Unit Root Test Result

The test for the stationarity status of all variables in the model to establish their order of integration precedes the ARDL bounds test, the reason for this is to be sure that the variables are stationary at level 1(0) and first difference 1(1) only but not second difference 1(2) so as to avoid spurious regression results. Therefore, the ADF technique was used to test for the stationarity of the variables in the model. See Table 1.

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test (*E-views 10 output*)

Variables	Level form		First difference		Order of integration
	ADF Statistics	5% Critical Value	ADF Statistics	5% Critical Value	
RGDP	-2.366669	-3.552973	-4.898044	-3.557759	1(1)
TBS	-4.665892	-3.552973	-	-	1(0)
INF	-3.796335	-3.552973	-	-	1(0)
MPR	-3.178086	-3.552973	-6.099628	-3.557759	1(1)

Note: RGDP, TBS, INF and MPR as earlier defined

The result of the ADF test for each of the series presented in Table 1 reveals that at five per cent level of significance, TBS and INF were stationary at level 1(0) as their respective ADF statistics are greater than 5 per cent critical values, while RGDP and MPR were stationary at first difference 1(1). Given that the variables were integrated of order 1(0) and 1(1). The requirement to fit in an ARDL model to test for long run relationship is satisfied.

Table 2: ARDL Bounds Test for Co-integration (*E-views 10 output*)

Model		F-Statistic = 4.271869
RGDP= F(TBS, INF, MPR)		K = 3
Critical Values	Lower Bound	Upper Bound
10%	2.97	3.74
5%	3.38	4.23

The result of the ARDL bounds test for co-integration reveals that there is a long run relationship amongst the variables (RGDP, TBS, INF and MPR). This is because the computed F-statistic of about 4.271869 is greater than the upper critical bounds at 5% critical value. This provided evidence to discard the null hypothesis of no cointegration at 5% significance level for the RGDP model. Based on this finding, the study obtained the long-run and short-run dynamic parameters for the variables.

Table 3: Estimated ARDL Long Run Coefficients.

Dependent Variable: MSG ARDL (3, 1, 3, 3) (*E-views 10 output*)

Regressors	Coefficient	t-Statistic	P-Value
TBS	-0.002965	-0.093233	0.9268
INF	-0.285877	-3.470236	0.0029
MPR	-0.233312	-0.803788	0.4326

The estimated ARDL long run coefficients in Table 3 reveal that in the long run, treasury bills, inflation rate and monetary policy rate have negative relationship with RGDP (economic

growth) in Nigeria. Surprisingly, only inflation rate is statistically significant. This means that in the long run, policies regarding inflation rate will significantly influence economic growth in Nigeria.

Table 4: Error Correction Representation for the Selected ARDL Model ARDL (3, 1, 3, 3) (*E-views 10 output*)

Regressors	Coefficients	t-Statistic	P-Value
TBS	-0.027322	-2.236381	0.0390
INF	0.185887	3.448168	0.0031
MPR	-0.294189	-1.550829	0.1394
ECM (-1)	-0.813024	-5.136640	0.0001
R² = 0.703727	D-W stat. = 1.693273	Prob(F-statistic) = 0.000948	
Akaike info criterion = 4.889248	Schwarz criterion = 5.393095	F-statistic = 4.988053	

Table 4 shows the result of the short-run dynamic coefficients associated with the long-run relationships obtained from the ECM equation. The Error Correction Term in the model has the right sign (i.e., negative) and statistically significant. This indicates adjustment to long-term equilibrium in the dynamic model. Put differently, it indicates adjustment from short run equilibrium to long-run equilibrium in the dynamic model. This implies that deviations from the short-term economic growth adjust to long run equilibrium. The Durbin Watson (DW) value of 1.693273 which is approximately 1.7, suggests that autocorrelation is not a problem to the model.

Moreover, the coefficient of treasury bills in the short- run has a negative sign. Thus, a percentage increase in treasury bills will reduce economic growth by 0.027322 per cent. What this suggests is that treasury bills have a negative effect on economic growth in Nigeria during the studied period. This finding is not consistent with the empirical work of Akpotor and Egharevba (2022) who in their study, analyzed the effect of treasury bills on economic growth and reported that treasury bills has a positive effect on economic growth in Nigeria. At the same time, the coefficient of treasury bills is statistically significant. Thus, it was concluded that there is a significant relationship between treasury bills and economic growth in Nigeria. This finding is consistent with the empirical study of Cyril (2021) who reported the existence of a significant relationship between money market instruments including treasury bills and economic growth in Nigeria. What this suggests is that if issuance of treasury bills in Nigeria is mainly used as a mop-up instrument and funds derived are channel to productive investments it will help to increase economic growth in Nigeria.

Moreover, the coefficient of inflation rate appears with a positive sign. This is not consistent with theoretical expectation in economics. Thus, a percentage increase in inflation rate will increase economic growth by 0.185887 per cent. In general, very high levels of inflation may undermine economic growth. However, if the rate of inflation is low, stable and sustainable,

it may be interpreted as an indicator of macroeconomic stability that would enhance economic growth. The Central Bank of Nigeria (2015) attributed increase in inflation rate in Nigeria to increase in the prices of various food items, due to an increase in the cost of transportation, as well as shortage in the supply of goods as a result of persistent fuel scarcity. Also, in 2016, the Central Bank of Nigeria attributed inflationary pressure in Nigeria largely to re-pricing of the Premium Motor Spirit (PMS) products as well as a strong pass-through of exchange rate depreciation to domestic prices. Meanwhile, the absolute value of the t-statistic for the slope coefficient is significant. Thus, the study concluded that there is a significant relationship between inflation rate and economic growth in Nigeria.

The coefficient of interest rate appears with right sign (i.e., negative). This means that a percentage increase in interest rate will decrease output growth by 0.813024%. This implies that, high and rising interest rate that were recorded within the period covered by this study served to retard economic growth. The explanation for the finding may be that high and perhaps prohibitive interest rates tend to discourage potential borrowers, manufacturing sector investors inclusive, from borrowing to finance their activities. This is instructive as it corroborated Ekpo (2017) who reported that “high interest rate in Nigeria extremely discouraged investment and as a result reduced economic growth”. Fascinatingly, the absolute value of the t-statistic for the slope coefficient is not significant. Thus, the study concluded that there is no significant relationship between interest rate and economic growth in Nigeria.

Post Estimation Diagnostic Tests Results

Diagnostic tests were conducted in this study to verify whether or not the estimated model is reliable for policy prediction or recommendation purpose. This study specifically employed the Wald test for coefficient of restriction, Breusch-Godfrey (B-G) Lagrange Multiplier (LM) test for serial correlation and normality test for the diagnostics or post-estimation analyses (Table 5, 6 and Figure 1).

Wald Test

The Wald test is applied to confirm if the coefficients of the causal variables in the ECM model are jointly significant. The F-statistic in Tables 5 was utilized to ascertain this.

Table 5 Wald Test Result (*E-views 10 output*)

Test Statistic	Value	Df	Probability
F-statistic	7403.880	(4, 17)	0.0000
Chi-square	29615.52	4	0.0000

The result in Table 5 shows that the F-statistic is approximately 7404 and the probability value of 0.0000 is less than 0.05 at the conventional 5 per cent level. Therefore, all the independent variables used in the model are jointly important in explaining economic growth in Nigeria during the period of study.

Test for Serial Correlation

The Breusch-Godfrey Serial Correlation LM test was used as a higher order test statistic for testing the null hypothesis of no serial correlation against the inferred alternative hypothesis of serial correlation in the ECM result at 5 per cent level of significance.

Table 6: Breusch-Godfrey Test for Serial Correlation (*E-views 10 output*)

F-statistic	0.746192	Prob. F(1,16)	0.4004
Obs*R-squared	1.425886	Prob. Chi-Square(1)	0.2324

The result as displayed in Table 6 reveals that the error correction model is not suffering from serial autocorrelation problem. This is because the chi-square value and the corresponding probability value of the chi-square statistic surpass the 0.05.

Normality Test Result

The Jarque-Bera statistic was applied to examine whether the error term in the output growth model is normally distributed at 5 per cent significance level.

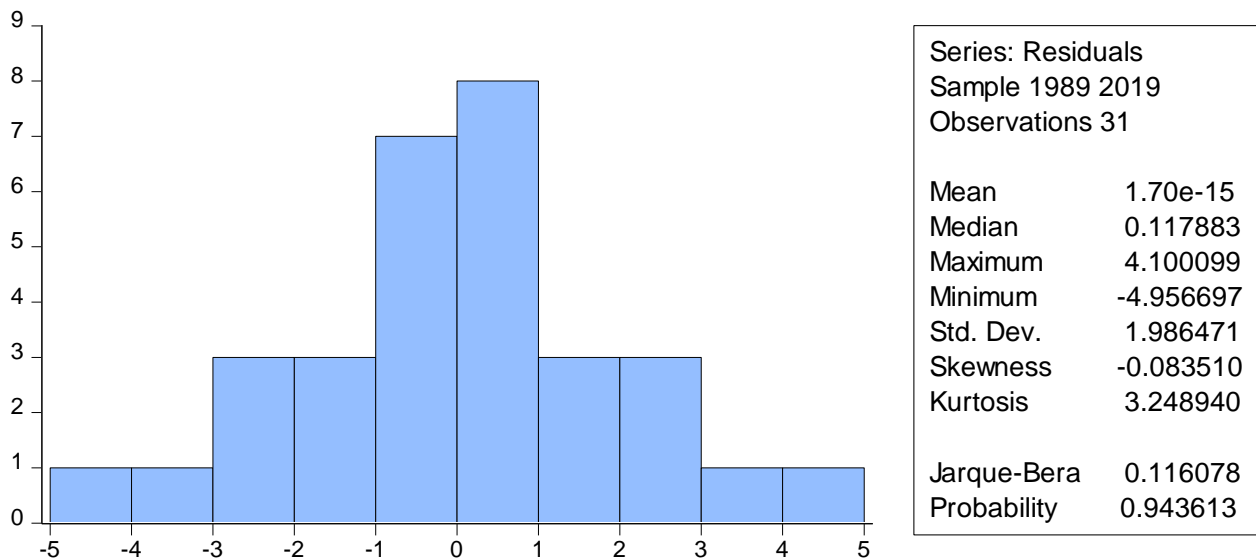


Figure 1: Normality Test Result (*E-views 10 output*)

The result shown in Figure 1 depicts that the error term is normally distributed at the conventional level (i.e., 5%). This is because the probability value of the Jarque-Bera statistic of approximately 0.94 is greater than the 0.05% conventional level. This implies that the Jarque-Bera statistic hypothesis of normally distributed residuals in the ECM model is accepted.

CONCLUSION AND RECOMMENDATIONS

This study investigated the effect of treasury bills on economic growth in Nigeria from 1985 to 2019. The study used data on real gross domestic product, growth rate of treasury bills, inflation rate and monetary policy rate sourced from the statistical bulletin volume 30, 2019 of Nigeria's apex bank. The ARDL method of econometrics was used to capture the short and long-run relationship between endogenous and exogenous variables. The results showed that in the long run, treasury bills have negative and insignificant relationship with economic growth. But in short run, treasury bills have negative and significant relationship with economic growth. Moreover, in the long run, inflation rate has negative and significant relationship with economic growth. Meanwhile, in the short run, inflation rate has positive and significant relationship with economic growth. Interestingly, monetary policy rate has negative and insignificant relationship with economic growth both in the long and short runs. Based on the findings, the study concluded that treasury bills have the ability to increase economic growth in Nigeria if they are tailored towards enhancing investment potentials in the economy. The study recommended that government should ensure that treasury bills issued and allotted are used to promote productive activities and enhance investment potentials in the economy which in turn will help to increase economic growth in Nigeria. Monetary authority should assess her interest rate policies to stimulate investment in the country. That is, make the financial sector to be strong to provide credit at lower interest rate which in turn will increase economic growth in Nigeria.

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