Accounting For The Impact Of Monetary Policy On Nigerian Economic Growth: Empirical Assessment (1981-2010)

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Abstract:

The growth of an economy is important as it provides for the economic well being of the citizens. Several factors affect the growth of an economy. They include the economic environment, political dispensation, technological development, educational advancement, and infrastructural development. This research attempted to evaluate how monetary policy has affected the Nigerian economy between 1981 and 2010. Relevant theories to this purpose were reviewed and an empirical analysis carried out. To assess whether monetary policy enhances economic growth, relevant data specific to the economy were selected for analysis. In the study, multiple regression analysis was used as a statistical model. Taking money supply, reserve money, interest rate and Treasury bill issued as index for monetary policy and Gross Domestic Product (GDP) as the yardstick for measuring the efficiency of the monetary policy. The test result supported the fact that there is no significant relationship between monetary instruments and GDP. Consequently, it was deduced that monetary policy is not the only potent tool for ensuring economic growth. This study thus recommended that monetary authorities should come up with income policy that will control inflation, the government should also increase its spending on the productive sector of the economy. This will go a long way in impacting positively on the Gross Domestic Product of the economy and subsequently enhances economic growth.

Keywords: monetary policy, economic growth, inflation controlGross domestic product, government expenditure.

Background Of The Study

The growth of an economy can be attributed to several macro economic aggregates. These when put together result in the unit of measure of the growth of the economy. An economy can be said to be growing in terms of agriculture, education, finance, technology and infrastructure, health services as well as innovation. These are macro economic activities that are carried on given particular monetary requirements. Due to rising population, there is always the need for the injection of sufficient funds to meet these requirements. The over injection of funds can lead to increase in the price level of activities and where there is a persistent rise in the prices of products and services within a country, it leads to inflation. The Central Bank of Nigeria is in the position to employ measures that regulate the flow of monetary activities in Nigeria. Monetary policies are concerned with the use of market operations, liquidity ratios, discount policies and structural credit guidelines. Monetary policy is construed to be actions of the monetary authorities to influence macro economic objectives by controlling the quantity and directions of money supply, the cost of credit and credit availability and support financial accommodation for growth and development programmes. Johnson (1962) defines monetary policy as policy employing the Central Bank's control of the supply of money as an instrument for achieving economic stability. Monetary policy is an attempt by monetary authorities to influence the level of aggregate economic activities by controlling the quantity and direction of money and credit availability. The key objective given the above definition is economic growth which is the main objective of every government, in order to promote the welfare of its citizens. Economic growth here is measured by the increase in Gross Domestic Product of the country. Negative changes in GDP, constant increase in unemployment and inflation rates as well as balance of payment disequilibrium are characteristics of a declining economy. In ensuring optimal expansion for meeting desired objectives, monetary policies are complimented with disciplined and coordinated fiscal policies in a typical developing country like Nigeria. The key elements of monetary policy are reserve money, money supply and interest rate, which jointly determine the liquidity of the economy. These are directly related to the economy such that the optimal injection of liquidity would include a non inflammatory expansion of the economy, ensuring both internal and external balance.The Nigerian economy within the last three decades has been faced with a lot of problems. These problems are of economic, political, technological and social dimensions. The economy has experienced periodic bouts of recession, deficit financing, increasing rate of

unemployment, inflation and balance of payment disequilibrium. This implies that despite an increasing macro economic aggregates over the years, the economy has proven to be unstable characterized by price fluctuation. To fight these undesirable situations, several policies and programmes have been enacted by the government through the Central Bank of Nigeria. This study investigated the effectiveness of the Central Bank's monetary policies in relation to the growth of the Nigerian Economy.

Research Questions

To what extent has the Central Bank's monetary policy contributed to the growth and development of the Nigerian economy?

How effective has the Central Bank of Nigeria been able to use various instruments in implementing monetary policy?

How has money supply affected the growth rate of the economy?

Does credit availability have any effect on price level of goods in the economy?

Literature Review And Theoretical Framework

Theories on Economic Growth

Economic growth is defined as an increase in the goods and services produced by an economy over time. It is conventionally measured as the percentage rate of increase in real Gross Domestic Product (GDP). Ekpenyong (2005) defines GDP as the total value of final goods and services produced within the economy during any given period or time, say one year. He went further to explain that the goods and services may not be produced by the nationals of the country as foreign nationals can also devote their capital and technological know-how to the production of a part of the GDP. As defined by economics theory, Gross Domestic Product measures a country's production output as a way of calculating the growth or decline of its economy. GDP sums up the value of all goods and services production by a nation within its borders over a specified time period, typically a year or 12 months.

According to theories of macroeconomics, Gross Domestic product can be measured in three ways: expenditure, national income and value-added. Theoretically, all three methods must yield the same results, as expenditures for services and goods must equal total income paid to the producers, which must equal the total output value. The expenditures approach, represented by the following formula, is used most commonly.

GDP = Consumption goods and services (c) + Gross Investment (I)+ Government Purchases (G) + (Exports (X)- Imports (M))"Consumption" represents the sum of all households' personal expenditures, also termed private consumption, for things like housing, health care, food, etc. not included in this term is new housing. "Investment" represents the amount spent for capital improvements by business or households. This total includes such purchases as software, equipment or machinery for business and new housing, but not purchases of financial products, which are termed "savings" in economic theory.

"Government spending" represents the amount that a government spends for such items as military weapons, public employees' salaries, etc. not included here are any benefits, such as old-age pensions, unemployment, etc. "Exports" represents gross exports, or those products that a nation creates which are purchased by other nations. "imports" represents gross imports, meaning those items produced outside a country that are bought by its citizens, businesses or governments. These purchases have already been accounted for in the categories of consumption, investment or government, so this value is subtracted. Some economists like the national income method of figuring Gross Domestic product to provide a more real image of corporate and personal wealth, that is, the capacity of businesses and individuals to exchange income for goods and services. This method is calculated by the formula:

GDP = Employee salaries and wages + Corporate gross financial surplus (Profit) + Income of proprietors +Income from Rentals + Net interest.

The third method, the value-added approach is also known as the output method. This method focuses determining the total output of a nation by directly calculating the total value of all goods and services a nation produces. Its formula is:

GDP = The value of goods sold-cost to buy intermediate goods to produce goods sold.

Economic growth theory typically refers to growth of potential output, i.e. production at "full employment." The modern conception of growth began with the critic of mercantilism. Thinkers such as David Hume and Adams Smith propounded the fact that productive capacity allowed for growth and the improving and increasing capital to allow that capacity was the "wealth of nations." This was the concept of classical growth theory.

David Richardo argued that trade was a benefit to a country, because if one could buy a good more cheaply from abroad, it is more profitable for the country. This theory of comparative advantage is the central basis for arguments in favour of free trade as an

essential component for growth. The notion of growth as an increased stock of capital goods (the Solow Swan Growth Model) involves a series of equation which shows the relationship between labour-time, capital goods, output and investment. According to this view, the role of technological change, became crucial and even more important than the accumulation of capital. This model developed by Robert Solow and Trevor Swan in the 1950s was the first attempt to model long-run growth analytically. This model assumes that countries use their resources efficiently and that there are diminishing returns to capital and labour increases. From these two premises, the neoclassical model makes three important predictions;

Increasing capital relative to labour creates economic growth since people can be more productive given more capital.

Poor countries with less capital per person will grow faster than because each investment in capital will produce a higher return than rich countries with ample capital.

Because of the diminishing returns to capital, economies will eventually reach a point at which any increase in capital will no longer create economic growth.

Modern economic research shows that the baseline version of the neoclassical model of economic growth is not supported by evidence. The endogenous theory holds that economic growth is primarily the result of endogenous and not external forces. The theory holds that investment in human capital, innovation and knowledge are significant contributors to economic growth.

Theories On Monetary Policy

According to Akatu (1993) and Agba (1994) the primary goal of monetary policy is to ensure that overtime, the expansion of money and credit will be adequate for the long run needs of a growing economy at stable prices. In Nigeria, the effectiveness of monetary policy has in fact been dependent crucially on the stance of fiscal policy. Ackwey (1978) in his study on monetary and fiscal actions, indicated that there is a strong relationship between money supply and nominal Gross National Product. Many scholars have replicated his study using alternate assumptions and have obtained similar results coming to a conclusion that monetary policy is a basic tool for economic growth.Ajayi (1978) also contributed in his explanations on monetary policy and the economy, in his work 'money, price and interest rates,' it was noted that the absence of financial assets which are substitute for money, the alternative way of holding money as a form of wealth would therefore be real assets. Real assets here are characterized by investment

and production. Eyinnaya (1989) and Aluko (1987) opined that monetary policy can be used to manage or control the volume of public debt. He added that the management of domestic public debt through monetary policy has recorded positive achievements in Nigeria but the effect of debt equity swoop in the management of foreign debt is yet to be realized. Oyejide (2002) who studied the effects of monetary policy actions for economic stabilization and external balance is of the view that monetary policy actions affect the economy primarily by determining aggregate spending which in turn, directly affects the production of goods and services as well as inflation and unemployment rates. He also stated that interest rate and money supply have important effect on economy's external balance hence, it is a potent tool for economy growth. Okofie (1981) and Anyanwu and Ogiklenen (1998) see monetary policies in a broader perspective, that monetary policy as a tool, is used for the expansion and contraction of the volume of money in circulation for the specific purpose of achieving certain declared national objectives. These involve changing the money supply and credit availability with the expectation that such changes will influence total spending and its output, unemployment and general price level.

The Classical, Keynessian And Monetarist Theories

The classical theorists concentrated on the self-regulating measures of market forces. Market forces, when left to operate, will always bring the economy into a long-run equilibrium of full employment output and price stability.   The classical theorists introduced the quantity theory of money using the fisherian equation:

$$MV = PY$$

Where M = Money supply

V = Velocity of circulation

P = Price level

Y = Quantity of output

The above equation of exchange postulated by Fisher is an identity relating the volume of transactions at current prices to the money store. The velocity of money is referred to as the number of times the stock money is turned over per year in financing an annual flow of income. The quantity theory assumes that the demand for money is not affected by the interest rate, stating that the main motive of holding money is for transaction.

This classical assumption is criticized by Keyness, who sees the quantity theory as one-sided as it neglects the store of value function of money and only considers the medium of exchange function.   Due to the great depression of 1929-1933, persistent unemployment exposed the classical theory. John Maynard Keyness, in his book "the general theory of employment, interest rate and money (1936), puts aside monetary policy and proposed fiscal policy measures, thus the believe in the superiority of fiscal policy over monetary policy measures. The theory argues that government should use macro economic policies to manage the level of aggregate demand in order to eliminate inflationary gaps and bring about equilibrium of full employment. Keynessian monetary transmission mechanism refers to the link between monetary sector and real sector of the economy which the government tries to influence. Here, an increase in the monetary supply generates decrease in interest rates. Consequently, a decline in interest rate may stimulate investment. The increase investment will raise the level of income and output. The combination of falling interest rates and rising income serves to increase the overall demand for money so that eventually, demand catches up with the supply of money. When this occurs, the demand market will be back to equilibrium. The monetarists are twentieth century economists who criticized the keynessian theory and lay emphasis on the importance of monetary policies, especially money supply. They represent the modern variant of classical macro-economists propelled by professor Milton Friedman. In the late 1980s, economists hotly debated the potency of changes in the supply of money stressing that the practice of money stock is the single factor influencing inflation. The restatement of the quantity theory of money by Friedman was centered on redefining the quantity theory in the path where the keynessian theory deviated. Friedman, in his findings, believes that money supply and GDP are found to be positively correlated. The presence of interest rates and other variables make the supply of money to be unstable and money supply is varied by the monetary authorities in an exogenous way. The fact remains that money supply consists of bank deposits created by changes in bank lending which is allowed not exclusively exogenous as assumed by Friedman, but endogenous.

Monetary Policies In Nigeria

Monetary activities in Nigeria during the pre-central banking era were overseen by the West African Currency Board (WACB), which was established in 1912 with headquarters in London. The constitution of the WACB charged it "to provide for and to

control the supply of currency to the British West African Colonies, Protectorates and Trust Territories." In practice however, the board was no more than a Bureau de Change issuing as much local currency as the banks wanted to buy for sterling and vice versa. It was therefore not in the technical sense, a monetary authority. Such a system, however, satisfied the Bank of England monetary policy objective of achieving price stability in the colonies. Price stability and parity conversions however had its cost: the ability of the WACB to create credit was severely hampered. This pre-central banking system also perpetuated a situation where large parts of Nigerian Government funds were held abroad. This further reduced the amount of money available for indigenous development. Access to credit was indeed what the Africans, rightly or wrongly, believed that they needed most if they were to break away from the shackles of colonialism. Dispensing with the colonial monetary system in favour of a central bank was therefore an integral part of throwing off the economic shackles of colonialism. The economic environment that guided monetary policies before 1986 was characterized by the ground importance of the oil sector, the expanding role of the public sector in order to maintain price stability and healthy balance of payment position. Monetary management depended on the use of direct (non-market) instruments such as credit ceiling, selective credit controls, administered interest and exchange rates as well as the prescription of cash reserve requirements and special deposits. The use of direct (market based) instruments was not feasible at that point because of the undeveloped nature of deliberate restraint on interest rates. The most popular instrument of monetary policy was the issuance of credit rationing guidelines which primarily set the rates of change of the components of and aggregate commercial bank loans and advances to the private sector. The sectoral distribution of bank credit in CBN guidelines was to stimulate the productive sectors and thereby stem inflammatory pressures. The control of interest rates at relatively low levels was done mainly to promote investment and growth. Occasionally, special deposits were imposed to reduce the amount of free reserves and credit creating capacity of banks. Minimum cash ratio were stipulated for the banks in the mid 1990s on the basis of their deposit liabilities, but since such cash ratios were usually lower than those voluntarily maintained by the banks, they were less effective as constraints on credit operations. From the mid 1970s, it became increasingly difficult to achieve the aims of monetary policy. Generally, monetary aggregates, government fiscal deficit, GDP growth rate and the balance of payment position moved in undesirable directions. Compliance by banks with credit guidelines was less than satisfactory. The

major problem was the non harmonization of fiscal and monetary policies. The rigidly controlled interest rates helped to encourage monetary expansion without promoting the rapid growth of the money and capital markets. The low interest rates on government debt instrument did not sufficiently attract private sectors since the Central Bank was required by law to absorb the inscribed portion of government debt instrument, large amounts of high powered instrument were usually injected into the economy. In the oil boom era, the rapid monetization of foreign exchange earning resulted in large increase in government expansion which substantially contributed to monetary instability. In the early 1980s, oil receipts were no longer adequate to meet increasing levels of demand and since expenditure were not rationalized; government resorted to borrowing from the Central bank to finance its spending. The structural Adjustment programme (SAP) was adopted in July, 1986 against the crash in the international oil market and the resultant deteriorating condition in the economy. It was meant to achieve fiscal balance of payment liability by restructuring the production and consumption pattern of the economy, eliminating price distortions, reducing the heavy dependence on crude oil and consumer goods imports, enhancing the non-oil export base and achieving sustenance growth. The main strategies of the programme were the deregulation of external trade and payments arrangements, the adoption of a market determined exchange rate for naira; and more reliance on market forces as a major determinant of economic activities. The objectives of monetary policy since 1986 have remained as in the earlier period; the stimulation of output and employment and the promotion of domestic stability in line with the general philosophy of economic management under SAP. Monetary policy was aimed at reducing the emergence of a market oriented financial saving and inefficient resource allocation. The main instrument of the market-base framework is the Open Market Operation. In order to improve the macro-economic stability, efforts were directed to the management of excess liquidity. Thus a number of measures were introduced to reduce the liquidity in the system. This included the reduction in the maximum ceiling on credit growth allowed to banks, the recall of special deposits requirements against outstanding external payments arrears to the Central Bank from banks abolition of the use of foreign guarantees/deposits as collateral for naira loans and the withdrawal of public sector deposits from banks to the Central Bank. Effective from October 1986, all mandatory credit allocation mechanisms were observed by the authorities. The Commercial and Merchant banks were subjected to equal treatment since their operations were found to produce similar effect on the monetary process. In

1991 banks minimum lending rates were pegged at 21.0 percent while a minimum of 13.5 percent was stipulated for savings of interest rates control. The federal government promulgated the CBN Decree No. 24 and the Banks and Other Financial Institutions (BOFI) Decree No. 25 both in 1991. The CBN Decree enhanced the bank's powers and discretion in the design of policy leakage in monetary management by bringing the non bank financial intermediaries, which is outside the control of the Central Bank. The Decree streamlined and simplified procedures for licensing banks and established control over other financial institutions including credit houses and financial companies. The amendment of the Decree in 1997 included the control over Community banks, primary mortgage institutions and development banks (Ekechi, 1989, Iyoha, and Chris, 2002). In recognition of the fact that well capitalized banks would strengthen the banking system for effective monetary management, the monetary authorities increased the minimum paid up capital of commercial banks to 50 million naira from 20million naira and that of merchant banks to 40 million naira form 15 million naira. Again in 2004, the minimum paid up capital was increased to 25 billion naira for all commercial banks and banks that could not meet up with this requirement were advised to go into merger with other banks. In pursuit of monetary policy objectives, various policy measures were outlined in the CBN monetary circular for fiscal year 2002/2003.The policy measures were designed to maintain internal and external balance and contribute to the achievement of real GDP growth.

Instruments Of Monetary Policy

According to Iyoha (2002), the instruments of monetary policy include the following:

Money Supply

This is the total amount of currency in circulation in a country at a given time. Money supply can be defined narrowly or broadly; Narrow money (M_1) in Nigeria is the total currency outside bank plus demand deposits of commercial banks plus demand deposits with Central Bank less Federal government deposits at commercial banks. Broad money (M_2) is given as M_1 plus Quasi money. Quasi money is the sum of savings and time deposits with commercial banks.

Open Market Operation (OMO)

This involves the sales of government securities to/from commercial banks and non-bank with a view to regulate the cost and availability of credit. The Open Market sale of securities by the Central Bank is concretionary while purchase depends on a well developed securities market in responsiveness to market forces.

Discount Rate

This is the rate at which the Central Bank lends to commercial banks. The interest rate charged is known as discount rate or Minimum Rediscount Rate (MRR). By varying discount rates, CBN can influence the credit availability as lending of last resort. Its direct impact is on credit cost.

Reserve Requirement

This sets a minimum balance on the liquidity of commercial banks as well as their liabilities. It is to ensure solvency of the banking system and to control the expansion of credit creation as an objective of monetary policy.

Moral-Suation

This is a process by which the Central bank makes known to commercial bank officials, through informal discussion, the direction in which she wishes monetary policy to proceed and the contribution which is expected of the commercial banks. In other words, it is the process of persuading the commercial banks to adhere to monetary directives of the Central Bank.

Direct Control Of Banking

This involves the imposition of quantitative ceilings on the overall and sectoral distribution of credit by the Central Bank. This tool is selective, not general and is used as a weapon for economic development.

Direct Regulation Of Interest Rates

Interest rates are market determined to a large extent. However, in less developed countries like Nigeria, interest rates are administered. In particular, interests are fixed within which deposit and the lending rates are expected to be maintained by commercial banks.

Monetary Policy And The Growth Of The Nigerian Economy

Records of past decades show that monetary policies have not been effective since they failed to redress the economic problems of inhibiting growth and stability. The problem is based on the lack of correspondence between policy goals and policy targets. Monetary policy on Nigeria is aimed at reducing inflation and unemployment yet these problems have persisted and are even worsening. The economy is somewhat depressed and there is a general decline in the standard of living. There was need for government and our monetary authorities to adopt a sound monetary policy framework and a more promising implementation strategy, thus the Structural Adjustment Programme which was adopted in 1986 against the collapse of world oil market. It was designed to achieve internal and external balances by altering and restructuring the production and consumption pattern of the economy. In September 1992 there was a major change in monetary operations from the use of direct controls to indirect operating techniques. The CBN lifted credit ceiling imposition on individual banks that met CBN's requirements on selective basis in respect to minimum capital base, capital adequacy ratio, cash reserve and liquidity ratio requirement. The poor state of economic infrastructure resulting from past neglect, influenced monetary management adversely, thus, even though there has been an increase in the index of measurement of economic growth, the overall development of the country has not been   adequately positive.

Constraints On Monetary Policy Management In Nigeria

Despite efforts to create a monetary policy framework that will enhance the achievement of macro-economic objectives, there have been some factors militating against the attainment of these objectives. They include:

Fiscal Dominance

Fiscal expansion and the resultant large fiscal deficits have militated against the efficacy of monetary policy management in Nigeria. The setting of strict limits on the financing of government deficits by the Central Bank has not been successful despite the bank' operational autonomy. A comprehensive review of the public debt management programme would facilitate the observance of borrowing limits.

Reliability Of Data

Lack of high frequency and reliable data renders macro-economic analysis difficult. It is hoped that this problem will be ameliorated with the computerization of the banking and financial systems.

Ineffective Payment System

The payment system is a vital link between the financial system and the real sector of the economy. The payment instrument in Nigeria is mainly cash. The prominence of cash for transaction purposes increases the volume of money, which renders monetary control difficult (Oyejide, 2003).

Research Methodology

Research Design

The designs adopted for this study was descriptive as well as expo-facto research designs because the events have taken place in their natural course of happening. The quantitative instruments of monetary policy were used to represent the independent variables. What was required was to determine how these quantitative instruments affect the GDP. A survey of the statistical bulletin of the Central Bank was therefore carried out in order to obtain the relevant data.

Methods Of Data Collection

Addressing the research questions, secondary data were obtained from the Central Bank Statistical Bulletin of 2010, published on November 15, 2011. A soft copy of this bulletin was downloaded from the CBN website on www.cenbank.org.

Data from the relevant areas that fit into the scope of study were then extracted such that the hypothesis formulated in the study can be analyzed.

Model Specification

The specified model used in this study was the multiple regression model. In this model, the index used to measure the dependent variable was the Gross Domestic Product (GDP) at factor cost i.e. Real GDP, while money supply, interest rate, reserve money, and treasury bill issued were used as measures of the independent variables (monetary policy). The model was mathematically stated thus:

GDP = (f (ms, IR, RM, TB) ……………………… (1)

Where:

GDP = dependent variable

MS (Money supply), IR (interest rate), RM (reserve money) and TB (Treasury bill) =

Independent variables

The Ordinary Least Squares for the above model is stated thus:

$$GDP = a + b_1MS + b_21R + b_3RM + b_4TB + \mu$$

Where:

GDP   =   Gross Domestic Product

MS   =   Money Supply

IR   =   Interest Rate

RM   =   Reserve Money

TB   =   Treasury bill

a   =   Regression constant

b_1, b2, b3, b4 = Regression coefficients

μ =   Stochastic Error term

Data Presentation

Year	GDP	MS	RDR	RM	TB
1981	47,619.66	9.915.3	6.00	5,026.1	11,976.0
1982	49,069.28	10,291.8	8.00	5,784.5	26,476.0
1983	53,107.38	11,517.8	8.00	6,109.5	45,832.0
1984	59,622.53	12,497.1	10.00	5,915.6	55,904.0
1985	67,908.55	13,878.0	10.00	5,715.1	6,876.0
1986	69,146.99	13,560.4	10.00	6,666.4	65,904.0
1987	105,222.84	15,195.7	12.75	8,491.8	88,664.0
1988	139,085.30	22,232.1	12.75	11,740.6	111,154.0
1989	216797.54	26,268.8	18.50	11,840.4	130,554.0
1990	267,549.99	39,156.2	18.50	18,341.0	91,903.9
1991	312,139.74	50,071.7	14.50	29,871.7	133,156.0
1992	532,613.83	75,970.3	17.50	71,374.8	135,969.9
1993	683,869.79	118,753.4	26.00	104,557.7	112,326.5
1994	899,863.22	169,391.5	13.50	138,295.1	103,326.5
1995	1,933,211.55	201,414.5	13.50	167,693.4	103,326.4
1996	2,702,719.13	227,464.4	13.50	178,513.7	103,326.5
1997	2,801,972.58	268,622.9	13.50	190,124.4	72,930.9
1998	2,708,430.86	318,576.0	14.31	216,862.0	88,930.9
1999	3,194,014.97	393,078.8	18.00	283,421.8	80,930.9
2000	4,582,127.29	637,731.1	13.50	354,674.3	86,895.1
2001	4,725,086.00	816,707.6	14.31	545,881.0	1,985,453.2
2002	6,912,381.25	946,253.4	19.00	591,435.0	2,421,143.2
2003	8,487,031.57	1,225,559.3	15.75	688,652.5	3,026,347.1
2004	11,411,066.91	1,330,657.8	15.00	732,310.3	3,467,740.5
2005	14,572,239.12	1,725,395.8	13.00	762,788.0	2,521,730.0
2006	18,564,594.73	2,280,648.9	12.25	974,903.9	1,509,070.0
2007	20,657,317.67	3,138,934.2	8.75	1,195,271.9	1,304,182.4
2008	24,296,329.29	4,898,939.5	9.81	1,549,093.0	916,276.0
2009	24,794,238.66	4,662,217.85	7.44	1,462,761.81	1,392,430./0
2010	29,205,782.96	5,177,901.13	6.13	1,634,010.35	1,967,950.0

Table 1:   Real GDP, Money Supply, Interest Rate, Reserved Money and Treasury bill Issued from 1981 – 2010
Source: Central Bank Statistical Bulletin for 2010 Published November, 2011

Analysis Of Data

The above table (table 1), shows an increasing GDP for each year. Between the periods under study, there has been an increase in the GDP of Nigeria of 612% as well as a persistent increase in money supply. However, there have been fluctuations in the interest rate and also in the amount of Treasury Bill issued.

Dependent variable: GDP
Method: Lease Squares
Date:01/01/01   Time: 00:25
Sample (adjusted): 1981   2008
Included observations: 28 after adjusting end points

Variable	Coefficient	Std.error	t-statistic	Prob,
C	730279.6	915373.8	0.797794	0.4332
MS	1.333793	1.434346	0.929896	0.3621
RDR	-74384.74	65547.28	-1.134826	0.2681
RM	12.82842	4.491035	2.856451	0.0089
TB	-0.007104	0.489745	-0.014506	0.986

R-squared	0.969490	Mean dependent var		4680434.
Adjusted R-squared	0.964184	S.D. dependent var		6918183.
	1309272.	Akaike info criterion		31.16827
S.E of regression	3.94E+13	Schwarz criterion		31.40617
Sum squared resid	-431.3558	f-statistic		182.7138
	0.923743	Prob (f-statistic)		0.000000
Log Likelihood				
Durbin-Watson stat				

Table 2: Multiple regression result

From the above table, the relationship between monetary policy variables and the growth of the Nigerian economy was represented by GDP. The analysis attempted to evaluate the effect of monetary policy on the growth of the Nigerian economy. The goodness of fit of the model is indicated by the adjusted R^2 value of 0.964184 or 96% which means that the model fits the data well, the take variation in the observed behaviour of GDP is used in the measure of economic growth, it is jointly explained by variation in money

supply, interest rate, reserve money and treasury bills issued up to 96%, the remaining 4% is accounted for by the stochastic error term. Testing for the overall significance of the model, we use the analysis of variance of the f-statistic. Here the high significance of f-stats value of 182.7138 confirms that the high predictability of the model did not occur by chance. To test for the individual statistical significance of the parameters, the t-stats of the respective variables were considered. Considering the probability by values which were automatically generated during the computation process, the constant term is significant at 5%. The apriori expectations about the signs of the parameters estimate are confirmation to economic theory. Here both money supply and reserve money entered the model with a positive sign. By interpretation, a 1% increase or decrease in money supply will cause or affect GDP by 1.33%. For reserve money an increase in the variable will affect GDP by 12.83%, all things being equal. On the other hand an increase in the interest rate will account for a 74% decrease in GDP while an increase in Treasury bill will affect GDP by 0.007%. The robustness of the MS, RDR, RM, and TB variables in the equation indicate their importance on growth of the Nigerian economy. For auto-correlation in the residuals, the duo-stats is used to compare with the table DW values. The decision rule for non-auto correlation in the residuals is that the calculated DW values must lie between du and 4-du (i.e. du<d<4-du) since k=4 it is shown that du =1.76 and 4 –du =2.24.

Test Of Hypothesis

Using f-ratio:

H_o: x2 = 0 and is formally tested against the alternative H_1:x$_2$=0

H_o: = There is no significant relationship between changes in monetary policy and economic growth in Nigeria

H_1: = There is a significant relationship between changes in monetary policy and economic growth in Nigeria

Decision Rule

Accept H_o if f-statistic of 182.7138 calculated is less than the tabulated f- statistic of 3.05 otherwise, reject H_o if calculated f-statistic is grater than the tabulated f-statistic. From the data analysis, the calculated f-value of 182.77138 is greater than the tabulated f-figure of 3.05 at 5% level of significance. That is to say that 182.7138>3.05, to this end,

we accept the alternative hypothesis (H₁) and conclude that there is a significant relationship between changes in monetary policy and economic growth in Nigeria.

Discussion Of Findings

From the analysis carried out, the following were discovered:

Money supply is increasing as the population of the economy increases. This is sure to allow for sustenance.It was also discovered that interest rates was reducing and suddenly tend to be having single digits. With single digits interest rates, the economy is better-off. Thus, if interest rate increases, it will have a negative effect on the growth rate of the economy as seen in the negative coefficient of interest rate in the analysis.

Again, treasury bill administration will only reduce amount of money needed for production, investment and restructuring of the economy for growth.

Summary Of Major Findings

This research investigated the effect of monetary policy on the growth of the Nigerian economy during the period 1981 to 2010. In view of this, the hypothesis of this research work was formulated, after which studies and theories relating to monetary policy and economic growth were examined and empirical analysis carried out. The result showed that the hypothesis tested was statistically significant as a factor causing variations in the real Gross Domestic Product of Nigeria. Hence we can accept that monetary policy is very important in ensuing economic growth. The choice of alternative policy instruments will therefore depend on factors such as the economic environment, political situation of the economy as well as administrative implementation ability of the government in power.

Conclusion

We have successfully carried out an empirical research on the effectiveness of monetary policy on the growth of the Nigerian economy, and from this work, it was observed that not all the policy instruments conform to economic theories. The use of treasury bills is to reduce the currency in circulation in order to curb inflation, hence as money supply increases, treasury bills should also have a positive movement. The fluctuating nature of this instrument as seen in our study leads to price instability.

In conclusion, based on our observations, it is worthy to note that monetary policy if effectively combined with fiscal policy, because of the impact of government expenditure on GDP, will help the economy grow at a higher pace.

Recommendations

The following recommendations are offered in order to enhance the effectiveness of monetary policy on economic growth.Monetary authorities should come up with an income policy that will control inflation without triggering off recession in the economy. There should be consistency in the policy instruments used.

Efforts should be made to enhance the state of financial markets. This will afford monetary authorities a wider range of adopting policies to regulate other sectors of the economy.

Government should increase her expenditure on the productive sector of the economy. This will go along way in impacting positively on the real GDP in the country.

Money supply stimulates the required growth level; it should therefore not be changed arbitrarily but by the percentage increase in population in order to avoid inflation.

Following the current trend of mobile money and cashless environment, there should be a public enlightenment on banking and e-money services in order to reduce the total currency in circulation.

Suggestions For Further Study

The findings from this research should be able to spur up both positive and negative criticisms. It is therefore suggested that these findings should be used as a basis for further research on the topic: monetary policy and economic growth.

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