

IMPACT OF BUDGET DEFICITS FINANCING AND MONEY SUPPLY ON INFLATION IN NIGERIA: AN EMPIRICAL INVESTIGATION OF CAUSAL RELATIONSHIP

**Onyedibe, Chukwudi Francis; Ibeto, Chukwuemeka Victor; Ogbu, Onyemaechi
Keneth; Udedi, Uchenna Collins**

Department of Economics, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
E-mail of corresponding author: francischukwudi44@gmail.com

Abstract

The objective of this study is to investigate the impact of budget deficits financing, money supply on inflation in Nigeria as well as to investigate the direction of causality between deficit financing, money supply and inflation in Nigeria. Vector Error Correction Mechanism was adopted to evaluate short-run dynamics and long-run linkages among budget deficit financing, money supply, and inflation. Fiscal balances was used a proxy to capture deficit financing. Findings from the results show that financing deficit has a positive effect on the inflation for the period under review. Also, money supply has a positive effect on inflation. It was also observed from the result that there exist a long run causality between deficit financing, money supply and inflation while on the hand the study posit no short run association between the variable of the model. The study recommends that the Nigeria government through its monetary authority should consider expansionary monetary policy when it is obvious that there are lesser quantity of money in circulation relative to output of goods and services, both monetary authority and government should work hand in hand in combating long run inflation in Nigeria

Keywords: *External Debt, Internal Debt, Inflation, Money Supply, Nigerian Economy*

JEL Codes: *E50, E52, E58, H61*

1. Introduction

Inflation is defined as a continuous increase in the overall price level, whereas money supply refers to the total amount of money in circulation across the economy (Lipsey & Chrystal, 2007). Inflation is defined as a rise in the money supply relative to total production (Friedman, 1936). Price distortion, poor savings and investment, devaluation of home currency, and capital flight are some of the economic costs associated with inflation. As a result, policymakers in both developed and developing countries strive to implement relevant policy alternatives to combat inflation and mitigate its negative consequences on the economy (Emerenini & Eke 2014). The challenge of price stability is one of the major macroeconomic problems that inflation causes in any economy. Inflation depreciates the value of money, lowering the citizenry's standard of living (Odior 2013).

Money's value is assessed by the quantity of products and services that a unit of money can be exchanged for in the economy, despite its functions as a unit of account, a medium of exchange, and a store of value (Taylor & Mankiw 2008). Price

stability is defined as the quantity of goods that a particular unit of an economy's medium of exchange can be exchanged for remaining generally stable over time. Price stability is defined as a low and stable inflation rate rather than the absence of inflation. Increased inflation reduces an economy's purchasing power, creates uncertainty in the economy, and slows economic progress (Emerenini & Eke 2014).

The money supply and the stock of goods and services are two important factors that influence the level of inflation in a country's economy. Money, according to Mankiw and Taylor (2008), is a set of assets in the economy that people use to acquire goods and services from other people on a regular basis. The government, Central Bank, and other financial institutions of the monetary system decide the amount of money in an economy as a specific asset, although the volume of commodities is mostly determined by the private sector in an economy. When inflation becomes chronic, policies focus on the stock of goods and services as well as the amount of money in circulation.

However, deficit financing arises each time the government has budget deficit. In order for the economy to grow as projected in a budget, the

government must raise funds from other sources to cover revenue shortfalls caused by excessive spending. Deficit financing can be defined as the practice of raising government expenditures beyond revenue sources in order to stimulate a country's economy (CBN, 2018). This means that deficit financing can be described as money provided by government to cover a revenue shortfall. In order to offer an economic boost, the government may engage in deficit financing (Onwe 2014). When government spending exceeds public revenue, the government may have to use deficit financing to close the budget gap.

Most economists argue that inflation is solely a monetary phenomenon, as the rate of inflation grows as the economy's money supply expands at a rapid pace. According to Tekin-Koru and Zmen (2003), he maintains that budget deficits are only inflationary in the monetarist perspective if they are monetized. This argument on inflation centered on money supply as the major cause. Other arguments view causation as running from inflation to money supply (Sargent & Wallace, 1973)

Central banks can erase the link between budget deficits and inflation, according to Chimobi and Igwe (2010), by not monetizing the deficit. For example, by refusing to purchase government bonds or seeking international aid. The Keynesian doctrine, which is based on expenditure-led growth, is often blamed for the emergence of a budget deficit. The Keynesian paradigm was adopted by most economies, motivating the demand side of the economy to stimulate growth. However, in most countries around the world, including Nigeria, the impact on macroeconomic indicators cannot be overstated (Olomola & Olagunju, 2004). Budget deficits are only inflationary in the monetarist framework if they are monetized (Olusoji & Oderinde, 2011).

To address the budget deficit, the government has taken a variety of steps. Printing new currency, local borrowing, and external borrowing can all be used to cover the budget deficit (Fischer & Easterly, 1990). Seigniorage is the process of a central bank creating fresh currency notes to finance a deficit. It expands the money supply, causes inflation, and lowers interest rates. Domestic borrowing, such as the sale of Treasury bills, short-term federal bonds, and defense saving certificates, is a second option for funding the budget deficit. Because local capital markets are too tiny and internal borrowing opportunities are equally limited in most developing nations, government borrowing from foreign resources to finance fiscal deficits is a common practice (Fischer & Easterly 1990).

When considering the monetary phenomenon, it is believed that inflation occurs when the rate of money growth exceeds the rate of aggregate output. When revenue falls short of total expenditures for a certain period, a budget deficit occurs. High interest rates, according to popular belief, are the result of enormous deficits, which have long-term consequences for both economic growth and productivity. The monetary authorities monetize specific sections of the deficits in order to reduce money growth and inflation, which are created by high interest rates as a result of large deficits forces (Darrat & Suliman, 1991). Sargent and Wallace (1984) argued in previous research that tight monetary policy leads to higher inflation rates as a result of huge deficits. As a result, economists, practitioners, and other government officials have devised measures to control and reduce the growing budget deficit. According to Suhaib, Mohsin, Salman, and Yasir (2015), most developing countries' central banks are directly controlled by the government, and money creation is likely to finance government deficits. In the context of Nigeria, this article attempts to experimentally evaluate the relationship between money supply and budget deficit financing on inflation, as well as determine the causal relationship between these factors.

Deficit financing is used by many developing countries to achieve certain macroeconomic goals. In traditional settings, deficit financing is viewed as a tactic used to deal with macroeconomic problems such as depression and poor output (Anyanwu, 1997). On the other hand, deficit financing replace still appears to be a strategy that has the tendency of aggravating inflationary pressure and crowding out private sector investments, and thereby worsening unemployment problems (Anyanwu, 1997).

Despite the fact that actual receipts are frequently higher than anticipated receipts, Nigeria has had massive budget deficits throughout the years (Anyanwu, 1997). Fiscal operations in Nigeria have been characterized by poor policy implementation, inconsistency of government macroeconomic policy, low development of private investments, drop in real sector growth, and public sector fiscal indiscipline. In the literature on monetary economics, the interrelationships between budget deficits, money expansion, and inflation have been hotly debated. However, there appears to be no agreement, both conceptually and empirically, on the existence and direction of the relationship between these three fundamental macroeconomic factors i.e, deficit financing, money supply and inflation (Olusoji & Oderinde, 2011)

Much empirical research focused on the relationship between debt financing, money supply and inflation outside the Nigerian context. This research tries to empirically investigate the effect of budget deficit financing and money supply on inflation in Nigerian economy as well as positioning the causality among the variables. However, fiscal balances were used as a proxy for financing deficit and this may give a clear justification on how deficit financing affect inflation. On this note, this research sets out to answer the following questions; what is the impact of external and internal source of financing deficit on inflation in Nigeria, what is the impact of money supply on inflation in Nigeria, what are the direction of causality between external and internal source of financing deficit, money supply and inflation in Nigeria

1. Theoretical Literature.

A. Monetary theory of inflation

Monetarism refers to M. Friedman's supporters who believe that "only money counts," and that monetary policy is a more powerful tool for economic stabilization than fiscal policy. The money supply, according to monetarists, is the "dominant, though not exclusive" predictor of both output and prices (Pullah and Michael, 2020). The money supply has no effect on the long-run level of output. The role of money was emphasized by monetarists. "Inflation is always and everywhere a monetary phenomenon that originates from a more rapid expansion in the quantity of money than in total output," according to Milton Friedman's modern quantity theory. The simple quantity theory of money provided the initial explanation. The monetarists used Fisher's well-known identity of exchange equation. According to Mukhtar and Zakaria (2010), "many models have been created in the economic literature to assess the long-run link between inflation, money supply, and budget deficit." According to Tekin-Koru and Zmen (2003), budget deficits are only inflationary in the monetarist perspective if they are monetized. The main cause of inflation, according to monetarists, is the money supply. Other arguments attribute causation to inflation and the money supply (Sargent and Wallace, 1973).

If output cannot be expanded to match the increasing demand for goods and services resulting from the larger nominal stock of money, price pressure will be exerted, according to Kilindo (1997). According to Tekin-Koru and Zmen (2003), Monetarist arithmetic is potentially misleading because it ignores the fact that governments are bound by their intertemporal

budget. And, in the long run, restricted money may lead to an unsustainable debt financing process and, as a result, increased inflation. Tekin-Koru and Zmen (2003) used this paradigm to argue that "high inflation is a fiscal-driven by monetary phenomenon", and nominal money supply growth is set endogenously in order to finance an exogenously given deficit in order to meet the budget constraint. As a result, in a non-Ricardian universe, money has almost little influence in determining pricing.

B. Classical Quantity Theory of Inflation

According to the classical theory of inflation, prolonged price inflation is caused by an excessive increase in the amount of money in circulation. Because of this, the classical theory is frequently referred to as the "quantity theory of money," despite the fact that it is a theory of inflation rather than a theory of money (Ireland, 2014). According to classical quantity theory, the velocity of money circulation is constant, and the money supply thus determines the total money value of transactions in the economy at any given time (Jhingan, 2005). Money, according to the classical idea, is a curtain that serves as a neutral intermediary in the economy. The classical theory of money, like Say's Law of markets, assumes that money has no utility other than the usefulness of the commodities and services it is used to acquire, and hence it is not always wanted (Obafemi & Ifere, 2015). According to this school of thought, people only want money because it serves as a medium of exchange; if the money supply changes without the aggregate output changing, the prices of goods and services will rise proportionately.

They go on to say that because of the neutrality of money, if the supply of money changes, real wages, employment, and output will not be affected. Changes in the money supply will only have an impact on the overall price level and the money wage. That is, if the money supply increases, it effectively increases the total money supply, and with velocity constant and no corresponding increase in goods and services, people will want to spend the extra money on the same quantity of goods and services available, because they are not expected to hoard money. Prices of goods and services will rise as a result, and the rise in the general price level will bring additional aggregate money expenditure to the same level as the entire effective increase in money supply. The classical money theory is explained using Fisher's equation of exchange.

$$MV = PT \quad 2.1$$

Where: M = Supply of money V = Velocity of money in circulation P = Price of goods and

services and T = the transaction (output). The classical theory of inflation associates an increase in the supply of money with a decrease in the value of money which implies that money growth causes inflation

Empirical Literature

A number of empirical studies have been done on effects of deficit financing and money supply on inflation rate in which some of them are reviewed.

Tahira and Hassan (2015) use Generalized Method of Moment (GMM) estimate to examine the relationship between budget deficit and inflation for eleven Asian nations from 1980 to 2010. The results show that budget deficits are inflationary in some cases, and that inflationary pressure on deficits is higher when financial markets are fully developed.

According to Mukhtar and Zakaria (2010), rising inflation is caused by persistently increasing budget deficits, which cannot be controlled solely by monetary policy. However, the empirical evidence does not support such a notion. On the contrary, empirical studies suggest that the budget deficit is not linked to inflation in the long run. Rather, it is linked to money growth, and the budget deficit has no causal relationship with money supply.

Using the Granger causality test approach, Koyuncu (2014) studies the impact of the budget deficit and money supply on inflation in Turkey from 1987 to 2013. The empirical evidence suggests that the budget deficit and inflation have a bidirectional causal relationship.

From 1995 to 2012, Hoang (2014) investigates the relationship between the deficit, money growth, and inflation in Vietnam. The outcome of using an SVAR technique demonstrates that money growth has a positive effect on inflation, whereas the deficit has no effect on money growth or inflation.

In order to determine the causal relationship between the variables, Oladipo and Akinbobola (2011) employed the pair-wise granger causality test. The findings revealed that there is no direct relationship between inflation and the budget deficit. In Nigeria, however, a causal link between budget deficit and inflation has been proven.

From 1950 to 1999, Habibullah, Cheah, and Baharom (2011) examine the long-run link between budget deficit and inflation in thirteen Asian nations. The Granger causality and the error-correction model (ECM) estimates suggest the presence of a long-run relationship between inflation and budget deficits using annual data from 1950 to 1999.

Using a Granger causality test technique, Ladipo and Akinbobola (2011) explore the nature and direction of connection between Nigeria's budget deficit and inflation. According to the findings, there is no direct relationship between inflation and the budget deficit. The study also discovers a causal link between the budget deficit and inflation.

From 1970 to 2006, Olusoji and Oderinde (2011) investigate the link between inflation and budget deficit in Nigeria. The study indicates no indication of causation between budget deficit and inflation using the robust Toda-Yamamoto Granger non-causality test approach.

Using quarterly data from 1990 to 2008, Amimi and Jamshidbaygi (2011) investigate the relationship between Iran's budget deficit and inflation. The study also reveals a positive and significant impact of price index on budget deficit using a simultaneous equation model.

The Johansen cointegration test and A vector error correction (VECM) model procedures was used by Chimobi and Igwe (2010) to examine the long term relationship between Nigeria's budget deficit, money growth, and inflation. The findings suggest that inflation and money supply have a long-term relationship. Budget deficits are caused by money supply, according to the long-run causal link between budget deficits, money growth, and inflation.

Mukhtar and Zakaria (2010) use Johansen cointegration analysis to investigate the relationship between Pakistan's budget deficits and inflation. The findings imply that inflation is not related to the budget deficit in the long run, but solely to the supply of money, and that the supply of money has no causal relationship with the budget deficit.

2. Methodology

Theoretical Framework

Classical economists pioneered the Fisherian concept, but it was further improved and enlarged by Irvin Fisher in 1911. In what is known as an equation of exchange, he summarized a given economy. The quantity of money spent in the economy at a certain period of time is proportional to the circulation of money stock, according to the equation. According to the theory, if the average price of a specific commodity is $1 p$ and the quantity sold of the same commodity is $1 q$, the total expenditure on that commodity is $p1q1$. Let's say the economy has k commodities.

$$\Sigma pq = p1q1 + p2q2 + \dots + pkqk \quad 3.1$$

$$\Sigma p_1q_1=PQ \quad 3.2$$

Where p is index of price of goods sold, q is index of quantity of goods sold and PQ is the total monetary expenditure on goods. The average turnover of money in the process of exchange these goods will be equal to;

$$V=PQ/M \quad 3.3$$

Where the velocity of circulation, M is total money stock.

Equation three was later transformed to;

$$MV=P \quad 3.4$$

At full employment, an increase in the money supply (M) is believed to have no effect on the velocity of circulation (V) or the volume of transactions (Q). As a result, the price level (p) will vary directly with the amount of money (M), and vice versa.

$$P=f(M) \quad 3.5$$

Model Specification

The purpose of this article is to determine the impact of budget deficit financing and money supply on inflation in Nigeria, as well as the direction of causation between the model's variables. However, because the homogeneity of macroeconomic variables cannot be overlooked, the empirical method that will be used to investigate the impact of budget deficit financing and money supply on inflation will be a system equation model. In this paper, we utilize Vector Error Correction Model to evaluate short-run dynamics and long-run linkages among budget deficit financing, money supply, and inflation.

The inflation model specification in this paper adapted from that of Ehinomen and Ugwu (2014). The model specifies the following variables as four endogenous variables: rate of inflation (INF), money supply (Ms), and fiscal balances (FB); the model is specified as follows;

$$\Delta \ln INF = C_1 + \sum_{i=1}^{k-1} \beta_i \Delta \ln INF_{t-i} + \sum_{j=1}^{k-1} \alpha_j \Delta \ln MS_{t-j} + \sum_{m=1}^{k-1} \delta_m \Delta \ln FB_{t-m} + \lambda_1 ECT_{t-1} + U_{1t}$$

$$\Delta \ln MS = C_2 + \sum_{i=1}^{k-1} \beta_i \Delta \ln INF_{t-i} + \sum_{j=1}^{k-1} \alpha_j \Delta \ln MS_{t-j} + \sum_{m=1}^{k-1} \delta_m \Delta \ln FB_{t-m} + \lambda_2 ECT_{t-1} + U_{2t}$$

$$\Delta \ln FB = C_3 + \sum_{i=1}^{k-1} \beta_i \Delta \ln INF_{t-i} + \sum_{j=1}^{k-1} \alpha_j \Delta \ln MS_{t-j} + \sum_{m=1}^{k-1} \delta_m \Delta \ln FB_{t-m} + \lambda_3 ECT_{t-1} + U_{3t}$$

Apriori expectations

$$FB/INF < 0 \text{ or } FB/INF > 0, MS/INF > 0$$

Definition of Variables

Inflation: When in a given period of time, the general prices of goods and services fluctuate in a steep or rising manner then it is termed as inflation. With this increase in level of general prices, few goods and services can be bought for each unit of currency. The effects of inflation are reflected in the deterioration of money's purchasing power which is classified as "a loss of real value in the internal medium of exchange and unit of account in the economy" (Saleem, et al., 2013). Inflation is normally measured using Consumer Price Index (CPI) in terms of inflation rate based on the annual percentage change in the index of general price.

Money Supply: Money supply is the sum of all the money holdings of all the members of the society. This could be either M1 or M2 in Nigeria. The M1 is a narrow measure of money supply, it focuses on the role of money as a medium of exchange and defines money as "currencies in circulation outside the banks plus demand deposits held in banks" = C + DD. The central bank of Nigeria defines M1 as currencies outside banks plus positively held demand deposits. M2 is a broad measure of money supply. It includes savings and time deposits = C + DD for M1 + SD + TD for M2.

External Debt: According to Arnone, Bandiera and Presbitero (2005), external debt as that part of a country's debt that was borrowed from foreign lenders including commercial banks, governments or international financial institutions. External debt becomes necessary when domestic financial resources become inadequate to finance public goods that increase welfare and engender economic growth. External debts are funds sourced from outside the nation's boarder usually in foreign currency and is interest- bearing to finance specific project(s). However, external debt as one of the indicators of financing deficit was used by various authors in the reviewed literature.

Internal Debt: Internal debt or domestic debt is the part of the total government debt in a country that is owed to lenders within the country. Internal government debt's complement is external government debt. Commercial banks, other financial institutions etc. constitute the sources of funds for the internal debts. Internal public debt owed by a government (money a government borrows from its citizens) is part of the country's national debt.

Estimation Technique and Procedures

This paper employs the Vector Error Correction Mechanism technique to investigate the effect of deficit financing and money supply on inflation.

Unit Root Testing

The time series properties of data employed in the estimation equation is tested for stationarity using Augmented-Dick-fuller (ADF) unit root test in order to avoid the problem of spurious regressions. Unit root test will be conducted using augmented Dickey Fuller test which was used to test for the stationarity of the data at 1%, 5% and 10% critical values. The H_0 is the presence of units root and H_1 is the absence of unit root.

Co-integration Test

Johansen cointegration tests will be used to see if there is a long-run link between the variables in estimation, and an error correction mechanism will be used to see how quickly the variables shift from the short-run to the long-run equilibrium state.

If two variables have a long-term or long-run equilibrium connection, they are said to be co-integrated. In the long term, if two variables, dependent and independent, are non-stationary individually but their residual (combination) is stationary, those variables are co-integrated (Gujarati, 2004; Yang 2000). Two time series are co-integrated if they are both integrated in the same order and the two time series are linearly combined. If two non-stationary series variables are integrated of order 1, i.e. I (1), then there may be a linear relationship between them that is stationary I (0). As a result, all series of interest should be integrated of the same order, preferably 1. (1). the two time series variables that satisfy this requirement are considered to be co-integrated.

For instance, X and Y are said to be co-integrated if there exists a parameter α , such that

$$\mu = \text{Log}Y_t - \beta_1 - \beta_2 \text{Log}X_t$$

Where;

μ = the error term

β_1, β_2 = are parameters of the model.

By subjecting μ_t to unit root test give us;

$$\Delta \mu_t = \beta_1 \mu_{t-1}$$

If μ_t is I (0), implies that X and Y are co-integrated.

Nature and Source of Data

The data are annual time series data collected from secondary data sources spanning from 1981-2020 i.e. 39 years. This period of time was chosen because Nigeria as a country has persistently ran a budget deficit financing. The data shall be sourced from the Central Bank of Nigeria (CBN) Statistical

bulletin (2020), National Bureau of Statistic (NBS) and Annual Reports.

3. Data Presentation and Analysis

Table 1.1 Descriptive Analysis of the Variables

	INF	MS	FB
Mean	17.95178	7769.535	158.1587
Median	12.38000	1175.974	9.683550
Maximum	72.72900	36888.45	1106.423
Minimum	3.226000	16.16170	-5.542100
Std. Dev.	15.19756	11427.15	285.4671
Skewness	1.997954	1.354423	1.953112
Kurtosis	6.564924	3.469161	5.605720
Jarque-Bera	47.79327	12.59660	36.74728
Probability	0.000000	0.001839	0.000000
Sum	718.0710	310781.4	6326.348
Sum Sq. Dev.	9007.666	5.09E+09	3178167.
Observations	40	40	40

Source: Authors' Computation Using EVIEWS 9

From the result above, the mean value of inflation is 17.95 while that of money supply and deficit financing are 7769.53 and 158.158 respectively. Given the median values of each of the variables are 12.38 for inflation, 1175.97 for money supply while 9.68 is for deficit financing. The maximum and minimum values of the variables are stipulated to be 3.226 to 72.72 for inflation, 16.16 to 36888.45 for money supply and -5.54 to 1106 for deficit financing. The kurtosis shows that the variables of interest are normally distributed because of their values greater than 3. Giving the high variability exhibited by the variables of the model, it shows that the variables are not measured by the same unit.

Table 1.2 Correlation Matrix of the Variable

Variable	INF	MS	FB
INF	1.000000	0.248479	0.177396
MS	0.248479	1.000000	0.951053
FB	0.177396	0.951053	1.000000

Source: Authors' Computation Using EVIEWS 9

The results show that money supply has positive and significant relationship with inflation. The results in table 1.2 are not conclusive on their own but give us guide to the degree and nature of the relationship among the selected variables.

Unit Root Test

In literature, most time series variables according to Granger (1969), are non-stationary and hence a non-stationary variables in a model leads to spurious regression. The first or second differenced terms of most variables will usually be stationary (Ramanathan 1992). Using the Augmented Dickey Fuller (ADF) test for the unit root for the levels as follows:

Table 1.3 Unit Root Test Result

Variables	Level Differences	Probability	Order of Integration	First Differences	Probability	Order of Integration
FB	5.767605	1.0000	I(0)	-5.801067	0.0001	I(1)
MS	-0.910560	0.9420	I(0)	-8.912946	0.0000	I(1)
INF	-3.523764	0.0507	I(0)	-7.178622	0.0000	I(1)

Source: Authors' Computation Using EVIEWS 9

Decision Rule: Reject H_0 if ADF test value is greater than 5% critical value or the probability less than 5%, otherwise accept. From the result above, all the variables of the model such external debt, internal debt, money supply as well inflation are all integrated of order 1. That is they are stationary at first different.

Table 1.4 Lag Selection Criteria (AIC)

VAR Lag Order Selection Criteria

Endogenous variables:
INF MS FB

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-					
1	654.7078	NA	2.07e+12	36.87265	37.26853*	37.01083*
2	647.8469	11.43486	2.35e+12	36.72149*	37.78325	37.26784
3	635.5165	18.49556*	2.00e+12	36.80678	37.99411	37.22099
4	631.3534	5.550470	2.75e+12	37.07520	38.65872	37.62789

Source: Authors' Computation Using EVIEWS 9

The result above shows that the maximum lag lengths that suit the model according to Akaike Information Criteria was lag three (2).

Johansen Cointegration test

To test for the long-run relationship between the variables under consideration, the multivariate procedure developed by Johansen (1988) and Johansen and Juselius (1990) is adopted. Johansen method detects a number of cointegrating vectors in non-stationary time series. It allows for hypothesis testing regarding the elements of cointegrating vectors and loading matrix. The result of the cointegration test is as follows:

Table 1.5 Johansen Cointegration test Result

Series: INF MS FB				
Lags interval (in first differences): 1 to 2				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.*
None *	0.542759	37.36937	29.79707	0.0055
At most 1	0.180261	8.415186	15.49471	0.4221
At most	0.02826	1.06071	3.84146	0.303

2	1	3	6	1
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999)				
p-values				

Source: Authors' Computation Using EVIEWS 9

From the table above, the trace likelihood ratio results point out that the null hypothesis of no cointegration among the variables is rejected in favour of the alternative hypothesis up one cointegrating equation at 5% significant level because their values exceed the critical values. This means there are at most one cointegrating equations in both tests, implying that a unique long-run relationship exists among the variables under consideration.

Table 1.6 Vector Error Correction Model

Vector Error Correction Estimates			
Standard errors in () & t-statistics in []			
Cointegrating Eq:	CointEq1		
INF(-1)	1.00000 0		
MS(-1)	0.030392 (0.00592) [-5.13438]		
FB(-1)	0.69087 5 (0.20399) [3.38673]		
C	109.439 4		

Error Correction:	D(INF)	D(MS)	D(FB)
CointEq1	- 0.011901 (0.03872) [-0.30733]	- 7.405755 (2.63114) [-2.81466]	- 0.694017 (0.14125) [-4.91345]
D(INF(-1))	- 0.204628 (0.17841) [-1.14698]	- 0.086423 (12.1222) [-0.00713]	0.41873 6 (0.65076) [0.64345]
D(INF(-2))	- 0.302863 (0.17337) [-1.74695]	0.33638 5 (11.7798) [0.02856]	0.29800 9 (0.63238) [0.47125]
D(MS(-1))	0.001001 (0.00360) [-0.27795]	- 0.614854 (0.24470) [-2.51266]	- 0.032836 (0.01314) [-2.49960]
D(MS(-2))	0.000933 (0.00327) [-0.28558]	0.02362 0 (0.22187) [0.10646]	- 0.032026 (0.01191) [-2.68884]
D(FB(-1))	0.01557 3	4.58919 6	0.19181 7

	(0.03779)	(2.56761)	(0.13784)
	[0.41210]	[1.78734]	[1.39161]
D(FB(-2))	0.01382 5	7.13637 2	- 0.293483
	(0.04123)	(2.80146)	(0.15039)
	[0.33530]	[2.54737]	[- 1.95145]
C	0.95267 1	1316.81 6	90.8337 9
	(5.92566)	(402.632)	(21.6147)
	[0.16077]	[3.27052]	[4.20241]
R-squared	0.63046 8	0.60466 1	0.62917 0
Adj. R-squared	0.579419	0.50923 4	0.53966 0
Sum sq. resids	6977.70 0	3221476 6	92840.0 6
S.E. equation	15.5116 2	1053.97 1	56.5807 5
F-statistic	112.621 2	6.33638 9	7.02899 8
Log likelihood	- 149.4325	- 305.5256	- 197.3135
Akaike AIC	8.50986 6	16.9473 3	11.0980 3
Schwarz SC	8.85817 3	17.2956 3	11.4463 3
Mean dependent	- 0.174919	996.420 8	29.7205 8
S.D. dependent	14.9300 8	1504.49 7	83.3929 1
Determinant resid covariance (dof adj.)		8.46E+1 1	

Determinant resid covariance	4.07E+1 1	
Log likelihood	- 652.0598	
Akaike information criterion	36.7059 3	
Schwarz criterion	37.8814 7	

Source: Authors' Computation Using EVIEWS 9

From the estimated result above, the coefficient of FB is 0.015573, which implies that with the influence of all other variables held constant, an increase in the fiscal balances by one percent on the average, will lead to an increase in inflation by about 0.15 Percent. More so, the coefficient of MS is 0.00101, which implies that with the influence of all other variables held constant, an increase in the money supply by one percent on the average, will lead to an increase in inflation by about 0.001Percent.

Table 1.7 Long Run Causality Approach

Dependent Variable: D(INF)				
Method: Least Squares (Gauss-Newton / Marquardt steps)				
D(INF) = C(1)*(INF(-1) - 0.0303915927753*MS(-1) + 0.690874784859*FB(-1) + 109.439353246) + C(2)*D(INF(-1)) + C(3)*D(INF(-2)) + C(4)*D(MS(-1)) + C(5)*D(MS(-2)) + C(6)*D(FB(-1)) + C(7)*D(FB(-2)) + C(8)				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.011901	2.038723	0.307326	0.0408
C(2)	0.204628	80.178407	1.146976	0.2608
C(3)	0.302863	30.173367	1.746946	0.0912
C(4)	0.00100	-0.003601	-0.27795	0.7830

	1	0	
C(5)	0.000933	0.003265	0.285578
C(6)	0.015573	0.037788	0.412099
C(7)	0.013825	0.041230	0.335302
C(8)	0.952671	5.925664	0.160770
R-squared	0.630468	Mean dependent var	0.174919
Adjusted R-squared	0.579419	S.D. dependent var	14.9308
S.E. of regression	15.51162	Akaike info criterion	8.509866
Sum squared resid	6977.700	Schwarz criterion	8.858173
Log likelihood	149.4325	Hannan-Quinn criter.	8.632661
Durbin-Watson stat	2.033046		

Source: Authors' Computation Using EVIEWS 9

From the estimated result above, it reveals that deficit financing as well as money supply has long run causality on inflation because the error correction coefficient of the cointegrated equation (c1) are significant and rightfully signed. This implies that there exists long run causality from financing deficit and money supply to inflation.

Short Run Causality

Wild test approach was used to capture if there are short run causality between the variables of the model

Table 1.8 Fiscal balance and Inflation

Wald Test:			
Equation: Untitled			
Test Statistic	Value	df	Probability

F-statistic	0.130135	(2, 29)	0.8785
Chi-square	0.260270	2	0.8780
Null Hypothesis: C(6)=C(7)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err.	
C(6)	0.015573	0.037788	
C(7)	0.013825	0.041230	
Restrictions are linear in coefficients.			

Source: Authors' Computation Using EVIEWS 9

Ho: C(6)=C(7)=0

The result above shows that fiscal balance cannot causes inflation in the short run because the probability value of chi-square is greater than 5%.

Table 1.9 Money Supply and Inflation

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Ho: C(11)=C(12)=C(13)=C(14)=

Wald Test:			
Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	0.047479	(2, 29)	0.9537
Chi-square	0.094957	2	0.9536
Null Hypothesis: C(4)=C(5)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)	Value	Std. Err.	
C(4)	-0.001001	0.003601	
C(5)	-0.000933	0.003265	
Restrictions are linear in coefficients.			

Source: Authors' Computation Using EVIEWS 9

The result above shows that money supply cannot jointly cause inflation in the short run because the probability value of chi-square is greater than 5%.

4. Conclusion and Recommendation

Inflation is one of the major macroeconomic problems in the Nigeria economy. In this research we examine the effect of deficit financing and money supply on inflation as well as positioning the short run and long run causal relationship between the variables of the model. The finding from the study shows that there is a positive relationship between money supply and inflation as well as deficit financing and inflation in Nigeria. More so the study points out that there exist a long run causality running from financing deficit and money supply to inflation in the Nigerian economy for the period under review. A finding also shows that there is no short run causality running from financing deficit and money supply to inflation for the period studied.

The following recommendations are made based on the study's findings: the government should be committed to smart financial management so that government borrowing is channeled towards capital enterprises that will increase the country's productivity. Furthermore, when it is obvious that there is a lower quantity of money in circulation relative to output of goods and services, the government, through its monetary authority, should consider an expansionary monetary policy. Both the monetary authority and the government should work together to combat long-term inflation in Nigeria.

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