Asian Journal of Economic Modelling
ISSN(e): 2312-3656
ISSN(p): 2313-2884
DOI: 10.55493/5009.v10i1.4454
Vol. 10, No. 1, 27-42.
© 2022 AESS Publications. All Rights Reserved.
URL: www.aessweb.com

DEFICIT FINANCING COMPONENTS, INFLATION AND CAPITAL FORMATION IN NIGERIA: EVIDENCE FROM A DIRECT AND INDIRECT ANALYSIS

Samson Adeniyi Aladejare

Department of Economics, Federal University Wukari, Nigeria.
Email: aladejare4reel2000@gmail.com

Article History
Received: 1 February 2022
Revised: 4 March 2022
Accepted: 21 March 2022
Published: 29 March 2022

Keywords
Deficit financing
Inflation
Budget
Capital formation
Instrumental variable
Nigeria.

JEL Classification:
H11; H54; H6.

ABSTRACT

Deficit financing occasioned by low domestic savings and low capital formation, have characterised the Nigerian economy since the 1970s with attendant increase in inflation. Empirical studies on Nigeria have shown that deficit financing directly affects inflation and capital formation when examined independently. However, little attention has been paid to a simultaneous investigation of the direct and indirect effects of deficit financing components on inflation and capital formation for Nigeria. Consequently, this study was designed to fill this gap through time series data and the instrumental variable approach. The study found that deficit financing components indirectly impacted on inflation and capital formation in Nigeria from 1970 to 2017; as against the direct effects reported in empirical studies. Also, inflation was found to have had adverse effect on capital formation. Hence, better synergy of fiscal and monetary policies to effectively tame inflation and ensure growth of capital formation was recommended.

Contribution/Originality: By applying IV technique in the direct and indirect effects of deficit financing on inflation and capital formation, the study was able to control for endogeneity. Empirically, it extended the literature by evaluating the effects from the three broad components of deficit financing on inflation and capital formation for Nigeria.

1. INTRODUCTION

Deficit financing is often regarded as one of the traditional means developing nations can adopt to grow and develop their economy (Eyiuche, 2000). This is because developing economies are often characterised by low domestic savings and capital formation, extreme poverty and unemployment, weak production capacity, huge infrastructure deficit, reliance on primary production, poor economic fundamentals, weak institutions, etc. Most of the reasons for fiscal deficit can be compartmentalized into economic, political, and social factors (Gbosi, 2012). In today's world, governments' political and economic decisions in both developed and developing countries are almost intertwined. For instance, in Nigeria, government economic decisions are often outweighed by political considerations. The reason is that for political relevance, the government tries to meet the expectations of the citizens, as well as deliver on campaign promises through increased spending.

However, the governments' revenue inability to cater to public outlays, particularly in periods beyond the 1970s, arising from the desire by Nigerian policy makers and political leaders to meet the needs of the citizens, has often

© 2022 AESS Publications. All Rights Reserved.

resulted in high fiscal deficits over the years. Furthermore, the government remains the major player in providing social services such as poverty alleviation programs, subsidies, natural disaster control, etc. Structural reasons, which include a high level of tax avoidance and evasion, high levels of income and wealth inequality, demographic pressures, government inefficiency, have also continued to account for the growth in deficit financing in Nigeria. Also, for political relevance, governments have not been able to grow tax revenues significantly. This is because citizens are always skeptical of the effective use of tax revenues to achieve job creation through investment in capital formation in Nigeria. The above factors have given recourse to deficit financing, through internal and external borrowing, as a solution to the revenue-expenditure gap, with mounting national debt as a consequence.

Regardless of the adduced reason for deficit financing, Bello (2004) and Agundu and Dagogo (2008) observed that there had been no significant improvement in economic infrastructure in Nigeria. It was observed that instead of investing the supplementary funds arising from deficit financing into increasing capital formation, political leaders in Nigeria habitually divert such funds to other ventures. A position which could be attested to by Nigeria's rank of 148th, out of 180 countries ranked on the Transparency International's corruption perception index as at 2017. For instance, Mbat (1988) noted that culpable factors for growth in deficit financing in Nigeria are government inflated contracts, poor management of public enterprises, and the absence of an adequate maintenance culture. Thus, eroding what should have been the fundamental goal of deficit financing which is to grow capital formation. Thereby contradicting prior findings by Oyejide (1972) that deficit financing has spurred capital formation in Nigeria.

Nevertheless, the continuous annual deficit spending since the 1970s, due to various policy interventions by the Federal Government, has not spurred growth in capital formation. Otherwise, Nigeria today ought to have been more reckoned as a producing nation, against its current status of heavily import reliant. Apart from crude oil which constitutes about 90% of the country's export, the non-oil sector contributes less to the revenue source of the Federal Government (Aladejare, 2018). Much of what is consumed in the country is imported, due to low manufacturing capacity of the country. This phenomenon could be the responsible factor for the high inflation rates experienced so far. Thus, contradicting empirical findings (such as Moser (1995); Tule, Nuruddeen, Ogundele, and Martins (2019) and Fasanya, Fajobi, and Adetokunbo (2019)) that deficit financing always gives rise directly to inflation in Nigeria. Furthermore, poor credit to the private sector, rising cost of production, poor naira exchange rate, escalating debt servicing, etc., contribute to inhibit the deployment of deficit financing for growth in capital formation. The foregoing trends, therefore, form the bedrock of the following pertinent questions. How significant are the post-1970 effects of deficit financing components on capital formation in Nigeria? Likewise, how significant are the post-1970 effects of deficit financing components on inflation? What is the nature and direction of the nexus between inflation and capital formation in Nigeria?

The empirical justification for this study is founded on the evidence that most empirical studies do aggregate the effect from deficit financing on inflation (see (Fasanya et al., 2019; Moser, 1995; Oladipo & Akinbobola, 2011; Oseni & Sanni, 2016)) and capital formation (see Ezeabasili and Nwakoby (2013)) in Nigeria. Only two other studies for Nigeria decomposed the effects from deficit financing to inflation and capital formation (see Oyejide (1972)) and from deficit financing to inflation (see Tule et al. (2019)). However, all of these studies concluded that deficit financing and its components has direct nexus with inflation and capital formation, with no consideration for the indirect link. Furthermore, these empirical studies on Nigeria have only showed that deficit financing either as aggregate or when decomposed directly affects inflation and capital formation when examined independently. While, little attention has been paid to a simultaneous investigation of the direct and indirect effects of deficit financing on inflation and capital formation for a developing country such as Nigeria. This empirical gap is crucial if the magnitude of the effect of deficit financing on inflation and capital formation is to be understood. Thus, this study covered both the direct and indirect effects of deficit financing components on inflation and capital formation to fill this gap in the literature. For the inflation-capital formation nexus, Ahortor and Adenutsi (2009) showed an adverse bi-directional association between inflation and capital formation. Contrarily, Olanipekun and Akeju (2013) observed that the relationship is

© 2022 AESS Publications. All Rights Reserved.

positive and flows from inflation to capital formation. This study re-examined the inflation- capital formation nexus by considering the role of the three deficit financing components in the relationship.

Hence, this study improved on the five deficit financing measures applied by Oyejide (1972) study which are the overall budget deficit, external reserves, money supply, domestic credit creation, and internal credit monetization. deficit financing as measured in this study consist of domestic financing, external financing and other funds financing, as against the study by Tule et al. (2019) who used only domestic financing and external financing. The three measures constitute the broad components of deficit financing as measured by the Central Bank of Nigeria (CBN). Furthermore, while Oyejide (1972) and Tule et al. (2019) adopted the Ordinary Least Square (OLS) and the Auto-regressive Distributed Lag (ARDL) models respectively, this study adopted the Instrumental Variable (IV) technique to correct for endogeneity issues especially in the deficit financing-inflation nexus.

The rest of this study is structured as follows. Section 2 is the literature review. Section 3 is the study's methodology. Section 4 contains the study's empirical findings and analysis, while Section 5 is the study's concluding remarks.

2. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. The Quantity Theory of Money

The theory explains the mechanical and fixed proportional relationship between changes in the money supply and the general price level. That is, any change in the quantity of money will generate the same proportional change in the price level. Fisher was of the view that other things being equal, increase in the quantity of money in circulation, stimulates a direct proportional increase in the price level, and lowers the value of money and vice versa. Fisher's formulation of the quantity theory of money is based on the equation MV = PT; where M is Money supply, V is Velocity (which is assumed constant), P is average price level, and T is the volume of transactions (which is assumed constant). In summary, the quantity theory of money postulates that increases in the quantity of money tend to create inflation, and vice versa. For example, the theory holds that if the CBN should double the money supply, in the process of financing Federal government deficit, the long-run prices in the economy is likely to also double.

2.1.2. The Neoclassical Money and Growth Model

The neoclassical money and growth model offered wealth owners the opportunity to store value in money or capital asset. Having such an alternative store of value, ensured that saving was no longer directly used for investment in physical capital. This is because the apportioning of saved funds between physical capital and money became a function of the community's portfolio determination. Further, the community's portfolio determination is assumed to rely fundamentally on the (real) returns expected on the two types of assets, which are the marginal productivity of capital on one hand, and the real return on money on the other. Hence, capital formation is expected to occur only if the marginal productivity of capital is significantly higher in respect to the real yield on money. For instance, the neoclassicals postulate that an increase in the rate of monetary growth, will raise capital formation in the long-run. The reason is that, increasing the rate of monetary growth, by increasing inflation; reduces the real return to holding money and causes a portfolio shift towards capital.

2.1.3. The Keynes-Wicksell Three Asset Money Growth Model

The Keynes-Wicksell money growth model on the other hand, offered wealth owners the opportunity to store value in money, bonds, or capital asset. A cardinal characteristic of this type of model lies in its refutation of the classical (quantity theory of money) and neoclassical economists' Say's law of market assumption of savings and investment decisions being equal. Thus, stating otherwise that savings and investment decisions are actually independent of each other; since it assumes that firms determine their desired rates of investment in line with the

© 2022 AESS Publications. All Rights Reserved.

expected yield on capital. On the other hand, household desired savings is determined from some process of optimization. Thus, in inflationary periods, firms may choose not to invest even if the level of household savings in bonds is high. Indicating that the decision by firms to invest, do not consider household saving decisions. Rather, the market has the function of reconciling the demand for firms' output with the savings supplied by households.

2.2. Methodological Review

Two major gaps can be identified from the methodological literature review in Table 1. First, studies on Nigeria ignored the potential effect of endogeneity in the deficit financing-inflation nexus. Secondly, they fail to capture the indirect effect of deficit financing on inflation and on capital formation. In filling these gaps, this study adopted the use of instrumental variables. This is because, as noted by Ishaq and Mohsin (2015) there is the likely presence of endogeneity in the deficit financing and inflation relationship.

Table 1. Methodological literature summary.

Author	Country Study	Estimation Method	Relationship
Single Equation Model			
Oyejide (1972); Onwioduokit (1999)	Nigeria	OLS	Deficit financing, inflation and capital formation/Deficit financing-inflation
Choi, Smith, and Boyd (1996)	United States, Chile, Korea, and Taiwan	Panel OLS	Inflation-Capital formation
Olanipekun and Akeju (2013)	Nigeria	Cointegration and ECM	Inflation-Capital formation
Lin and Chu (2013); Jalil, Tariq, and Bibi (2014)	91 selected countries/ Pakistan	Panel quantile regression/ARDL.	Fiscal deficit-Inflation.
Multiple Equation Model			
Khan and Rana (2013)	104 countries	Panel 2SLS	Inflation-Capital formation
Adinevand (2015)	Iran	3SLS	Budget deficit-Inflation
Ishaq and Mohsin (2015)	Eleven Asian countries	Panel GMM	Deficit-Inflation
Ssebulime and Edward (2019)	Uganda	Cointegration, ECM and Granger causality	Budget deficit- inflation.
Tule et al. (2019)	Nigeria	ARDL	Deficit financing-inflation
Ahmad and Aworinde (2019)	12 African countries	Threshold autoregressive and momentum threshold autoregressive models	Fiscal deficit-Inflation.
Fasanya et al. (2019)	Nigeria	ARDL	Fiscal deficit-inflation.
Structural Equation Model			
Chakroborty (2007); Hadiwibowo (2010); Nwaeze (2017)	India/Indonesia/Nigeria	VAR	Deficit financing-Capital formation/Deficit financing-Inflation.
Ahortor and Adenutsi (2009)	30 import dependent countries	Panel VECM	Inflation-Capital formation.
Oladipo and Akinbobola (2011); Oseni and Sanni (2016)	Nigeria	Granger causality	Budget deficit-Inflation.
Imegi (2014)	Nigeria	Correlation technique	Budget deficit-Inflation.

2.3. Empirical Review

Obviously, there seems to be a scarcity of studies that have successfully examined the tripartite relationship between deficit financing components, inflation, and capital formation as shown in Table 2. Furthermore, none of the studies that examined the aggregate effect of deficit financing, showed consensus between deficit financing-inflation,

© 2022 AESS Publications. All Rights Reserved.

deficit financing-capital formation, as well as inflation-capital formation nexus in developing countries and particularly for Nigeria.

Table 2. Empirical literature summary.

Title	Author	Scope of study	Conclusions
Studies on deficit financing and inflation			
Some unpleasant monetarist arithmetic	Sargent and Wallace (1981)	1962-1992	Fiscal deficit are inflationary.
The main determinants of inflation in Nigeria	Moser (1995)	1970-1994	Expansionary fiscal policies are inflationary in Nigeria.
Fiscal deficit and inflation dynamics in Nigeria.	Onwioduokit (1999)	1970-2005	unidirectional causality from fiscal deficit to inflation.
Budget deficit and inflation in Nigeria	Oladipo and Akinbobola (2011)	1972-2012	Budget deficits are inflationary in Nigeria.
Fiscal deficit and inflation in Pakistan	Jalil et al. (2014)	1981-2010	Fiscal deficits are inflationary.
Deficits and inflation	Ishaq and Mohsin (2015)	1981-2014	Fiscal deficits are inflationary.
Does fiscal deficit granger cause impulsiveness in inflation rate in Nigeria?	Oseni and Sanni (2016)	1962-1992	Bi-directional causality between fiscal deficit and inflation volatility.
Budget deficit-inflation nexus in Uganda	Ssebulime and Edward (2019)	1980-2016	Budget deficits are inflationary.
Fiscal theory of the price level in Nigeria	Tule et al. (2019)	2002-2017	Deficit financing are inflationary.
Deficit-inflation nexus in 12 African countries	Ahmad and Aworinde (2019)	1980 to 2018	Inflation responds to inverse and positive variance in most observed countries.
Fiscal deficit-inflation nexus in Nigeria	Fasanya et al. (2019)	1980-2019	Fiscal deficit are inflationary when examined with other macroeconomic variables.
Studies on deficit financing and capital formation			
Fiscal deficit, capital formation, and crowding out in India.	Chakroborty (2007)	1970-1971 and 2002-2003.	Positive effect of fiscal deficit on private investment.
Fiscal policy, investment and long run growth in Indonesia.	Hadiwibowo (2010)	1969-2008	Government spending affects physical capital accumulation negatively
Fiscal deficits and private investment in Nigeria.	Ezeabasili and Nwakoby (2013)	1970-2006	Negative effect of fiscal deficit on private investment.
Studies on inflation and capital formation			
Inflation, financial markets, and capital formation	Choi et al. (1996)	1958-1994	Higher rates of inflation tend to reduce the real rates of return received by savers in a variety of markets.
Inflation, capital accumulation and economic growth in import-dependent developing economies	Ahortor and Adenutsi (2009)	1970-2006	There is an inverse bi-directional nexus between inflation and capital formation in the long run.
Money supply, inflation and capital accumulation in Nigeria	Olanipekun and Akeju (2013)	1970-2010	Money supply and inflation significantly and positively impact on capital formation.
Studies on deficit financing, inflation and capital formation			
Deficit financing, inflation, and capital formation in Ghana	Ahmad (1970)	1960-1965	Inflation experienced in Ghana during the early 1960s, was not caused by any deficit financing policy. Since there was scarcely any expansion in capital formation in the system.
Deficit financing, inflation, and capital formation in Nigeria.	Oyejide (1972)	1957-1970	Deficit financing encourages the process of inflation and capital formation in Nigeria.
Fiscal policies, inflation and capital formation.	Feldstein (1978)		An increased deficit will raise the rate of inflation or lower capital formation or both.

© 2022 AESS Publications. All Rights Reserved.

3. STUDY METHODOLOGY

3.1. Model Specification

Due to the inherent challenges associated with related literatures (such as Oyejide (1972); Onwioduokit (1999); Paiko (2012) and Ezeabasili and Nwakoby (2013) that employed the OLS technique which includes nonlinearity in most economic relationships; and the possibility of high correlation between a subset of the explanatory variables, discriminatory results for simultaneous equations and the problem of endogeneity, study such as Adinevand (2015) adopted the IV approach as a preferred alternative. Thus, in order to capture the dynamic structure of the relationship between deficit financing components, inflation and capital formation, this study adopted the use of IV. The essence is to control for the problem of endogeneity between the deficit financing components and the inflation variable. Since the real money balance, external balance on goods and services, real interest rate, etc. are some of the variables that tend to influence the of inflation variable and the money supply variable which mediates between deficit financing components and inflation. Therefore, the IV technique of the 2SLS and the GMM econometric approach is adopted and regarded appropriate based on the suitability of the methods in dealing with cases of one or two endogenous variables in a model (Adinevand, 2015). The IV approach is also efficient in estimating channel effects; Thus, its adoption in investigating the channel effect from Deficit Financing components to inflation and capital formation in this study. The simple functional form of the study model is expressed as:

$$GFC = f(DFC, CPI, T) \quad (1)$$

Where GFC is gross fixed capital formation, DFC is deficit financing components, CPI is consumer price index which proxy for inflation and T is a vector of control variables.

Specifically, the simple, functional form of the study model is re-specified as:

$$lGFC_t = b_0 + b_1 DFC_t + b_2 lCPI_t + b_3 lT_t + u_t \quad (2)$$

Where b_0 is a constant, $b_1 to\ b_3$ are the parameters of the explanatory variables, l is the logarithm transformation, u_t is the white noise error term.

However, this study considers inflation as an endogenous variable rather than exogenous, as stated in Equation 2. The reason being that studies such as Nguyen (2015) and Ishaq and Mohsin (2015) suggest that deficit financing indirectly impact inflation through money supply. While Gbadebo and Mohammed (2015); Bawa, Abdullahi, and Ibrahim (2016) and Asekunowo (2016) further found a strong link from money supply to inflation in Nigeria.

$$CPI = f(DFC, GFC, BM, V) \quad (3)$$

Where BM is broad money supply and V is a vector of control variables.

Equation 3 is re-specified in an explicit form as:

$$lCPI_t = \beta_0 + \beta_1 DFC_t + \beta_2 lGFC_t + \beta_3 lBM_t + \beta_4 lV_t + e_t \quad (4)$$

where β_0 is a constant, $\beta_1 to\ \beta_4$ are the parameters of the explanatory variables, l is the logarithm transformation, e_t is the white noise error term.

Furthermore, since growth in deficit financing can give rise to money supply; especially when the government creates money or through sales of government bonds. It, therefore, suggests that broad money supply is dependent on DFC. Indicating that broad money supply is also an endogenous variable.

$$BM = f(DFC, CPI, GFC, Z) \quad (5)$$

Where Z is a vector of control variables.

Equation 5 is re-specified in an explicit form, as shown in Equation 6.

$$lBM_t = \varphi_0 + \varphi_1 DFC_t + \varphi_2 lCPI_t + \varphi_3 lGFC_t + \varphi_4 lZ_t + \varepsilon_t \quad (6)$$

where φ_0 is a constant, $\varphi_1 to\ \varphi_4$ are the parameters of the explanatory variables, l is the logarithm transformation, ε_t is the white noise error term.

Explicitly incorporating the control variables (T, V, and Z) in Equation 2, 4 and 6 yields the direct relationship between the study variables as shown in Equations 7 to 9.

$$lGFC_t = b_0 + b_1 DFC_t + b_2 lCPI_t + b_3 lGFC_{t-1} + b_4 lRGDP_t + u_t \quad (7)$$

© 2022 AESS Publications. All Rights Reserved.

$$lCPI_t = \beta_0 + \beta_1 DFC_t + \beta_2 lGFC_t + \beta_3 lBM_t + \beta_4 lCPI_{t-1} + e_t \quad (8)$$

$$lBM_t = \varphi_0 + \varphi_1 DFC_t + \varphi_2 lCPI_t + \varphi_3 lGFC_t + \varphi_4 lBM_{t-1} + \varepsilon_t \quad (9)$$

Where T in Equation 2 is GFC_{t-1} (lagged gross fixed capital formation), and RGDP (Real Gross Domestic Product) in Equation 7. V in Equation 4 is CPI_{t-1} (lagged consumer price index) in Equation 8. Z in Equation 6 is BM_{t-1} (lagged broad money supply) in Equation 9. Other variables remain as defined. The inclusion of the lagged dependent variables in the model is to capture the effect of the previous levels of capital formation, inflation, and money supply on their current levels in Equation 7, 8, and 9, respectively. For instance, the lagged CPI in Equation 8 is to control for the persistence in inflation in the equation.

Also, decomposing deficit financing into domestic financing, external financing and other source of financing in the general model for evaluation of their direct and indirect effects yields: Equations 10 to 12.

$$lGFC_t = \gamma_0 + \gamma_1 DMFGDP_t + \gamma_2 lCPI_t + \gamma_3 lGFC_{t-1} + \gamma_4 lRGDP_t + u_{t1} \quad (10)$$

$$lCPI_t = \omega_0 + \omega_1 DMFGDP_t + \omega_2 lGFC_t + \omega_3 lBM_t + \omega_4 lCPI_{t-1} + e_{t1} \quad (11)$$

$$lBM_t = \delta_0 + \delta_1 DMFGDP_t + \delta_2 lCPI_t + \delta_3 lGFC_t + \delta_4 lBM_{t-1} + \varepsilon_{t1} \quad (12)$$

Where $DMFGDP$ denote domestic financing per GDP, and all other variables remain as previously defined. γ_0, ω_0, and δ_0 are constants, γ_1 to γ_4, ω_1 to ω_4, and δ_1 to δ_4 are the parameters of the explanatory variables, l is the logarithm transformation, u_{t1}, e_{t1} and ε_{t1} are the white noise error terms.

The outcome of the coefficients ω_1 in Equation 11 and γ_1 in Equation 10 were used to determine the direct effects of domestic financing on inflation and capital formation respectively. Also, the coefficients γ_2 in Equation 10, and ω_2 in Equation 11 were used to determine the nature of the relationship between inflation and capital formation. Deriving the indirect effects involved the use of the chain rule approach.

The indirect effect of domestic financing:

$$\text{on inflation: } \frac{\partial CPI}{\partial DMFGDP} = \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial DMFGDP} = \omega_3 * \delta_1$$

$$\text{on capital formation: } \frac{\partial GFC}{\partial DMFGDP} = \frac{\partial GFC}{\partial CPI} * \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial DMFGDP} = \gamma_2 * \omega_3 * \delta_1$$

For deficit financing through external financing, Equations 13 to 15 were used.

$$lGFC_t = \propto_0 + \propto_1 XTFGDP_t + \propto_2 lCPI_t + \propto_3 lGFC_{t-1} + \propto_4 lRGDP_t + u_{t2} \quad (13)$$

$$lCPI_t = \rho_0 + \rho_1 XTFGDP_t + \rho_2 lGFC_t + \rho_3 lBM_t + \rho_4 lCPI_{t-1} + e_{t2} \quad (14)$$

$$lBM_t = \pi_0 + \pi_1 XTFGDP_t + \pi_2 lCPI_t + \pi_3 lGFC_t + \pi_4 lBM_{t-1} + \varepsilon_{t2} \quad (15)$$

where $XTFGDP$ denote external financing per GDP, and all other variables remain as previously defined. $\propto_0$, ρ_0, and π_0 are constants, $\propto_1$ to $\propto_4$, ρ_1 to ρ_4, and π_1 to π_4 are the parameters of the explanatory variables, l is the logarithm transformation, u_{t2}, e_{t2} and ε_{t2} are the white noise error terms.

The outcome of the coefficients ρ_1 in Equation 14 and $\propto_1$ in Equation 13 were used to determine the direct effects of external financing on inflation and capital formation respectively. Also, the coefficients $\propto_2$ in Equation 13, and ρ_2 in Equation 14 were used to determine the nature of the relationship between inflation and capital formation. The indirect effect of external financing:

$$\text{On inflation: } \frac{\partial CPI}{\partial XTFDP} = \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial XTFGDP} = \rho_3 * \pi_1$$

$$\text{On capital formation: } \frac{\partial GFC}{\partial XTFGDP} = \frac{\partial GFC}{\partial CPI} * \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial XTFGDP} = \propto_2 * \rho_3 * \pi_1$$

For deficit financing through other funds sources, Equations 16 to18 were used.

$$lGFC_t = \tau_0 + \tau_1 OSGDP_t + \tau_2 lCPI_t + \tau_3 lGFC_{t-1} + \tau_4 lRGDP_t + u_{t3} \quad (16)$$

$$lCPI_t = \sigma_0 + \sigma_1 OSGDP_t + \sigma_2 lGFC_t + \sigma_3 lBM_t + \sigma_4 lCPI_{t-1} + e_t \quad (17)$$

$$lBM_t = \vartheta_0 + \vartheta_1 OSGDP_t + \vartheta_2 lCPI_t + \vartheta_3 lGFC_t + \vartheta_4 lBM_{t-1} + \varepsilon_t \quad (18)$$

© 2022 AESS Publications. All Rights Reserved.

Where $OSGDP$ denotes other sources of financing per GDP, and all other variables remain as previously defined. τ_0, σ_0, and ϑ_0 are constants, τ_1 to τ_4, σ_1 to σ_4, and ϑ_1 to ϑ_4 are the parameters of the explanatory variables, l is the logarithm transformation, u_{t3}, e_{t3} and ε_{t3} are the white noise error terms.

The outcome of the coefficients σ_1 in Equation 17 and τ_1 in Equation 16 were used to determine the direct effects of other funds financing on inflation and capital formation. Also, the coefficients τ_2 in Equation 16, and σ_2 in Equation 17 were used to determine the nature of the relationship between inflation and capital formation.

The indirect effect of other funds financing:

$$\text{On inflation: } \frac{\partial CPI}{\partial OSGDP} = \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial OSGDP} = \sigma_3 * \vartheta_1$$

$$\text{On capital formation: } \frac{\partial GFC}{\partial OSGDP} = \frac{\partial GFC}{\partial CPI} * \frac{\partial CPI}{\partial BM} * \frac{\partial BM}{\partial OSGDP} = \tau_2 * \sigma_3 * \vartheta_1$$

Annual time series data spanning from 1970 to 2017 was used to derive the study's empirical findings. Data definition and sources are as found in Table 3.

Table 3. Variable list and definition.

Endogenous Variable	Definition	Source
CPI	Consumer Price Index	World Development Indicator
BM	Broad Money Supply	World Development Indicator
GFC	Gross Fixed Capital Formation	International Monetary Fund Investment and Capital Stock Dataset
Regressors/Instruments	Definition	Source
DMFGDP	Domestic Financing per GDP	Central Bank of Nigeria Statistical Bulletin
XTFGDP	External financing per GDP	Central Bank of Nigeria Statistical Bulletin
OSGDP	Other fund sources per GDP	Central Bank of Nigeria Statistical Bulletin
RGDP	Real Gross Domestic Product	World Development Indicator
BGSGDP	Balance on Goods and Services as a share of GDP	World Development Indicator
BSY	Banking System	Central Bank of Nigeria Statistical Bulletin
EXCH	Nominal Exchange Rate	World Development Indicator
M1	Nominal Money Supply	Central Bank of Nigeria Statistical Bulletin
RMB	Real Money Balance	Central Bank of Nigeria Statistical Bulletin
DCRGDP	Domestic credit provided to the private sector as a share of Gross Domestic Product	World Development Indicator
CRES	Central Bank of Nigeria Reserve	Central Bank of Nigeria Statistical Bulletin
RINT	Real Interest Rate	World Development Indicator
GXGDP	Federal Government Gross Expenditure as a share of GDP	Central Bank of Nigeria Statistical Bulletin
CRR	Cash Reserve Ratio	Central Bank of Nigeria Statistical Bulletin
FGRGDP	Federal Government Revenue as a share of GDP	Central Bank of Nigeria Statistical Bulletin
PUMPR	Pump Price of Petroleum	Nigeria Data Portal

4. EMPIRICAL FINDINGS AND ANALYSIS

4.1. Unit Root Test Results

The size of the sample period (i.e. 48 years) gives rise to the possibility of having non-stationary variables for estimation. Furthermore, if the dependent variable happens to be non-stationary, then the GMM estimation procedure will be inappropriate. Another challenge will also be making the right choice of unit root test to adopt. In light of this, Enders (1995) proposed that a conventional approach should be the adoption of both the Augmented Dickey-Fuller (ADF) test and the Phillips–Perron (PP) test. If they reinforce each other, then we can have confidence in the results. Therefore, to test for stationarity in our series, we conduct the two widely used methods of unit root tests—the ADF and the PP test.

© 2022 AESS Publications. All Rights Reserved.

A summary of the ADF and PP unit root test results are presented in Table 4. The ADF and the PP test result shows that the variables in the study's model are mainly I(1) stationary series.

Table 4. Stationarity Test on Study Variables.

Variable	ADF Test			PP Test		
	With Constant	With Constant & Trend	Without Constant & Trend	With Constant	With Constant & Trend	Without Constant & Trend
$lGFC$	-6.602**[b]	-6.524**[b]	-6.675**[b]	-8.118**[b]	-8.065**[b]	-8.309**[b]
$DMFGDP$	-5.484***[b]	-5.404***[b]	-5.553***[b]	-5.710***[b]	-5.584***[b]	-5.1021***[b]
$XTFGDP$	-5.031***[b]	-5.037***[b]	-5.088***[b]	-5.046***[b]	-5.584***[b]	-5.783***[b]
$OSGDP$	-11.35***[b]	-11.232***[b]	-11.47***[b]	-20.07***[b]	-24.49***[b]	-16.72***[b]
$lCPI$	-3.401**[a]	-4.196***[b]	-1.903*[b]	-3.238**[b]	-3.220	-1.730*[b]
lBM	-4.161**[b]	-4.246***[b]	-1.910*[b]	-4.114***[b]	-4.154**[b]	-1.736*[a]
$lRGDP$	-5.109**[b]	-5.381**[b]	-4.349***[b]	-5.266***[b]	-5.435***[b]	-4.528***[b]

Note: Where *, ** and *** denotes 10%, 5% and 1% significance level respectively, a and b denotes level and first difference, respectively.

4.2. IV Estimates

Generally, outputs from the GMM estimates appeared more robust to the 2SLS outputs; largely due to the inclusion of lagged explanatory variables and lagged endogenous variables as part of the instruments. Thus, the GMM outputs were used in deriving the study's inferences. Furthermore, the GMM superiority to the 2SLS approach is also shown by the fact that while the 2SLS model residuals are susceptible to serial correlation and Heteroskedasticity issues, hence, the need for such test; the residual test for higher-order serial correlation and heteroscedasticity test on the estimated GMM residuals are not applicable. Since, the GMM automatically adjusts for the potential presence of heteroskedasticity and autocorrelation that may be present in the error structure through the adoption of a consistent estimator (Checherita & Rother, 2010). Furthermore, the Sargan-Hansen (S-H) test, also known as the over-identifying restriction or J-test, was conducted which was conducted on both the 2SLS and GMM models, had the null stated that the instruments as a group or additional instruments are exogenous. For the applicability of the test, it is fundamental to have more instruments than exogenous independent variables. In this study, the S-H test null hypothesis was strongly accepted (i.e. the instruments as a group are exogenous) for the GMM models as against the 2SLS models, further laying credence to inferences derived from the GMM approach.

4.2.1. Direct and Indirect Estimates using Domestic Financing

Outputs from the 2SLS and GMM estimates for Equations 10 to 12 are contained in the first, second, and third panel of Table 5, respectively. Table 5 shows that there is no substantial direct effect of domestic financing on inflation. However, the indirect effect on inflation is significantly positive only when the broad money supply variable plays the moderating role.

This is shown by the product of $\beta_3 * \varphi_1$, where β_3= 0.2 and φ_1 = 0.03; and their product yields 0.01. Furthermore, the effect of inflation on capital formation showed that a percentage rise in inflation will result in a significant 0.2 percentage decline in capital formation; just as a percentage rise in capital formation will result in a significant 0.1 percentage decline in inflation (see Table 5).

Table 5 also shows the direct effect of domestic financing on capital formation, with the coefficient reported insignificant. However, coefficient for the indirect effect shows a significant adverse effect of domestic financing on capital formation. Recall that domestic financing indirect effect on capital formation is captured by the product of $b_2 * \beta_3 * \varphi_1$, where b_2= -0.2, β_3= 0.2, and φ_1= 0.03; and their product yields -0.001. Hence, the result shows that a percentage rise in domestic financing will pass through the broad money supply and inflation channels to trigger a 0.001 percentage decline in the rate of inflation.

© 2022 AESS Publications. All Rights Reserved.

Table 5. Estimated IV regression output using DMFGDP.

Regressor	2SLS Output	GMM Output	2SLS/GMM WIDT
Equation 10			C-Donald
Constant	-26.5012 (-2.6891)**	-32.2021 (-5.4110)**	
$DMFGDP$	-0.0069 (-0.4188)	-0.0039 (-0.3684)	F-stat: 901.392***
$lCPI$	-0.1731 (-2.8993)**	-0.2037 (-6.0711)**	
$lGFC_{t-1}$	0.5171 (4.3121)**	0.4453 (5.7976)**	
$lRGDP$	0.9095 (2.8072)**	1.0999 (5.5869)**	
Equation 11			C-Donald
Constant	-1.6725 (-1.6205)	-4.0895 (-4.1087)**	
$DMFGDP$	0.0120 (2.6920)**	0.0030 (0.8136)	F-stat: 63.4636***
$lGFC$	-0.0475 (-1.3367)	-0.0719 (-2.9666)**	
lBM	0.0752 (1.6912)	0.1811 (4.2289)**	
$lCPI_{t-1}$	0.9083 (16.5521)**	0.7664 (13.9967)**	
Equation 12			C-Donald
Constant	2.6031 (2.0231)**	-0.3301 (-0.3446)	
$DMFGDP$	-0.0011 (-0.1873)	0.0310 (4.3538)**	F-stat: 50.2092***
$lCPI$	0.1242 (1.7752)	0.0116 (0.2306)	
$lGFC$	0.0547 (1.1941)	-0.0193 (-0.6576)	
lBM_{t-1}	0.8942 (15.9110)**	1.0042 (24.3174)**	
S-H Tests			
Equation 10	0.94	0.60	
Equation 11	0.05*	0.23	
Equation 12	0.03**	0.11	

Note: *, ** and *** denote 10%, 5% and 1% significance level respectively, while figures in parenthesis are t-Statistics, S-H Tests is Sargan-Hansen Test and WIDT is weak instrument diagnostic test.

4.2.2. Direct and Indirect Estimates using External Financing

Table 6 shows that the direct effect from external financing to inflation is insignificant. However, the indirect effect which is captured by the product of $\beta_3 * \varphi_1$, where β_3= 0.1, and φ_1 = 0.01; yields 0.001. Thus, indicating that a percentage rise in external financing will pass through the broad money supply channel to trigger a 0.001 percentage increase in the rate of inflation.

For the effect of inflation on capital formation, Table 6 shows that a percentage rise in inflation will result in a significant 0.2 percentage decline in capital formation. Contrarily, the effect from capital formation to inflation is insignificant.

Table 6 further shows that the coefficient for the direct effect of external financing on capital formation is insignificant. The indirect effect nevertheless captured by the product of the multiple chain coefficients: $b_2 * \beta_3 * \varphi_1$, where b_2= -0.18, β_3= 0.1, and φ_1= 0.01; yields -0.0002. The result suggest that a percentage rise in external financing will pass through the broad money supply and inflation channels to trigger a 0.0002 percentage decline in the rate of inflation.

4.2.3. Direct and Indirect Estimates Using Other Fund Sources

Similar to previous measures, Table 7 shows an insignificant direct effect from other funds sources to inflation. However, the indirect effect which is the product of $\beta_3 * \varphi_1$, where β_3= 0.1, and φ_1 = -0.2; yields -0.02. Thus revealing that a percentage rise in other funds sources will pass through the broad money supply channel to trigger a 0.02 percentage decrease in the rate of inflation.

The effect of inflation on capital formation as captured in Table 7 shows that a percentage rise in inflation financing will result in a significant 0.2 percentage decline in capital formation. On the contrary, capital formation has no significant effect on inflation.

© 2022 AESS Publications. All Rights Reserved.

Table 6. Estimated IV regression output using XTFGDP.

Regressor	2SLS Output	GMM Output	2SLS/GMM WIDT
Equation 13			C-Donald
Constant	-23.3688 (-2.3866)**	-28.6685 (-4.4414)**	
$XTFGDP$	-0.0044 (-1.0397)	-0.0022 (-0.9450)	F-stat: 594.2812***
$lCPI$	-0.1559 (-2.5674)**	-0.1835 (-4.5517)**	
$lGFC_{t-1}$	0.4578 (3.5141)**	0.4422 (4.6777)**	
$lRGDP$	0.8120 (2.5275)**	0.9847 (4.5896)**	
Equation 14			C-Donald
Constant	-1.6731 (-1.6250)	-2.3721 (-2.0390)**	
$XTFGDP$	0.0029 (2.7634)**	0.0022 (1.5108)	F-stat: 51.0382***
$lGFC$	-0.0161 (-0.4082)	-0.0142 (-0.4799)	
lBM	0.0763 (1.7198)	0.1039 (2.1380)**	
$lCPI_{t-1}$	0.8995 (16.3975)**	0.8674 (13.8049)**	
Equation 15			C-Donald
Constant	2.1556 (1.6982)	0.6519 (0.9929)	
$XTFGDP$	0.0021 (1.4905)	0.0052 (4.8827)**	F-stat: 58.3947***
$lCPI$	0.1101 (1.5904)	0.0523 (1.5412)	
$lGFC$	0.0935 (1.9083)	0.0787 (2.9316)**	
lBM_{t-1}	0.9067 (16.4126)**	0.9659 (34.3611)**	
S-H Tests			
Equation 13	0.98	0.78	
Equation 14	0.05*	0.88	
Equation 15	0.02**	0.24	

Note: *, ** and *** denote 10%, 5% and 1% significance level respectively, while figures in parenthesis are t-Statistics, S-H Tests is Sargan-Hansen Test and WIDT is weak instrument diagnostic test.

Table 7. Estimated IV Regression Output using OSGDP.

Regressor	2SLS Output	GMM Output	2SLS/GMM WIDT
Equation 16			C-Donald
Constant	-29.3576 (-3.2841)**	-33.9407 (-5.8566)**	
$OSGDP$	-0.0189 (0.6888)	0.0289 (2.1240)**	F-stat: 614.3812***
$lCPI$	-0.1898 (-3.1271)**	-0.2194 (-6.2856)**	
$lGFC_{t-1}$	0.5229 (4.3684)**	0.5289 (5.4923)**	
$lRGDP$	0.9995 (3.3625)**	1.1483 (5.9361)**	
Equation 17			C-Donald
Constant	-1.0068 (-0.9186)	-1.1758 (-1.9627)	
$OSGDP$	-0.0108 (-1.1630)	-0.0055 (-1.4545)	F-stat: 60.6723***
$lGFC$	-0.0703 (-1.9103)	-0.0445 (-1.6524)	
lBM	0.0576 (1.2136)	0.0604 (2.2530)**	
$lCPI_{t-1}$	0.9179 (15.7216)**	0.9143 (26.8682)**	
Equation 18			C-Donald
Constant	2.3295 (1.8658)	2.3035 (1.3500)	
$OSGDP$	0.0069 (0.6230)	-0.1847 (-3.3671)**	F-stat: 48.0884***
$lCPI$	0.1146 (1.6513)	0.0884 (0.9539)	
$lGFC$	0.0551 (1.2186)	-0.0159 (-0.3297)	
lBM_{t-1}	0.9044 (16.3212)**	0.9199 (12.4388)**	
S-H Tests			
Equation 16	0.95	0.88	
Equation 17	0.02**	0.53	
Equation 18	0.03**	0.29	

Note: ** and *** denote 5% and 1% significance level respectively, while figures in parenthesis are t-Statistics, S-H Tests is Sargan-Hansen Test and WIDT is weak instrument diagnostic test.

Table 7 also showed that the direct effect of other funds sources on capital formation is significant; i.e., a percentage rise in the former will result in a 0.03 increase in the latter. For the indirect effect which is the product of $b_2 * \beta_3 * \varphi_1$, where b_2= -0.2, β_3= 0.1 and φ_1= -0.2; and their product yields 0.004. The result indicates that a percentage rise in other funds financing will pass through the broad money supply and inflation channels to trigger a 0.004 percentage increase in the rate of inflation.

© 2022 AESS Publications. All Rights Reserved.

4.3. Discussion of Findings

4.3.1. The Direct and Indirect Effects of Deficit Financing Components on Inflation

The direct effect of deficit financing components on inflation is revealed to be mainly insignificant. Thus, contradicting prior studies such as Oyejide (1972) and Tule et al. (2019) who found a significant direct effect of deficit financing components on inflation. On the contrary, this study's findings showed that deficit financing components mainly affect inflation through the broad money supply channel by way of two effects.

Analyzing the first effect, which is the significant positive effect of broad money supply on inflation indicates that if the monetary authority chooses to buy domestic financial assets such as bonds from the DMBs. Banks, in turn will witness an increase in their balances, and thus, a growth in the broad money supply. This will also elevate the ability of the DMBs to give out loans. Since there is excess liquidity at their disposal, thus, lowering the interest rate on lending. The reduced lending rates will further increase the amount that bank customers are willing to borrow, thereby increasing aggregate spending in the economy. Aggregate demand is expected to rise, likewise prices. If prices continue to rise, inflation will ensue.

The second effect, which is the significant positive effect of deficit financing on broad money supply, is also plausible. The government can finance its deficit through money creation and through the sale of government interest yielding securities. The purchase of these government securities by the monetary authority, or the creation of new money through granting of direct credit to the government by the monetary authority to fund the deficit, tends to aggravate the level of money supply by the amount of the credit granted. This is because the government will experience an initial increase in its balances.

However, as the government expends this credit, part of the loans obtained from the monetary authority will find their way into balances with the DMBs; through, for instance, payment to government contractors, transfer payments, etc. Also, if the DMBs choose to hold more cash in relation to income-yielding assets; then the monetary base, which includes currency notes and coins in circulation, and the DMBs' reserves with the central bank, is expected to expand through the credit multiplier (i.e., the ratio of a change in deposits to bank reserves). Thus, the more significant the change in deposits in relation to the reserves of the DMBs, the larger the money created by the banks. Hence, the monetary effect of deficit financing through the DMBs is a function of the expansion in direct loans, which creates a growth in the broad money supply.

The product of the positive effects of broad money supply on inflation, and the deficit financing components on broad money supply, yields a significant positive indirect effect on inflation. A justifiable reason for this outcome is that, since it has been established that deficit financing components adds to the broad money supply by way of expanding DMBs' cash portfolio, banks have the tendency to lower their lending rates in other to loan out the excess liquidity at their disposal to their customers. Hence, aggregate demand is expected to rise, which encourages investors also to increase their aggregate output. However, the situation in Nigeria is such that the saleable output increases at a slower rate compared to the growing money supply. It, therefore, suggests that the additional money supply is not being fully utilized as loans. One major cause of this in Nigeria is the perceived high lending rate of the DMBs by investors.

This has seen the Central Bank in recent times peg the lending rates for sectors considered critical to the growth of the economy at a level below the prevailing market rates. For example, the long-term credit interest rate to agriculture and manufacturing was pegged at a consolidated 9 percent in 2018, against the prevailing market rate of 25-30 percent. Also, the Central Bank's directive to the DMBs to increase their lending-to-deposit ratio (LDR) from 60 percent to 65 percent in 2019 was aimed at boosting output growth, especially in the real sector (though the LDR is subject to quarterly review by the Central Bank). However, the slow pace of output growth to aggregate demand creates a demand-supply imbalance in the economy. Consequently, the aggregate price in the economy is excepted to rise, and as the situation persists (i.e., demand exceeding supply), inflation is created in the economy.

© 2022 AESS Publications. All Rights Reserved.

4.3.2. The Nexus Between Inflation and Capital Formation

Generally, the three components of deficit financing showed significant adverse effect on capital formation. Thus, also contradicting prior findings by Olanipekun and Akeju (2013) on a significant positive effect of inflation on capital formation. Nevertheless, the result agrees with Olanipekun and Akeju (2013) that there is no significant feedback effect from capital formation to inflation for Nigeria.

The significant inverse effect of inflation on capital formation can be related to two plausible effects. The first suggests that at higher rates of inflation, the real value of money is expected to decline. Hence, there is the tendency for real rates of return on savings to also reduce in various markets. When this occurs, it is expected that the level of savings by owners of capital will decline. This, in turn will give rise to the financial system raising their lending rates due to the scarcity of loanable funds. Hence, the quantum of loanable funds given to investors will decline. Furthermore, the ability of the DMBs to invest in government securities will also reduce. The implication of a shortage in investable funds will yield a reduction in capital formation; since, the cost of addition and investment in new capital formation will rise due to the increase in the lending rate triggered by inflation.

The second reasoning for the substantial inverse effect of inflation on capital formation points to the fact that upward inflationary trends will result in a downward net return in utility terms from adding or investing in new capital formation. For instance, when the value of money decline due to the high rate of inflation, accruing profits from adding or investing in new capital assets such as plants and machinery, equipment, buildings, etc., will decline in real terms. When this occurs, it is expected that new or additional investment in capital formation should also decline. This is further true if considering the increased cost of acquiring such capital asset due to higher rates of inflation; which tends to reduce the profit margin from the new or additional capital asset.

4.3.3. The Direct and Indirect Effects of Deficit Financing Components on Capital Formation

The GMM results mostly revealed an insignificant direct effect of deficit financing components on capital formation. Therefore, contradicting findings by Oyejide (1972) for Nigeria, Chakroborty (2007) for India, and Hadiwibowo (2010) for Indonesia, who reported a direct positive effect of deficit financing on capital formation. Rather, this study found that deficit financing components significantly passes through the broad money supply and inflation variable to affect capital formation adversely.

As noted earlier, deficit financing components creates an increase in the broad money supply, when part of government outlay finds its way into balances with the DMBs. Thus, increasing the broad money supply. However, due to the high lending rate regime prevalent in the financial system, loans granted by the DMBs do fall short of what is required to offset the increase in aggregate demand created by the increase in government spending. Thus, a demand-supply imbalance ensues in the economy. Furthermore, the effect of the rising inflationary pressures on capital formation has also been prior revealed to be negative in two ways. First, inflation increases the cost of adding to existing or purchasing new capital stock. While the second is that inflation has the tendency to diminish the expected yield from new and existing capital stock. Hence, the inverse indirect effect of deficit financing on capital formation.

For the quantitatively small coefficients of the indirect effect of deficit financing components on capital formation, our initial analysis has already established that deficit financing significantly adds to the broad money supply by expanding the DMBs' cash portfolio. It is important to note that the spending pattern of the government's borrowed funds can be held responsible for the minute response of capital formation to the increases in deficit financing components. This is because empirical evidence has shown that a large portion of the funds meant for deficit financing from the 1970 to date usually get expended on recurrent outlay. For instance, despite the continuous rise in deficit financing from 1970 to 2017, the Federal Government's capital expenditure only exceeded its recurrent spending in 1975-1983, 1986, and 1996-1999; that is, a total of fourteen years (Central Bank of Nigeria, 2009). While the recurrent federal expenditure exceeded capital spending for the remaining thirty-three years, in some cases, it rose three times

© 2022 AESS Publications. All Rights Reserved.

higher than capital spending, especially from the 2000s (Central Bank of Nigeria, 2009). This shows that from 1970-2017, very little investment in capital formation through deficit financing has taken place.

The situation is further exacerbated by the continuous demand for imported goods in the economy, for which the government has had to borrow at different intervals to finance. Thereby significantly diminishing the fraction available for investment in capital formation. For instance, the Federal Government had been solely responsible for the payment of subsidies on imported petroleum products for over two decades. Evidence from a BudgiT policy brief report in 2019 showed that Nigeria had paid over ten trillion naira in subsidizing imported refined petroleum products from 2006 to 2018. While capital expenditure within the same period was just about thirteen trillion naira (Central Bank of Nigeria, 2009). Thus, crowding-out a significant amount of funds that could have been invested in capital formation. These two phenomena are significant reasons why regardless of the yearly growth in deficit financing from 1970 to 2017, the magnitude of response by capital formation has also continued to be very small.

5. CONCLUDING REMARKS

Ever since deficit financing started in Nigeria in the 1970s, the government has always justified its necessity for economic growth stimulation through investment in infrastructural development. Nevertheless, empirical findings from this study has suggested otherwise. Therefore, the government should consider a reduction in the use of deficit financing in funding recurrent expenditures. At the same time, the dedication of deficit financing funds primarily for ventures that can guarantee repayment of the borrowed funds and the accruing interest will be profitable. The reason being that if recurrent spending at the expense of capital spending continues to gulp a larger part of the borrowed funds. Then, the future generation of Nigerians will inevitably have the burden of higher taxes to pay. Since today's borrowed funds expended on consumption, will have to be repaid by future generations in form of increased taxes. Hence, having a policy that ensures deficit financing is strictly used for investment in capital formation will ensure that the future growth path for the economy is not inhibited.

In light of the above, there is a need to ensure that fiscal policy goals are in tandem with the monetary policy objectives for effective control of inflation and insuring growth in capital formation. The CBN cannot be grappling with controlling rising inflation in the economy, in the hopes of trying to safeguard investment returns by adopting contractionary monetary policy; while the Federal Government on the other hand is exerting more pressures on prices through expansionary fiscal policy. Therefore, strict adherence to the fiscal responsibility act of 2007, which limits the deficit in the budget from rising beyond 3 percent of the country's GDP is recommended. At the same time, the CBN should also help discourage unnecessary rise in budget deficits by exercising its autonomy in line with the CBN act of 2007. The act which empowers the apex bank to disregard funding the deficit any time it is in excess of 5 percent of the previous year's actual revenue, can be a valuable tool in slowing the growth path of deficit financing components in Nigeria. Such a move will ensure that government budget planners only require deficit financing for productive ventures.

In addition, capital formation cannot grow without a significant expansion in the size of the economy, and the lending rates in the financial system being unfavourable to borrowers of investable funds. Hence, the CBN will have to do more in ensuring flexibility in lending rates. The idea of pegging rates for certain sectors may be counter-productive due to the bottlenecks that may arise in an attempt by investors in such sectors to assess the concessionary loans. Thus, having a lending rate that is truly flexible to the forces of demand and supply for loanable funds will be ideal in reducing the deficit between aggregate demand and output to curb inflationary pressures in the economy. The government will also have to focus on stimulating and safeguarding private investments to reduce the unemployment of factors of production.

Finally, since a large part of the funds meant for deficit financing is usually expended on consumables, there is a need to be cautious of a current account deficit's potent threat. This could arise if the nation's import exceeds its export (i.e., having an unfavourable balance of trade), thus, creating what is known as the "Twin Deficits" (i.e. having

© 2022 AESS Publications. All Rights Reserved.

a budget and current account deficit simultaneously). The consequences of the twin deficits include making the economy vulnerable to the dangers of imported inflation and limiting the growth of capital formation. Hence, the CBN should endeavour to sustain net capital inflows to keep the total trade balance in the positive. This also means the government will have to ensure more growth in foreign direct investments, as against foreign portfolio investments to have stability in the money supply and inflation variables. To achieve this, there is the need to provide a better and secured business environment by building necessary infrastructures, strengthening institutions, and consistency in government policies.

Funding: This study received no specific financial support.
Competing Interests: The author declares that there are no conflicts of interests regarding the publication of this paper.

REFERENCES

Adinevand, M. (2015). Effect of budget deficit on production, inflation and trade balance of Iran-based on the synchronous equations' model. *Bulletin of the Georgian National Academy of Sciences*, *9*(1), 246-255.

Agundu, P. U. C., & Dagogo, D. W. (2008). Deficit financing grill: Theoretics and reflections on Nigeria's transitional military dispensation: 1989-2000. *Journal of Financial Management & Analysis*, *21*(1), 47-58.

Ahmad, A. H., & Aworinde, O. B. (2019). Are fiscal deficits inflationary in African countries? A new evidence from an asymmetric cointegration analysis. *The North American Journal of Economics and Finance*, *50*, 100999.Available at: https://doi.org/10.1016/j.najef.2019.100999.

Ahmad, N. (1970). *Deficit financing, inflation and capital formation: The Ghanaian experience 1960-65*: Weltforum Verlag.

Ahortor, C. R., & Adenutsi, D. E. (2009). *Inflation, capital accumulation and economic growth in import-dependent developing economies.* Paper presented at the 14th Annual Conference on Econometric Modelling for Africa, Abuja, Nigeria.

Aladejare, S. A. (2018). Resource price, macroeconomic distortions, and public outlay: Evidence from oil-exporting countries. *International Economic Journal*, *32*(2), 199-218.Available at: https://doi.org/10.1080/10168737.2018.1481128.

Asekunowo, V. O. (2016). The causes of persistent inflation in Nigeria. *CBN Journal of Applied Statistics*, *7*(2), 49-75.

Bawa, S., Abdullahi, I. S., & Ibrahim, A. (2016). Analysis of inflation dynamics in Nigeria (1981-2015). *CBN Journal of Applied Statistics*, *7*(1), 255-276.

Bello, M. (2004). Financial publication under inflationary condition and current democratic settings in Nigeria. *Journal of Business and Finance*, *1*(1), 215-226.

Central Bank of Nigeria. (2009). Annual statistical bulletin.

Chakroborty, L. S. (2007). Fiscal deficit, capital formation & crowding out: Evidence from India. National Institute of Public Finance and Policy, New Delhi. Working Paper, No-43.

Checherita, C., & Rother, P. (2010). The impact of high and growing government debt on economic growth: An empirical investigation for the Euro area (pp. 1-42). European Central Bank Working Paper Series, No.1237.

Choi, S., Smith, B. D., & Boyd, J. H. (1996). Inflation, financial markets and capital formation. *Review for the Federal Reserve Bank of Minneapolis and the Federal Reserve System. Review*, 1-35.

Enders, W. (1995). *Applied econometric time series* (1st ed.). New York, USA: John Wiley.

Eyiuche, A. (2000). Evaluation of the relationship between deficit financing and fiscal operation in Nigeria. *African Banking & Finance Review*, *1*(1), 65-73.

Ezeabasili, V. N., & Nwakoby, C. N. (2013). Fiscal deficits and private investment: Econometric evidence from Nigeria. *International Journal of Innovative Research in Management*, *3*(2), 1-18.

Fasanya, O. I., Fajobi, A., & Adetokunbo, A. (2019). Are fiscal deficits inflationary in Nigeria? New evidence from bounds testing to cointegration with structural breaks. *Economic Annals*, *6*(228), 1-25.

Feldstein, M. (1978). Fiscal policies, inflation and capital formation (pp. 1-24). NBER Working Paper No. 275.

© 2022 AESS Publications. All Rights Reserved.

Gbadebo, A. D., & Mohammed, N. (2015). Monetary policy and inflation control in Nigeria. *Journal of Economics and Sustainable Development, 6*(8), 108-115.

Gbosi, A. N. (2012). *Contemporary issues in Nigeria's public finance and fiscal policy.* Abakaliki: Pack Publisher.

Hadiwibowo, Y. (2010). Fiscal policy, investment and long-run economic growth: Evidence from Indonesia. *Asian Social Science, 6*(9), 3-11.

Imegi, J. C. (2014). Budget deficits and inflationary dynamics in Nigeria. *International Journal of Business and Economic Development, 2*(1), 70-77.

Ishaq, T., & Mohsin, H. M. (2015). Deficits and inflation; Are monetary and financial institutions worthy to consider or not? *Borsa Istanbul Review, 15*(3), 180-191.

Jalil, A., Tariq, R., & Bibi, N. (2014). Fiscal deficit and inflation: New evidences from Pakistan using a bounds testing approach. *Economic Modelling, 37*, 120-126.

Khan, M., & Rana, A. (2013). Is the relationship between inflation and capital accumulation linear? : WebmeetSICom.

Lin, H.-Y., & Chu, H.-P. (2013). Are fiscal deficits inflationary? *Journal of International Money and Finance, 32*, 214-233.

Mbat, D. O. (1988). Public debt policy and management in Nigeria 1965-1983: A critical appraisal. *Public Finance= Finances Publiques, 43*(3), 403-413.

Moser, G. G. (1995). The main determinants of inflation in Nigeria. *Staff Papers, 42*(2), 270-289.

Nguyen, B. (2015). Effects of fiscal deficit and money M2 supply on inflation: Evidence from selected economies of Asia. *Journal of Economics, Finance and Administrative Science, 20*, 49-53.

Nwaeze, N. (2017). Fiscal deficit, financing options and macroeconomic stability in Nigeria: A disaggregated approach. *Greener Journal of Economics and Accountancy, 6*(2), 043-064.

Oladipo, S., & Akinbobola, T. O. (2011). Budget deficit and inflation in Nigeria: A causal relationship. *Journal of Emerging Trends in Economics and Management Sciences, 2*(1), 1-8.

Olanipekun, D. B., & Akeju, K. F. (2013). Money supply, inflation and capital accumulation in Nigeria. *Journal of Economics and Sustainable Development, 4*(4), 173-181.

Onwioduokit, E. A. (1999). Fiscal deficits and inflation dynamics in Nigeria: An empirical investigation of causal relationship. *Central Bank of Nigeria Economic and Financial Review, 37*(2), 1-16.

Oseni, O. I., & Sanni, Y. H. (2016). Does fiscal deficit granger cause impulsiveness in inflation rate in Nigeria? *Danubius University Economics, 12*(4), 208-216.

Oyejide, T. A. (1972). Deficit financing, inflation and capital formation: an analysis of the Nigerian experience, 1957-1970. *The Nigerian Journal of Economic and Social Studies, 14*(1), 27-43.

Paiko, I. I. (2012). Deficit financing and its implication on private sector investment: The Nigerian experience. *Arabian Journal of Business and Management Review, 1*(9), 45-62.

Sargent, T. J., & Wallace, N. (1981). Some unpleasant monetarist arithmetic. *Federal Reserve Bank of Minneapolis Quarterly Review, 5*(3), 1-17.

Ssebulime, K., & Edward, B. (2019). Budget deficit and inflation nexus in Uganda 1980–2016: A cointegration and error correction modeling approach. *Journal of Economic Structures, 8*(1), 1-14.

Tule, M., Nuruddeen, U., Ogundele, O. S., & Martins, A. O. (2019). A test of the fiscal theory of price level: Case study of Nigeria. *International Journal of Economics and Financial Issues, 9*(6), 67-76.

Views and opinions expressed in this article are the views and opinions of the author(s), Asian Journal of Economic Modelling shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.

© 2022 AESS Publications. All Rights Reserved.