International Journal of Science Academic Research
Vol. 03, Issue 04, pp.3667-3677, April, 2022
Available online at http://www.scienceijsar.com

ISSN: 2582-6425

Research Article

IMPACT OF INFLATION ON BANK CREDIT AND ECONOMIC GROWTH IN NIGERIA

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Received 11th February 2022; **Accepted** 04th March 2022; **Published online** 15th April 2022

Abstract

The study on inflation rate on bank credit and economic growth is designed to evaluate the impact of inflation rate on bank credit and economic growth of Nigeria. The population of the study is made up the entire sectors of the economy and the 23 deposit money banks in Nigeria and the sample of the study is made up of the central bank of Nigeria statistical bulletin (CBN), National bureau of statistics (NBS) and the consolidated statement of assets and liabilities of commercial banks in Nigeria from 2008 to 2019.The data is secondarily sourced from CBN and NBS. The study employed both descriptive and inferential statistics with a panel research design. This study revealed that bank credit increases as inflation rate increases as against that of several economies and the amount of bank credit increases as inflation increases even against the hike in lending rate of commercial banks .This is a proof that investors yet resort to more liquid assets to meet the increase in income ,employment, prices, demand on a commensurate level of output to bring an equilibrium thereby equating demand and supply to stabilize prices by market forces in the economy against monetary authorities manipulations to reduce money supply through the increase in lending rates thereby decreasing investments, employment ,income, prices and output but dare to attain stabilize prices through a slack in the macroeconomic variables to regain the value of money. The study revealed a positive relationship exist between inflation and gross domestic product in Nigeria even when it attained the hyper-inflationary state yet supported economic growth as contrasted in several economies in the world because of risk, innovations and technological know-how which are not controlled by the banking system. This implies that inflation has a negative impact on bank credit and economic growth. The study recommends that during inflation, the monetary policy authorities should monitor and effectively manipulate monetary policy rate and through moral suasion ensure banks adjust their loan portfolio to real economic sectors to enhance the increase in the production (supply) of goods and services to improve the level of output to exceed or be at equilibrium with demand to maintain the value of money. The CBN should also ensure that commercial banks receive and provide foreign exchange services through strict supervision to enable a near stable exchange rate amidst inflation for the purchase of inputs across national borders as well as facilitate exchange.

Keywords: Inflation, Bank credit, Economic Growth.

INTRODUCTION

The macroeconomic objectives of any Nation amongst others are the attainment of full employment, neutrality of money, price stability and economic growth. The greatest challenge against the attainment of these objectives is the neutrality of money because as price changes the value of money changes thus inflation which is a persistent change in price level of goods and services. Inflation militates against price stability and economic growth which is proxy by gross domestic product (GDP) which represents goods and services produced in any nation. Inflation is a persistent and appreciable rise in the general level of price in an economy (Ogu *et al.,* 2020). Inflation is a persistent rise in the general price level of a broad spectrum of goods and services in a country over a long period of time. They attributed inflation to a popular say that inflation is too much money chasing too few goods (Aminu and Anono, 2012). The structuralist argued that inflation is crucial for economic growth while the monetarist posit that it is harmful to economic growth. Single digit inflation may be more beneficial for economic growth and on the other hand, double digit inflation imposes slower growth. The ability to manage the growth of inflation to single digit may be an important factor to accelerate economic growth. However, too much money in circulation, increases production cost, decline in exchange rates, decrease in the availability of limited resources such as food or oil are the causes of inflation. Inflation is a sign that the economy is growing, but hyperinflation may be detrimental on economic growth. At the other extreme, an economy with no inflation is stagnated.

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The right level of economic growth and thus the right level of inflation some were in the middle is a necessity. Creeping or mild inflation can be viewed as having favourable impacts on the economic growth. On the other hand, zero inflation is harmful to other sectors in the economy with falling price, profit, and employment (Anochiwa and Maduka, 2015). The maintenance of price stability continues to be an overriding objective of monetary policy for most countries in the world today. The emphasis given to price stability in conduct of monetary policy is with a view to promoting sustainable growth and development as well as strengthening the purchasing power of the domestic currency amongst others. The Central Bank of Nigeria (CBN) employs the monetary targeting framework in the conduct of its monetary policy. This is based on the assumption of a stable and predictable relationship between money supply and inflation (Umaru and Zubairu, 2012). Economic growth is fundamental for sustainable development and it is not possible for a developing country, to ameliorate the quality of life of its growing population without economic growth. This latter is mainly enhanced by the expansion of infrastructural repairs, the improvement of educational and health services, the encouragement of foreign and local investments, low cost housing, environmental restoration, and the strengthening of the agricultural sector. This approach consists of stimulating the economy by addressing the nation's foremost needs. Generally, high inflationary rate imposes welfare costs on a nation, hinders efficient development of the real economic sector through its changes in the relative price level of goods and services as well as discourages investments and savings in an economy as it creates a surge in under-production, unemployment, fall in investments, outputs, demand and

income but sustenance or an unpredictable rise in future prices of same goods and services thereby inflicting untold penury on the citizenry. The situation also affects financial development because it makes financial intermediation more costly, and the poor are mostly affected because they rescind in holding financial assets that provides a hedge against high inflation and decreases a country's international competitiveness by making exports more expensive. It also has negative effect on balance of payments, and reduces long-term growth of a country. Business and households perform poorly during the period of high inflation (Frimpong and Oteng-Abayie, 2010). High inflation has been one of the major challenges facing the nation's economy. The inability of the government to proffer a lasting solution to this problem indicates the inevitability of inflation in an economy; hence, it shows that government lacks the power to eliminate the persistent rising prices of goods and services in the domestic economy (Umaru and Zubairu, 2012).Inflation in Nigeria can be traced to 1950s, though not prevalent then. During an inflationary period, domestic currency finds it difficult to act as medium of exchange and a store of value without adversely affecting output level, income distribution and employment level of the country. Inflation leads to currency depreciation and a rise in foreign exchange rate. This is obviously the case of the Naira as it has depreciated overtime against US dollar and other major foreign currencies. One of the main responsibilities assigned to monetary agencies is to maintain relative stability in the domestic prices of goods and services as well as its relationship with economic growth. This emphasis is premised on the belief that monetary policy promotes sustainable growth and development by strengthening the value of money, preventing inflation and its associated uncertainties, thereby increasing the future growth prospects of the country. Thus, maintaining relative stability remains one of the vital goals of monetary authorities in a country. To control inflation in the country, the Central Bank of Nigeria (CBN) often adopts monetary policies and the targets are attained through monetary policy tools which are; open market operation, cash reserve ratio, monetary policy rate as well as moral suasion that are implemented mostly through the commercial banks to expand and contract credit from time to time. Despite all the monetary policy tool manipulation adopted by the monetary authorities to reduce rising inflation rate in Nigeria, the rate of inflation in the country is yet on the increase.

Statement of the problem

The world is in the grip of soaring inflation. When inflation crosses the single digit is an index of a weak economy. Inflation can prompt trade unions to demand higher wages, which on refusal or delay by government or regulatory or supervisory agencies leads to protest, boycotts and strike actions to keep up with consumer's prices and rising wages. These same demands on compliance in turn, can propel inflation which reduces the value of money and the need for more money to buy same unit of an item. Inflation has negative effects because it reduces the value of money, resulting in uncertainty of the value of gains and losses of borrowers, lenders, buyers and sellers and final consumers. The increasing uncertainty which inflation brings discourages savings and investments in local currency and in the economy respectively. It also has serious effect on reported profits as well as money as the basis of credit, standard of deferred payments and store of value (with exception to few investments) may be misleading tomorrow because of inflation.

The financial institutions that benefit from rising prices also suffer from the fall in savings and investments. This is because people have become immune to the idea that inflation reduces the purchasing power or their savings and investments. At this point, banks will even adopt higher lending rates as an anti-inflationary manipulating technique of the monetary policy rate to reduce cash flow though inimical to their business because their level of profitability is determined also by their credit value to the non-bank public who require it to foster business activities and thus increase output in the economy but which conflicts with monetary policy rate on inflationary control. Thus, it is against this background that the study intends to investigate the effect of inflation rates on bank credit and economic growth in Nigeria.

CONCEPTUAL FRAMEWORK

Concept of Inflation

Friedman defined inflation as fundamentally, a monetary phenomenon that is everywhere and always a monetary phenomenon and can be produced only by a more rapid increase in the quantity of money than output. Shapiro defined Inflation as a persistent increase in the general price level within an economy which affects the value of the domestic currency. It is not once and for all upward price movement but has to be sustained over time and affects all goods and services within the economy and thus economist do not agree that money supply alone is the cause of inflation. Inflation which arises from excess aggregate demand and leads to a rise in prices is called the demand pull inflation. The cost push inflation arises after prices are risen in the first instance followed by wage increases enforced by unions and profit increases by employers. Inflation is also the mixed demand-pull cost push inflation which arises when excess demand and cost-push forces as stated above occurs simultaneously. The structural inflation arises as the economy develops, rigidities arises initially from increases in non-agricultural incomes accompanied by high growth rate of population that tend to increase the demand for goods and from some constraints such as inefficient production, marketing and distribution systems in the productive sectors of the economy. Sectoral inflation also occurs from increases in excess demand industries (or sectors) and spread to deficient demand industries or sectors through prices of materials and cost of labour. The mark up inflation arises as a result of wage and prices where industries determine cost of materials in addition to rising wages to yet determine prices of products for the purpose of marking profits and this might be rising or falling based on the mark up. Inflation is also open or suppressed when markets for goods or factors of production are left to function freely setting the uninterrupted operation of market mechanism and suppressed when government imposes physical and monetary controls to check open inflation like tariffs, bans, and customs and excise duties. Inflation is an economic situation in which the increase in money supply in an economy is faster than the increase in the new production of goods and services in the same economy. Inflation may be imported, open or seasonal. It is intrinsically linked to money, as captured by the often heard maxim "inflation is too much money chasing too few goods" (Jhingan, 2011). Inflation is described as a recurrent rise in the overall level of prices for goods and services. It is measured as an annual percentage increase. As inflation rises, every naira one owns buys one a smaller percentage of a good or service. The value of a naira does not remain constant during inflation. The

value of a naira is measured in terms of its purchasing power which is the real, tangible goods that money can buy. When inflation rises, there is usually a decline in the purchasing power of money. Inflation is measured by the consumer price index, which reflects annual percentage change in the cost borne by an average consumer when he or she buys a basket of goods and services that may be fixed or varied from time to time usually on annual basis. The imbalance of aggregate demand and supply is associated with government's deficit, expansion of bank's interest rates and increase in foreign exchange demand. Considering the influence of inflation on economic growth, besides high inflation level which constrains economic performance or zero inflation that actually stagnates it, mild or creeping (single digit) inflation rate is sine qua non for economic prosperity. In spite of the problems posed by inflation, it is a global phenomenon since it cuts across both developed and emerging economies; therefore, its control remains a "nightmare" to economic policymakers throughout the world. Nowadays in Nigeria, concerns have been raised over the persistent rise in inflation rate with attendant eroding of the value of naira and general price instability (Hossain. E, Ghosh and Islam, 2012).

In that regard various scholars hold diverse views on inflation and growth relationship some of which are summarized below: The severity of inflation on economic growth in the short run is insignificant, but adversely affects living standards. Growth declines significantly during high inflation periods, adding that inflation nevertheless promotes growth when its rate is at lower levels. This means that high inflation does not promote growth; it affects economic growth negatively after attaining a certain threshold (i.e. the level at which effect begins). This phenomenon likely brings about inefficient allocation of productive resources with a general decline in macroeconomic performance. Also, decreased savings brings about decreased investments, which ultimately diminishes growth level. General uncertainty about future price levels discourages investment and likely lower capital formation in the economy. Besides, the returns on investments are reduced by inflation; for this reason, investors may invest in short-term capital rather than making long-term investments. Investors would rather invest in assets that can hedge against inflation (property, equities) instead of productive assets such as plants and equipments. These may further weaken the production capacity of the economy, increase incessant labour negotiations, waste of resources and rise in nominal wages resulting in unproductiveness and lower growth. Higher inflation discourages competitiveness in international trade with trading partners, affecting export-import trading relations, thereby resulting in disequilibrium in the balance of payments in form of a current account deficit, reduced foreign exchange capacity in any economy over time and will limit a country's ability to enhance its current account deficit. In addition, with the relaxed competition in international markets, profits accruing to merchandise will decrease. In essence, resources will move away from the merchandise sector into the non-merchandise sector. Inflation understates the real value of depreciation (i.e. the amount or percentage by which goods or services decrease in value over time, usually one year). In this case, higher profits are declared resulting in higher tax paid on profits. This situation is likely to be unfavourable to companies desiring to make additional investments. However, willing investors will expect to be compensated for their risk due to the increased uncertainty makes investment more costly for borrowers (Barro, 2005). Inflation in Nigeria has become a major threat to economic activities, especially on workers whose standard of living declines continuously. The inflationary factors traced to Nigeria's high inflation include continuous hike in petroleum product prices and exchange rate depreciation/devaluation. These increases in the two variables (price of petroleum and exchange rate depreciation) have been blamed for the increases in the transportation costs, input materials, foodstuffs, rents, and cost of production as well as selling and distribution expenses of goods and services coupled with the exchange rate depreciation in Nigeria (Umaru and Zubairu, 2012). Nigeria is currently experiencing low and high inflation. Nigerian inflation rate drops to 11.4 percent in 2019, 12.88 percent in 2020,0.62 percent less than the previous year level of 12.8 percent. The cost-push inflation is driven primarily by the severe scarcity of petroleum products which had forced increases in transportation, total cost of production as well as the selling and distribution of finished goods and services and a consequent arbitrary increase in cost of all other commodities and services consistently for several months and years. Inflation has further increased to 17.6 percent in august, a fresh 11-yearhigher and the seven monthly increases in a row. Inflation reports in 2020, states inflation rate for Nigeria was 12.9%. Though Nigeria's inflation rate fluctuated substantially in recent years, it tended to decrease through 2001 - 2020 period ending at 12.9 % in 2020. This was lower by 1.70% points from growth rate of -0.36% recorded in the first Quarter of year 2020 (Ogu *et al.,* 2020). Inflation rate is also erosion in the purchasing power of money or a loss of real value in the internal medium of exchange and unit of account in the economy. A chief measure of price level is the inflation rate; the annualized percentage change in a general price index (normally the Consumer Price Index) as well as the wholesale price index (WPI) over time, is also a measure of inflation rate but most commonly in use is the consumer price index (CPI).

Inflation rates and bank credit

Overtime, scholars have lacked consensus on the nexus between inflation and some macroeconomic variables including gross domestic product (GDP), money supply and exchange rate. Based on the relationship between inflation and money supply, the monetarist postulated that increase in the volume of money in circulation leads to an inverse proportionate increase in general price level. Thus the impact of inflation rates on bank loan is critical to determine the real gross domestic product (RGDP). In this sense, the monetarists believed that there exists direct but inverse relationship between inflation and money supply in an economy (Manoel, 2012). It was also argued that increase in the volume of money in circulation that results from expansionary fiscal policy of government leads to a rise in the general price level. Recession begins when there is a downward through from the peak which is of short duration which is as a result of higher prices, output, income, demand, employment, higher profits and the rate of inflation at this point is so high like the Nigerian experience today. It makes the turn when forces from construction finally win over the force of expansion with signs as liquidation in the stock market, strain in the banking system and some liquidation of bank loans, and beginnings of a decline in the prices. As a result of the decline in prices, profit margins decline further because cost start over ranking prices and in this state some firm close down or reduce production and try to sell out accumulated stocks. As such, investments, employments, income and demand decline. The process becomes cumulative and recession may be mild or severe. The

latter might lead to a sudden explosion from the banking system or stock exchange and a panic or crisis occurs. When panic or crisis occurs it leads to a collapse in confidence and sudden demands for liquidity. It declares distress in the economic structure, weakens banks and firms, corporations declare insolvency. This is such as was experience in the U.S in 1873, 1893, 1907 and recently 2008 and Nigeria in 2017. A recession once stated builds upon itself like forest fire. Thus, the effect of inflation is a recession which has an impact on the value of loans (bank credits) to the real economic sector that require this for their working capital as well as the procurement of fixed assets which are needed for productive services, thus the need to control the surge in inflation.

Table 1. Commercial banks credit and inflation rate

Year	Inflation rate (%)	Commercial Banks Loans (N billion)	Year	Inflation rate	Commercial Bank Loans (N Billion)
2008	89.66	6,433.09	2016	213.56	14,752.84
2009	102.15	8,150.88	2017	246.38	14,513.32
2010	114.22	7,018.27	2018	274.57	14,074.59
2011	125.97	6,685,85	2019	307.47	14,558.86
2012	141.06	7,723.72			
2013	152.29	9,467.28			
2014	164.44	12,101.32			
2015	180.15	12,101.32			

Source: CBN Statistical Bulletin, 2019.

The economic growth of the country is stimulated by the private sector as key drivers of productive services and there require funds both as public, private, micro, small and medium enterprises not only as equity but also as debt funds which is determined by the level of bank credit available in the country. This bank credit is highly impeded on by the rate of inflation as it impacts on the lending decisions of the management of the commercial bank through the regulations and supervision of the central bank of Nigeria. Monetary policy rate(MPR) that is fixed by the monetary policy committee(MPC), headed by the central bank Governor in response to the rate of inflation and a control measure and the Changes in interest rates influences interest rates charged for overdrafts, mortgages, loans and advances. This change then affects the price of financial assets such as bonds and shares as well as the exchange rate of the currency. This in turn affects the consumer and business demand for loanable funds (bank credit) and thereby the output of the economy which reflects on the gross domestic product of such an economy. Inflation has a significant impact on the time value of money (TVM), Changes in the inflation rate (whether anticipated or actual), result in changes in the rates of interest. Banks and companies anticipate the erosion of the value of money due to inflation over the term of the debt instruments they offer. To compensate for this loss, they increase the interest rates. Then the impacts on employment levels and wage cost which finally influences producer and consumer prices and thus the Consumer Price Index and Purchasing Power Index. The demand and supply of bank credit is a response to changes in interest rates, the cost of borrowing and thereby affects spending decisions. Interest rates impact on the attractiveness of spending today versus spending tomorrow, as mentioned earlier. An increase in interest rates makes savings more attractive and borrowing less, which reduces spending, by both consumers and producers thus the demand for bank credit may be low except for extreme cases and these cases may lead to bad and doubtful debts. Conversely, a reduction in interest rates increases spending by both consumers and producers and thus they will be more demand on bank credit. As shown in table 1 above where increase in interest rates rather called for an increase in bank credit instead of less of it as interest rates increase simultaneously as inflation rates increase to discourage borrowing, reduce money supply, aggregate demand and thus stabilize prices again and attain economic growth at a mild rate of inflation.

Table 2. weighted Lending rate for commercial banks and inflation rate

Years	Inflation rate 2009=100(%)	Lending rate (%)
2008	89.66	18.70
2009	102.15	22.62
2010	114.22	22.52
2011	125.97	22.42
2012	141.06	23.79
2013	152.29	24.69
2014	164.44	25.74
2015	180.15	26.71
2016	213.56	27.29
2017	246.38	30.69
2018	274.57	28.16
2019	307.47	30.57

Source: CBN statistical Bulletin, 2019

As shown in table 2 above, the monetary policy rate for contracting money supply during inflation is manipulated by the central bank of Nigeria by increasing the lending rates to discourage investors from borrowing thereby leading to a fall in investment, income, demand and prices that may lead to stabilized prices. There are exceptions in 2010 when the growth of inflation was at 2.07 percent but the rise in lending rate was decreased by 0.1 percent, in 2011 where the rate of inflation grew by 11.7 percent, the rate of lending dropped again by 0.1 percent and in 2018 when the rate of inflation grew by 28.2 percent, the lending rate dropped by 2.53 percent. The rate of increase on inflation growth rate and the decrease in the lending rate is not proportional in the various years. However, this is not in consonance with the monetary policy rate manipulations except for certain lurking variables that may have being considered by the monetary policy committee which in the cause of this study the stochastic error term have given credence to.

Interest rates are the costs a borrower has to pay when obtaining a loan in any economy. This definition implies that; interest rates are the determinants of the cost of credits in an economy. The impact of high cost of interest rates in the society is not unconnected to the fact that borrowers may hesitate to borrow when they should. This may be because the cost of credit and the credit itself may aggregate to an amount that may be unaffordable to the borrower to pay back within the stipulated due date of the loan. The implication of this on the economy is that GDP of the economy would be low since equity financing alone cannot adequately sponsor the productive activities in an economy. It is not just production of goods that are negatively affected by increased interest rates but also affected are those involved in real estate business. The increase in interest rates affects demand for mortgages posing a challenge on the prices of residential real estates. On the contrary, proponents of high interest rates are of the opinion that high interest rates encourage the supply of idle funds in the market making an improvement in the circular flow of funds and making accessibility of funds quite easy for businesses to flourish. Inflation is classified based on the rate (percentage) of the inflation at that point in time, irrespective of the type of inflation. When inflation is between 0-3 percent it is called the creeping inflation,3-7 percent is called walking or trotting inflation, between 7-10 percent is called the running

inflation and this affects the poor and middle classes adversely and its control requires strong monetary and fiscal policy less it leads to hyperinflation and from 10-20 percent and above is called hyperinflation. Inflation rate at a single digit is always encouraged as it supports economic activities but a double digit is not advisable. Thus inflation rate from creeping to walking is advisable for economic growth but a long stretch in the walking rate may lead to running and then hyper inflation which are key retrogressive catalyst for fall in the value of money and economic growth.

Inflation and Economic Growth

Another essential concept that engages the attention of this paper is economic growth. Economic growth is the most important single measure of the performance of an economy. This is critical because the level of productive activities occurring in an economy determines the Gross domestic Product(GDP) of the economy and the rate of inflation impacts on the GDP as final sources for the net operating income or profit are influenced by inflation either positively or negatively. If not all, some of the firms are debt financed and thus with monetary regulations, anti inflationary policies restricts lending and the impact of inflation rate on commercial banks determine the real gross domestic product of the economy. Economic growth connotes an increase in the capacity of a country to produce goods and services by comparing contemporary output level with previous ones. Thus, the comparison may result in a positive or negative growth. Economic growth becomes noticeable when an economy's productive capacity increases, and produces more goods and services. Nigeria's economy is a mono-product economy because it relies heavily on crude oil production in commercial quantity. This implies that crude oil serves as a major source of government revenue as well as foreign exchange, and thus accounts for more than 80 percent of the total revenue that accrues to our country. Economic growth is a sustained increase in per Capita National output or net national product over a long period of time. It implies that the rate of increase in total output must be greater than the rate of population growth. Economic growth is related to quantitatively sustained increase in the country's per capita output or income accompanied by expansion in its labor force, consumption, capital and volume of trade. If the GDP of an economy increases, the country's economic growth is considered increased. Also, if there are increases in the aggregate goods and services per person (per capita income) in an economy for a reasonable period of time say 5 years and above, these are elements of economic growth. High inflation rate in an economy affects growth of the domestic economy positively by decreasing the rate of unemployment. Similarly, a nation with high inflation experiences a decrease in the rate of economic growth; hence, inflation affects economic growth negatively. High inflation rates, low domestic savings, balance of payments deficits, low agricultural produce, increase in public spending and fall in industrial capacity utilization hinders economic growth of a nation. Uncertainty in the rate of change in inflation is the major economic instability indicator, which affects economic growth of a country negatively (Phillips, 1958). The persistent rise in the price level of goods and services are the most serious challenges facing every economic unit. In view of this, every nation strives to achieve price stability as the main factor that is required to promote economic growth and development of a nation. They identified some determinants of inflation to include monetary policy, fiscal policy and balance of payments position of a country. In their explanation of the monetary policy as one of the determinants of inflation, they argued that inflation results due to increase in money supply. The fiscal policies are related to as fundamental factors that causes inflation in an economy. They argued that fiscal policy involves government budget deficit, which are often financed through money creation in the less developed countries, and hence, fuels inflation. On the other hand, balance of payment position was based on the rate of exchange. If exchange rate collapses, it will bring about inflation that may either be in form of higher import prices or in the form of accelerated wage bill (Barro, 2005). As shown in table 2 below, a persistent rise in the price level (inflation) is reciprocated by a growth in the real gross domestic product (RGDP), which reveals that irrespective of a growth in inflation from 2008 to 2019.The growth rate of the Nigerian economy is in positivity as the growth in inflation welcomed a growth in GDP.

Table 2. Inflation rate and Gross Domestic Product (2015 to 2019)

Years	Inflation Rate (%) 2009=100	Gross Domestic Product (GDP) (2010 Constant Basic Prices N Billion)
2008	89.66	46,012.52
2009	102.15	49,8526.10
2010	114.22	54,612.26
2011	125.97	57,511.04
2012	141.06	59,929.89
2013	152.29	63,218.72
2014	164.44	67,152.79
2015	180.15	69,023.93
2016	213.56	67,931.24
2017	246.38	68,490.98
2018	274.57	69,779.94
2019	307.47	71,387.83

Source: Statistical Bulletin, 2019.

The increase in the cost of goods and services are often considered to be counterproductive, and it has negative effect on the economy of a nation. Kevin and Liu (2004), stated that inflation stabilization and output gap have been the major objectives for many central banks all over the world. The main objective of any central bank is to achieve optimal monetary policy rules. Changes in monetary policy rates (Interest rate), influences interest charged for overdrafts, mortgages, loans and advances (Bank credit). This change then affects the price of financial assets such as bonds and shares as well as the exchange rate of the currency. This in turn affects the consumer and business demand and thereby the output which impacts on the economy holistically. Inflation has a significant impact on the time value of money (TVM), Changes in the inflation rate (whether anticipated or actual) result in changes in the rates of interest of bank credit and being a major source of debt funds to real economic units of the economy and also as financial intermediaries this will reflect on the market prices and market risk of financial assets with a resultant effect on the economic growth of the economy (Awogbemi and Ajao, 2011). A decrease in the value of the dollar reduces the price of imports and because many imported goods are included in the CPI, this has a direct influence on inflation and on the economic growth because most inputs for the production of some goods and services are also imported into the country so the GDP is impacted on by inflation rate also because of foreign exchange rate. Also a stronger dollar reduces the global demand for Nigerian goods and services as export will be more expensive. This reduces the exports which then reduces the output, and shifts domestic spending to imported goods. A change in interest rates takes a couple of years to have its full

impact on inflation rate compared to foreign exchange fluctuations. The Mundell's model developed by Tobin in making money a store of value in the economy holds that individuals in this model substitute current consumption for future consumption by either holding money or acquiring capital. Under this setup, individuals maintain precautionary balances, in spite of capital offering a higher rate of return. Quite simply, the Tobin effect suggests that inflation causes individuals to substitute out of money and into interest earning assets, which leads to greater capital intensity and promotes a positive relationship to economic growth. Therefore, it's important to hold cash balances in financial assets than liquid cash as a means of curbing the effects of inflation as interest earned on assets will measure the time value of money and store of value function of money as opined by the Cambridge equation quantity theory of money. Inflation may also lower down further production levels. It is commonly assumed that if inflationary tendencies nurtured by experienced inflation persist in future, people will now save less and consume more. Rising saving propensities will result in lower further outputs. However, slight dose of inflation is necessary for economic growth. Creeping inflation (0-3%) has an encouraging effect on national output. But it is difficult to make the price rise a creeping one. High rate of inflation acts as a disincentive to long run economic growth.

Table 3. Inflation rate, Gross domestic product and commercial bank credit

YEAR	INF	GDP	CBCR
2008	89.66	46012.52	6433.09
2009	102.15	498526.10	8150.88
2010	114.22	54612.26	7018.27
2011	125.97	57511.04	6685.85
2012	141.06	59929.89	7723.72
2013	152.29	63218.72	9467.28
2014	164.44	67152.79	12101.32
2015	180.15	69023.93	12101.32
2016	213.56	67931.24	14752.84
2017	246.38	68490.98	14513.32
2018	274.57	69779.94	14074.59
2019	307.47	71387.83	14558.86

Source: CBN Statistical bulletin, 2019.

Table 3 above shows that as inflation rate is on the increase, gross domestic product also rose from 2008 to 2015, the only fall in the GDP was in the year 2016. When the commercial banks lost their float through the implementation of the treasury single account in when the banks had a major drift in their liquidity base as whatsoever affects the banks affects the economy (Oru and Odumusor, 2019). Likewise the amount of bank credit also increased from 2008 as inflation rate increase to 2014 but with over a rise of 15.7 percent inflation in 2015, found the banks credit as that of 2014. A rise of 33.41 percent found an increase in 2016, a decrease in 2017 though the rate of inflation increased, same in 2018 and rise in 2019.This probably maybe as a result of liquidity problems or other lurking variables in the economy. A fall in savings means a lower rate of capital formation. A low rate of capital formation hinders economic growth as it impacts on the cash reserve ratio and the value of loanable funds in the economy. Further, during excessive price rise, there occurs an increase in unproductive investment in real estate, gold, jewelry, etc. Above all, speculative businesses flourish during inflation resulting in artificial scarcities and, hence, further rise in prices. Again, following hyperinflation, export earnings decline resulting in a wide imbalance in the balance of payment account. Often galloping inflation results in a 'flight' of capital to foreign countries since people lose confidence and faith over the monetary arrangements of the country, thereby resulting in a scarcity of resources. Finally, real value of tax revenue also declines under the impact of hyperinflation. Government then experiences a shortfall in investible resources. Thus economists and policymakers are unanimous regarding the dangers of high price rise. But the consequences of hyperinflation are disastrous. In the past, some of the world economies (e.g., Germany after the First World War (1914-1918), Latin American countries in the 1980s) had been greatly ravaged by hyperinflation.

Theoretical framework

Cash balances quantity theory of money: Cambridge Economists; Marshall, Pigou, Robertson and Keynes formulated the cash balances approached. They regarded the determination of value of money in terms of supply and demand. Robertson stated that money is only one of the many economic things. Its value therefore, is primarily determined by exactly Nomic things. The value is determined by the conditions of demand for it and the quantity of it available. They also said money supply is exogenously determined at a point of time by the banking system. Therefore the Cambridge economist discarded the velocity of circulation in the cash balances approach, but opined that the factor of demand and supply determine the value of money. Thus, Cash Balances Approach considers the demand for money not as a medium of exchange but as a store of value. Robertson expressed this distinction as money "on the wings" and "money sitting". It is money sitting that reflects the demand for money in Cambridge Equations. This equation shows that given the supply for money at a point, the value of money is determined by the demand for cash balances. When demand for money increases, people will reduce their expenditures on goods and services in order to have larger cash holdings. Reduced demand for goods and services will bring down price level and raise the value of money and vice versa.

The new growth theory: The New Growth Theory is propounded by Paul Romer (1982), states as an economic concept that human desires and unlimited wants foster ever-increasing productivity and economic growth. It argues that real Gross Domestic Product (GDP) per person will perpetually increase because of people's pursuits of profits. It further states that competition reduces profit, thus forcing people to constantly seek better ways to do things or invent new products to maximize profitability. The theory emphasizes the importance of entrepreneurship, knowledge, innovation and technology thus rejecting the popular view that economic growth is determined by external and uncontrollable forces. Thus, this proofs the ever growing rate of gross domestic product irrespective of growth in inflation because of the risk, innovations and technological know-how which are not controlled by the banking system.

Empirical Review

Olugbenga and Oluwabunmi (2020), In an attempt to examine the influence of inflation on the growth prospects of the Nigerian economy, the study employs the autoregressive distributed lag on the selected variables, i.e. real gross domestic product (GDP), inflation rate, interest rate, exchange rate, degree of economy`s openness, money supply, and

government consumption expenditures for the period 1980–2018. The study findings indicate that inflation and real exchange rate exert a significant negative impact on economic growth, while interest rate and money supply indicate a positive and significant impact on economic growth. Other variables in the model depict no influence on the economic growth of Nigeria. The causality result shows the unidirectional relationships between interest rate, exchange rate, government consumption expenditures and gross domestic product. However, inflation and the degree of openness show no causal relationship with gross domestic product. As a result, the study recommends that a more pragmatic effort is needed by the monetary authorities to target the inflation vigorously to prevent its adverse effect by ensuring a tolerable rate that would stimulate the economic growth of Nigeria.

Ogu, Adagiri, Abdulsalam and Umar (2020), examined the impact of inflation on economic growth in Nigeria, utilizing time series data sourced from CBN for the period spanning from 1999 to 2017. The study has two objectives; to determine the impact of inflation on economic growth in Nigeria and to determine the impact of interest rate on economic growth in Nigeria. The study adopts the Ordinary Least Square (OLS) regression technique and established that inflation has positive but not significant impact on economic growth in Nigeria. The result also revealed that interest rate has negative and significant effect on economic growth in Nigeria. It is recommended amongst others that efficient tax policy be implemented and policy to invisible hands on the side of consumers and one-digit interest rate should be achieved.

Olaide (2019), investigated the impact Of Banking Credit On Economic Growth And Inflation: The Case Of Nigeria. Banking credits have been studied by many authors and most of them have come to a conclusion that credit given by banks is necessary for economic growth and has an influence on inflation. The aim of the study is to investigate the role of bank credit in the economic growth of Nigeria and inflation rate. Macroeconomic variables which include Domestic credit (DC), Net domestic credit (DOMCRE), Gross domestic product (GDP) and inflation were used. The data were collected from the Central Bank of Nigeria's data and statistical report (2018), Central Bank of Nigeria statistical bulletin (2018), World development indicators (2018) and National Bureau of Statistics (2018) for the 1996-2014 periods. In the empirical analysis at first descriptive statistics and graphics were used. For the econometric methods Granger causality test were used. The result shows that Domestic Credit and Net Domestic Credit have a statistical significant relationship on gross domestic product but no significant relationship on inflation.

Oladapo, Danladi, Akomalafe, Ajiboye and Paul (2015), examined the inflation, interest rate and economic growth in Nigeria using annual time series data from 1981 to 2014. The variables used for this study includes Real Gross Domestic Product (RGDP), Inflation at consumer prices, Interest Rate (INTR), Net Domestic Credit (NDC), Transfer Payment (TRF). This used Augmented Dickey Fuller test to test the unit root properties of the series. The result of the unit root shows that all the variables are stationary at first difference but inflation is stationary at level. The study adopts the Ordinary Least Square (OLS) method. The long run relationship among the variables was tested using Johansen co integration test and causality test was also carried out. The OLS result shows that both inflation and interest rate have negative impact on the economic growth. Johansen co integration shows that there is long run relationship among the variables under consideration. The Granger causality test shows that both inflation and interest rate do not Granger cause the economic growth in Nigeria.

Bakare, Kareem and Oyelekan (2015), examined the effects of inflation rate on economic growth in Nigeria (1986-2014). The variables used for this study are: Gross Domestic Product (GDP) as a dependent Variable and inflation rate as an independent variable. The Augmented Dickey Fuller unit root test was used to test the stationarity of the variables. The study used regression analysis to determine the effect of inflation on economic growth, while Granger causality test was used to test the causation between inflation and economic growth. The result shows that inflation has negative impact on the economic growth. The Granger causality shows that GDP cause inflation but inflation does not cause GDP. The major limitation of this study is that the variables were differenced which leads to loss of long run inflation but this study did not consider long run relationship.

Hossain, Gosh and Islam (2012), examined the inflation and economic growth in Bangladesh. The study used time series data from 1978to 2010. The objective of the study was to find out the long run relationship between inflation and economic growth. The variables used in the study include GDP deflator (GDPD) as a proxy for inflation and GDP as a proxy for economic growth. The study employed co-integration and granger causality test. The Johansen –Juselius co-integration result shows that there was no co-integration between inflation and economic growth in Bangladesh. The result of causality at lag two (2) shows unidirectional causality was seen running from inflation to economic growth. Further test at lag four (4) supported the first by showing unidirectional causality running from inflation to economic growth.

Omoke and Ugwuanyi (2010), assessed the relationship between money, inflation and output by employing co-integration and Granger-causality test analysis. The findings revealed no existence of a co-integrating vector in the series used. Money supply was seen to Granger cause both output and inflation. The result suggest that monetary stability can contribute towards price stability in Nigerian economy since the variation in price level is mainly caused by money supply and also conclude that inflation in Nigeria is too much extent a monetary phenomenon. They find empirical support in context of the money-price-output hypothesis for Nigerian economy. M2 appears to have a strong causal effect on the real output as well as prices. Using Okun's law "each percentage point of cyclical unemployment is associated with a loss equal to 2% of full-employment output; if full employment output is $10 trillion, each percentage point of unemployment sustained for one year cost $200 billion.

Manoel (2010), investigated the relationship between inflation and economic growth in Latin America. The study used panel data from 1970 to 2007 for four Latin American countries, namely Argentina, Bolivia, Brazil and Peru. The objective of this study was to investigate the role of macroeconomic performance, in terms of inflation rates, in determining economic growth in panel of Latin American countries that experience hyperinflation episode in the1980s and early 1990s. The variables used in the study include GROW which is the growth rate of real GDPs and it serves as a dependent variable.

While the independent variables include: inflation (INF), government's share in the real GDP (Gov), which proxies for the size of government, the ratio of exports and imports to real GDP (OPEN), as proxy for economic openness, the ratio of investment to real GDP (INN), measure of financial development i.e. the ratio of liquid liabilities to GDP (Mz), index of structural development (DEV) which is measured by the level of education and urbanization, political regime (POL)which consist of common factors of DEMOC, XCONST and POLCOMP. The study employed pooled ordinary least square, fixed effect (FE) and random coefficient estimators (RC). The result shows a significant negative relationship between inflation and economic growth.

RESEARCH METHODOLOGY

This research basically, related to impact of inflation rate on bank credit and economic growth in Nigeria and therefore, relied heavily on panel data. The data that were used in the analysis were generated from Central Bank of Nigeria Statistical Bulletin between the periods of 2008 to 2019. Therefore, this research employed the Ex Post Facto research design. This is because it involves events which have taken place.

Population of the study and sample size

The population of the study is the entire country and the twenty-three (23) deposit money banks in Nigeria. Sample size is limited to the information contained and presented by the National Bureau of statistics (NBS), the Central Bank of Nigeria as contain in the CBN Statistical Bulletin 2019 and the Consumer Production Index (CPI) for the stated year was be used for analysis.

Model specification

The linear regression model was used for the hypotheses one and three.

The general model is: $Y = \alpha + \beta X + e$ …… (1)

Where;
Y = Dependent variable
X = Independent Variable
α = constant
β = coefficient of independent variable
e = error margin
Adopting this to the study, the models for hypotheses one and three are:

$ECG = f(Inflr + Cbcr + X_1)$ …… (i)

Where
Ecg = Economic growth
Inflr = Inflation rate
Cbcr = Commercial bank lending rates
X_1 = Error term and other lurking variable

$CBCR = f(Inflr + X_1)$ …….. (ii)

Where
Cbcr = Commercial bank rate
Inflr = Inflation rate
X_1 = Error term or other lurking variable

RESULTS AND DISCUSSION OF FINDINGS

Descriptive Statistics

	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
INF	217.81	89.66	307.47	2111.92	175.9933	20.32436	70.40565	4956.956	.678	.637	-.649	1.232
GDP	45s2513.58	46012.52	498526.10	1193577.24	99464.7700	36343.23806	125896.66967	15849971435.219	3.442	.637	11.889	1.232
CBCR	8319.75	6433.09	14752.84	127581.34	10631.7783	976.49666	3382.68365	11442548.706	.034	.637	-1.942	1.232

Variables Entered/Removeda

Model	Variables Entered	Variables Removed	Method
1	CBCR, GDP[b]	.	Enter

a. Independent Variable: INF
b. All requested variables entered

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.937[a]	.878	.832	28.87004	.878	19.140	3	8	.001	.743

a. Predictors: (Constant),CBCR, GDP
b. Independent Variable: INF

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	47858.679	3	15952.893	19.140	.001[b]
	Residual	6667.835	8	833.479		
	Total	54526.514	11			

a. Independent Variable: INF
b. Predictors: (Constant), CBCR, GDP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-106.433	62.829		-1.694	.129	-251.318	38.452					
	GDP	-1.480E-005	.000	-.026	-.192	.853	.000	.000	-.282	-.068	-.024	.804	1.245
	CBL	.019	.003	.899	7.133	.000	.013	.025	.904	.930	.882	.962	1.039

a. Independent Variable: INF

Coefficient Correlations[a]

Model		CBCR	GDP
Correlations	CBC	1.000	.195
	GDP	.195	1.000
Covariances	CBC	6.883E-006	3.943E-008
	GDP	3.943E-008	5.949E-009

a. Independent Variable: INF

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	GDP	CBCR
1	1	3.364	1.000	.00	.02	.01
	2	.560	2.451	.00	.71	.01
	3	.064	7.227	.02	.00	.81
	4	.011	17.372	.98	.26	.18

a. Independent Variable: INF

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	88.7828	262.6599	175.9933	65.96051	12
Residual	-52.52023	44.81009	.00000	24.62046	12
Std. Predicted Value	-1.322	1.314	.000	1.000	12
Std. Residual	-1.819	1.552	.000	.853	12

a. Independent Variable: INF

The descriptive statistic for testing the relationship between inflation rate and commercial bank credit had the maximum value for the inflation rate is 307.47 with its mean value of 175.99 which reveals a negative skewness in the inflation distribution with a standard error of 20.32436 and 976.49666 for commercial bank credit (CBCR) respectively. Inflation has a standard deviation of 70.40565 and commercial bank loan has a standard deviation of 3382.68365 showing a high level of dispersion in both distributions with more on the commercial bank credit compared to inflation. The result of skewness shows it's a positively skewed distribution to the extent of 0.034 for inflation and commercial bank credit respectively. The standard error of skewness of 0.637 is a proof or normality for both inflation and commercial bank loan. The result proof Kurtosis reveals a platykurtic distribution for the inflation because the curve is less pealed than normal and that of commercial bank loan is also less peaked than the normal thus, it is Platykurtic and the standard error reveals a long fail for both distributions. The regression result testing the relationship between inflation and commercial bank loan has a R value of 0.937 with a R^2 of 0.878 and an adjust of R^2 of 0.832 all indicating a positive and significant relationship between inflation rate and commercial bank loans as buffered by the 28.87004 standard error of estimate revealing a high degree of dispersion or variability between inflation and commercial bank as there positively correlate. The Durbin Watson test of test of 0.743 indicate a problem in auto-correlation as the range of a good Durbin Watson test should be between 1.5-2.5 these means that commercial bank shouldn't be rising as inflation is rising.

The ANOVA result of an F value (19.140) with 0.001 as table value, indicates that the calculated F is more than the table F. This we state that there is a significant and positive relationship between inflation rate and commercial bank credit.

The descriptive statistics that there's no relationship between inflation (INF) rate and gross domestic product (GDP) reveals the maximum value for the inflation is 307.47 with its mean valve as 175.99 which reveals a negative skewness in the inflation distribution with the standard error of 20.32436 and 3634.2806 for inflation and gross domestic product respectively. Inflation rate has a standard deviation of 70. 40565 and gross domestic product a standard deviation of 125896.69967 all revealing a high standard deviation of variability or dispersion about the distribution of inflation and a higher dispersion in gross domestic product. The variance of 4956.956 for inflation and a 15849971435.219 for gross domestic product shows there is more variability in gross domestic product than inflation. The result of skewness reveals positively skewed distribution of 0.678 and 3.442 for inflation and gross domestic product respectively, this inter that the gross domestic product is more skewed than the inflation. The standard error of skewness of 0.637 is the gross domestic product of 0.637 is a proof of normality for both the inflation and gross domestic product. The result of Kurtosis reveals a platy Kurtic distribution for the inflation because the curve is less peaked than the normal and that of the gross domestic product in Leptokurtic because the curve is more peaked than the normal and the standard error reveals a long tail for both distributions.

The regression result testing the relationship between inflation and gross domestic product has a R valve of 0.937 with a coefficient of determination R^2 of 0.878 and adjusted R^2 of 0.832 all indicating a positive and significant relationship between inflation and the gross domestic product as buffered by the 28.87004 Standard Error of estimate revealing a high degree of dispersion between inflation and gross domestic product as there positively correlate. The Durbin Watson test valve of 0.743 indicates a problem in the auto-correlation as the range of a good Durbin Watson test should be between 1.5 to 2.5, this means inflation shouldn't be rising at a hyper state gross domestic product shouldn't be rising. The ANOVA result reveals an F value of 19.140 with 0.001 as table value, the hypothesis is rejected as the calculated F is more than the table valve. Thus, there is a positive and significant relationship between inflation and gross domestic product. All valve s of correlation coefficients and collinearity reveals a positive relationship between inflation and gross domestic product.

The ANOVA result of an F valve (19.140) with 0.001 as table value indicates that the calculated F is more than the table F. we state therefore that there is a significant and positive relationship between inflation rate and commercial bank credit. This infers that the persistent rise in bank credit is also responsible for the growth in inflation this is in consonance with Omoke and Ugwanyi (2010), who stated that money supply causes both inflation and economic growth. The ANOVA result reveals an F value of 19.140 with 0.001 as table value as the calculated F is more than the table valve. Thus, there is a positive and significant relationship between inflation and gross domestic product. All values of correlation coefficients and collinearity revealed a positive relationship between inflation and economic growth. This is in consonance with Manoel (2010), who investigated the relationship between inflation and economic growth in Latin America countries, namely Argentina, Bolivia, Brazil and Peru. The result shows a significant negative relationship between inflation and economic growth also Omoke and Ugwanyi (2010), that money supply is positively related to inflation and economic growth. This is an extreme case in Nigeria because at hyper inflation the economy shouldn't be growing thus other lurking variables are responsible for the growth rate in Nigeria amidst rising inflation rates.

Conclusion and Recommendations

This study of inflation on bank credit and gross domestic product in Nigeria has proven against that of several economies as the amount of bank credit increases as inflation rate increases even against the hike in lending rate of commercial banks as monetary policy control measures on inflation. This is a proof that investors yet resort to more liquid assets to meet the increased need in income to meet employment, prices and demand seeking a commensurate level of output to bring an equilibrium thereby equating demand and supply to stabilize prices by market forces in the economy against monetary authority manipulations to reduce money supply through the increase in lending rates thereby decreasing investments, employment ,income, prices and output but dare to attain stabilized prices through a slack in the macroeconomic variables to regain the value of money. The positive relationship between inflation and gross domestic product in Nigeria even when it attained the hyper-inflationary state yet supported economic growth as contrasted in several economies in the world. The above conclusions are in consonance with Jinghan (2011), who stated that inflation is not caused by general rise in prices of goods and services or money supply but by the short-fall in output and the New growth theory by Paul Romer (1982),which stated that GDP will also grow because of competition, higher profits and innovations thus we say "much money pursue few goods and services". The study also revealed that the rate of inflation didn't decrease the supply of bank credit amidst rising lending rates because investors sought to increase output of goods and services but this did not retard the growth in the economy because output increased considerably which proxies for economic growth of the nation thus this inflation may have being caused by other factors since output increased as prices increased in the domestic economy and the inflation is therefore imported (foreign exchange rates or and public spending). The study recommends that during inflation, the monetary policy authorities should monitor and through moral suasion ensure banks adjust their loan portfolio to real economic sectors to enhance increase in the production and provision of goods and services to improve the level of output to be above or at equilibrium with demand to maintain the value of money. The CBN should also ensure that commercial banks receive and provide foreign exchange services through strict supervision to enable a near stable exchange rate amidst inflation for the purchase of inputs across national borders as well as facilitate exchange.

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