

Monetary Policy and Economic Growth in Nigeria and Kenya: An Autoregressive Distributed Lag (ARDL) Approach

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Abstract

This study examined the impact of monetary policy on economic growth in Nigeria and Kenya motivated by perceived low and unappreciable economic growth despite implementation of various monetary policy measures. Annual time series data covering 1990 to 2022 were obtained from the World Development Indicators (WDI). The study employed the Autoregressive Distributed Lag (ARDL) approach to examine both long-run and short-run relationships among the variables, while the Vector Autoregression (VAR) Granger causality test was used to determine the direction of causal relationships. Monetary policy variables such as money supply, lending interest rate, exchange rate and inflation rate were used as explanatory variables. The results revealed the existence of a long-run relationship among the variables in both countries. The estimates; in Nigeria, lending interest rate had a positive marginal significant effect on growth, while inflation had a negative and significant effect while Money supply and exchange rate were insignificant. In Kenya, money supply significantly promoted growth, whereas lending interest rate exerted a significant negative effect; inflation and exchange rate were negative but insignificant. The short-run results showed significant adjustments in selected monetary variables, while the error-correction terms confirmed a stable long-run equilibrium. Granger causality results further reveals different patterns of causal relationships across the two countries majorly, Nigeria exhibits a bidirectional causality between inflation and lending interest rate while Kenya exhibits bidirectional causality between exchange rate and economic growth. The study concludes that monetary policy significantly influences economic growth in both economies, though with varying degrees of effectiveness reflecting differences in economic structures and monetary-policy transmission mechanisms. The study recommends that enhancing monetary policy effectiveness requires careful undertaking of monetary measures, strengthened monetary policies transmission channels and exchange rate management, implementing growth targeted lending rate, and improved policy coordination to achieve sustainable economic growth and development.

Keywords: Central Bank, Economic Growth, Monetary Policy, VAR Granger Causality, Nigeria, Kenya.

1. Introduction

Economic growth remains a fundamental macroeconomic objective due to its critical

role in improving living standard, reducing poverty and achieving sustainable

development. Due to its desirable effect, government across the world are concerned with the use of policy through its monetary authority to achieve sustainable economic growth and development. The monetary authority (central bank) of every country plays pivotal roles in the growth and development of the country's economy. Across the world, central banks are responsible for formulating and overseeing the monetary system of the nation along with a wide range of other responsibilities to achieve stated macroeconomic objectives one of which is to promote stable economic growth and development.

In developing economies like Nigeria and Kenya, achieving sustainable economic growth depends not only on the availability of productive resource but also on the effectiveness of macroeconomic policies aimed to achieve currency and economic stability, stimulates productive activities and promote economic growth. Among these policy monetary policy plays a key role. According to Dilshad, Mohammad and Usman (2016), monetary policy measures play vital contribution in the economic growth of a country. Joseph (2003), observed that while the maintenance of price stability has increasingly become the main mandate of most central banks, those in the developing countries are charged with the responsibility to promote economic development.

In order to achieve economic objectives of price stability, maintenance of favorable balance of payments, economic growth and sustainable developments, central banks were established and are called with different names across countries of the world. Ajayi (1999), observed that central banks are called differently by different countries. In Nigeria, it is known as the Central Bank of Nigeria (CBN) and was established in 1959 while in Kenya, it is known as the Central Bank of Kenya (CBK) and was established in 1966.

The objects of the CBN include: to ensure monetary and price stability; issue legal tender currency in Nigeria; maintain external reserves to safeguard the international value of the legal tender currency; promote a sound financial system in Nigeria; and act as Banker and provide economic and financial advice to the Federal Government (CBN, 2021). On the other hand, according to CBK (2023), the mandate of the central bank of Kenya is to formulate and implement monetary policy that promote price stability, foster liquidity, solvency and stability of the banking sector, issue currency notes and coins, and provide banking services to the government, commercial banks and other financial institutions.

In addition to the core mandate of the central bank and in order to facilitate the attainment of economic growth, the bank based on legal and statutory provisions, support the economic policy of the government and ensure the country's economic development and also embark on formulation of monetary policies.

Monetary policy is one of the key drivers of economic growth and development through its impact on economic variables. Folawewo and Osinubi (2006), sees monetary policy as a combination of measures designed to regulate the value, supply and cost of money in an economy in consonance with the expected level of economic activity. Friedman (1969) defines monetary policy as the action taken by the monetary authorities usually the central bank to affect monetary and other financial conditions through influencing the availability and cost of credit in pursuit of the broad objectives of sustainable growth of output, price stability and a healthy balance of payments position. The discretionary control of the money stock to Friedman (1969) involves the expansion or contraction of money and influencing interest rate to make money cheaper or more expensive depending on the

prevailing economic conditions and policy thrust.

According to Imoughele and Ismaila (2016), monetary policy is one of the macroeconomic instruments which monetary authority of a country employ in the management of their economy to attain fundamental objectives of price stability, maintenance of balance of payments equilibrium, promotion of employment, output growth and sustainable development. The other supplementary objectives of monetary policy because of the weaving global financial crisis which engulfed developed and emerging economies of the world include smoothening of the business cycle, preventing financial crisis and stabilizing long term interest rates and the real exchange rate. These objectives are necessary for the attainment of internal and external balance of value of money, control of inflation and achieve economic growth. Since the establishment of the central banks across the world, the banks have been formulating and implementing several monetary policies aimed at achieving the objectives of price stability, maintenance of balance of payments equilibrium, promotion of employment, output growth and sustainable development but its impact in achieving sustainable economic growth and development is not so clear, particularly in Nigeria and Kenya. There seem to be instability in economic growth in the two countries, sometime slow, declining and negative economic growth rate are recorded. Kiertisak (2016), observed that more than one third of the countries within the African region are still experiencing low growth and their economies remain fragile. Adeleke and Obi (2018), opined that economic growth in Africa as a continent has been falling in recent times in most, if not all the region. Similarly, Saibu and Nwosa (2012), opined that in the course of various regimes of monetary

policy, Nigeria's economy witnessed times of expansion and contraction but evidently, the reported growth has not been a sustainable one.

Nigeria and Kenya have adopted difference monetary measures since the establishment of their monetary authority, the central bank of Nigeria and the central bank of Kenya. In Nigeria there have been various regimes of monetary policy, sometimes monetary policy is tight (rigid), at other times it is loose (flexible) mostly used to stabilize prices and enhance the real sector performance. The monetary policy regime has changed from exchange rate targeting to the direct monetary policy targeting and to indirect monetary policy targeting. In term of exchange rate, the country has adopted different exchange rate regime such as the fixed exchange rate regime, dual exchange rate regime, system foreign exchange management, interbank foreign exchange management and floating exchange rate management among others. Particularly, in Nigeria, between 1959-1973, the conduct of monetary policy was largely dictated by the prevailing economic conditions in Britain. The instrument of monetary policy used at that time was the exchange rate, which was fixed at par between the Nigerian pound and the British pound, this period is popularly known as the Exchange Rate Targeting Regime (CBN, 2016). The period 1974-Date, is seen as the regime of monetary targeting. Nnanna (2001), noted that from 1970, Nigeria economy witnessed a major structural change that affected the conduct of monetary policy as oil dominated the export basket. Due to increased revenue accruing to government from oil, the imbalance in the balance of payments and low external reserves became things of the past, Nigeria's external reserves rose rapidly by over 1 000 percent in 1975 from about ₦100 million in the late sixties to approximately ₦3.4 billion in 1975. The need to finance post-war developments

also led to a considerable growth in public expenditure, thus intensifying inflationary pressures. Under this circumstance, the monetary authorities adopted a new monetary policy framework which involved the use of market (indirect) and non-market (direct) instruments. This development marked the beginning of monetary targeting in Nigeria. Consequently, the major focus of monetary policy was centered on controlling the monetary aggregates, a policy stance which was largely based on the belief that inflation is essentially a monetary phenomenon. The period 1974-1993 is seen as the regimes of direct control measures, the major objective of monetary policy during this period was to promote rapid and sustainable economic growth. Consequently, the monetary authority imposed quantitative interest rate and credit ceilings on the deposit money of banks, and prescribed sectoral credit allocation to the various sectors of the economy. Overall, the “preferred” sectors, such as agriculture, manufacturing and construction, were singled out for the most favored treatment, in terms of generous credit allocation and a below-market lending rate. The most important instrument of monetary control the CBN relied upon was the setting of targets for aggregate credit to the domestic economy and the prescription of low interest rates. With these instruments, the monetary authority hoped to direct the flow of loanable funds with a view to promoting rapid development through the provision of finance to the preferred sectors of the economy (Nnanna 2001). Omotor (2007), observed that the period of the 'Control Regime' experienced an impaired effectiveness of monetary policy and cited lack of instrument autonomy of the Central Bank as the Ministry of Finance influenced by short-term political considerations largely dictated monetary policy. The period 1993-date is seen as the regime of

indirect control measures, it started with the removal of selective credit ceilings for banks beginning following the promulgation of the CBN Decree 24 and the Banks and Other Financial Institutions Decree (BOFID) 25 of 1991. The focus of monetary policy during this period shifted significantly from growth and developmental objectives to price stability. The operational framework for indirect monetary policy management involved the use of market (indirect) instruments to regulate the growth of major monetary aggregates. The instruments used involved the use of Open Market Operations (OMO) which is conducted wholly on Nigerian Treasury Bills (TBs), including Repurchase Agreements (REPOS). The OMO is complemented with the use of reserve requirements such as the Cash Reserve Ratio (CRR) and the Liquidity Ratio (LR). Other measures include the discount window operations particularly, the Minimum Rediscount Rate (MRR) and moral suasion. The Minimum Rediscount Rate (MRR) is used by the CBN as a nominal anchor to influence the level and direction of other interest rates. Changes in the rate indicate whether the monetary authorities wished to adopt a policy of monetary tightening or otherwise. Under this framework, only the operating variables, the monetary base or its components are targeted, while the market is left to determine the interest rates and allocate credit (Nnanna, 2001 and Omotor, 2007). This aligned with the observation of Ikhide (1996), on developing countries, that after several unsuccessful decades of emphasis on the role of government interventions in promoting growth, developing countries are now devoting more efforts to having market signals guide the allocation of resources. Thus, monetary authorities have been shifting from direct control of monetary aggregates/instruments which places emphasis on the imposition of limits on the price or quantity

of credit to the indirect methods aimed at achieving macro economies objectives through the market forces.

Similarly, Kenya has undergone a number of reforms since its independence, shifting from direct monetary policy to indirect monetary policy in the 1990s (Nyorekwa and Odhiambo, 2014). Kinyua (2001), classified monetary policy measures in Kenya into two distinct periods, that is, the period between 1966 and 1992, when Kenya was pursuing a somewhat fixed exchange rate and the period after 1993 to date when the country adopted a floating exchange rate. During the fixed exchange rate period which also encompasses the formative years of the bank, the bank underpin its monetary policy strategy with controls on interest rates and the volume of credit expansion by banking institutions as its operational targets, and money supply growth as its intermediate target, interest rates were controlled, exchange rates fixed. Other measures included the imposition of a minimum cash ratio of 5 percent on commercial banks in 1971, in addition to the liquidity ratio requirement of 12.5 percent put in place in 1969. Moral suasion was also used as an instrument, thereby subjecting commercial banks to reduce their lending to the import sector and foreign-owned firms. The main monetary tools were credit controls and the imposition of ceilings: particularly on commercial banks. The period 1993 to date is seen as the regime of indirect monetary policy measures. Measures adopted within the period include complete liberalization of the exchange rate when the exchange rate was allowed to become market-determined, restrictions on outward investments and inward investments were removed marking the complete removal of the quantitative controls on the capital accounts. Other measures include Open Market Operation (OMO), cash ratio requirement, foreign market operations and rediscount facilities. The primary

objective of monetary policy was price stability with the ultimate aim of promoting the long-term goal of economic growth.

Laudau (1991), mentioned that Kenya has been engaged in far-reaching financial sector reforms aimed at improving monetary control and improving the efficiency of financial intermediation. These reforms has seen Kenya moving from direct to indirect instruments of monetary control for three reasons. First, it was recognized that the liberalization of interest rates was a necessary prerequisite for the successful use of market operations to control money and credit aggregates. Hence, the authorities undertook a gradual relaxation of interest rate controls, focusing the removal of controls on Treasury bill yields. Second, since government securities markets were to a significant degree segmented from other financial markets, the immediate and exclusive reliance on open market operations in government securities for purposes of monetary control was not desirable. Instead, it was necessary to broaden and deepen the market for government securities to remove the segmentation and thus improve the transmission of policy effects from the monetary to the real sector. Third, Kenya introduced an innovative transitional arrangement in the form of a market based enforcement mechanism for credit ceilings to improve control of money and credit, until open market operations could be used in sufficient volume (Laudau, 1991).

Economic growth could be defined as the increase in the amount of goods and services in a given country at a particular time. This of course indicates that when the real per capita income of a country increases over time, economic growth is taking place. Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018), defined economic growth as the increase in the amount of goods and services in a given country at a

particular time. A growing economy produces goods and services in each successive time period, showing that the economy's productive capacity is at increase. Broadly, economic growth implies raising the standard of living of the people and reducing inequalities of income distribution (Jhingan, 2004).

According to Ogle (2018), growth of the economy is described as the progression of growing the sizes of countries economy, macroeconomic indicators particularly GDP per capita, systematically and that result to positive effects on the social economic sector. It is also defined as the increment in country's production which finally leads to addition to the income generated nationally. It entails increase in the level of national output which reduces the level of unemployment and in turn improves the living standard of the resident of the country. Economic growth is an important issue in economics and is considered as one of the necessary conditions to achieve better outcomes on social welfare, which is one of the main objective of economic policy. It is thus an essential ingredient for sustainable development. Economic growth is proxies by Gross Domestic Product (GDP). Thus, in this study, it is conceptualized as the monetary value of all goods and services produced in an economy over a specified period, usually one year.

Economic growth has long been considered one of the important goals of monetary policy. As mentioned by Nwoko, Ihemeje and Anumadu, (2016), stabilization of economic growth is one of the major objectives of monetary policy. Monetary policy is an important tool for stable economic growth. According to CBN (2016), policy makers often claims that effective monetary policy is essential for economy development, while other stakeholders seek to know how exactly monetary policy support economic growth.

Monetary policy influence economic growth through regulating the money supply in the economy. Ogle (2018), noted that there exist a correlation linking monetary policy and economic growth via the transmission mechanism. He noted that monetary policies are aimed at maintaining inflation at desirable level, maintaining balance of payments, increasing levels of employment thereby boosting economic growth. To CBN (2016), monetary policy affects economic growth in many ways. Recall that monetary policy among other objectives, aimed to ensure price stability which implies that inflation rate is low and does not change frequently. If prices are stable, it will be easy to plan investment and consumption so that economic actions are orderly. In this circumstance, it is also easy to save and because investment depends in part on savings, it will be easy to build infrastructure and other amenities that support growth. Another way monetary policy support growth relates to its effects on the cost and availability of credit. The cost of credit to investors and consumers could be influenced by central bank increasing or reducing the rate at which it lends to banks that is the Monetary Policy Rate (MPR)/lending interest rate. If policy rate is reduced, it is expected that banks would also reduce their lending rate so that money become cheaper for investment and consumption which in turn increases business activities thereby supporting economic growth.

Despite implementation of monetary policy measures in Nigeria and Kenya, there seem to be low and unstable economic growth with declining and negative economic growth rate experienced sometimes. Economic growth seems not responding adequately to monetary policy implementations. Nigeria and Kenya continue to experience fluctuations in economic growth, this raise questions on the effectiveness of monetary policy in promoting sustainable economic

growth. Figure 1.1 below shows the trend statistics of annual economic growth rate in Nigeria and Kenya from 1990 to 2022.

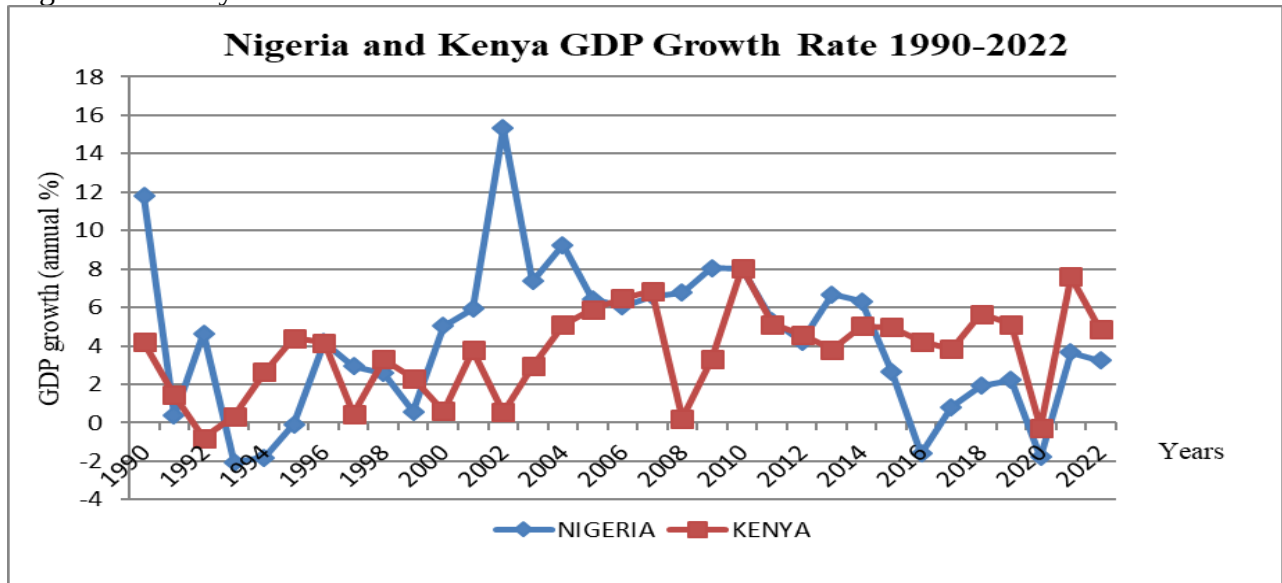


Figure 1.1 Trend of GDP Growth Rate in Nigeria and Kenya

Source: World Development Indicators (2024).

Figure 1.1 shows the trend of Nigeria and Kenya annual GDP growth rate (expressed in percentage) for the period 1990 to 2022. The use of GDP growth rate in assessing economic growth aligns with the study of Magaji, Micheal and Anthony (2018) and that of Ali, Siddique, Chaudhry and Tariq (2022).

In 1990 the GDP growth rate for Nigeria stood at 11.78% while that of Kenya stood at 4.19%

Both countries experienced decline in the GDP growth rate, Nigeria growth rate crashed to 0.36% in 1991, appreciated to 4.63% and later witnessed negative growth of -4.03% in 1992. The negative growth remains until 1996 when the country recorded growth rate of 4.20%, while that of Kenya crashed to 1.44% in 1991 reaching a negative growth rate of 0.8% in 1992 where its keep appreciating reaching 4.41% in 1995 and declined to 4.15% in 1996. These periods mark the end of direct monetary policy measures and transition to indirect monetary measures for the both

countries. The negative growth rate for Nigeria may also be attributed to political environment and the unrest following the annulment of the June 1993 elections.

From 4.20% growth rate in 1996, Nigeria witnessed decline in her growth rate which reaches 0.58% in 1999 where its keep appreciating reaching the peak of 15.33% in 2002. Kenya growth rate on other hand dropped from 4.15% in 1996 to 0.47% in 1997 where it's appreciated to 3.29% in 1998 and fluctuated within 3% down to reach 0.55% in 2002. These periods mark when the both countries resume open democratic governance, 1999 for Nigeria and 2002 for Kenya.

By 2004, Nigeria growth rate increase from 7.35% the previous year to 9.25% where it remains within 6% up to 2008. Similarly, that of Kenya increase from 2.93% the previous year to 5.1% where it remains within 6% up to 2008 when it declined to 0.23%. The decline witnessed between 2007 and 2008, particularly the sharp decline of Kenya may be attributed to the effect of global economic meltdown experienced across the world. By 2009, both countries experienced increase in the growth rate up to 2011 when the growth

rate start declining to reach 4.23% in 2012 for Nigeria and 4.57% for Kenya. While Nigeria maintains an increase within 6% from 2013 to 2014, Kenya experienced a decrease by recording growth rate of 3.8% in 2013 and then an increase to 5.02% in 2014. From 2014, both countries experienced decrease in growth with Nigeria recording a negative growth rate of -1.62% in 2016, this according the CBN(2017) is attributed to fall in the global oil price, continuing depreciation of the naira and the slippage of the economy into a recession. These headwinds weakened consumer and business confidence, as well as domestic spending, and slowed economic activities. After 2016, she regains herself and later recorded another negative growth rate of -1.79% in 2020. Kenya on the other hand experienced decrease in growth rate down to 3.84% in 2017, regain herself and maintains growth rate within 5% between 2018 and 2019 but record a negative growth rate of -0.27% 2020. The negative growth rate recorded in 2020 by the both countries may be attributed to the impact of COVID 19 pandemic and border closure that affected countries of the world in 2020. In 2022

Nigeria witnessed decrease in growth rate from 3.65% in 2021 to 3.25% while Kenya witnessed decrease in growth rate from 7.59% in 2021 to 4.85%. This may be attributed to rising inflation in the both countries.

The trend of the GDP growth rate aligned with Kiertisak (2016), who observed that more than one third of the countries within the African region are experiencing low growth and their economies remain fragile and the work of Adeleke and Obi (2018), which indicated that economic growth in Africa as a continent has been falling in recent times in most. Baghebo and Stephen (2014), noted that growth rate of GDP in Nigeria for the past three decades has been poor. Nwoko, Ihemeje and Anumadu (2016), noted that despite the increasing emphasis on manipulation of monetary policy in Nigeria, the problem surrounding its economic growth such as high unemployment rate, low investment, high rate of inflation and unstable foreign exchange rate still persists.

Relationship between monetary policy and economic growth is depicted in figure 1.2 below.

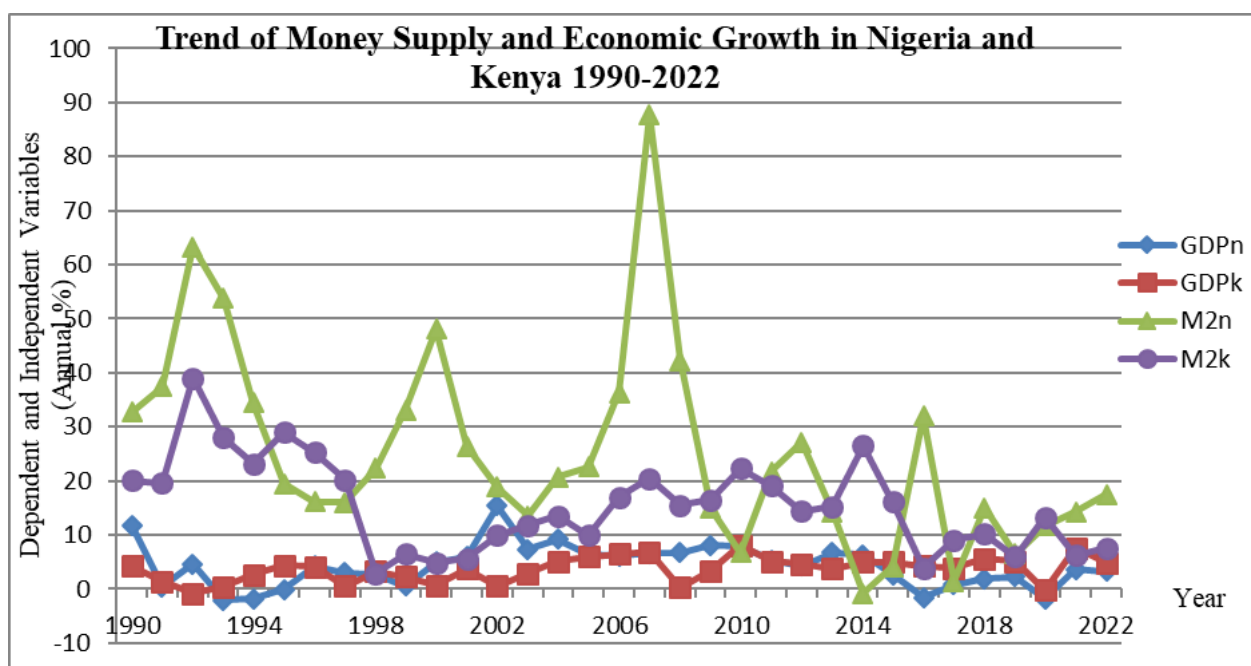


Figure 1.2 Trends of Money Supply and Economic Growth in Nigeria and Kenya

Source: World Development Indicators (2024).

Figure 1.2 above shows the relationship between monetary policy and economic growth in Nigeria and Kenya. The trend depicts a linear but unstable relationship between monetary policy and economic growth for the two countries. In the graph, money supply is used to represent monetary policy since variation of all monetary policy measures, either increases or decreases the volume of money supply, money supply is the primary target of monetary policy and has influence on inflation, interest rate, investment and economic growth. According to Mishkin (2022), money supply is the most direct operational target of monetary policy because its influences all other macroeconomic variables.

In 1990, money supply in Nigeria was 32.7% where economic growth stood at 11.78% while money supply in Kenya was 20.06% where economic growth stood at 4.19%. By 1994, Nigeria recorded negative growth of -1.81% where her money supply stood at 34.5% while Kenya economic growth stood at 2.63% where her money supply stood at 23.18% an indication that increase in money supply alone may not improve economic growth. By 1998, the economic growth in Nigeria stood at 2.58% where money supply decrease to 22.32% while economic growth in Kenya stood at 3.29% where money supply was 2.93%, an indication that other factors aside money supply may influence economic growth. In 2002, economic growth in Nigeria stood at 15.33% where money supply was 18.82% while economic growth in Kenya stood at 0.55% where money supply was 9.89%. In 2006, the economic growth in Nigeria was 6.06% where money supply was 36.35% while economic growth in Kenya was 6.47% where money supply was 16.97%. By 2010, economic growth in Nigeria was 8.01% where money supply was 6.72%

while economic growth in Kenya was 8.06% where money supply was 22.36%. By 2014, economic growth in Nigeria was 6.31% where money supply was at -0.79% while economic growth in Kenya was 5.02% where money supply was at 26.52%. In 2018, economic growth in Nigeria was 1.92% where money supply was 14.98% while economic growth in Kenya was 5.65% where money supply was 10.12% and by 2022 economic growth in Nigeria was 3.25% where money supply was 17.44% while in Kenya, by 2022 economic growth was 4.85% where money supply was 7.53%. In all, while economic growth in Nigeria was relatively higher than that of Kenya, economic growth for both countries seem low despite variation of monetary policy indicative that variation of monetary policy measures does not consistently result in higher economic growth. This raises concerns on the efficiency of monetary policy in achieving sustainable economic growth; hence, it became necessary to investigate the impact of monetary policy on economic growth.

In line with the objective of monetary policy, variation of monetary policy variables such as money supply (M2), exchange rate (EXCHR), lending interest rate (LENDR) and control of inflation (INF) is expected to achieve sustainable economic growth and ensure economic development.

It is based on the above background that this study seeks to assess the impact of monetary policy on economic with particular interest to Nigeria and Kenya covering the period 1990 to 2022. Other specific objectives include: to determine if there is a long run relationship between monetary policy and economic growth in Nigeria and Kenya, furthermore, to examine the causal relationship between monetary policy and economic growth in Nigeria and Kenya and to determine if

macroeconomic objective of ensuring price stability and achieving economic growth are conflicting.

Nigeria and Kenya are both leading economy in their respective region in Africa, they are both developing and emerging economies having similar monetary frame work and policy with different macroeconomic outcomes across time, hence the need to compare the effectiveness of monetary policy measures across the two countries.

The study will advance knowledge as it undertakes a comparative analysis of two African economies which enrich existing literatures by providing country specific and cross insights into the effectiveness of monetary policy in developing economies, validates methodological approaches, and recommends actionable policy insights to achieve sustainable economic growth in developing economies.

2. Conceptual Literature Reviews

2.1 Monetary Policy:

Monetary policy is the process by which the government, through the central bank or monetary authority of a country, controls the supply of money, availability of money and cost of money or rate of interest, in order to attain a set of objectives oriented towards the growth and stability of the economy, monetary policy rests on the relationship between the rates of interest in an economy and the total supply of money (Hameed and Ume 2011). Folawewo and Osinubi (2006), sees monetary policy as a combination of measures designed to regulate the value, supply and cost of money in an economy, in consonance with the expected level of economic activity. Friedman (1969) defines monetary policy as the action taken by the monetary authorities usually the central bank to affect monetary and other financial conditions through influence over the availability and cost of credit in pursuit of the broad objectives of sustainable

growth of output, price stability and a healthy balance of payments position. The discretionary control of the money stock to him involves the expansion or contraction of money and influencing interest rate to make money cheaper or more expensive depending on the prevailing economic conditions and thrust of policy.

According to Imoughele and Ismaila (2016), Monetary policy is one of the macroeconomic instruments with which monetary authority of a country employ in the management of their economy to attain fundamental objectives of price stability, maintenance of balance of payments equilibrium, promotion of employment, output growth and sustainable development. To Abata, Kehinde and Bolarinwa (2012), monetary policy is essentially a programme of action undertaken by the monetary authorities generally the central bank, to control and regulate the supply of money with the public and the flow of credit with a view to achieving predetermined macroeconomic goals. It comprises government actions designed to influence the behavior of the monetary sector.

Thus, monetary policy involves the proper management of money in circulation in an economy by the monetary authority in order to maintain economic stability which is necessary for economic growth.

2.2 Economic Growth:

Economic growth is seen as the increase in the amount of goods and services in a given country at a particular time. Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018), defined economic growth as the increase in the amount of goods and services in a given country at a particular time, thereby indicating that when the real per capita income of a country increases over time, economic growth is taking place. A growing economy produces goods and services in each successive time period, showing that the economy's productive capacity is at increase. Broadly, economic

growth implies raising the standard of living of the people and reducing inequalities of income distribution (Jhingan, 2004).

According to Ogle (2018), growth of the economy is described as the progression of growing the sizes of countries economy, macroeconomic indicators, particularly gross domestic product (GDP) per capita, systematically which result to positive effects on the social economic sector. It is also defined as the increment in a country's production which finally leads to addition to the income generated nationally. It entails increase in the level of national output which reduces the level of unemployment and in turn improves the living standard of the resident of the country. Economic growth is an important issue in economics and is considered as one of the necessary conditions to achieve better outcomes on social welfare, which is one of the main objectives of economic policy. It is thus an essential ingredient for sustainable development. Economic growth is proxied by Gross Domestic Product (GDP).

According to Jhingan (2008), economic growth is related to a quantitative sustained increase in the country's per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade. Economic development on the other hand is a wider concept than economic growth. Economic development is taken to be growth plus change. It is related to qualitative changes in economic wants, goods, incentives, institutions, productivity and knowledge or upward movement of the entire social system, thus economic development encompasses economic growth.

Economic growth may be seen as the measurement of economy wellbeing, it shows how much an economy is expanding and whether standard of living of the people is improving. Economic growth is usually measured as the percentage

increase in real gross domestic product (real GDP). Dragoi (2020), identify specific indicators of economic growth to include; real gross domestic product (real GDP), GDP per capita, gross national product (GNP) and human development index (HDI) among others.

2.3 Instruments/Tools of Monetary Policy

Monetary policy is the deliberate use of monetary instruments (direct and indirect) at the disposal of monetary authorities such as central banks in order to achieve macroeconomic stability. Instruments or tools of monetary policy are essentially monetary variables which the central bank controls in order to affect macroeconomic goals which it does not control. Afolabi (1998), see tools of monetary policy as control mechanisms at the disposal of central bank in the discharge of its obligations. Okorafor (2010), see monetary instruments as variables that are under the control of the monetary authorities and have effect on the proximate targets. These targets are essentially the goals of monetary policy.

Basically the instruments of monetary policy are grouped into two. According to Peter (2019), the instruments of monetary policy can be categorized into two namely:

1. Direct or qualitative instruments.
2. Indirect or quantitative instruments.

1. Direct or Qualitative Instruments:

The direct tools of monetary policy include: moral suasion, selective credit control, direct credit control and prudential guidelines.

Moral Suasion: Moral suasion simply means the employment of friendly persuasive statement, public pronouncement or outright appeal by the monetary authority to influence the lending policies, other policies and activities of commercial banks in order to achieve stated monetary policy objective. According to CBN (2016), Moral suasion is the use of the influence of the central

bank upon deposit money banks to follow its suggestions and recommendation which are believed to be in the interest of the whole economy.

Selective Credit Control: Nnanna (2001), noted that this instrument is used to distinguish sectors of the economy into preferred and less preferred sectors. This is usually designed to influence the direction of credits in the economy so as to ensure that credits goes to those sectors designed as “preferred”. This tool is very useful where a country operates development plans, when plans are drawn up these credit controls will be integrated in the budget. In the course of the government’s program to revitalize agricultural production which is the most favored sector, credits to the favored sector is at lower interest rate while the least favored sectors pay the highest rate of interest (Ibeabuchi, 2007).

Direct Credit Control: The central bank can direct deposit money banks on the maximum percentage or amount of loans (credit ceilings) to different economic sectors or activities, interest rate caps, liquid asset ratio and issue credit guarantee to preferred loans. In this way the available savings is allocated and investment directed in particular directions (Ibeabuchi, 2007).

Prudential Guidelines: The central bank may in writing require the deposit money banks to exercise particular care in their operations in order that specified outcomes are realized. Key elements of prudential guidelines remove some discretion from bank management and replace it with rules in decision making (Ibeabuchi, 2007). Central bank through its various circulars, provide certain guides to financial institutions within the economy in order to achieve specified monetary policy objectives.

2. Indirect or Quantitative Instruments

The indirect tools of monetary policy include: Open Market Operations (OMO), reserve requirement, special deposits,

liquidity ratio, interest rate, and exchange rate among others. Discussion is centered on interest/lending interest rate, exchange rate and money supply in line with the variables of the study.

Interest Rate/Lending Interest Rate:

Interest rate often known as bank rate, lending interest rate, minimum rediscount (MRR) rate and as monetary policy rate (MPR), it is simply the rate at which central bank lend to or discount bills held by deposit money banks and other institutions. The MRR sets the floor for the interest rate regime in the money market (the nominal anchor rate) and thereby affects the supply of credit, the supply of savings (which affects the supply of reserves and monetary aggregate) and the supply of investment (which affects full employment and GDP). For banks and depository institutions, the monetary policy rate is the interest rate accessed on short-term loans acquired from central banks. The bank rate or monetary policy rate can be interpreted as the cost of borrowing from the central bank. The lending interest serves as the nominal anchor rate that gives direction to the money market, thus affecting the supply of money, price stability, monetary aggregate and full employment as well as the GDP (Magaji, Micheal and Anthony, 2018).

Exchange Rate: Exchange rate is the price of one currency in terms of another currency at any point in time. Exchange rate is the price of one currency expressed in terms of another currency. The exchange rate is also regarded as the value of one country's currency in relation to another currency. It is a vital macroeconomic indicator used in determining the overall performance of economies. It remains a key price variable in any economy and performs the dual role of maintaining international competitiveness and serves as a nominal anchor for domestic prices (CBN, 2021). According to Magaji, Micheal and Anthony (2018) there are two

common concepts of exchange rate; namely nominal exchange rate and real exchange rate. The nominal exchange rate (NER) is a monetary concept which measures the relative price of two countries' moneys or currencies, e.g., naira in relation to the U.S. dollar (e.g ₦128.00: US\$ 1.00) and vice versa. The monetary concept informs on how much the price level of international goods has risen/fallen relative to domestic prices as a result of changes in the exchange rate. Real exchange rate (RER), on the other hand, is the concept that measures the relative price of two goods – tradable goods (exports and imports) in relation to non-tradable goods (goods and services produced and consumed locally).

The systems of exchange rate determination are known as exchange rate regimes, CBN (2021), noted that, there are basically two extreme cases of exchange rate regimes, namely, fixed and floating exchange rate systems. Under the fixed exchange rate system, the exchange rate is determined by administrative fiat/decreed of government or monetary authorities like central banks. Foreign exchange is disbursed mainly through allocation or a rationing system usually associated with exchange controls while under the floating exchange rate regime, the exchange rate is determined by the forces of demand and supply of foreign exchange. In this circumstance, monetary authorities rely on the foreign exchange market to determine the exchange rate to achieve stated macroeconomics objectives which include sustainable economic growth and favorable balance of payment.

The balance of payments can be in deficit or in surplus and each of these affect the monetary base, hence the money supply in one direction or the other. By selling or buying foreign exchange, the central bank ensures that the exchange rate is at levels that do not affect domestic money supply in undesired direction, through the balance

of payments and the real exchange rate. The real exchange rate when misaligned affects the current account balance because of its impact on external competitiveness (Ibeabuchi, 2007).

Money supply: Money supply is the sum total of all currency and other liquid assets in a country's economy on the date measured. Money supply includes all cash in circulation and all bank deposits that the account holder can easily convert to cash. According to Omodero (2019), Money supply is a basic macroeconomic element that influences economic growth in an economy by ensuring effective running of economic activities in both public and private sectors through liquidity availability. Money supply is seen as the total amount of money in an economy at a particular time, it consists of all the financial assets that people and business can use to make payment or hold as savings. It is a monetary policy tool that is highly essential in boosting economic growth of a nation. Nwoko, Ihemeje & Anumadu, (2016) noted that monetary policy measures are designed to regulate the value, supply and cost of money in an economy. Increasing the supply of money in an economy is term expansionary monetary policy while reducing the supply of money is seen as contractionary monetary policy. The monetarists believe that money supply is a tool that gives boost to economic growth based on unexpected increase in money stock while the Keynesians argue that money supply has a limited influence on economic growth, money supply only affects economic growth through its effects on interest rate. Bello, Okaro and Okonkwo (2024), observed that most government tries to control money supply because they believe its rate of growth influence the rate of inflation and economic growth.

CBN (2016), identified components or measures of money supply as narrow money (M_1) and Broad money (M_2),

narrow money (M_1) refers to currency in circulation (coins and notes) plus demand deposits. Simply expressed as: $M_1 = C + DD$. While Broad money (M_2) refers to narrow money plus time deposit (near money assets eg certificates of deposit, treasury bills) plus saving deposit (fixed deposits, money market instruments). Broad money (M_2) is simply expressed as $M_2 = M_1 + TD + SD$.

Though, some countries like the United State of America expressed money supply beyond M_2 to M_3 which is M_2 plus large time deposits, large denomination term repurchase agreement, shares in money market, mutual funds owned by institutional investors and some Eurodollar deposit, M_2 is the most widely used expression of money supply.

2.4 The Goals of Monetary Policy

Monetary policy is used by central bank for the purpose of achieving certain national goals or objectives. These goals which are in line with basic macroeconomic objectives included low unemployment, high output of growth rate, low inflation rate and stable exchange rate (CBN, 2016). These objectives are simply referred to as goals or ultimate goals of monetary policy. Price stability and sustainable economic growth have been identified by scholars as the major goals of monetary policy. According to Awolabi & Adebite (2014), one of the major objectives of monetary policy in Nigeria is price stability. On the other hand, Nwoko, Ihemeje & Anumadu, (2016) mentioned stabilization of economic growth as the major objectives of monetary policy. In order to achieve these goals, the central banks make use of monetary policy instruments which are essentially monetary variables which the central bank controls in order to affect monetary policy goals. Generally, the instruments of monetary policy according to CBN (2016), are directed at targeted variables which are broadly defined as those whose value the central bank wants

to change. The target can be ultimate (final goals as mentioned above), intermediate (which central bank seek to influence, such as money supply or interest rate) or operating one (which the central bank can influence directly using monetary policy instruments such as money base or discount rate. A target can also be used to indicate a desirable value of goal (such as inflation) or of an intermediate variable (such as money supply and market interest rate)

CBN (2016), noted that what the central bank does is to use its policy instruments to hit its operating targets with the intention of influencing the intermediate targets in order to achieve its goals. The operational targets include short term interest rate, reserve aggregates (monetary base reserve, non-borrowed reserve), the intermediate targets include monetary aggregate (money supply), interest rate (short and long term) while the ultimate goals include low unemployment rate, low inflation rate, high growth rate and favorable exchange rate. In the process the central bank can adopt either expansionary or contractionary policy stance depending on macroeconomic conditions. For instance, if an economy exhibits strong signs of low economic growth, the central bank may increase the level of money supply using the instruments of monetary policy, when this happen, the central bank may be said to have adopted expansionary monetary policy stance. This may increase liquidity, reduce interest rate, stimulate investment and promote economic growth. This way the central bank may be said to have adopted expansionary monetary policy stance, vice versa. Thus, monetary policy instruments could be classified as expansionary or contractionary monetary policy instruments.

Theoretical Literature Reviews

Classical Monetary Theory:

The classical monetary theory also known as the Quantity theory of money is the first and renowned theory of money and monetary policy. The classical school according to Onyeiwu (2012), evolved through concerted efforts and contributions of economists like Jean Baptist say, Adam Smith, David Ricardo, Pigou and others who shared the same beliefs. However, according to Afolabi (1998), the work of Sir Irving Fisher popularized the Quantity Equation approach to the theory of money with his popular Fisherian equation: $MV=PT$

Where:

M=Money stock or Money supply

V= Velocity or turnover of money

P=Average price or price level

T= Real volume of all market transactions and is better replaced by Q i.e Quantity of goods involved.

Enock and Nicholas (2018), observed that Irving Fisher Quantity Theory of Money lays the foundation for the link between monetary policy (money) and economic variables.

In the theory, velocity of money and output are assumed as constant, thus any increase in the quantity of money will only eventually increase prices proportionally. According to Nwoko, Ihemeje and Anumadu (2016), in the expression of the Fisherian equation, M denotes the supply of money which the Federal Government has some control; V denotes the velocity of circulation which is the average number of times a currency is spent on final goods and services over the course of a year; P denotes the price level GDP. Hence PT represents current nominal GDP. The equation of exchange is an identity which states that the current market value of all final goods and services (nominal GDP) must equal the supply of money multiplied by the average number of times a currency is used in transaction in a given period.

Thus, the quantity theory of money says that the level of prices varies directly with quantity of money (Ahuja, 2011). Hence, one could see money as a veil, it's simply affects the price level and nothing else. A change in the quantity of money produces an exact proportionate change in the price level. Doubling money supplies will simultaneously double the level GNP (Afolabi, 1998).

According to Jhingan (2009), the quantity theory of money states that the quantity of money is the main determinant of the price level or the value of money. To Afolabi (1998), the far reaching implication of the Fisherian equation (Classical monetary theory) is that only "money matters", for instance, the Cambridge version of the theory associated with Walras, Marshall, Wicksell and Pigou believes that the result will be less than that certain and that doubling of money supply will not necessary lead to a doubling of prices.

According to Ahuja (2011), the Cambridge equation expressed as $M=kPY$

Where

K =Fraction of income

M =Quantity of money

P =Price level

Y =Value of goods and services.

The "k" in the equation is related to velocity of circulation of money "V" in Fisher's transactions approach. It is the reciprocal of V in the Fisherian equation which value may be less than one in which case doubling of money stock will have a less than doubling effect on the GNP. According to Afolabi (1998), the volitional element "k" is in fact introduced as demand for money or fraction of national income that individuals want to hold in liquid form. Increase in money supply will therefore not lead to a one to one increase in price since "k" can be less than one. In effect, increase in money supply will not be fully transmitted into the economy to affect the level of prices and the level of the GDP in totality.

Despite the views of the Cambridge, as stated by Afolabi (1998), the far reaching implication of the Fisherian equation (Classical monetary theory) is that only “money matters”. Money has total effects on GNP and that as only money matters, only money has effects on the GNP. That is GNP could only be affected by money stock alone. In other words, for the government or the CBN to achieve macroeconomic objectives of price stability, full employment, exchange rate stability, favorable balance of payments, economic growth and development, all its need to do is to regulate the supply of money.

Keynesian Monetary Theory

The Keynesian monetary was developed by a British economist, John Maynard Keynes. The work of Keynes titled “The General Theory of Employment, Interest and money” published in 1936 gained him fame and leader of Keynesian school of thoughts. Keynes does not agree with the older quantity theorists that there is a direct and proportional relationship between quantity of money and prices, rather to him, the effect of a change in the quantity of money on prices is indirect and non-proportional (Jhingan, 2009). According to Afolabi (1998), the Keynesian view on the importance of money in an economy was in fact the only alternative to the old quantity theory of money.

Keynes disagreed with the general belief of the classical that the economy will always be in equilibrium through the corrective and coordinating mechanism of the price system.

The Keynesians observed that in modern economy, demand and supply decisions are disjointed and independent not only to time but also as to persons. This will disrupt the quantity theory which does not create room for savings and time lag of money.

According to Afolabi (1998), the Keynesians view money as an asset, like any other asset to be held for its own sake

and not just a temporary abode of purchasing power or a numeraire. This is in contrast with the earlier quantity theory which believed that money is just a veil on real economy activity, that money is not held for its own sake but temporarily for the sake of facilitating economic transactions. In other words, the Keynesians believe that money has no utility and could be demanded and held for its own sake because of the convenience, confidence and liquidity it confers.

Ahuja (2011), opined that the Keynesian’s monetary theory explains the effect of variation in money supply on the level of economic activity through its effect on the rate of interest which determines investment in the economy. According to Khabo (2005), the Keynesians argued that “money does not matter”, hence, is unable to impact on economic growth. They proposed that the link between the monetary sector and the real sector of the economy is very weak and therefore suggested that there is an indirect link through interest rate.

It is interesting to know that one importance contribution of the Keynesians to monetary theories is their views on how money routes its way to affect economic activities, what is known as the money transmission mechanism. While the quantity theorists believe that only money matters, extreme Keynesians believe that money does not matter (Afolabi, 1998).

Afolabi (1998), noted that it cannot be said with conclusiveness that the Keynesians position is that money does not matter at all. What the Keynesians generally seem to be saying is that money does not have direct impact on the economy as the classical believed and that the impact of money supply on the economy depends on the ability of money supply to influence the rate of interest, for the rate of interest to influence demand for investment fund and for investment to influence national income. In other words, the Keynesians

view on monetary policy is that for money to have impact on the economy, three things must happen as follows:

1. A change in money supply must influence or lead to a change in interest rate.
2. The change in interest rate must lead to a change in the level of investment.
3. The change in the level of investment must have significant effect on national income.

The Keynesians argued that money supply alone is not sufficient enough to continue to impact on the economy as continue supply of money will be trapped in the already liquid economy and will be hoarded as part of speculative balance. At this point of liquidity trap, monetary policies ceased to be effective and calls for government intervention. To the Keynesians, interest rate is the only one of the many factors that would influence investment. The Keynesians opined that money supply is useless and that the only way to improve investment, increase national income, reduces unemployment and achieve macroeconomic objectives of price stability, full employment, exchange rate stability, favorable balance of payments, economic growth and development among others is through autonomous investment by the government and increase in government expenditures. Thus, the Keynesians advocated for fiscal policies, increased government expenditures and lower taxes to stimulate demand and pull the global economy toward stability.

New Classical Monetary Theory (The Monetarist)

The new classical monetary theory could be seen as a revived version of the old quantity theory of money. According to Afolabi (1998), Professor Milton Friedman led the group of economist who revived and refurbished the old quantity theory of money as a counter debate to the Keynesian view which then was throwing

the old quantity theory into oblivion. These sets of economist were called the new or modern quantity theorist because their beliefs followed substantially the trend of the old quantity theory. They are also called monetarist because of their undaunted belief in the supreme efficiency of monetary policies.

Inam and Ime (2017), opined that monetarist theory was a restatement of the quantity theory of money and that it is associated with Milton Friedman. Similarly, Nwoko, Ihemeje and Anumadu (2016), recorded that the monetarist school of thought led by Milton Friedman is a modern variant of classical macroeconomics.

The main argument of the monetarist according to Afolabi (1998), is that money is the most important regulatory instrument in an economy (though not the only one as in the old quantity theory) and that money has direct impact on the economy, not through the interest rate mechanism as the Keynesians believe. The monetarist argued that when money supply increases, it will eventually decompose itself as increase in the cash balance of various individuals and economy agents in the society. People will then find that they hold excess liquidity and will have to spend the excess to restore them to the desired level. To Inam and Ime (2017), Friedman asserts that “the quantity of money theory is a theory of the demand for money and not a theory of output, or of money income, or of the price level”.

According to Chipote and Makhetha-Kosi (2014), the monetarists supported their argument of the effectiveness of monetary policy in impacting on economic growth and development using the equation of exchange proposed by Irvin Fisher. They converted the equation of exchange of the old quantity of money theory, which is stated as follows:

$$MV = PY$$
$$\dots\dots\dots (1)$$

Where M denotes the supply of money over which the central bank has some control over, P denotes the price level, Y denotes the level of output and V denotes velocity of circulation. The monetarists assume that velocity is constant, and when V is constant equation (1) indicates a one-to-one relationship between changes in the stock of money and changes in the value of national income. As a result, equation (1) will be transformed into equation

$$M = kPY$$
$$\dots\dots\dots (2)$$

Where k represents a constant

As represented in equation (2), changes in output can only be brought through changes in money supply. Therefore, the direct link between the monetary sector and the real sector of the economy comes from the argument of a constant velocity. This explains the basis for the monetarist's argument that changes in monetary policy will impact economic growth and development.

Nevertheless, monetarists do also acknowledge that the economy may not always be operating at the full employment level of real GDP. Monetarists therefore believe that in the short-run, expansionary monetary policies may increase the level of real GDP by increasing aggregate demand. However, in the long-run when the economy is operating at the full employment level they consent that the classical quantity theory remains a good approximation of the link between the supply of money, the price level, and the real GDP. Thus, the monetarists place emphasis on money supply as the key factor affecting the wellbeing of the economy. According to Ahuja (2011), the monetarists argued that money has significant effect on price level or inflation in the economy in the long run and have

real effects on output and employment in the short run. Monetarists believe that "money matter" therefore there is a direct link between monetary sector and the real sector of the economy (Khabo, 2005).

Endogenous Growth Theory

Endogenous growth theory is an economic theory which argues that economic growth is generated from within a system as a direct result of internal processes. The endogenous growth theory also known as new growth theory primarily holds that the long run growth rate of an economy depends on policy measures or is determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge. According to Titiloye and Victor (2020), endogenous growth theory emerged in 1980s, its states that the growth of an economy is consequences of the economic system of the country and not the results of external factor. Bende-Nabende, (2018) as mentioned in Titiloye and Victor (2020), defined the endogenous theory as the growth of the economy, i.e. highly impacted by human capital and innovative technology. Schilirò, (2019), mentioned Paul Romer as the leading scholar of the new growth theory which emerged in 1980s that aims to endogenize technological change. To Chukwuemeka (2015), endogenous growth models describe a collection of theories that model economic growth through the medium of technological discoveries and progress. According to Olusogo, Oluwarotimi and Muazu (2018), the endogenous growth theory argues that economic growth is generated by forces within a system rather than external forces. It specifically argues that economic growth is a result of policies, internal processes and investment in human capital.

Omane-Adjekum, Bosomtwe and Adegbedzi (2024), observed that the key idea behind endogenous growth theory is

that certain variables within an economy, including innovation and institutions, can be actively influenced and nurtured to promote economic growth. Therefore, Endogenous Growth theory emphasizes the role of institutions in driving long-term economic growth. The theory suggests that strong institutions, including efficient legal systems and effective governance structures, create conducive environment for investment, innovation, and entrepreneurship. Institutions that provide stability, promote fair competition, and protect intellectual property rights encourage long-term economic growth.

Chukwuemeka (2015), noted that the basic point of this endogenous growth theory is the importance of the role of increasing returns. The endogenous growth theory sees technological progress as a core determinant of long run economic growths which the neoclassical growth theory could not account for. Hence, technological progress becomes endogenous in endogenous growth models.

Economic growth of a country therefore on the basis of endogenous growth is on account of certain variables within an economy, including innovation, institutions and government policies promoting innovation, investment in human capital, acquisition of knowledge which constitutes internal technology driving economic growth.

Thus, in the context of this study, well thought out and implemented monetary policy by the central bank of any country made in the presence of quality institutions characterized by efficient legal systems and better governance structures will promote long run economic growth of the economy *ceteris paribus*.

Empirical Literature Reviews

Economic growth could be defined as the increase in the amount of goods and services in a given country at a particular time. Ufoeze, Odingbe, Ezeabalisi and Alajekwu (2018), defined economic

growth as the increase in the amount of goods and services in a given country at a particular time. This of course indicates that when the real per capita income of a country increases over time, economic growth is taking place. A growing economy produces goods and services in each successive time period, showing that the economy's productive capacity is at increase. Broadly, economic growth implies raising the standard of living of the people and reducing inequalities of income distribution (Jhingan, 2004).

According to Ogle (2018), growth of the economy is described as the progression of growing the sizes of countries economy, macroeconomic indicators particularly GDP per capita, systematically and that result to positive effects on the social economic sector. It is also defined as the increment in country's production which finally leads to addition to the income generated nationally. It entails increase in the level of national output which reduces the level of unemployment and in turn improves the living standard of the resident of the country. Economic growth is an important issue in economics and is considered as one of the necessary conditions to achieve better outcomes on social welfare, which is one of the main objective of economic policy. It is thus an essential ingredient for sustainable development. Economic growth is proxied by Gross Domestic Product (GDP). Thus, in this study, it is conceptualized as the monetary value of all goods and services produced in an economy over a specified period, usually one year.

Economic growth has long been considered one of the important goals of monetary policy. As mentioned by Nwoko, Ihemeje and Anumadu, (2016), stabilization of economic growth is one of the major objectives of monetary policy while monetary policy is an important tool for stable economic growth.

Monetary policy influence economic growth through regulating the money supply in the economy. Ogle (2018), noted that there exist a correlation linking monetary policy and economic growth via the transmission mechanism. He noted that monetary policies are aimed at maintaining inflation at desirable level, maintaining balance of payments, increasing levels of employment thereby boosting economic growth. CBN (2016), mentioned that monetary policy plays a stabilizing role in influencing economic growth through a number of channels. However, the scope of such a role may be limited by the concurrent pursuit of other primary objectives of monetary policy, the nature of monetary policy transmission mechanism, and by other factors, including the uncertainty facing policy makers and the stance of economic policies.

To CBN (2016), monetary policy affects economic growth in many ways. Recall that monetary policy among other objectives, aimed to ensure price stability which implies that inflation rate is low and does not change frequently. If prices are stable, it will be easy to plan investment and consumption so that economic actions are orderly. In this circumstance, it is also easy to save and because investment depends in part on savings, it will be easy to build infrastructure and other amenities that support growth. Another way monetary policy support growth relates to its effects on the cost and availability of credit. The cost of credit to investors and consumers could be influenced by central bank increasing or reducing the rate at which it lends to banks that is the Monetary Policy Rate (MPR). If policy rate is reduced, it is expected that banks would also reduce their lending rate so that money become cheaper for investment and consumption which in turn increases business activities thereby supporting economic growth.

Scholar's article in literatures tends to establishes mixed relationship between monetary policy and economic growth. Khabo (2005), evaluated the impact of monetary policy on a small and open economy in the case of the South Africa for the period 1960 – 1997. He used M_3 to measure monetary policy. The Ordinary Least Square (OLS) method was employed as well as the Augmented Dickey Fuller test to check for stationarity. Results of the study indicated that economic growth is significantly influenced by money supply. Ufoeze, Odingbe, Ezeabalisi and Alajekwu (2018), investigated the effect of monetary policy on economic growth in Nigeria using natural log of the GDP as the dependent variables against the explanatory monetary policy variables such as monetary policy rate, money supply, exchange rate, lending rate and investment. Adopting the Ordinary Least Squared technique and also conducted the unit root and co-integration tests on a time series data covering 1986 to 2016, the study showed that long run relationship exists among the variables. In addition, the core finding of the study showed that monetary policy rate, interest rate, and investment have insignificant positive effect on economic growth in Nigeria. Money supply however has significant positive effect on growth in Nigeria. Exchange rate has significant negative effect on GDP in Nigeria. Money supply and investment granger cause economic growth, while economic growth causes interest rate in Nigeria. In all, the study concluded that monetary policy can be effectively used to control Nigerian economy and thus a veritable tool for price stability and improve output.

Nwoko, Ihemeje and Anumadu (2016), examined the extent to which the Central Bank of Nigeria monetary policy could effectively be used to promote economic growth, covering the period of 1990-2011. The influence of money supply, average

price, interest rate and labor force were tested on Gross Domestic Product using the multiple regression models as the main statistical tool of analysis, the studies show that CBN monetary policy measures are effective in regulating both the monetary and real sector aggregates such as employment, prices, level of output and the rate of economic growth. Empirical findings from the study indicate that average price and labor force have significant influence on Gross Domestic Product while money supply was not significant; interest rate was negative and statistically significant. Akujuobi (2010), investigated the impact of monetary policy instruments on the economic development of Nigeria, using multiple regression technique. It was found that cash reserve ratio was significant in impacting on the economic development of Nigeria at both 1% and 5% levels of significance, treasury bill at 5.6%, minimum rediscount rate at 7.4% and liquidity rate at 7.7%, while interest rate was not significant at all. In conclusion, the study recommended that the country pursues vigorously the development of the money and capital markets so that the monetary policy instruments would be allowed to play more positive impact in addition to combining them with fiscal policies. Manouchehr and Ahmad (2011) examined the relationship between money supply and economic growth in Iran adopting ordinary least squares(OLS) technique and also uses data obtained from the central bank of Iran during 1974 to 2008. Using Levine and Renelt growth model, the study found that there is a positive and significance relationship between money supply and economic growth in Iran. Anowor and Okori (2016), empirically reassessed the impact of monetary policy on economic growth of Nigeria adopting the Error Correction Model approach. The study utilized time series secondary data spanning between 1982 and 2013. The

result showed that a unit increase in Cash Reserve Ratio (CRR) led to approximately seven units increase in economic growth in Nigeria. In conclusion, the study among others, recommended that monetary authorities should give priority attention to CRR monetary policy tool as it will produce a more desired result in terms of economic stabilization.

Ajibola and Adeyemi (2018), examined the impact of monetary policy on economic growth in Nigeria by developing a model that is able to investigate how monetary policy of the government has affected economic growth through the use of multi-variable regression analysis. The result of the study shows that two variables (money supply and exchange rate) had a positive but fairly insignificant impact on economic growth. Measures of interest rate and liquidity ratio on the other hand, had a negative but highly significant impact on economic growth. In addition, Engle-Granger co-integration test was done and showed the existence of a long run relationship between monetary policy and economic growth in Nigeria. Also, granger causality test was done on the variables and the results showed the existence of a uni-directional causality between money supply and economic growth, economic growth granger causing liquidity ratio and exchange rates while a bi-directional causality exists between interest and economic growth. Titiloye and Victor (2020), examined how monetary policy influences economic growth in Nigeria. Adopting Autoregressive Distributed Lag Model (ARDL) as the estimation technique and using variables such as government total expenditure, government total revenue, inflation, gross domestic product, interest rate, unemployment rate, and broad money supply with secondary data obtained from the World Development Indicators (WDI) and Central Bank of Nigeria Statistical Bulletin. The study found that money supply and government

total expenditure and revenue has a significant impact on economic growth in Nigeria. Dilshad, Mohammad and Usman (2016), in a study, the impact of monetary policy on economic growth empirical evidence of Pakistan, explored the importance of monetary measures in promoting economic growth of Pakistan. The study obtained annual time-series data covering the range of 1973 to 2014 and employed Augmented Dickey-Fuller (ADF) unit root test to measure stationarity of variables. Autoregressive Distributed Lag (ARDL) co-integration approach was also applied to distinguish the robust among the variables with specification of short-run and long-run. The findings mentioned long-run association occurs among variables, money supply and exchange rate, which positively influence economic growth. The study suggests a stable exchange rate policy be ensured to enhance economic growth of the country and monetary policy should be used to generate an agreeable venture atmosphere which attracts both internal and external investors to stimulate economic growth. Usman and Adejare (2014), empirically examined the impact of monetary policy on industrial growth in Nigerian economy, in line with the objectives of the study, secondary data were obtained from central bank of Nigeria statistical bulletin covering the period of 1970 to 2010. In concluding the analysis, multiple regressions were employed to analyze data on such variables, manufacturing output, Treasury Bills, Deposit and Rediscount Rate for Nigeria over the period 1970 to 2010 were all found to have significant effects on the industrial Growth with the Adjusted R^2 of 0.8156 (81.56%).

Agbonlahor (2014), investigated empirically the impact of monetary policy on economic growth in the United Kingdom. The study uses time-series data over a study period spanning from 1940-2012. The impacts of each of the

endogenous variables were investigated using the Vector Error Correction Model (VECM). The study shows that a long run relationship exists among the monetary variables. Specifically, it finds that the inflationary rate and money supply are significant monetary policy instruments that drive growth in the United Kingdom. Investigating the effect of monetary policy on economic growth in Kenya using vector auto regression (VAR) model, Kamaan (2014), found that one standard deviation monetary policy shock proxied by the CBR has a negative and insignificant effect on the output in the first two months which then becomes positive and insignificant in the next four months. However, a one standard deviation shock of the interbank rate to inflation is positive and significant for the first two and a half months. The effect continues to be positive but insignificant up to the sixth month.

Adeleke and Obi (2018), in a study titled “Monetary Policy Dynamics and the Economic Growth of the Sub Sahara Africa (SSA), investigated the effects of monetary policy dynamics on the economic growth of the SSA using data from thirty-seven Sub Saharan African Countries. Dynamic panel data technique was used to estimate the model which described the relationship between SSA economic growth and monetary policy variables. However, macroeconomic variables such as exchange rate, inflation rate among others were also included in the estimated dynamic panel model. The results show that monetary policy rates failed to lead to sustainable growth in the SSA because of the limited effects it has in boosting domestic output. In term of causality, Inam and Ime (2017), investigated the impact of monetary policy on the economic growth of Nigeria using annual data covering the period of 1970 to 2012. The study employs the Ordinary Least Square (OLS) techniques and the granger causality test. The result indicates

a positive and insignificant relationship between money supply and economic growth. Furthermore, it indicates no causality between money supply and economic growth.

Studies that found positive relationship between monetary policy and economic growth include: Inam and Ime (2017), Khabo (2005), Nwoko, Ihemeje and Anumadu (2016), Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018), Awolabi and Adebite (2014), Nwoko, Ihemeje and Anumadu (2016), Manouchehr and Ahmad (2011) Anowor and Okori (2016), Ajibola and Adeyemi (2018), Titiloye and Victor (2020), Dilshad, Mohammad and Usman (2016), Usman and Adejare (2014), On the other hand the following studies: Akujuobi (2010), Ajibola and Adeyemi (2018), Dilshad, Mohammad and Usman (2016), Adeleke and Obi (2018), found negative relationship between monetary policy and economic growth.

The study observed the existence of limited literatures on the impact of monetary policy on economic growth extending to 2022. Hence, the study bridged this gap by extending literature on the subject up to year 2022. Furthermore, the study makes a comparative analysis between Nigeria and Kenya using ARDL approach thereby providing cross country insights as against one country studies available in literatures.

3. Methodology

This research investigated the impact of monetary policy on economic growth in Nigeria and Kenya. The study employs the Autoregressive Distributed Lag (ARDL) approach to analyzed the secondary date obtained from world development

indicators covering the period 1990 to 2022. The non-stationary properties of the series were analyzed using the Augmented Dickey Fuller (ADF) and Philip Perron (PP) unit root tests. The choice of ARDL method for this study is due to its advantage over other methods of time series data analysis like vector autoregressive (VAR) and vector error correction (VECM) model. This is because the issue of endogeneity is less of a problem in ARDL method because it is free of residual correlation as it allows variables to have different optimal lags length which is totally impossible with conventional methods. According to Olawumi (2023) the advantage of the ARDL method is that, it can be applied to a model whether the independent variables are stationary at level $I(0)$ or at first difference $I(1)$. Similarly, according to Magaji, Micheal and Anthony (2018), ARDL does not require stationarity of the data as far as none of the variables of interest does not exceed $I(1)$. In order words, ARDL can be applied irrespective of whether the underlying regressors are stationary at $I(0)$ or $I(1)$ or a mixture of both. Secondly, it has a small sample size property. Thirdly, ARDL provides unbiased estimates of the long run model as well as valid t- statistics even when some of the regressors are endogenous. Thus, ARDL provides estimates and results that are consistent and not methodology biased. Furthermore, Granger causality test using Vector Autoregressive Model was used to determine the causal relationship between the variables.

Table 3.1 Measurement of Variables

Variable	Symbol	Proxy	Type of variable	Source
Economic Growth	GDP _r	Economic growth is measured using Gross Domestic Product (GDP) growth rate (annual %). This measure was used by Magaji, Micheal and Anthony (2018). Ali, Siddique, Chaudhry and Tariq (2022) also made use of this measure to assess economic growth	Dependent Variable	World Development indicators (2024)
Money Supply	M ₂	Money supply is measured using broad money growth (annual %). This measure was used by Inam and Ime (2017), Iheonu, Ihedimma and Eze (2017). Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018) also made use of this measure.	Independent Variable	World Development indicators (2024)
Exchange Rate	EXCHR	Exchange rate is measured using official exchange rate (LCU per US\$, period average) as used by Iheonu, Ihedimma and Eze (2017).	Independent Variable	World Development indicators (2024)
Lending Interest Rate	LEND _R	Lending interest rate is measured using lending interest rate (%) as used by Iheonu, Ihedimma and Eze (2017) and Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018).	Independent Variable	World Development indicators (2024)
Inflation	INF	Inflation is measured using consumer prices (annual %) as used by Adelakun and Ogujiuba (2023) and Akintola et al (2021).	Dependent and independent Variable	World Development indicators (2024)

3.1 Model Specification

The research adopted and modifies the model used by Bello, Okaro and Okonkwo (2024), which carried out a comparative analysis of the impact of monetary policy on economic growth of some selected African countries using the empirical model given in equation 5.1 stated below.

$$GDP = f(M_2, INTR, EXCHR)$$

.....
3.1Where:

GDP	-	Economic Growth
M ₂	-	Money Supply
INTR	-	Interest Rate
EXCHR	-	Exchange Rate

The modifies the empirical model equation 3.1 by incorporating inflation in the model. The justification of augmenting the model with inflation as independent variable follows the work of Inam and Ime (2017), which investigated the impact of monetary policy on the economic growth of Nigeria and viewed inflation as determinant of output growth and included it as independent variable in the model of the study. Furthermore, there is the general believe that macroeconomic objectives are often conflicting; hence inflation is included in the study model to assess the relationship between economic growth and inflation. Again, gross domestic product

growth rate ($GDPr$) shall be used to measure economic growth instead of the gross domestic product (GDP) used in the empirical model. Thus, the mathematical model for this study is stated as follows:

$$GDPr = f(M_2, LENDR, EXCHR, INF)$$

.....3.2

$$GDPr_n = f(M_{2n}, LENDR_n, EXCHR_n, INF_n) \dots \text{Nigeria}$$

.....3.2.1

$$GDPr_k = f(M_{2k}, LENDR_k, EXCHR_k, INF_k) \dots \text{Kenya}$$

.....3.2.2

Where $GDPr_n$ represent economic growth in Nigeria, M_{2n} is money supply in Nigeria, $LENDR_n$ is lending interest rate in Nigeria, $EXCHR_n$ is exchange rate in Nigeria and INF_n is inflation rate in Nigeria while $GDPr_k$ represent economic growth in Kenya, M_{2k} is money supply in Kenya, $LENDR_k$ is lending interest rate in Kenya, $EXCHR_k$ is exchange rate in Kenya and INF_k is inflation rate in Kenya.

$$GDPr_{nt} = \alpha_0 + \alpha_1 M_{2nt} + \alpha_2 LENDR_{nt} + \alpha_3 EXCHR_{nt} + \alpha_4 INF_{nt} + \varepsilon_{nt}$$

.....[3.3.1]

$$GDPr_{kt} = \beta_0 + \beta_1 M_{2kt} + \beta_2 LENDR_{kt} + \beta_3 EXCHR_{kt} + \beta_4 INF_{kt} + \mu_{kt}$$

.....[3.3.2]

Where: $GDPr_{nt}$ represent economic growth in Nigeria at time t , M_{2nt} is money supply in Nigeria at time t , $LENDR_{nt}$ is lending interest rate in Nigeria at time t , $EXCHR_{nt}$ is exchange rate in Nigeria at time t , INF_{nt} is inflation rate in Nigeria at time t , α_0 is an intercept parameter for Nigeria, $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ are coefficients of slope parameters to be estimated for Nigeria and ε_{nt} is the stochastic error term for Nigeria at time t while $GDPr_{kt}$ represent economic growth in Kenya at time t , M_{2kt} is money supply in Kenya at

Where $GDPr$ represent economic growth, M_2 is money supply, $LENDR$ is lending interest rate, $EXCHR$ is exchange rate and INF is inflation rate.

Since the study is on Nigeria and Kenya, model 3.2 is further modifies to capture country specific effects as given in model 3.2.1 and 3.2.2 stated below.

Equation 3.2.1 and 3.2.2 above are the mathematical models which does not capture the intercept parameter, coefficients of slope parameters and the stochastic error term. Therefore, the equations are transformed into econometrics models given in equation 3.3.1 and 3.3.2 for Nigeria and Kenya respectively by including the intercept parameter, slope parameters and the stochastic error term.

time t , $LENDR_{kt}$ is lending interest rate in Kenya at time t , $EXCHR_{kt}$ is exchange rate in Kenya at time t , INF_{kt} is inflation rate in Kenya at time t , β_0 is an intercept parameter for Kenya, $\beta_1, \beta_2, \beta_3, \beta_4$ are coefficients of slope parameters to be estimated for Kenya and μ_{kt} is the stochastic error term for Kenya at time t . The econometric model specified in equation 3.3.1 and 5.3.2 is transformed into a mixed form ARDL model given in equation 3.3.3 and 5.3.4 in order to correct potential functional form misspecification that may arise from the estimation of the

initial linear model and to improve its statistical properties.

$$GDPr_{nt} = \alpha_0 + \alpha_1 M_{2nt} + \alpha_2 LENDR_{nt} + \alpha_3 \ln EXCHR_{nt} + \alpha_4 INF_{nt} + \varepsilon_{nt}$$

.....[533.3]

$$GDPr_{kt} = \beta_0 + \beta_1 \ln M_{2kt} + \beta_2 LENDR_{kt} + \beta_3 \ln EXCHR_{kt} + \beta_4 INF_{kt} + \mu_{kt}$$

.....[3.3.4]

Where $\ln$ stands for the natural log

as follows starting with the bounds test

In line with the ARDL estimation procedures, the ARDL model are presented

model given as follows:

$$\Delta GDPr_{nt} = \alpha_0 + \sum_{i=1}^k \phi_{1i} \Delta GDPr_{nt-i} + \sum_{i=0}^k \phi_{2i} \Delta M_{2nt-i} + \sum_{i=0}^k \phi_{3i} \Delta LENDR_{nt-i} + \sum_{i=0}^k \phi_{4i} \Delta \ln EXCHR_{nt-i} + \sum_{i=0}^k \phi_{5i} \Delta INF_{nt-i}$$

$$+ \alpha_1 GDPr_{nt} + \alpha_2 M_{2nt} + \alpha_3 LENDR_{nt} + \alpha_4 \ln EXCHR_{nt} + \alpha_5 INF_{nt} + \varepsilon_{nt} \dots \text{Nigeria}$$

....[4.4.1]

$$\Delta GDPr_{kt} = \beta_0 + \sum_{i=1}^k \chi_{1i} \Delta GDPr_{kt-i} + \sum_{i=0}^k \chi_{2i} \Delta M_{2kt-i} + \sum_{i=0}^k \chi_{3i} \Delta LENDR_{kt-i} + \sum_{i=0}^k \chi_{4i} \Delta \ln EXCHR_{kt-i} + \sum_{i=0}^k \chi_{5i} \Delta INF_{kt-i}$$

$$+ \beta_1 GDPr_{kt} + \beta_2 M_{2kt} + \beta_3 LENDR_{kt} + \beta_4 \ln EXCHR_{kt} + \beta_5 INF_{kt} + \mu_{kt} \dots \text{Kenya}$$

...[4.4.2]

The ARDL long run model is given as follows [4.5.1]

$$\ln GDPr_{nt} = \alpha_0 + \sum_{i=1}^k \alpha_{1i} \ln GDPr_{nt-i} + \sum_{i=0}^k \alpha_{2i} \ln M_{2nt-i} + \sum_{i=0}^k \alpha_{3i} \ln LENDR_{nt-i} + \sum_{i=0}^k \alpha_{4i} \ln EXCHR_{nt-i} + \sum_{i=0}^k \alpha_{5i} \ln INF_{nt-i}$$

$$+ \varepsilon_{nt} \dots \text{Nigeria}$$

.....[4.5.1]

$$\ln GDPr_{kt} = \beta_0 + \sum_{i=1}^k \beta_{1i} \ln GDPr_{kt-i} + \sum_{i=0}^k \beta_{2i} \ln M_{2kt-i} + \sum_{i=0}^k \beta_{3i} \ln LENDR_{kt-i} + \sum_{i=0}^k \beta_{4i} \ln EXCHR_{kt-i} + \sum_{i=0}^k \beta_{5i} \ln INF_{kt-i}$$

$$+ \mu_{kt} \dots \text{Kenya}$$

.....[4.5.2]

ARDL short run an error correction model is given as follows:

$$\Delta GDPr_{nt} = \alpha_0 + \sum_{i=1}^k \alpha_{1i} \Delta GDPr_{nt-i} + \sum_{i=0}^k \alpha_{2i} \Delta M_{2nt-i} + \sum_{i=0}^k \alpha_{3i} \Delta LENDR_{nt-i} + \sum_{i=0}^k \alpha_{4i} \Delta \ln EXCHR_{nt-i} + \sum_{i=0}^k \alpha_{5i} \Delta INF_{nt-i}$$

$$+ \delta ECT_{nt-i} + \varepsilon_{nt} \dots \text{Nigeria}$$

[4.6.1]

$$\Delta GDPr_{kt} = \beta_0 + \sum_{i=1}^k \beta_{1i} \Delta GDPr_{kt-i} + \sum_{i=0}^k \beta_{2i} \Delta M_{2kt-i} + \sum_{i=0}^k \beta_{3i} \Delta LENDR_{kt-i} + \sum_{i=0}^k \beta_{4i} \Delta \ln EXCHR_{kt-i} + \sum_{i=0}^k \beta_{5i} \Delta INF_{kt-i}$$

$$+ \phi ECT_{kt-i} + \mu_{kt} \dots \text{Kenya}$$

[4.6.2]

4. Data Analysis, Presentation and Discussion

4.1 Unit Root

Unit root test is a statistical test used to determine whether a time series variable is stationary or non-stationary. According to Gujarati and Porter (2009), regressing of a non-stationary time series on one or more non-stationary time series may produce a spurious regression result. Hence, when dealing with time series data it is vital to test for stationarity of the series in order to avoid spurious regression. Thus, the study employed two conventional unit roots which include the Augmented Dickey Fuller (ADF) unit root test and Philip Perron (PP) unit root test to test for the stationarity of the time series data before estimation. The hypothesis to be tested is stated as follows:

H_0 : The series has a unit root (non-stationary)

H_1 : The series has not unit root (stationary)

The decision rule is to reject the null hypothesis if the $p\text{-value} < 0.05$ (at 5% significance) or if the ADF/PP statistic $<$ critical value (statistic is more negative than critical value at given level of significance)

Table 6.1 below presents the Augmented Dickey Fuller (ADF) unit root and Philip Perron (PP) unit root test result.



Table 4.1 Unit Root Test Results

of integration satisfies the necessary conditions for the application of

Nigeria							Kenya						
ADF Statistic: Trend and Intercept							ADF Statistic: Trend and Intercept						
Variables	At Level	First Diff	1% Critical level	5% Critical level	10% Critical level	Remark	Variables	At Level	First Diff	1% Critical level	5% Critical level	10% Critical level	Remark
GDPRN	-3.598		-4.273	-3.558	-3.212	I(0)	GDPRK	-5.510		-4.273	-3.558	-3.212	I(0)
Prob.	0.046*						Prob.	0.0005*					
M2N	-3.667		-4.273	-3.558	-3.212	I(0)	M2K	-2.920	-6.642	-4.297	-3.568	-3.218	I(1)
Prob.	0.0396*						Prob.	0.170	0.000**				
LENDRN	-5.869		-4.310	-3.574	-3.222	I(0)	LENDRK	-5.571		-4.285	-3.563	-3.215	I(0)
Prob.	0.0002*						Prob.	0.0004*					
IEXCHRN	-3.015	-5.337	-4.285	-3.563	-3.215	I(1)	IEXCHRK	-2.245	-5.027	-4.285	-3.563	-3.215	I(1)
Prob.	0.148	0.0008**					Prob.	0.446	0.0016**				
INFN	-2.595	-9.562	-4.339	-3.588	-3.229	I(1)	INFK	-3.468	-6.377	-4.297	-3.568	-3.218	I(1)
Prob.	0.285	0.000**					Prob.	0.060	0.0001**				
Nigeria							Kenya						
PP Statistic: Trend and Intercept							PP Statistic: Trend and Intercept						
GDPRN	-3.732		-4.273	-3.558	-3.212	I(0)	GDPRK	-5.527		-4.273	-3.558	-3.212	I(0)
Prob.	0.0344*						Prob.	0.0004*					
M2N		-11.166	-4.285	-3.563	-3.215	I(1)	M2K	-2.880	-6.847	-4.285	-3.563	-3.215	I(1)
Prob.		0.000**					Prob.	0.182	0.000**				
LENDRN	-4.016		-4.273	-3.558	-3.212	I(0)	LENDRK	-2.467	-5.577	-4.285	-3.563	-3.215	I(1)
Prob.	0.0182*						Prob.	0.341	0.0004**				
IEXCHRN	-2.363	-5.444	-4.285	-3.563	-3.215	I(1)	IEXCHRK	-4.891		-4.273	-3.558	-3.212	I(0)
Prob.	0.391	0.0006**					Prob.	0.0022*					
INFN	-2.852	-4.497	-4.285	-3.563	-3.215	I(1)	INFK	-3.553	-13.684	-4.285	-3.563	-3.215	I(1)
Prob.	0.191	0.006**					Prob.	0.051	0.000**				

Note: * variable integrated at level, ** variable integrated at first difference

Source: Authors Computation using EViews version 9

The unit root results obtained from both Augmented Dickey Fuller (ADF) and Philips-Perron (PP) test as presented above reveal that the variables for both Nigeria and Kenya exhibited a mixture of stationarity at level I(0), and at first difference I(1). This mixed order

the Autoregressive Distributed Lag (ARDL) technique in the research analysis

4.2 Optimum Lag Length Selection

Optimum lag length selection deals with the selection of the number of past values of the dependent and independent variables that best explain the dependent variable.

The use of too many lags affects the degree of freedom and causes multicollinearity while too few lags may lead to model misspecification and serial correlation

Table 4.2 Optimum Lag Length Selection Result

Nigeria						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-454.742	NA	5238250	29.66077	29.89206	29.73617
1	-380.3826	119.9344	222268.1	26.4763	27.86403	26.92866
2	-335.5572	57.83922*	70909.15*	25.19724*	27.74141*	26.02658*
Kenya						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-369.9949	NA	22113.6	24.19322	24.42451	24.26862
1	-274.8013	153.538	244.6782	19.6646	21.05233*	20.11697*
2	-245.1495	38.26043*	207.7632*	19.36448*	21.90866	20.19382

* indicates lag order selected by the criterion,

Source: Authors Computation using EViews version 9

The optimum lag selection criterion results from Table 6.2 above indicates that the optimum lag length for both Nigeria and Kenya is lag two (2) as with the Akaike information criterion (AIC) having the least figure.

4.3 Autoregressive Distributed Lag (ARDL) Bounds Test

The study conduct bounds test to ascertain if a long run relationship exists among the variables. The null hypothesis of no long run relationship (no cointegration) is tested

against the alternate hypothesis; the decision rule is to reject the null hypothesis if the F-statistic is greater than the upper bound or accept the null hypothesis if the F-statistic is lower than the lower bound and the result is inconclusive if the F-statistic falls between the lower and upper bounds (Pesaran, Shin and Smith, 2001). In line with the sample size of the study, the critical values were adopted from Narayan (2005).

Table 4.3 Autoregressive Distributed Lag (ARDL) Bounds Test Result

Model Equation:			$GDPr_n = f(M_{2n}, LENDR_n, EXCHR_n, INF_n)$ N; 33, K;4		
			$GDPr_k = f(M_{2k}, LENDR_k, EXCHR_k, INF_k)$ N; 33, K;4		
Nigeria			Kenya		
F-statistic		5.3433	F-statistic		6.1554
Critical Values Bounds		I0 Bound I1 Bound	Critical Values Bound		I0 Bound I1 Bound
1%	4.590	6.368	1%	4.590	6.368
5%	3.276	4.630	5%	3.276	4.630
10%	2.696	3.898	10%	2.696	3.898

Source: Authors Computation using Eviews version 9

The results of the bounds test presented in Table 6.3 reveal that the F-statistic for both Nigeria and Kenya are not lower than the lower bounds, hence, we failed to accept the null hypothesis. Thus, we reject the null hypothesis in favor of the alternative hypothesis of a long run relationship

among the variables. The alternative hypothesis is accepted at 5% and 10% level of significance for both countries indicating the presence of long run relationship among the variables. The establishment of long run relationship among the variables is in line with the

findings of Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018) and Iheonu, Ihedimma and Eze (2017).

4.4 Autoregressive Distributed Lag (ARDL) Long Run Estimation

Having established a long run relationship among the variables as revealed by the bound test, the study proceeded to estimate the long run coefficients of the model to determine the impact of monetary policy on economic growth.

Table 4.4 Autoregressive Distributed Lag (ARDL) Long Run Estimation Result

Nigeria					Kenya				
Variable	Coefficien t	Std. Error	t- Statistic	Prob.	Variable	Coefficien t	Std. Error	t- Statistic	Prob.
M2N	0.0863	0.0564	1.5293	0.1436	M2K	0.1348	0.0419	3.2146	0.0040
LENDRN	0.6581	0.3143	2.0936	0.0507	LENDRK	-0.1535	0.0527	-2.9133	0.0081
LEXCHR	-0.6204	1.4459	-0.4291	0.6730	LEXCHR				0.4710
N				0.0000	K	1.1536	1.5753	0.7323	0.4717
INFN	-0.3373	0.0840	-4.0142	0.0008	INFK	-0.0584	0.0395	-1.4787	0.1534
C	-0.9550	12.3596	-0.0773	0.9393	C	0.2987	7.8167	0.0382	0.9699
				0.0003					0.9999

Source: Authors Computation Using Eviews

The ARDL long run results in table 6.4 above shows mixture of positive and negative coefficient of the independent variables for both countries. The coefficient of money supply (broad money growth annual %) for both countries is positive indicating that in the long run an increase in money supply lead to improvement in economic growth, the impact is only significant in Kenya. This finding for Nigeria aligns with Inam and Ime (2017), Nwoko, Ihemeje and Anumadu (2016) while that of Kenya aligns with Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018). Lending interest rate exert positive and marginal significant effect on economic growth in Nigeria but exert a negative and significant on economic growth in Kenya. The findings for Nigeria aligns with Ogle (2018) while of Kenya aligns with Nwoko, Ihemeje and Anumadu (2016). Exchange rate (Official exchange rate (LCU per US\$, period average) in the long run shows negative relationship with economic growth in Nigeria and positive relationship in Kenya but the impact is insignificant in both countries. This finding contradicts that of Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018) and Ogle (2018).

Inflation (consumer prices annual %) exerts negative relationship with economic growth in both countries in the long run, the impact is significant in Nigeria and insignificant in Kenya. This shows that inflation and economic growth are inversely related indicating an important macroeconomic trade off. Careful policy consideration must be undertaken when formulating policy aimed at price stability and promoting economic growth. The findings align with Inam and Ime (2017). Thus, monetary policy exhibit different long run effect in Nigeria and Kenya, while inflation and lending interest significantly influence economic growth in Nigeria, lending interest and money supply significantly influence economic growth in Kenya showing lending interest rate as the common significant monetary policy tool influencing economic in the two country.

4.5 ARDL Short Run and Error Correction Estimation

Table 6.5 below presents the result of the ARDL short run and error correction estimation.

Table 6.5 ARDL Short Run and Error Correction Estimation Result

Nigeria					Kenya				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2N)	-0.0079	0.0232	-0.3406	0.7373	D(GDPRK(-1))	0.3621	0.1541	2.3498	0.0282
D(M2N(-1))	-0.0680	0.0249	-2.7370	0.0135	D(M2K)	-0.0033	0.0440	-0.0749	0.9410
D(LENDRN)	0.1351	0.1596	0.8467	0.4083	D(LENDRK)	-0.1432	0.1079	-1.3276	0.1979
D(LENDRN(-1))	-0.7153	0.1661	-4.3067	0.0004	D(LEXCHR K)	-6.6627	3.1452	-2.1184	0.0457
D(LEXCHRN)	-4.9474	1.6023	-3.0876	0.0063	D(INFK)	-0.0985	0.0398	-2.4719	0.0217
D(INFN)	-0.2598	0.0504	-5.1490	0.0001	CointEq(-1)	-1.5413	0.2441	-6.3148	0.0000
D(INFN(-1))	0.1400	0.0423	3.3107	0.0039					
CointEq(-1)	-0.8582	0.1341	-6.4004	0.0000					

Source: Authors Computation Using Eviews

The result of the short run and error correction estimation revealed a mix of significant and insignificant dynamics. Past money supply, past lending interest rate, exchange rate, and inflation rate all exerts negative significant impact while past inflation rate exerts positive significant impact on economic growth in Nigeria. In Kenya on the other hand, past economic growth exerts positive impact while current exchange rate and inflation rate exerts negative but all significant impact on economic growth.

The error correction term is negative and statistically highly significant in both countries confirming the existence of a stable long-run equilibrium relationship among the variables. The coefficient implies that approximately **86% of deviations from long-run equilibrium are corrected within one year in Nigeria**, while in Kenya; about 154% of deviations from long-run equilibrium are corrected within year period.

Table 4.6 ARDL Diagnostic Checks Results

Nigeria			Kenya		
Tests	F-Statistics	Probability	Tests	F-Statistics	Probability
Serial Correlation LM Test	1.1290	0.3478	Serial Correlation LM Test	1.3147	0.2908
Heteroskedasticity Test	0.5969	0.8176	Heteroskedasticity Test	0.6732	0.7097
Normality Test	0.2862	0.3627	Normality Test	0.9714	0.6153
Ramsey RESET	0.7410	0.4013	Ramsey RESET	0.5290	0.4751

Result of diagnostic checks on the estimated model reveal the absent of serial correlation, heteroscedasticity and normality problem in the model. Further, the Ramsey Reset and CUSUM and Cusum of squares (CUSUMSQ) tests confirmed

that the model is rightly specified, stable and suitable for policy inference.ch

4.7 Vector Auto Regression (VAR) Granger Causality Test

Granger causality test is used to determine whether past values of one variable help predict another variable in time series

analysis. In this section, The Granger Causality/Block Exogeneity Wald Test was conducted within the Vector Autoregression (VAR) framework to determine the direction of causal relationships among the variables.

Table 4.7 Vector Auto Regression (VAR) Granger Causality Test Result

Nigeria:					
Null Hypothesis	Chi-square	Prob.	Decision	Direction of Causality	Relationship
GDPRN does not Granger-cause LENDRN	11.7703	0.0028	Reject H_0	GDPRN $\rightarrow$ LENDRN	Unidirectional
INFN does not Granger-cause LENDRN, LENDRN does not Granger-cause INFN	10.545;25.426	0.0051;0.0000	Reject H_0	INFN $\rightarrow$ LENDRN; LENDRN $\rightarrow$ INFN	Bidirectional
GDPRN does not Granger-cause LEXCHRN	7.7906	0.0203	Reject H_0	GDPRN $\rightarrow$ LEXCHRN	Unidirectional
LENDRN does not Granger-cause LEXCHRN	8.312387	0.0157	Reject H_0	LENDRN $\rightarrow$ LEXCHRN	Unidirectional
INFN does not Granger-cause LEXCHRN	29.10567	0.00	Reject H_0	INFN $\rightarrow$ LEXCHRN	Unidirectional
GDPRN does not Granger-cause INFN	7.215616	0.0271	Reject H_0	GDPRN $\rightarrow$ INFN	Unidirectional
KENYA					
Null Hypothesis	Chi-square	Prob.	Decision	Direction of Causality	Relationship
LEXCHRK does not Granger-cause GDPRK; GDP RK does not Granger-cause LEXCHRK	10.3214;6.1711	0.0057;0.0457	Reject H_0	LEXCHRK $\rightarrow$ GDPRK; GDPRK $\rightarrow$ LEXCHRK	Bidirectional
LEXCHRK does not Granger-cause M2K	12.9372	0.0016	Reject H_0	LEXCHRK $\rightarrow$ M2K	Unidirectional
INFK does not Granger-cause M2K	6.285612	0.0432	Reject H_0	INFK $\rightarrow$ M2K	Unidirectional

M2K does not Granger-cause LENDRK LEXCHRK	16.25577	0.0003	Reject H ₀	M2K → LENDRK	Unidirectional
does not Granger-cause LENDRK LENDRK does not Granger- cause INFK LEXCHRK	11.29508	0.0035	Reject H ₀	LEXCHRK → LENDRK	Unidirectional
does not Granger-cause INFK LEXCHRK	6.0037	0.0497	Reject H ₀	LENDRK → INFK	Unidirectional
does not Granger-cause INFK	22.15198	0.00	Reject H ₀	LEXCHRNK → INFK	Unidirectional

The VAR Granger causality results reveal notable difference between Nigeria and Kenya. In Nigeria, the result shows a bidirectional causality between inflation and lending interest rate, economic growth, lending interest rate, inflation unidirectionally granger cause exchange rate, while economic growth unidirectionally granger cause lending interest rate and inflation. In Kenya on the other hand, the result shows a bidirectional causality between exchange rate and economic growth while the other variables show unidirectional causality; exchange granger cause money supply, lending interest rate and inflation rate while inflation granger cause money supply, money supply granger cause lending interest rate and lending interest granger cause inflation. This finding indicates that the direction of predictive relationship among monetary policy variables and macroeconomic outcomes varied between the two countries.

5. Conclusion

This study examined the impact of monetary policy on economic growth in Nigeria and Kenya using the ARDL framework. The results revealed evidence of a long-run relationship among monetary policy variables and economic growth in both economies. In Nigeria, inflation and

lending interest rate were the principal long-run monetary-policy variables influencing economic growth. Inflation exerted a significant negative effect, indicating that persistent price instability undermines economic growth. Lending interest rate had a positive but marginally significant long-run relationship with economic growth, while money supply and exchange rate were statistically insignificant. In Kenya, broad money supply had a positive and significant long-run effect on economic growth, while lending interest rate had a significant negative effect. This suggests that credit availability and the cost of borrowing are particularly important channels through which monetary policy affects growth in Kenya. Exchange rate and inflation had negative but statistically insignificant long-run effects. Lending interest rate significantly influence economic growth in both economies.

In the short run, past money supply, past lending interest rate, exchange rate, and inflation rate all exerts negative significant impact while past inflation rate exerts positive significant impact on economic growth in Nigeria. In Kenya on the other hand, past economic growth exerts positive impact while current exchange rate and inflation rate exerts negative but all significant impact on economic growth.

The error correction terms are negative and statistically highly significant in both economies confirming the existence of a stable long-run equilibrium relationship among the variables with Kenya adjusting faster than Nigeria.

Furthermore, the causality analysis reveals that Nigeria exhibits a bidirectional causality between inflation and lending interest rate while Kenya exhibits bidirectional causality between exchange rate and economic growth. Nigeria showed strong interactions between inflation, lending rates, exchange rate, and growth, whereas Kenya shows exchange-rate movements influencing several other monetary variables.

The study concludes that economic growth in both Nigeria and Kenya is significantly influenced by monetary policy; however, its effectiveness varies across the two countries, reflecting differences in their economic structures and monetary-policy transmission mechanisms.

Policy Recommendations

Based on the findings, the study proffered the following recommendations:

Nigerian monetary authorities should prioritize inflation control, as inflation significantly reduces long-run economic growth. Monetary policy formulation in both economies aimed at price stability and promoting economic growth should be carefully undertaken in view of the inverse relationship between economic growth and inflation.

The Central Bank of Nigeria should manage lending rates carefully to avoid constraining productive investment. Credit should be directed toward growth-

enhancing sectors such as manufacturing, agriculture, infrastructure, and small and medium-sized enterprises. Central Bank of Kenya should pursue lending-rate policies that reduce the cost of productive borrowing, especially for private-sector firms and small businesses, given the negative effect of lending rates on long-run growth.

Kenya monetary authorities should maintain adequate growth in broad money supply while ensuring that liquidity expansion supports productive activities.

Both countries should strengthen exchange-rate management and build resilience against external shocks. Since exchange-rate movements influence other macroeconomic variables, policies should support orderly exchange-rate adjustments and adequate foreign-exchange reserves.

Monetary and fiscal authorities in both economies should improve policy coordination. This would help ensure that interest-rate, money-supply, inflation, and exchange-rate policies jointly support sustainable and inclusive economic growth.

Thus, the effective implementation of these recommendations would enhance the efficiency of monetary policy in promoting economic growth and repositioning the two economies on the path of sustainable economic growth and development.

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