THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

The Coordination of Monetary and Fiscal Policy Interactions and Its Impact on the Performance of the Nigerian Economy

Godwin Essang Esu Lecturer, Department of Economics, University of Uyo, Nigeria **Johnson A. Atan** Associate Professor, Department of Economics, University of Uyo, Nigeria

Abstract:

Fiscal and monetary policies have been adjudged by scholars to have strong implications for economic performance of countries across the globe. This paper assesses the impact of the interaction of monetary and fiscal policy coordination on the economic performance of Nigeria. The study adopted an econometric method in analyzing data which were obtained mainly from secondary sources, especially the CBN statistical bulletins. The estimation techniques used in the study are the Auto-Regressive Distributed Lag (ARDL) model, the Granger Causality and Vector Auto-regression. The data were tested for stationarity using ADF (1979) methods. The results obtained shows that all monetary variables react strongly to changes in fiscal variables except interest rate. Inflation and external debt are negatively signed in both long run and short run, implying that an increase in both variables will have a negative effect on economic performance. Also, the coefficient of INTR and FGRRg has positive impact in the long run, meaning that an increase in both will have a positive impact on economic performance. Also, the elasticity status of our model shows that while INTR, RGDPg and INF rate and their lags had coefficient of elasticity less than one, EXDBT and FGRRg and their lags had coefficients greater than one. Thus, it could be concluded from the findings that fiscal policy measures exert greater impact on the level of economic performance in Nigeria, than monetary policy. The study made some policy recommendations, which if implemented, could increase the level of interaction between fiscal and monetary policies and enhance their coordination for improved economic performance in the country.

Keywords: Monetary policy, fiscal policy, economic performance, Nigerian economy

1. Background to the Study

This study is carried out to assess the impact of the interaction of monetary and fiscal policy coordination on the economic performance in Nigeria. Monetary and fiscal policies play a crucial role in providing sustainable and credible economic stability in the country, thus creating the environment for rapid economic growth and development. But the precondition for a successful functioning of any economy is the existence of effectively coordinated activities of policies. The economy will suffer from poor overall economic performance if these policies are not well articulated. Both monetary and fiscal policies in Nigeria are, by all intent, mutually dependent though conducted by two separate authorities – the fiscal and monetary authorities. Therefore, it is expedient to accomplish a consistent and sustainable policy-mix framework within which monetary and fiscal policies can be harmonized to avoid possible inconsistencies (Rakia and Radenovic, 2013).

The dramatic economic fluctuations after the great depression of the 1930s puts pressure on policy makers all over the world to direct their attention to the accountability of monetary and fiscal policies in the supply and demand management to a greater extent. Their focus was on selecting the most suitable policy option for low inflation with a near full-employment level of output. This was pioneered by Friedman (1948) who emphasized self-sustaining policies for long-term economic prosperity and stressed that increasing the quantity of money in circulation will prevent sluggish economic condition. This view of the monetarist became popular and monetary policy became a leading policy choice to curb inflation and raise output level. Although inflationary rate declined, but the expected results were marginal because unemployment rate went up. This made policy makers to believe that there is a trade-off between unemployment and inflation in the long-term and therefore, policy focus turned to the short-term and priorities were given to fiscal policy during the 1960s.

This thought process was stimulated by the Keynesian ideology which demonstrates that short-term macroeconomic forecasting is an essential part of stabilization and capable of speedily achieving full employment level. This, they argued, can be fulfilled through an effective management of aggregate demand which should be done through effective implementation of monetary and fiscal policy. As a result, tight monetary policies were adopted during the 1960s while allowing fiscal stimulus packages. This too, was short-lived and began to disappear in the 1970s following the dramatic rise in the prices of crude oil and food exports. During this period, neither increase in government spending nor tax cut impacted positively to reduce rising inflation and unemployment in general. Although the situation improves during the 1980s and 1990s, owing to technological development and expansion in educational facilities, but the effectiveness of fiscal policy as a demand management tool appeared doubtful as it induced fiscal deficit in most industrial and developing countries of the world. Thus, the economic management once again, substantially shifted from fiscal policy to monetary policy during the 20th century.

This forward and backward movement on the desirability of monetary and fiscal policy choice in economic decision making has predominantly led to a controversial debate among economists. Two main schools of economic thoughts became popular; the monetarists' school which emphasized the importance of monetary policy and the Keynesian school which stressed the role government can play in the economy through fiscal policy. Up till now, a compromised decision on the contribution of these two policies cannot be found in the empirical literature. They provide mixed results.

Recently, the Keynesians prescriptions have become more popular among economies of the world and have proven the ineffectiveness of certain monetary policy implementations through currency and financial crises. These crises include the Mexican crisis of 1994; Asian financial crisis of 1997, the Argentine economic crisis of 1992-2002 and the recent Subprime Mortgage crisis of 2007-2009. The 2007-2009 financial crises brought tremendous damages to the world economy compared to other economic crisis after the great depression. These experiences have highly supported the Keynesians' laissez-fair idea that government expenditures can stimulate economic activities in the economy and boost aggregate demand.

The monetarists' liquidity trap idea which emerges through the insufficient aggregate demand where people store up cash balances due to the expectations of adverse event such as a deflation or war, also came under serious criticism. According to the Keynesian theory, monetary policy stimulates the economy only through the interest rate. Thus, when the liquidity trap occurs, further increase in money supply fails to lower the interest rate and therefore withhold further economic inducements.

But the critics of the Keynesian theory argue that increasing aggregate demand through government spending will induce inflation in the economy. According to them, following the unconditional monetary policy rule of Friedman (1948) by increasing money supply, will avoid inflationary pressure and achieve the desire output target. But here, the Keynesians argues that economic stabilization can only be achieved through a proper fiscal policy with active government intervention. This, they argued, will stimulate aggregate demand during a recession and curb aggregate demand during inflationary situation through fiscal policy stance and thereby achieve economic stability.

The question raised by this policy dilemma is how to strike a balance between growth momentum and price stability, as it is not possible to stimulate and curb aggregate demand at the same time. Thus, Mundel (1962) suggested the use of monetary policy for price control while fiscal policy is used for enhancing aggregate supply. This policy mix hypothesis appears to be the best option for maintaining economic growth and price stability as no single policy can achieve both of them. But the heterodox economists contrasted this suggestion and instead, hold that monetary policy should be used for growth targets while fiscal policy is ideal for stabilization. In the literature, four types of policy mixes are highlighted namely: loose fiscal policy combined with easy monetary policy; loose fiscal policy with tight monetary policy, tight fiscal policy with easy monetary policy and tight fiscal policy with tight monetary policy. A combination of these policies has frequently been found to be counterproductive (Brimmer and Sinai, 1986). Oppositions to policy mix approach have emphasized that tax and money growth concurrently creates stagflation and thus, suggests that government should choose either monetary or fiscal policy to enhance growth (Reynolds, 2001). This is because economic status and business cycles are different across regions, and adopting a cohesive monetary policy would induce vulnerability, if member countries are not economically, flexible (Weber, 2011).

In summary, under policy mix approach, expansionary monetary policy was the leading policy concern during the 1980s and 1990s while fiscal policy plays a supportive role. During the global financial crisis, monetary policy was no longer effective in rescuing the increasing economic vulnerabilities. Hence, many countries across the world include the crisis-torn advanced economies, adopted active fiscal policy by introducing temporary tax cuts and increased government spending. This led to a reasonable increase in global GDP in 2009, thus confirming the Keynesian ideology that fiscal stimulus can enhance overall economic performance.

Thus, the entire policy coordination was based on an expansionary fiscal policy together with an accommodative monetary policy where the Central Bank took up the financing of the increasing budget deficit and debt. Critic quipped that the risk of the above type of fiscal-monetary policy coordination ends up with a situation of fiscal dominance of monetary policy (Krugman, 1999).

However, in Nigeria, unclear policy regimes appeared to be the main obstacle for policy analysis. For instance, the above policy coordination seems to be effective only in achieving stabilization objectives of the Central Bank and the government but its stance in handling cyclical fluctuations in the economy is relatively ineffective. Notwithstanding, from 2006, policy coordination came under serious discussion and active monetary policy framework was put into practice since 2008. Monetary policy was again tightened in 2009 in order to avoid the adverse impact of global financial crisis. At present, Nigeria is practicing a policy mix framework with an expansion in government spending (without cutting tax) and monetary policy cuts as accommodative.

This study is organized in five sections. Section 1 gives a brief background of the study, statement of the problem and the objectives of the study while section 2 focuses on the review of related conceptual and empirical literatures. Section 3 outlines the methods of study and analysis and the specification of models employed while section 4 analyses the empirical results and discussed the findings. The paper is concluded in section 5 with recommendations for policy review.

1.1. Statement of Problem

The macroeconomic effects of monetary and fiscal policy management in Nigeria since the early 1980s seem not to be interacting effectively. So that while trying to evolve policy changes to influence the level of growth of inflation and output, the rate of unemployment and poverty worsened. This brought to question the efficacy and effectiveness of both monetary and fiscal policy interaction on macroeconomic management in the country.

Also, analyzing the evolution of monetary and fiscal policy in the country, it can be concluded that monetary policy, tends to play a critical role in the economy. Although the role of monetary policy is always said to be indirect in the presence of fiscal policy, conducting an empirical investigation into this claim would help identify the actual contribution of monetary policy to the Nigerian economy and support future policy formulation.

Furthermore, fiscal and monetary policy management in Nigeria could be said to be ambiguous. In particular, the operational procedure of the Central Bank of Nigeria and the monetary policy as well as the objectives of government and its behaviour are difficult to understand. This makes the predictive link between monetary and fiscal variables very doubtful in Nigeria. The predictive power of any variable is very important in measuring the relative effectiveness of a policy variable towards other macro-economic variables.

This study which covers the period 1980 to 2017 is intended to evaluate the impact of the interaction of monetary and fiscal policy co-ordination on Nigeria's economic performance.

1.2. Objectives of the Study

This study on the impact of the interaction of monetary and fiscal policy coordination on Nigeria's' economic performance is carried out to:

- Assess the interaction of monetary and fiscal policy in Nigeria;
- Identify the impact of monetary and fiscal policy measures on the overall macroeconomic performance in Nigeria;
- Evaluate the dynamic response of monetary and fiscal policy to the overall macroeconomic performance of the country.

2. Literature Review

2.1. Conceptual Literature

The interaction of fiscal and monetary policy trade-off in coordinating macro-economic management in a developing country like Nigeria, in order to address the challenges of fluctuations in economic variables such as inflation, unemployment, poverty, inequality, etc., cannot be overemphasized. While the main trade-off for monetary policy is between price and output stability, the tradeoff for fiscal policy is between output stabilization and the distortions from tax and spending policies (Branchard and Fisher, 1989).

2.1.1. Monetary Policy

The Central Bank of Nigeria (2011), defines monetary policy as those measures taken by the monetary authorities to enhance economic growth and stability by adjusting the cost and level of money supply to achieve broad macroeconomic objectives of price stability, output growth and full employment. Thus, striking a balance in the level of money supply in a country is very important in monetary policy management because any surplus or shortage beyond the optimum level, may be detrimental to the realization of the set macroeconomic objectives

Monetary policy is similarly defined by Chigbu and Njoku (2013) as the process by which the government, through the monetary authority (CBN), 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 thus rests on the relationship between the rates of interest and the total money supply in the economy.

According to CBN (2011), the objectives of monetary policies are similar to those of fiscal policy, and include the following:

- Price stability
- Sustainable economic growth
- Exchange rate stability
- Favourable balance of payment
- Equitable income distribution
- Full employment.

These objectives are attained through the use of both direct and indirect monetary instruments which are used to increase or decrease the size of money supply and credits to the economy. Thus, monetary policy could have a contractionary or expansionary effect on the economy. The major components of monetary policy include interest rate, money supply always proxied by broad money supply (M2) which is inclusive of narrow money supply (M1), and exchange rate.

2.1.2. Fiscal Policy

In economics, fiscal policy refers to the use of government spending and taxing power to influence the economy (Chigbu and Njoku, 2013). In other words, it refers to the overall effect of the budget outcome on economic activities. The Central Bank of Nigeria (2011) also defines fiscal policy as the process by which government uses public expenditure, taxation, debt and other revenues to influence economic activities with a view to achieving the set macro-economic

objectives of full employment, balance of payment, price stability and output growth. Also, Ukpong and Akpakpan (1998) describe fiscal policy as a deliberate use of government spending and taxing power to influence the level of economic activities in the economy and direct them towards a desired direction. By this policy, government changes the level, composition and timing of its spending and taxation according to its economic, social and political objectives over a particular period of time. Thus, the major components of fiscal policy are taxation, government spending, and government borrowing.

Fiscal policies are designed to achieve the following objectives:

- Ensure rapid economic growth and development
- Ensure efficient allocation of resources
- Raise the level of equality in income and wealth
- Promote employment generation
- Stimulate balanced regional development and,
- Ensure balance of payment equilibrium.

Therefore, fiscal policy is used by governments to influence aggregate demand in order to achieve the objectives of price stabilization, full employment and economic growth and development (Heyne, et al, 2002). According to the Keynesian economists, adjusting government spending and tax rates are the best ways to stimulate aggregate demand during period of recession. In other words, deficit spending during economic recession would be paid for as the economy expands during the boom that would follow. As the boom lasts and economic activities and prices grows very high, it might become necessary to implement a budget surplus which will reduce economic activity in the economy and achieve the objective of price stability (Nelson, 2007). Thus, a reduction in government spending will, (in theory), reduce levels of aggregate demand, counteract the economy and result in price stability.

2.1.3. Monetary and Fiscal Policy Interactions

In any economy, monetary and fiscal authorities use fiscal and monetary policy instruments to achieve macroeconomic objectives. Since both policies tend to achieve the same goals but through different instruments, it becomes necessary to avoid conflict of interest in the implementation process. For instance, the fiscal authority (Federal Ministry of Finance) may use tax rate as policy instrument, while the monetary authority (Central Bank of Nigeria) use interest rate and money stock as their own policy instrument. The implications of these policy measures taken by the two authorities may conflict with each other, thus creating the need for appropriate mechanism for coordination between the two institutions so as to ensure effective functioning of the economy.

It is important to explore the different interaction channels between monetary and fiscal policy instruments since the overall performance of macroeconomic policy depends on the mutual connections between these instruments. Thus, when the influence of monetary policy on fiscal policy is in question, two direct transmission mechanisms can be identified - interest rates and inflation rates (Rakic and Radenovic, 2013). Interest rates have direct impact on fiscal stimulus by influencing costs as well as sustainability of debt. As Lane et. al (2002) posited, the "volatility in interest rates induces fluctuations in the level of the primary surplus required to stabilize the debt-output ratio and the higher the debt level, the bigger the effect." Similarly, high level and volatility of inflation rates reduces the actual value of debt obligations not calculated in domestic currency, thus leading to the increase in real tax burden and creating incentives to defer tax payments.

Also, monetary policy can have indirect effect on fiscal policy. For instance, when monetary policy measures are directed towards smoothing periodic fluctuation in the value of output, then fiscal policy instruments are committed to accomplish social obligations; but when monetary policy is not committed to output stabilization, then primarily, goal of fiscal policy is pursuit of countercyclical stabilization policies.

In recent years, more consideration has been given to the possible influence of fiscal policy on the monetary policy. Expansionary fiscal policy, for example, may potentially jeopardize the stability of prices if it results in the economy overheating, thus demanding offsetting monetary intervention, the intensity of which will depend on the relative importance that price stability has over output stabilization for monetary authorities.

Undoubtedly therefore, monetary and fiscal policies are mutually interrelated in a number of ways, and this mounted additional pressure on the monetary and fiscal authorities to pool resources in order to accomplish efficient outcomes. But, the complexity of policy creation is even more difficult owing to the uncertain economic environment as well as the nature of policy interaction. Thus, for both policies to interact effectively in the stabilization process, they must be well coordinated by the authorities.

2.1.4. The Need for Monetary and Fiscal Policy Coordination

Most literatures on policy coordination have focused mainly on two basic issues: the fiscal theory of price level determination (FTPL) and the strategic interaction between monetary and fiscal policies. Semmler and Zhang (2003) explaining, opines that the basic tenet of the fiscal theory of price determination is that monetary policy alone does not provide the nominal anchor for an economy, instead it is the pairing of a particular monetary policy with a particular fiscal policy that determines the paths of the price level. In this approach, the time paths of government debt, expenditure and taxes do not satisfy the inter-temporal solvency constraint, such that, in equilibrium, the price level has to adjust in order to ensure government solvency. This suggests that the consolidated government present value budget constraint is an optimality condition. A good coordination of monetary and fiscal policies is therefore required for price determination and control.

The second approach studies the interactions between monetary and fiscal policies from a strategic perspective in a games theory framework between the government and the Central Bank. Sargent and Wallace (1981) suggest that if the Central Bank is independent from the fiscal authority and takes the lead in setting the path of inflation, then the fiscal authority should select the sequence of primary surpluses (and debt) that is consistent with the order of money supplied by the monetary authority in terms of satisfying the government's consolidated inter-temporal budget constraint. In such a case, fiscal variables do not matter for price determination and, consequently, Central Bank commitment to price stability can certainly deliver price stability regardless of fiscal policy.

But under a regime of fiscal dominance, the fiscal authority will take the lead and defines the path of the primary surplus or deficit. Given the predetermined path for the primary surplus, any tight monetary policy will potentially lead to higher inflation. In other words, monetary tightening prompts higher interest rates, which raises interest payments on government debts and leads to expansionary monetary policy in the future to be able to absorb the inflationary shocks. According to Sargeant and Wallace, (1981), what will happen is that rationed agents will anticipate increase in money creation in the future and bid the price level up today, a phenomenon that will be unhealthy and unpleasant to the economy.

Worrell (2000) also holds that the monetary and fiscal authorities should coordinate and agree on the size of the deficit and its financing mode. While coordinating, he said, the responsibility for each institution and operational procedure should be spelt out; and clarifying who is responsible for debt management, cash management and liquidity forecasting as well as the responsible for observing rules and separating the Central Bank from the government's borrowing requirements.

Generally, the rationale for the fiscal and monetary policy coordination, as stated by the CBN (2011) are derived from the following interrelated objectives:

- To set internally consistent and mutually agreed targets of monetary and fiscal policies with a view to achieving non-inflationary stable growth;
- To facilitate effective implementation of policy decisions to achieve the set targets of monetary and fiscal policies efficiently through mutually supportive information sharing and purposeful discussion; and
- To compel both the central bank and federal government to adopt and sustain the policy.

According to CBN, (2011), lack of coordination between the fiscal and monetary authorities will impact negatively on the overall economic performance. It stresses that the coordination process should take into account that monetary and fiscal adjustments operating in different time periods and so, any of monetary or fiscal policy should not be allowed to bear most of the burden of any fine turning of stabilization policies. The document insisted that a fundamental requirement for efficient policy coordination should be to ensure that the objectives and policies stipulated by the monetary and fiscal authorities are jointly determined so that setting a very restrictive monetary policy, for instance, to offset a tax or loose fiscal policy will not crowd out private investment with attendant insignificant effects on cost of borrowing.

However, the reasons for coordination depend on the development of the financial markets. According to Arby and Hanif (2010), coordination is particularly required at the early stage of development of the financial market to avoid excessive inflation rates. But when the financial market is developed and the Central Bank is independent, coordination is desirable to avoid high interest rates with its attendant effect on economic growth. They further argued that even when the Central Bank is fully independent and has the ability to maintain price stability, coordination is still desirable because the risk of failing to coordinate the policies becomes the impact of high fiscal deficits on interest rates and economic growth.

Therefore, there is need for monetary and fiscal policy coordination at any stage of financial market development. Lack of efficient policy coordination will pose serious challenges for economic management. It will result in financial instability, leading to high interest rates, exchange rate pressures, rapid inflation and adverse impact on economic growth. A weak policy in one area (e.g., fiscal) will pose a threat on the other area and result in unsustainable growth in the longrun. Thus, the overall objective of monetary and fiscal policy coordination should be to achieve stable and non-inflationary economic growth and increase the material wellbeing of the people.

2.1.5. Monetary and Fiscal Policy Co-Ordination in Nigeria

The two most important tools for managing macroeconomic variables in order to achieve high employment rates, price stability and overall economic growth in Nigeria are monetary and fiscal policies. But the problem of understanding how the dependence, independence and interdependence between monetary and fiscal policies could lead the economy closer or farther away from set goals and targets are what borders the minds of economists. Macroeconomic policies are generally meant to achieve non-inflationary growth by deliberately manipulating policy instruments to achieve an acceptable level of employment, production and prices and the attainment of growth in real output. Thus, in Nigeria, monetary instruments are employed by the Central Bank of Nigeria while fiscal instruments are employed by the Ministry of Finance. To avoid conflict in implementing these instruments by the two institutions, it is important to have a mechanism of coordination between the two authorities for better functioning of the entire economy.

In Nigeria, communication between monetary and fiscal authorities is done at various levels. In CBN (2011), two basic methods are often adopted to achieve monetary and fiscal policy coordination:

- Interaction between the monetary and fiscal authorities to decide jointly on aspects relating to policy strategy and implementation;
- Establishment of a set of rules and procedures.

The first option is applicable in Nigeria, and often takes place through the establishment of committees which comprised of officials of the Central Bank of Nigeria (CBN), Ministry of Finance (MOF), Debt Management Office (DMO), Budget Office, etc. Bilateral communication first commenced between heads of the fiscal and monetary authorities and thereafter, through various formal committee meetings. Those platforms allow stakeholders to learn about each other's objectives and operating procedures, while helping to build a consensus on how monetary management and debt management should be conducted to be mutually reinforcing. One of these committees is the Monetary Policy Committee (MPC) of the CBN which was established by section 12 of the CBN Act of 2007 to facilitate the attainment of the objective of price stability and to support the economic policy of the Federal Government. It has the Permanent Secretary, Ministry of Finance as a member.

Other committees established for policy coordination include the Monetary and Fiscal Policy Coordination Committee (MFPCC) of the Debt Management Office; the Cash Management Committee (CMC) of the Federal Ministry of Finance; and Fiscal and Liquidity Assessment Committee (FLAC) of the Central Bank of Nigeria. These committees are statutory committees and meet at regular intervals to discuss and harmonized policy issues where necessary.

The Monetary and Fiscal Policy Coordination Committee (MFPCC) was established in October, 2004 for the purpose of creating a platform for the harmonization of monetary, fiscal and debt policies with a view to promoting stability in the financial system. The committee also articulate and resolve possible conflicts in the implementation of debt policies and strategies on the one hand and monetary policies and strategies on the other. Membership of the committee are drawn from seven ministries, Department and agencies (MDAs) including DMO, CBN, FMF, OAGF, BOF, NBS, and NPC; etc.

The Fiscal and Liquidity Assessment Committee (FLAC) was established in April, 2007, following the recommendation of the International Monetary Fund (IMF) Mission. The committee is to enhance effective coordination of fiscal and monetary policies through regular high-level interactions between the monetary authorities and relevant department of the fiscal authority. This interaction is to facilitate the collection of high frequency data on government fiscal operations that impact on price stability. Membership of the committee is drawn from FMF, DMO, OAGF, BOF, NNPC, NCS, FIRS, DPR and CBN.

The Cash Management Committee (CMC) of the Ministry of Finance is responsible for the monitoring and projection of the Federal Government revenue and expenditure as well as identifying and proposing various potential source of borrowing in event of revenue shortfalls. These consist of representatives of OAGF, BOF, all Revenue Generating Agencies of government, and the CBN.

There are other platforms where government policies are discussed and suggestions and recommendations for proper articulation of policy action made. These include the Bankers Committee Conference, National Economic Council, Federal Executive Council, Economic Management team and Manufacturers Association of Nigeria. They equally assist in policy coordination.

All these formal and informal/adhoc committees are to harmonize the objectives of fiscal, monetary and debt policies towards achieving macroeconomic stability as well as to identify the activities and responsibilities required for meeting those objectives. They also ensure that the strategies for achieving fiscal, monetary and debt policies targets are properly synchronized so that they are complementary rather than conflicting; and eliminate distortions such as mismatches in the funding of budget deficits and other government borrowings.

2.2. Empirical Literature

The impact of the interaction of monetary and fiscal policy coordination on economic performance has been one of the most debatable issues in economics. A number of empirical studies have examined the coordination between monetary and fiscal policies in both developed and developing economies across the world and their impact on economic management but the results are mixed.

Tabellini (1986), in his study analyses the coordination of monetary and fiscal policies in the context of a differential game modeled for a single economy, where the target variable is the path of government debt across time. The study shows that policy coordination increases the speed of convergence to the steady state and leads the economy closer to the planned target as compared to the outcome of non-cooperative game.

Muscatelli et al (2002) estimated Vector Auto-Regressive (VAR) models with both constant and time varying parameters for 67 countries and found that monetary and fiscal policies were used as strategic complements. Their results indicate that the form of interdependence between fiscal and monetary policies was asymmetric across countries. Monetary policy was found to act in response to fiscal expansion in the USA and the UK but no evidence of the same kind was found for France, Italy and Germany

Melitz (1997) uses pooled data for 15 member states of the European Union (EU) to investigate the coordination between monetary and fiscal policies. The study revealed that coordinated macroeconomic policies are in practice in the region. Specifically, they concluded that "easy-fiscal" policy leads to "tight monetary" policy and "easy monetary" policy leads to "tight fiscal" policy.

Similarly, Zoli (2005) while investigating a group of emerging market countries found that there is a fiscal dominance in the case of Brazil and Argentina; while fiscal actions appeared to have contributed to movements in the exchange rates more than unanticipated monetary policy maneuvers, establishing the fact that fiscal policy does affect monetary variables. Also, in the case of six Asian countries, Hasan and Isgut (2009), using data from 1980 to 2008, found that fiscal policy responded to economic slow-down promptly, while the response of monetary policy was mixed.

Andlib et al (2012) investigated the coordination of fiscal and monetary policy in Pakistan using unrestricted vector auto regression (VAR) model which consists of four variables – two macroeconomic variables (output/employment

and inflation) and two policy variables describing the monetary and fiscal policy stance. Using time series data from 1975 to 2011, found that there is a weak coordination between monetary and fiscal authorities. Also, Chuku (2012), using VAR and a Stake-Space Model with Markov Switching on quarterly data to explore the monetary and fiscal policy interactions in Nigeria for the period 1970 to 2008, found that monetary and fiscal policies in Nigeria have interacted in a counteractive manner, thus, establishing the existence of weak coordination.

Ajayi (1974) stressed that in developing countries, such as Nigeria, the emphasis is constantly on fiscal policy. But while investigating, using OLS technique to numerous monetary and fiscal policy variables, he found the opposite situation where monetary policy influences are greater and more likely than fiscal policies. He therefore concluded that greater confidence should be placed on monetary actions. This was collaborated by Ajisafe and Folorunso (2012) who examined series of annual data for the period 1970 to 1998 and discovered that monetary policy exerts greater impact on Nigeria's economic management than fiscal policy.

Furthermore, Udah (2009) utilizing the error correction framework, disclosed that even though monetary tightening leads to reduced inflation in Nigeria, it may eventually lead to decline in output growth and employment in the country. In other words, there is a trade-off between output growth and inflation in Nigeria and that is purely due to high fiscal deficits. But Dungey and Fry (2009) in a related study on New Zealand economy, emphasized that when there is policy interaction, fiscal policy shocks generate longer impact than monetary policy shocks. Using a specific form of Structured Vector Auto regression (SVAR) modeling framework with sign restrictions, they found that taxation and debt policy shocks also have more substantial impact on domestic economy than government expenditure does. However, their results on the decomposition of monetary policy shocks have revealed that inflation responds better to monetary policy shocks and therefore suggested that monetary policy conduct in New Zealand economic context is very important.

Another study by Santos (2010) using the game theoretic approach and categorizing the policy interaction from perfect coordination to complete lack of coordination, found that policy mix outcome is sub-optimal in the case of lack of coordination. Utilizing the leader-follower model, he emphasized that both monetary and fiscal policy makers should first consider each other's policy reaction functions before setting the desire targets, for in so doing, policy mix strategy would gain more promising results. Santo's focus was to find the leading policy in stabilizing prices and achieving economic growth in Brazil when it was under monetary regime. But when he uses both Nash equilibrium and Stakelberg leadership approach to compare monetary and fiscal regimes, he found that monetary leadership helps to reduce losses. However, when it comes to fiscal dominance, he found that monetary authority loses control over prices and the Central Bank has to create money to finance the budget deficit. He further found that fiscal policy impact on monetary policy to be able to control inflation.

Thus, the dissimilarities in the results of the various studies suggest that none of the policies can be considered superior to the other and their relative effectiveness in any economy depends on the prevailing economic and political situations at any point in time in that economy. We can therefore deduce that in order to determine the impact of the interaction of monetary and fiscal policy coordination on economic performance, we have to use various techniques and variable. The variables used in these studies consist of:

- Monetary policy variables interest rate, inflation rate, exchange rate and money supply (M2)
- Fiscal policy variables government revenue, government expenditures, government investment, budget deficit and budget surplus.

In this study, we will use some of these variables and methodologies to examine the relative impact of the interaction of monetary and fiscal policy coordination on the economic performance of Nigeria and make suggestions/recommendations to fill existing gap in the literature.

3. Methodology and Empirical Analysis

3.1. Analytical Framework

The analytical framework for this study was based on empirical studies of Barro Endogenous Growth Model (1990) which uses the endogenous growth model to find a linkage between public revenue, spending and economic growth which is linked with the relationship that exist between fiscal policy and economic growth in Nigeria. It is also based on Koyck (1954) geometric distributed lap model (as adopted by Olofin, et. al 2009) to show the relationship among macroeconomic variables (RGDP and Inflation growth rate); fiscal policy instruments (Government revenue, expenditure and public debt) and monetary policy instruments (money supply proxied by M₁ and M₂, interest rate and exchange rate). The Koyck (1954) model establishes the dynamic link between fiscal and monetary policy measures and inflation rate. In our models, the value added is the extent to which monetary and fiscal policy measures influences inflationary crises in the country. Thus, the models assumed along conventional lines that inflation levels are based on current government expenditures, tax incomes, broad money, interest rates and previous level of inflation.

The study adopted an econometric approach in estimating the relationship between the variables specified in the models. The Auto-Regressive Distributed Lag (ARDL) and the Granger Causality/Impulse Response in Vector Auto-Regressive environment are used in estimating the numerical values of the coefficients in the equation. The econometric analysis employs Bound Test for Co-integration and Vector Auto-regression Mechanism and the models were tested for stationarity using Augmented Dickey–Fuller (1979) method which ensures that the regression results are not spurious. We further used Bound Test as postulated by Peasara, et al (2001) to ascertain whether the variables in the models are co-integrated, that is, if there is a long run equilibrium relationship among the variables. Thus, the unit root test and co-integration test helps to circumvent the inherent limitation of traditional model as well as avoid spurious results.

3.2. Data Sources and Description

The data for this study were mainly secondary data obtained from textbooks, journals, National Bureau of Statistics and the Central Bank of Nigeria publications, magazines, bulletins, annual reports and other existing documents. The time series data spanned 1981 to 2017, and given this scope, the assessment captured the various fiscal regimes under different governments experienced in Nigeria. In collecting the data, the focus was mainly on the key variables identified for measuring the monetary policy impact on economic performance (Money Supply proxied by broad money (M_2) , and interest rate) and for measuring fiscal policy impact (Government Revenue, Spending and Public Debt) were employed.

In analyzing the data, the dependent variable (Y) is proxied by real GDP growth rate while the independent variables are Broad Money Supply growth (M_2), interest rates (INTR), Inflation (INF) growth rate, Government revenue growth (FGRRg) which is inclusive of tax revenue, Government expenditure (FGEEg) (both capital and recurrent) and Government external debts. The apriori expectations are that real GDP is positively related to both monetary and fiscal policy variables.

3.3. Model Specification

In order to analyse the impact of the interaction of monetary and fiscal policy coordination on Nigeria's economic performance, we adopt the Multiple Regression Analysis and the Ordinary Least Squares econometric methods. The functional form on which the econometric model is based is presented thus

Y = F(I)	GRRg, F	GEEg, EXDBT, INF, M2g, INTR,)1							
where,									
Y	-	represents economic growth i.e., Real GDP which is the dependent variable,							
M2g-		Money supply proxied by broad money (M ₂)							
INTR	-	Interest rates							
INF	-	Inflation rate proxied by consumers price index							
FGRRg-		Fed. Govt. Revenue which is inclusive of tax revenue in billions of Nigeria							
FGEEg-		Fed. Govt.expenditure (both capital and recurrent)							
EXDBT-	Fed. Gov	vt. External debt							
Restating equation (1) in econometric form, we have									
$Y = \alpha_0 + $	$Y = \alpha_0 + \beta_1 FGRRg + \beta_2 FGEEg + \beta_3 EXDBT + \beta_4 INF + \beta_5 M2g + \beta_6 INT + u2$								

where,

 α_0 is a constant term, $\beta_1 - \beta_6$ are regression coefficients, and u, the error term.

The apriori expectations in equ(2) above is that the real GDP is positively related to both monetary and fiscal policy variables.

To be able to estimate the policy mix and effectively assess the interaction of the monetary and fiscal policy coordination on Nigeria's economic performance, we specify the Granger causality to determine the relational direction. We now look at the causal direction between monetary policy, fiscal policy and real GDP. Thus,

Also, the impulse response analysis was also used to determine the interaction between monetary policy and fiscal policy variables.

4. Empirical Analysis and Discussion of Findings

This section presents the regression results as well as the interpretation. The estimation techniques used in this study are ARDL model and (granger causality/ impulse response) in Vector Auto-Regressive environment.

4.1. Test for Stationarity (Unit Root)

The Augmented Dickey-Fuller (ADF) test for stationarity was conducted on all the variables. The variables were stationary at first difference except for inflation and interest rate that were non-stationary at levels, and in line with Box and Jenkins (1978) who argued that non-stationary time series in levels may be made stationary by taking their first differences, the first difference result was conducted and the order of integration of the variables are summarized in Table 1

	Augmented Dickey-Fuller test						
Variables	Level	Diff.	95% critical level	Order of co-integration			
GDPGR	-5.031084	-	-3.540328	1(0)			
EXDBT	-6.425003	-	-3.540328	1(0)			
FGEEg	-8.082995	-	-3.540328	1(0)			
FGRRg	-4.963303	-	-3.540328	1(0)			
INF	-3.057989	-5.033759	-3.557759	1(1)			
INTR	-3.320799	-3.787312	-3.557759	1(1)			
M2g	-7.103635	-	-3.540328	1(0)			

Table 1: Unit Root Test Results in Levels and Difference Source: CBN Statistical Bulletin 2017 and Computed by Author using Eviews 10

4.2. Bounds Test for Co-integration

As shown below, the calculated F-statistic value of 5.17 is greater than the upper bound critical value of 2.27 and lower bound critical value of 3.28 at the 5% level. Thus, we reject the null hypothesis of cointegration between the variables both at 1% and 5% significance levels. Hence, there exists a long run relationship among the variables.

F-Bounds Tes	st	Null Hypothesis: No Levels Relationship			
Test Statistic	Value	Signif.	I(0)	I(1)	
F-statistic	5.170048	10%	1.99	2.94	
К	6	5%	2.27	3.28	
		2.5%	2.55	3.61	
		1%	2.88	3.99	

Table 2: Bounds Test Result for Long-run Relationship in the ARDL ModelSource: CBN Statistical Bulletin 2017 and Computed by Author using Eviews 10

4.3. Empirical Analysis of the Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.			
FGRRg	5.954365	3.063515	1.943638	0.0687			
FGEEg	-2.679798	3.085658	-0.868469	0.3972			
EXDBT	-9.518421	1.694991	-5.615616	0.0000			
INTR	0.634317	0.252990	2.507285	0.0226			
M2g	0.394809	0.319582	1.235393	0.2335			
INF	-0.283692	0.056385	-5.031300	0.0001			
С	4.387617	2.392158	1.834167	0.0842			
EC = GDPGR - (*FGRRg 5.9544; *FGEEg -2.6798; *EXDBT -9.5184; *INTR + 0.6343; * M2G							
+ 0.3948; *INF -0.2837; *C+ 4.3876)							
	Table 2. Estimated	Long Dun Elas	tigition				

Table 3: Estimated Long Run Elasticities Source: CBN Statistical Bulletin 2017

The estimated long run result in Table 3 shows that in the long run external debt (EXDBT), inflation rate (INF) and Interest rate (INTR) has very significant effect on Economic performance. External debt is negatively signed, so also is inflation rate. This means that a percentage change in EXDBT and INF will lead to a decrease in economic growth by 9.51 and 0.28 percent respectively. The interest rate variable is positively signed, meaning that a percentage change in interest rate (INTR) will lead to an increase in economic growth by 0.63 percent. The result of the error correction representation of the selected ARDL model based on the AIC is reported in Table 4 below.

ARDL Error Correction Regression Dependent Variable: D(GDPGR) ECM Regression Case 2: Restricted Constant and No Trend									
VariableCoefficientStd. Errort-StatisticProb.									
D(GDPGR(-1))	0.566908	0.157225	3.605711	0.0022					
D(FGRRg)	7.323395	2.104945	3.479138	0.0029					
D(FGRRg(-1))	5.820876	1.885382	3.087372	0.0067					
D(EXDBT)	-0.843592	1.196384	-0.705118	0.4903					
D(EXDBT(-1))	11.37167	2.124994	5.351390	0.0001					
D(EXDBT(-2))	3.177981	1.258598	2.525017	0.0218					
D(INTR)	-0.633804	0.324520	-1.953052	0.0675					
D(INF)	-0.286398	0.061997	-4.619579	0.0002					
D(INF(-1))	0.398715	0.071223	5.598138	0.0000					
CointEq(-1)*	-1.881464	0.246220	-7.641409	0.0000					
R-squared	0.809420								
Adjusted R-squared	0.737953								
F-statistic	5.170048								
Prob(F-statistic)	0.000000								
Log likelihood	-93.90182								
Durbin-Watson stat	1.933989								

 Table 4: Error Correction Estimates of the ARDL Model
 Source: CBN Statistical Bulletin 2017

An examination of the estimated result above shows that the overall fit is satisfactory since the R^2 and adjusted R^2 are = 0.81 and 0.74 percent respectively. This indicates that all the variables used in our model jointly accounted for 73.7 percent of the total variation in GDP growth rate used as a proxy for economic performance.

The F-statistic, which is a measure of the overall significance of the model, is 5.17 with the corresponding probability value of 0.000, is statistically significant at 5% level of significant. The implication of this is that the explanatory variables have joint significant effect on economic performance. The Durbin-Watson statistic of 1.93, which is approximately two (2), using the rule of thumb, indicates that the result is not spurious and free from serial correlation as further confirmed by the serial correlation test.

A critical analysis of the impact of both the monetary and fiscal policy variables on economic performance reveals that all the explanatory variables except EXDBT and INTR are highly significant (at 5 percent levels) in the short run in Nigeria. All the variables are correctly signed except INTR and EXDBT which are negatively signed. Surprisingly, both FGEEg and MSg were dropped automatically by the system from the short-run analysis as both variables has no significant impact on economic performance in the model.

The elasticity status of our model shows that while inflation rate, inflation rate lagged by one year period, GDP growth rate lagged by one year period and interest rate had a coefficient of elasticity that is less than one, External debt and FGRRg and their lags, all had coefficients of elasticity that are greater than one. This shows that economic performance in Nigeria is highly responsive to changes in External debt and Federal Government revenue inclusive of tax. This collaborates the findings of Dungey and Fry (2009) who emphasizes that fiscal policy generates longer impact than monetary policy shock. It also implies that External debt and Federal Government revenue inclusive of tax are major determinants of economic performance in the country. The coefficient of the ECM as could be observed in Table 4 is negative, and highly significant, showing that the model has a self-adjusting mechanism for adjusting the short-run dynamics of the variables with their long run values.

In the study also, one lagged value of GDP growth rate is found to be significant too in explaining economic performance in Nigeria at 5 percent level of significance. This implies that GDP growth rate has a cumulative effect in Nigeria; in fact, a percentage increase in GDP growth rate in any one year will increase GDP in the subsequent year by 0.56 percent.

4.4. VAR Granger Causality/Block Exogeneity Wald Tests

The causality test results suggest that the variable MSg shows no joint causation while INTR shows joint causation as well as unidirectional causality with FGRRg which is inclusive of tax. This implies that changes in money supply does not lead to changes in fiscal policy, but changes in interest rate jointly granger causes changes in all the variables and does not have individual effect on fiscal policy variable except on FGRRg. FGRRg and FGEEg also shows joint causation as well as unidirectional causality with EXDBT respectively as shown in Table 5 below. This, to a large extent, suggests that there is a joint interaction between monetary policy and fiscal policy.

Dependent varia			
Excluded	Chi-sq	Df	Prob.
EXDBT	3.866760	2	0.1447
FGEEg	2.908534	2	0.2336
FGRRg	12.15580	2	0.0023
GDPGR	2.048104	2	0.3591
INF	3.084256	2	0.2139
M2g	0.849556	2	0.6539
All	25.09607	12	0.0144
Dependent varia	ble: M2g		
Excluded	Chi-sq	Df	Prob.
EXDBT	2.049207	2	0.3589
FGEEg	0.852816	2	0.6528
FGRRg	1.259169	2	0.5328
GDPGR	5.578669	2	0.0615
INF	5.217018	2	0.0736
INTR	1.082576	2	0.5820
All	13.22356	12	0.3530
Dependent varial			
Excluded	Chi-sq	Df	Prob.
EXDBT	14.90640	2	0.0006
FGRRg	5.604418	2	0.0607
GDPGR	0.164034	2	0.9213
INF	1.694793	2	0.4285
INTR	1.812284	2	0.4041
M2g	0.245156	2	0.8846
All	28.35413	12	0.0049
Dependent varial	ole: FGRRg		
Excluded	Chi-sq	Df	Prob.
EXDBT	16.05136	2	0.0003
FGEEg	0.848581	2	0.6542
GDPGR	3.196596	2	0.2022
INF	2.206780	2	0.3317
ΙΝΤΟ		0	01110
INTK	3.865105	2	0.1448
M2g	3.865105 0.419256	2	0.1448

 Table 5: VAR Granger Causality/Block Exogeneity

4.5. Impulse Response Analysis

4.5.1. Fiscal Policy to Monetary Policy: VAR Approach

The impulse response function is a means of tracing the dynamic responses of endogenous variables within the structural VAR framework to monetary policy or fiscal policy shocks. The interaction between monetary variables (MSg and INTR) and Fiscal Policy variables (EXDBT, FGEEg and FGRRg) are shown in Figures 1, 2 and 3. The figure 1 shows the estimated impulse response functions for monetary variables to a one standard deviation innovation in the fiscal policy variables (EXDBT, FGEEg and FGRRg). The accumulated impulse responses are presented over a time horizon of ten periods.

Figure 1, shows the response of FGRRg, EXDBT and FGEEg to interest rate and money supply. The shock from interest rate puts an upward pressure on the variables which rises from period 1 to 6 and became flat shortly after the 7th period. This implies that there is interaction between interest rate and the fiscal policy variables especially FGRRg.

The response of EXDBT to Money supply as shown in figure 1 is relatively flat all through the period and insignificant. The passing through of a one standard deviation shock of MS into FGEEg though relative counter cyclical between period one and period 6, became flat in period 7 through 10.



Figure 1: Fiscal Policy to Monetary Policy

4.5.2. Monetary Policy to Fiscal Policy: VAR Approach

Figure 2, shows the response of interest rate and money supply to FGRRg, EXDBT and FGEEg. The shock puts a downward pressure on the monetary policy variables. This implies that monetary policy reacts strongly to changes in fiscal policy but not the other way round except for Interest Rate. This is in-line with the findings of Muscatelli et al (2002), whose study also revealed that monetary policy act in response to fiscal expansion.



Figure 2: Monetary Policy to Fiscal Policy

4.5.3. Monetary – Fiscal Policy Mix-VAR Approach

From the combined graph (figure 3), the interaction between monetary policy and fiscal policy can be seen more clearly. The impulse response analysis has shown that rather than an accommodative response, monetary policy and fiscal policy have reacted in a counteractive manner, which is in-line with the findings of Chuku (2012) who established the existence of a weak coordination and found that monetary policy and fiscal policies in Nigeria have interacted in a counteractive manner.



Figure 3: Impulse Response Analysis: Monetary Policy - Fiscal Policy Mix

4.6. Post Estimation Tests

Diagnostic Tests							
Normality test	Jarque.Bera =1.26 [0.530]						
Serial correlation Test	F(2,15)= 0.088[0.4412]						
Heteroskedasticity Test	F(16,17)= 0.891 [0.588]						
RESET test	F(1, 16)= 3.6834 [0.073]						
Table 6: Diagnostic	Table 6: Diagnostic Tests Results						

Source: CBN Statistical Bulletin 2017 and Computed by Author using Eviews 10

The Diagnostic tests which consist of the Ramsey RESET test, Serial Correlation test, Normality test and ARCH test shown on Table6 reveals that the residuals are free from heteroskedasticity, and autocorrelation and are therefore normally distributed. Also, the Ramsey RESET test result shows that the p-value of 0.07 is greater than the critical value of 0.05. Thus, we accept the null hypothesis and conclude that the estimated model is correctly specified at the 5% significant level.

5. Conclusion and Policy Recommendations:

The result of the coordination between monetary policy and fiscal policy variables as revealed by the granger causality test and impulse response showed joint causation more from the fiscal policies variables. This implies that monetary policies react strongly to changes in fiscal policy but not the other way round except for Interest rate.

Inflation rate and external debt are negatively signed in both the long run and short-run. This means that an increase in external debt and inflation rate will have a negative impact on economic performance. Also, the coefficients of Interest rate and FGRRg have positive impact in the long run. This implies that changes in federal government revenue inclusive of tax and interest rate have positive impact on economic performance. Thus, the more revenue generated the more likely for government to be able to discharge her obligations to the people.

The elasticity status of our model shows that while inflation rate, inflation rate lagged by one-year period, RGDP growth rate lagged by one-year period and interest rate had a coefficient of elasticity that is less than one while EXDBT and FGRRg and their lags, has coefficients of elasticity that are greater than one. The implication of the above is that fiscal policy stimulates better and greater economic performance than monetary policy variables

It could therefore be concluded from the findings that fiscal policy measures exert greater impact on the level of economic performance in Nigeria than monetary policy. The results of the analysis further revealed from their coefficient that fiscal policy influence surpasses the influence of monetary policy on the economy. However, interest rate as a monetary policy variable plays a considerable role in stimulating the economy in the long run. In addition, INF and EXDBT impacts negatively on the GDPGR while FGRRg, M2g and INTR are positively related to economic growth in the long run. Interest rate and fiscal policy variables are jointly statistically significant as shown by the granger causality result.

In line with the findings of the study, we hereby make the following recommendations for policy review:

- Since the impulse-response analysis showed counteractive interaction between monetary policy and fiscal policy, there should be effective understanding and complementary policies between both authorities since both are set to achieve the same macroeconomic objectives;
- Since interest rate has more significant impact in achieving desired growth with a sustainable income distribution which benefits the poor than money supply, then, interest rate variables should be relied upon instead of money supply which has little or no impact on economic performance.
- Since Inflation rate and external debt are negatively related to economic performance, government should ensure that an appropriate debt threshold that is not inimical to economic management is adopted.
- There is a need to strengthen contacts between the monetary and fiscal authorities indeciding jointly on policy design and implementation. Unless members are in close contact, policy decisions emanating from coordination cannot be followed through most of the time since they are not binding on the stakeholders. To solve this challenge, the authorities should endeavour to establish (or strengthen) set rules and procedures, which should be binding on both the fiscal and monetary authorities.
- There is lack of adequate data to ensure effective coordination of fiscal and monetary policies in the country. To address this challenge, statistical bureaus/ offices should be strengthened in terms of capacity and resource allocation to be able to produce quality high frequency data in their respective departments that will form the basis of policy coordination deliberations.
- Closely linked with the above is the partial understanding of the workings of the macro-economy by most members of the committees. Thus, there is a need to strengthen the capacity of relevant policy institutions to be able to fully understand the cyclical nature of the economy in order to engage in effective policy coordination in the area of policy goal setting and choice and design of policy instruments.
- Policy transmission mechanisms also need to be identified and strengthened through relevant policy reforms by the two authorities. This should include strengthening theweak or poor monitoring and evaluation units that monitor policy implementation. Thus, each of the Authorities should establish monitoring and evaluation units in all relevant policy institutions to monitor policy implementation and track deliverables agreed on at policy coordination meetings.

6. References

- i. Ajayi, S.I. (1974). *An Econometric Case Study of the Relative Importance of Monetary and Fiscal Policy in Nigeria*. The Bangladesh Economic Review, vol. 2(2), 559-576.
- ii. Ajisafe, R.A., and Folorunso, B.A. (2002). *The Relative Effectiveness of Fiscal and Monetary Policy in Macroeconomic Management in Nigeria*. The African Economic and Business Review, vol.3(1), 23-40.
- iii. Andlib, Z; Khan, A., and Hag, I. (2012). The Coordination of monetary and fiscal policies in Pakistan: An empirical analysis. (1975-2011). A Conference Paper presented at Pakistan Society of Development Economists. http://www.researchgate.net>publication. December, 12th
- iv. Barro, R. (1990). *Government spending in a simple model of endogenous growth*. Journal of Political Economy. Vol. 98(5), pp 3103-3125.
- v. Barro, R., and Sala-i-Martin, (1992). *Public finance in models of economic growth*. Review of Economic Studies. No. 59. pp 645-661
- vi. Blanchard, O.J; and Perotti, R. (2002). *An empirical characterization of the dynamic effects of changes in government spending and taxes on output.* The Quarterly Journal of Economics. Vol. 117, pp 1329-1368.
- vii. Branchard, O. J. and S. Fisher (1989). *Lectures on Macroeconomics*. Cambridge, MA. MIT Press.
- viii. Brimmer, A. F., and Saini, A. (1986). *The monetary-fiscal policy mix: Implications for the short run.* The American Economic review. Vol. 76(2), pp 203-208.
- ix. Brunner, K., and Meltzer, A. H. (1997). *Money and the economy: Issues in monetary analysis.* RM Lectures. Cambridge University Press.
- x. Central Bank of Nigeria, (2011), Understanding Monetary Policy Series No 5: Monetary and Fiscal Policy Coordination. Abuja, CBN Press
- xi. Champika, P. D. (2015). An Empirical Quantitative analysis on Monetary and Fiscal Policy interaction in a Developing country: The case of Sri Lanka. A PhD Thesis, Saga University, Saga, Japan.
- xii. Chigbu, E. E. and Njoku, M. (2013). *The impact of monetary and fiscal policies on Nigerian Economic growth:* 1990-2010. European Journal of Business and Management. Vol. 5(2), pp 13-24.
- xiii. Chuku, A. C. (2012). Monetary and Fiscal Policy interaction in Nigeria: An application of a State-Space Model with Markov-Switching. Journal of Applied Statistics, vol. 1(1) pp.324-338
- xiv. Dangey, M. and Fry, R. (2009). *The identification of fiscal and monetary policy in a structural Vector Autoregressive Model.* Economic modeling, No. 26, pp. 1147 – 1160.
- xv. Dickey, D. A. and Fuller, W. A. (1979). *Distribution of the estimators for auto regressing time series with a unit roots.* Journal of American Statistical Association, Vol. 74 (366), pp. 427 481.
- xvi. Dickey, D. A. and Fuller, W. A. (1981). *Likelihood ratio statistics for autoregressive time series with a unit root.* Econometrica, vol. 49(4), pp 1057-1072.
- xvii. Ekpo, A. H. (2003). *The macroeconomic policy framework: Issues and challenges*. A paper presented at the CBN's 3rd Annual MPC, Lagos. December, 11th-12th
- xviii. Ekpo, A. H. and O. J. Umoh (2014). An overview of the Nigeria Economic growth and Development. http://www.onlinenigeria.com/economics. July 30,
- xix. Englama, A; Tarawalie, A. and Ahortor, C. (2013). *Fiscal and Monetary Policy Coordination in the WAMZ: Implications for member states performance on the convergence criteria*. A paper presented at the 4th Annual Conference for Regional Integration in Africa. Abidjan, July, 4-6.
- xx. Friedman, M. (1948). *A monetary and fiscal framework for economic stability*. American Economic Review vol. 38(2), pp 245-264.
- xxi. Friedman, M. (1956). *Studies in the quantity theory of money*. Chicago. Chicago University Press.
- xxii. Granger, C.W.J. (1988) Causality co-integration and control. Journal of Economic dynamics and control. Vol.12 (23), pp551-559.
- xxiii. Guido Tabellini (1987). *Monetary and fiscal policy coordination with a High Public Debt.* UCLA Economic Working papers 449, Department of Economics, UCLA, Los Angeles
- xxiv. Hanif, M. N. and Arby, M. F. (2003), *"Monetary and Fiscal Policy Coordination: The Pakistan Experience*. SEB Research Bulletin, vol 6 (1), pp.1-12.
- xxv. Hazan, A. and Isgut, A. (2009). *Effective coordination of monetary and fiscal policies: Conceptual issues and experiences from selected Asia-Pacific Countries*. A paper presented at the UN economic and social commission for Asia and the Pacific (UNESCAP) Regional High-level workshop on "strengthening the response to the global financial crisis in Asia-Pacific. Dhaka, Bangladesh, July 27-30.
- xxvi. Heyne, T. S. et al (2002). *Monetary Policy and growth prospect in developing countries*. Economic Review, vol. 6 (4), pp 48-71
- xxvii. Johansen, S. (1988). *Statistical analysis of cointegration vectors*. Journal of Economics, Dynamics and Control. Vol. 12, pp 231-254.
- xxviii. Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian Vector autoregressive models. Econometrica No. 59, pp 1151-1580.
- xxix. Johansen, S. (1995). *Likelihood-based Inference in Cointegrated vector Autoregressive models.* Oxford. Oxford University Press.
- xxx. Keynes J. M. (1936). *The General Theory of Employment, Interest and Money*. London. Palgrave Macmillan. http://casumkc.edu/economics/people/
- xxxi. Koyck, L. M. (1954). Distributed Lags and Investment Analysis. Amsterdam: North-Holland Publishing.

- xxxii. Krugman, P. (1999). *Balance sheets, the transfer problem and financial crises*. International Tax and Public Finance, No. 6, pp 459-472.
- xxxiii. Lambertini, L. and Rovelli, R. (2002). *Independent or Coordinated? Monetary and Fiscal Policy in EMU*. Department of Economics University of Bologna.
- xxxiv. Lane, R.P. (2002). *Monetary Fiscal Policy Interactions in an Uncertain World: Lessons for European Policymakers.* Institute for International Integration Studies. Trinity College Dublin and CEPR. http://www.tcd.ie/Economics/TEP/2002_papers/TEPNo13PL22
- xxxv. Laurens, B. and DelaPiedra, E.(1998), "Coordinating of Monetary and Fiscal Policies". IMF Working Paper no. WP/98/25, 1998.
- xxxvi. Melitz, J. (1997). Some Cross-Country evidence about Debt, Deficit and the Behaviour of Monetary and fiscal Authorities. CEPR Discussion Paper No. 1653. London. Center for Economic Policy Research.
- xxxvii. Mundell R. (1962). Appropriate use of monetary and fiscal policy for internal and external stability. IMF Staff Papers. No. 9, pp 70-79.
- xxxviii. Muscatelli, V. A. and Trecroci, P. T. (2000). *Monetary and fiscal policy interaction over the circle:Some empirical evidence.* Discussion paper, department of Economics, University of Glasglow.
- xxxix. Olofin, S., D. Busari and A. Adenikinju (2009). *Applied Econometric and Macroeconometricmodelling in Nigeria*, Ibadan. Ibadan University Press.
 - xl. Peasara, M.H; Y. Shin and R.J. Smith (2001) *Bound Testing approaches to the analysis of level relationships.* Journal of applied Econometrics. Vol 16 (3), pp 289-326
 - xli. Perron, P. and Campbell, J. Y. (1992): *Pitfall and opportunities: What economists should know about unit root?* NBER technical Working Paper. No. 100.
 - xlii. Rakic, B., Pesic, M., and Radjenovic, T. (2012). *The Effects of Fiscal Policy in the Contemporary Economic Crisis Conditions.* FACTA UNIVERSITATIS Series: Economics and Organization, 9(4), 393-405. http://facta.junis.ni.ac.rs/eao/eao201204/eao201204-01.pdf
 - xliii. Rakić, B. and Radenovic, T (2012): The Effectiveness of Monetary and Fiscal Policy in Serbia. Industrija, vol. 41(2), pp 103-122
 - xliv. Reynolds, A. (2001). The fiscal-monetary policy mix. Cato Journal, vol. 21(2), pp 263-275.
 - xlv. Santos, H.S.B.D.(2010).*Fiscal and Monetary Policy interactions: a game theoretical approach*. Msc Thesis, Universidade federal D. Pernambueo (UFPE).
 - xlvi. Sanusi, J. O. (2001). *The evolution of monetary management in Nigeria and its impact on economic management development.* A paper delivered at the 13th convocation lecture of Ogun State University, March, 26th.
- xlvii. Semmler, W. and Zhang, W. (2003). *Monetary and fiscal policy interactions: Some evidence from the Euro-Area.* Mimeo. Bidefield University Working Paper. No. 41. March.
- xlviii. Soludo, C. C. (2007). *Macroeconomic, monetary and financial sector developments on financial and payment system reforms in the country*. Economic and Financial Review, vol. 30 (1), pp 32-69.
 - xlix. Tobin, J. (1986). *The monetary-fiscal policy mix: Long run implications*. The American Economic Review. Vol. 76(2), pp 213-218.
 - l. Udah, E. B. (2009). A dynamic macroeconomic model of the Nigerian economy with emphasis on the monetary sector. South African Journal of Economic and Management Studies (SAJEMS). Vol. 12(1), pp 28-47.
 - li. Wallace, N. and Sergeant, T. J. (1981). *Some unpleasant monetarist arithmetic*. Federal Reserve Bank of Minneapolis Quarterly review, Vol. 5, pp. 1-17
 - lii. Weber, A. A. (2011). *Challenges for monetary policy in the European Monetary Union.* Federal Reserve Bank of St. Louise Review, Vol. 93(4), pp 235-242.
 - liii. Zoli, C. and Lambert, P. J. (2005). *Sequential procedures for poverty gap dominance*. University of Oregan Economics Department Working Papers 2005 1. University of Oregun.

YEAR	GDPGR	INTR	INF	M2	M2g	FGRRg	FGEEg
1981	-13.1279	5.715833	20.8	5.9	1	1	1
1982	-1.05319	7.6	7.7	9.55	0.618644	-0.14286	0.04386
1983	-5.05045	7.411667	23.2	14.02	0.468063	-0.07895	-0.19328
1984	-2.02154	8.254167	17.8	11.6	-0.17261	0.07619	0.03125
1985	8.32283	9.116667	7.4	12.44	0.072414	0.336283	0.313131
1986	-8.75418	9.235	13.7	4.23	-0.65997	-0.16556	0.246154
1987	-10.7517	13.0875	9.7	22.92	4.41844	1.015873	0.358025
1988	7.542522	12.95	61.2	34.99	0.526614	0.086614	0.259091
1989	6.467191	14.675	44.7	3.54	-0.89883	0.952899	0.480144
1990	12.76601	19.78333	3.6	45.92	11.97175	0.820037	0.470732
1991	-0.61785	14.91667	23	27.48	-0.40157	0.029562	0.104478
1992	0.433725	18.04167	48.8	47.53	0.729622	0.886139	0.393393
1993	2.090378	23.24167	61.3	53.76	0.131075	0.012073	1.060345

Appendix

YEAR	GDPGR	INTR	INF	M2	M2g	FGRRg	FGEEg
1995	-0.30747	13.53083	51.6	19.41	-0.43739	1.278356	0.546302
1996	4.993706	13.05917	14.3	16.18	-0.16641	0.138261	0.355305
1997	2.802256	7.169167	10.2	16.04	-0.00865	0.113063	0.26987
1998	2.71564	10.10833	11.9	22.32	0.391521	-0.20453	0.137553
1999	0.474238	12.81083	0.2	33.12	0.483871	1.047455	0.945596
2000	5.318093	11.69083	14.5	48.07	0.451389	1.008217	-0.26021
2001	4.411065	15.25583	16.5	27	-0.43832	0.170706	0.452004
2002	3.784648	16.67	12.2	21.55	-0.20185	-0.22396	0.000196
2003	10.35418	14.2175	23.8	24.11	0.118794	0.48695	0.204086
2004	33.73578	13.69834	10	14.02	-0.4185	0.522465	0.163295
2005	3.444667	10.5325	11.6	24.35	0.736805	0.414998	0.277591
2006	8.210965	9.7425	8.5	43.09	0.76961	0.075277	0.063608
2007	6.828398	10.28833	6.6	44.8	0.039684	-0.04183	0.264654
2008	6.270264	11.97083	15.1	57.88	0.291964	0.376338	0.32229
2009	6.934416	13.29667	13.9	17.07	-0.70508	-0.38416	0.065478
2010	7.839739	6.520833	11.8	6.91	-0.5952	0.507596	0.21477
2011	4.887387	5.699167	10.3	15.43	1.232996	0.522078	0.123373
2012	4.279277	8.4075	12	16.39	0.062216	-0.04157	-0.02273
2013	5.394416	7.945	8	9.7	-0.40818	-0.08399	0.126015
2014	6.309719	9.339167	8	7.2	-0.25773	0.031666	-0.11531
2015	2.652693	9.148333	9.6	5.9	-0.18056	-0.31348	0.087516

Table 7