CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Agriculture has often been labelled crucial in the economic development as well as one of the major windows out of Poverty of most developing countries (Agbugba and Binaebi, 2018). The agricultural sector contributions to the development of an economy can be viewed in four major ways: product contribution, factor contribution, market contribution and foreign exchange contribution and all this is accompanied in multiplier effect (Tiku and Mellem, 2015). The sector serves all other sectors in the economy especially the industrial sector and at the same time capable for generating broad based sustained growth necessary for development. It is equally fundamental to the sustenance of life and has remained the bedrock of economic development, especially in the provision of adequate and nutritious food vital for human development. More than 70 percent of Nigeria's population depends on agriculture, which contributes roughly 25 percent of GDP and 60 percent of non-oil exports (Nwaokedibe, 2018).

Over the years, the use of both fiscal and monetary policies has been inextricable in the pursuit for achieving macroeconomic stability and economic growth in Nigeria. The achievement of full-employment equilibrium, rapid industrial growth, price stability and external balance is anchored on the use of monetary policy. This is further supported by Sanusi (2012) when he explained that the primary goal of monetary policies in Nigeria has been the maintenance of domestic price and exchange rate stability since it is critical for the attainment of sustainable growth and external sector viability. This is why the Central Bank is charged with the task of implementing the monetary policies of the government.

Furthermore, since its establishment in 1958, the objectives of the Central Bank of Nigeria have remained broadly the same, but the strategies for achieving these objectives have only changed in consonance with the varying legal, institutional and macroeconomic environments. There has also been a policy shift from using monetary policy to stabilize the volume of money in circulation, to improving productivity as well as reducing the price level of goods and services through the financing (or providing credit facilities) of activities that involve the production of goods and

services in the economy. This thus has brought about various financing schemes by different administrations in the country.

One very good example of such schemes involved in the financing of agriculture which has generated a lot of interest in recent times is the Agricultural Credit Guarantee Scheme Fund (ACGSF). The Agricultural Credit Guarantee Scheme Fund (ACGSF) was formed under the military government in 1977 with an initial capital base of N100 million distributed between the federal government (60% equity) and the Central Bank of Nigeria CBN (40%). The ACGSF is exclusively managed by a board set up under the supervision of the CBN (management agent). The fund is set up with the sole purpose of providing guarantee in respect of loans granted by any bank for agricultural purposes (Central Bank of Nigeria, 1990). This is further explained by Nwosu et al (2010) who noted that the ACGSF was formed solely with the objective of encouraging financial institutions to lend funds to those engaged in agricultural production as well as agro processing activities with the aim of enhancing export capacity of the nation as well as for local consumption. This is solely exclusive for large scale farming (Somayina, 1981).

However, due to the unstable nature of macroeconomic policies in the country as well as the huge performing loans of commercial banks (Efobi, 2011), there has been a decline in the share of commercial banks loan in the ACGSF. The question that comes to mind is whether the declining share of agricultural loan from commercial banks can be traceable to the challenges that encumbered ACGSF. For example, Nwosu et al (2010) identified three major problems associated with the ACGSF scheme, which include increasing incidence of loan defaulters, bank related problems and the inclusion of the term "personal guarantee". Nwosu et al reiterates that the term is subjective in interpretation especially as the decree forming ACGSF was not able to explain this. Therefore, banks utilize personal judgment and circumstantial framework to interpret this. This will hinder the achievement of the objective of the scheme (see, Nwosu, 2010).

Most of the researches conducted in this area have dealt on the overall impact of monetary policy on Agricultural Credit Guarantee Scheme fund (Alenyi, 1998; Yakubu, 2012, etc), Impact of Agricultural Credit Guarantee Scheme Fund on non-oil export output (Wagan et al, 2018; Somayina, 1981; Efobi, 2011 etc) as well as the contribution of Agricultural Credit Guarantee Scheme Fund to Agricultural Output (Olorunsola, Adeyemi, Valli and Kuffrey, 2017; Musa, 2015; Nwosu, et al., 2010; Shaib, et al., 1997,etc).

1.2 STATEMENT OF THE PROBLEM

Agricultural finance encompasses all the activities which involves the acquisition, procurement, utilization and management of finance as well as the factors of production, cutting across management and financial institutions serving the agricultural sector of the economy. The role of agricultural financing as a factor of production to facilitate economic growth and development as well as the need to appropriately channel credit to rural areas for economic development of the poor rural farmers cannot be over emphasized.

Over the years, Nigeria has had different scheme for agricultural financing and this include amongst others, the Agricultural Credit Guarantee Scheme Fund (ACGSF-1977), The Nigerian Agricultural, Cooperative and Rural Development Bank (now Bank of Agriculture-1973), the Commercial Agricultural Credit Scheme (2009), all of which in about 40 years, have sunk more than 300 billion naira into the agricultural sub-sector.

However, despite all these schemes in conjunction with the world agricultural development scheme, Nigeria is still facing huge gap in its agricultural productivity relative to the population, scarce foreign exchange as a result of relying on the exportation of crude oil as its major source of foreign exchange, huge food import bills, as well as famine and hunger in some regions of the country, most especially, the north eastern part of the country. This can be seen to be due to the challenges facing the farmers in accessing funds for the expansion of production, high cost of farm implements, inadequate fertilizer and poor seedlings. All these can be said to be embedded in the lack of and inadequate access to the source of financing as well as failure of monetary policies to achieve their targets.

1.3 OBJECTIVES OF THE STUDY

The major objective of this study is to examine the effect of monetary policy on the level of Agricultural financing in Nigeria. Specifically, the objectives of the study are to:

i. Identify the stance of the Agricultural financing (Agricultural Credit Guarantee Scheme Fund, Bank of Agriculture and Commercial Agricultural Credit Scheme) within the period of study.

ii. Identify the major indirect monetary tools during the period of study and their direction and intensity.

iii. Study the extent to which monetary policy has affected agricultural financing through the Agricultural Credit Guarantee Scheme Fund.

1.4 RESEARCH QUESTIONS

i. What is the stance of Agricultural financing within the period of study?

ii. What are the major indirect monetary tools during the period of study and their direction and intensity?

iii. To what extent has the monetary policy affected agricultural financing through the Agricultural Credit Guarantee Scheme Fund?

1.5 RESEARCH HYPOTHESIS

As a result of the research questions raised above, the research hypotheses for this study are:

H_0: Monetary policy does not have an effect on Agricultural financing in Nigeria.

H_1: Monetary policy has an effect on Agricultural financing in Nigeria.

1.6 SIGNIFICANCE OF THE STUDY

This study seeks to address and look into the impact which the various monetary policy tools have on agricultural financing in Nigeria. This research is to find out how well the formulation of monetary policies and their targets have helped in the financing of agriculture in order to boost the aggregate productivity of both cash crops and food crops in Nigeria.

Therefore, this study is bent on contributing to the literatures available in finance, economics, and agriculture. It also will go further in establishing reasons why subsequent research in this area will contribute to the growth and development of emerging markets like Nigeria.

1.7 SCOPE OF THE STUDY

This study tends to find out the impact of monetary policy on the agricultural financing in Nigeria. The study covers a general contribution of monetary policy in Nigeria towards boosting the level of agricultural financing. This study shall therefore be restricted to the period between 1970- 2018 based on the fact that the 2018 Central Bank of Nigeria (CBN) annual statistical bulletin for Agriculture Credit Guarantee Scheme Fund (ACGSF) begins from 1981 and ends in 2015. The data will be supported by data gotten from the World Bank (2018) so as to make it comprehensive and reflect current economic situation.

The validity and reliability of this research work will depend on the use of statistical data using the linear regression model, and the hypothesis setting that requires testing the validity of the analysis. The researcher therefore made use of secondary data obtained from the publications of the Central Bank of Nigeria statistical bulletin, National Bureau of Statistics (NBS) and the World Bank to measure all the independent variables included in the model.

1.8 ORGANIZATION OF THE STUDY

Chapter one is the introductory chapter which contains the background to the study, statement of the problem, objectives of the study, research questions, the research hypothesis, the scope of the study, the significance of the study as well as the organization of the study.

Chapter two refers to the literature review. It is the review of existing studies concerning the topic at hand.

Chapter three is the research methodology. It comprises the theoretical framework, the model specification, the estimation techniques and the sources and measurement of the data collected.

Chapter four refers to the presentation and data analysis. Results of the study are presented and interpreted here.

Chapter five is the concluding chapter, Summary of the study, main conclusions and recommendations are presented here.

CHAPTER TWO

LITERATURE REVIEW

2.1 CONCEPTUAL FRAMEWORK

2.1.1 CONCEPT OF MONETARY POLICY

Monetary policy involves all action taken by the monetary authorities to affect the monetary base through influencing the availability and cost of credit in pursuance of sustainable growth of output, price stability and a healthy BOP position (Iyoha & Oriakhi 2002). According to Ayanwu (1993), it is a major economic stabilization tool which involves measures designed to regulate and control the volume, cost, availability and direction of money and credit in an economy with the aim of achieving of achieving specific objectives.

Furthermore, Monetary Policy According to CBN (1995), is the 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. Imoughele (2014) defined monetary policy as one of the macroeconomic instruments with which monetary authority in a country employs in the management of their economy to attain desired objectives. It entails those actions initiated by the Central Bank which aim at influencing the cost and availability of credits. Nwankwo (1999) defined it as measure or combinations of measures designed to influence or regulate the volume, price and direction of money and credit. He contended that monetary policy comprises six different policies dealing with the volume of money and credit, its price or the rate of interest and its allocation. Ezeugo (1987) shares the same view with Nwankwo (1999). He points out that monetary policy involves measures, which the government adopts using specific instruments to stimulate, structure or restructure of the economy so as to attain the desired objective which may include increased output in the industry, Agriculture or other sector of the economy, employment generation, control of Inflation, and adjust the balance of payment and mobilization of savings. Furthermore, Wrightsman (1976) opined that monetary policy entails those actions initiated by the central bank, which aim at influencing the cost and availability of credits.

Therefore, monetary policy is the process by which the central bank or monetary authority controls money supply, availability of money and the cost of money or rate of interest. Monetary policy is use to attain set of objectives geared towards the growth and stability of the economy. These goals

usually involve stable price and low unemployment. The government of each country embarks upon policies that increase or decrease the supply of the economy by affecting the aggregate demand, money supply affects the level of consumption and the rate of economic growth, an increase or reduction in the cost of money, interest rate affects all the variables too.

2.1.2 INSTRUMENTS OF MONETARY POLICY

The instruments of monetary policy used by the Central Bank of a country depend on the level of development of the economy, especially its financial sector (Yakubu, 2012). Also, different Central Banks Have different instruments used to influence the economy based on the different economic challenges happening at the time. The commonly used instruments in Nigeria are discussed below:

1. **Monetary Policy Rate (MPR):** This is one of the variables that the study uses as the instrumental variable through which monetary policy transmission is propagated through the economy. The MPR 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). Therefore, the MPR is the rate at which the central bank borrow money to the commercial banks which in turn affects how the commercial banks borrow money to the people.
2. **Reserve Requirement:** Reserve requirement is one of the most powerful instruments of monetary control, if it changes; the requirement reserve ratio which is the ratio by which the banking system can expand deposit through the multiplier effect also changes. The assumption is that deposit money banks generally maintain a stable relationship between their reserve holdings and the amount of credit they extend to the public (CBN 2010).
3. **Open Market Operations**: The Central Bank buys or sells securities on behalf of the Federal Government to the banking and non-banking public (that is in the open market). One very good example of such security is Treasury Bills. When the Central Bank sells securities, it reduces the supply of reserves and when it buys (back) securities-by redeeming them-it increases the supply of reserves to the deposit money banks, thus affecting the supply of money.

4. **Exchange Rate:** 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 (Yakubu, 2012). The real exchange rate when misaligned affects the current account balance because of its impact on external competitiveness.
5. **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 as desired by the authorities.

2.1.3 NIGERIAN MONETARY POLICY CONTROL EXPERIENCE

Prior to 1986, the economic environment that guided monetary policy was characterized by the dominance of the oil sector, the expanding role of the public sector in the economy and over-dependence on the external sector. In order to maintain price stability and a healthy balance of payments position as a result of this characteristics, monetary management depended on the use of direct monetary instruments such as credit ceilings, selective credit controls, administered interest and exchange rates, as well as the prescription of cash reserve requirements and special deposits. The use of market-based instruments was not feasible at that point because of the underdeveloped nature of the financial markets and the deliberate restraint on interest rates (CBN Monetary Policy Department, 1986).

According to the CBN monetary policy Series in 1990, the focus of monetary policy control by the CBN from 1986 to 1990 was on moderating the level of inflation, stimulation of the private sector output, minimization of unemployment as well as reduction of pressure on the external sector. The stance of monetary policy during the year remained moderately restrictive. The monetary and credit targets were set for M1 as 13.0 percent, Credit to government was set at 10.9 percent, and credit to private sector 15.8 percent (CBN, understanding Monetary policy series, Module 3).

The period between 1986 and 2001 was referred to as the short term monetary policy horizon by the CBN. During this period, Interest rate policy was deregulated through the proactive adjustment of the minimum rediscount rate (MRR) to signal policy direction consistent with liquidity

conditions. Surveillance activities of the CBN focused mainly on ensuring sound management and maintenance of a healthy balance sheet position on the part of deposit money banks (DMBs). On the external front, the official and interbank exchange rates were unified in 1999. Other policy instruments employed during this period included the discount window operations, mandatory sales of special NTBs to banks and a requirement of 200 per cent treasury instruments to cover for banks' foreign exchange demand at the Autonomous Foreign Exchange Market (AFEM) (CBN Monetary Policy Department, 2011).

From 2002 till date, Attention has been focused on the need for a more competitive financial sector geared towards improving the payments system. The OMO has continued to be the primary tool of monetary policy, and is complemented by reserve requirements, discount window operations, foreign exchange market intervention and movement of public sector deposits in and out of the DMBs. The CBN has also continued to ensure banking soundness and financial sector stability, not only to ensure the effective transmission of monetary policy to the real sector but also to enhance the efficiency of the payments system (CBN, 2016).

2.1.4 OVERVIEW OF AGRICULTURAL FINANCING IN NIGERIA

According to Mallum (2016), it was in recognition of credit needs of farmers that the Federal Government of Nigeria (FGN), at various periods, put in place financial policies and established credit institutions, schemes and programmes that could facilitate the flow of agricultural credit to farmers. However, according to Alenyi (1998), credit to the agricultural sector started as far back as 1946 with the establishment of the Nigerian Local Development Loan Board (NLDLB) so as to pave the way for agricultural financing by public credit institutions on a nation-wide scale.

Forward dated to 1973, the Nigerian Agricultural and Corporative Bank (NACB) was established to extend loans to the agricultural sector including: Horticulture, Poultry, Crop production, Pig breeding, Fisheries, Forestry and Timber Production, Ranching and animal husbandry. It was also to enhance the availability of storage facilities and to promote marketing of agricultural products (NACB, 1974). In 1977, the rural Banking scheme was implemented to complement the operation of the NACB and the commercial banks in the provision of agricultural credit. The Agricultural Credit Guarantee Scheme (ACGS) was also introduced in 1978 to encourage lending to the agricultural sector by providing guarantee to commercial banks. Ijere (1986), stated that the ACGS intended to encourage banks to undertake the risk in financing agriculture by assuring them

repayment in the event of a default on the part of the farmer. Here, the Bank complemented the scheme with an operation of interest drawback programme in the payment of interest rebate of 40 per cent to farmers that make timely repayment.

According to Nwosu *et al*. (2010), other farm credit schemes, programmes and institutions included the NACRSB of 1972,Expansion of Commercial Bank of 1976, RBDA of 1979 and ADP of 1972 (as cited by Mallum, 2016).However, the persistent failure of the above institutions and conventional banks to adequately finance agricultural activities in the mid-1970s was a clear evidence that the country was in need of further financial and institutional reforms that would revitalize the agricultural sector by encouraging the flow of institutional credit into it. Also, the unpredictable and risky nature of agricultural production, the importance of agriculture to our national economy, the urge to provide additional incentives to further enhance the development of agriculture to solve the problem of food insecurity and the increasing demand by lending institutions for appropriate risk aversion measures in agricultural lending provided justifications for the establishment of the Nigerian Agricultural Credit Guarantee Scheme Fund (ACGSF) by the Federal Government of Nigeria in 1977 (Mafimisebi *et al*. 2009).

In 2009, the Central Bank of Nigeria (CBN) in collaboration with the Federal Ministry of Agriculture and Water Resources (FMA&WR) established the Commercial Agriculture Credit Scheme (CACS) to provide finance for the country's agricultural value chain (production, processing, storage and marketing). Efforts to increase production and improve the country's agricultural value chain is also being complemented by the CBN's anchor's borrowers program as well as other initiatives by the Bank of Industry (BOI) and African Development Bank (AfDB).

2.1.5 AGRICULTURAL CREDIT GUARANTY SCHEME FUND (ACGSF)

As noted from the foregoing, the ACGSF is not the first and only credit scheme that the Federal Government put in place to encourage agricultural development. The ACGSF which is an initiative of the federal government in conjunction with the Central Bank of Nigeria, was established by Decree No. 20 of 1977, and started operations in April, 1978. Its original share capital was ₦100 million while the paid-up capital was put at ₦85.6 million (CBN, 2011). The Federal Government holds 60% and the Central Bank of Nigeria, 40% of the shares. The capital base of the Scheme was increased to ₦3 billion in March, 2001. The Fund guarantees credit facilities extended to

farmers by banks up to 75% of the amount in default net of any security realized. The Fund is managed by the Central Bank of Nigeria, which handles the day-to-day operations of the Scheme.

Between 1978 and 1989 when the government stipulated lending quotas for banks under the Scheme, there was consistent increase in the lending portfolios of banks to agriculture, but after the deregulation of the financial system, banks started shying away by reducing their loans to the sector due to the perceived risk. In 1999, the fund was enhanced to 1 billion naira, N3 billion in 2003 and later to the level of N4 billion as at early 2006 (CBN, 2007). All these are aimed at solving the problem of inadequate funding of farm operators by banks and to cushion these financial institutions against the effects of high risks associated with investments in farm enterprises as well as to raise the productivity and earnings from farm investments so that the incidence of loan repayment default among the farmers will be minimized (CBN, 1977; Ogwuma, 1985; Eyo, 1985; Oguoma, 2002).

The general purpose of the Nigerian Agricultural Credit Guarantee Scheme Fund is to encourage banks to lend to those engaged in agricultural production and agro – processing activities. Thus, the specific objectives of the scheme is the stimulation of total agricultural production for both domestic consumption and export; and the encouragement of financial institutions to participate in increasing the productive capacity of agriculture through a capital lending program. The scheme is expected to provide guarantee on loans granted by financial institutions to farmers for agricultural production and agro-allied processing (Okorji and Mejeha, 1993; Nweze, 1991; Mafimisebi *et al*, 2008).

2.2 THEORETICAL FRAMEWORK

The theoretical framework of this study is hinged on the monetary theories in economics. These theories include the theory on monetary policy by the classical economists and the Keynesian theory on monetary policy. They are discussed further below:

2.2.1 The Classical Theory on Monetary Policy

Money according to the classicists is a veil. It is neutral in its effects on the economy. It simply affects the price level. An increase in the money supply leads to an increase in price level but the real income, the rate of interest and the level of real economic activity remain unaffected. The relationship between money and the price level is explained in terms of the quantity theory of money. The classical quantity theory of money states that the price level is a function of the supply

of money. Algebraically, MV=PT, where M, V, P and T are the supply of money, velocity of money, price level and the volume of transactions (or real output) respectively. The equation tells us that the total money supply MV equals the total value of output PT in the economy (Jhingan, 1997).

In this theory, the classical believes in long-run economy, where full employment is attained. They recognized the existence of unemployment in the event of downward rigidity of money wages. Such a situation could be corrected by an expansionary monetary policy. Suppose the monetary authority increase the money supply, given the velocity of money and the level of real output, with the income in the money supply, liquidity rises with the people who increase the demand for goods and services, this in turn raise the price level. The rise in price level reduces the real wage, which provides incentives for employers to expand employment and output towards the full employment level.

2.2.2 The Keynesian Theory on Monetary Policy

In the Keynesian analysis, monetary policy plays a crucial role in affecting economic activity. It contends that a change in the supply of money can permanently change such variables as the rate of interest, the aggregate demand and the level of employment, output and income. Keynes believed in the existence of unemployment equilibrium. This implies that an income in money supply can bring about permanent increases in the level of output. This rise in supply of money, its first effect is on the rate of interest, which tends to fall. Given the marginal efficiency of capital, a fall in the rate of interest will increase investment. The increased investment will raise effective demand through the multiplier effect thereby increasing income, output and employment.

In the Keynesian theory, the rate of interest is determined by the demand for and supply of money. If either the demand for money or the supply of money changes the equilibrium rate of interest would change. The supply of money is determined by the monetary authority, which is normally fixed in the short-run. In other words, the money supply curve is perfectly inelastic. The demand for money is the desire to hold cash for transaction, precautionary and speculative purposes. The speculative demand for money depends upon the rate of interest or bond prices. Thus Keynes believed on the basis of his experience that monetary policy operated under certain limitations upon which it effectiveness depend on First, if the increase in supply of money reduces the rate of interest provided the demand for money does not become infinite (i.e. perfectly elastic),

and Second, the reduction in the rate of interest increases investment demand provided it is not inelastic to the rate of interest becomes ineffective.

2.3 EMPIRICAL FRAMEWORK

A broad sum of literature has attempted to discuss the linkages between agriculture, agricultural financing and monetary policy with an enormous body of knowledge on the subject mainly centered on agricultural output and prices. Early and recent contributions are attributed to (Alenyi, 1998; Muftaudeen and Hussainatu, 2014; Udoka et al, 2016; Hassan, 2012; Nwosu et all, 2010; Christopher and Akorah, 2012; Ajudua, Davis and Osmond, 2015). These researchers focused on the relationship monetary policies and agricultural financing schemes as well as the impact of selected monetary policy variables on the agricultural sector. Their findings provide sufficient evidence of significant linkages between monetary policy and agricultural financing; as well agricultural sector and macroeconomic variables. It is concluded that an expansionary monetary policy favours the agricultural sector, which results in an increase in agricultural output prices, exports and incomes. In a practical sense, changes in macroeconomic variables result in changes in farm output prices, exports and income. The central bank has tools such as the interest rate to influence changes in macroeconomic variables.

Udeorah and Vincent (2018) studied agricultural financing and performance of the agricultural sector in Nigeria. The existence of unit root was observed from data available from the Central Bank of Nigeria (CBN). Hence, the results from estimated error correction regression models was adopted. The results showed that while government financing through the agricultural credit guarantee scheme fund (ACGSF) had a significant positive effect on aggregate agricultural output, crop output, and livestock output; government recurrent expenditure on agricultural sector had a significant negative effect on the aggregate agricultural output and crop production output. On the other hand, bank financing proved insignificant in predicting output from the aggregate agricultural sector, and other examined agricultural sub-sectors.

Alenyi (1988) econometrically studied the effect of monetary policy on commercial banks supply of agricultural credit in Nigeria. Using a time series data from 1980 to 1995, the econometric analyses showed that the specified explanatory variables (liquidity ratio, lending interest rate, discount rate and cash reserve ratio) were significant at 95 % confidence level. Furthermore,

liquidity ratio and cash reserve ratio were inversely related to the amount of credit supplied agriculture while lending interest rate and discount rate were positively related to it.

In a similar development, Christopher and Akorah (2012) examined the impact of monetary policy on agricultural development in Nigeria by making use of variables such as Minimum Re-discount Rate (MRR), Treasury Bill Rate (TBR), broad money supply (M2), agricultural sector output and index of agricultural production at 1990 base year for the period 1970 to 2010 and analyzing them using Eviews Ordinary Least Squares method. The results of the analyses showed that although CBN's monetary policies play crucial role in influencing the level of agricultural productivity in the country, it has not recorded significant progress in terms of providing enabling environment for better performance in the agricultural sector.

Muftaudeen and Hussainatu (2014) empirically investigated the impact of macroeconomic policies on agricultural output specifically on crop production in Nigeria using the Multivariate Vector Error Correction approach to examine both short run and long run relationship between the series over the period of 1978-2011. The findings show that in the long run, agricultural output is responsive to changes in government spending, agricultural credit, inflation rate, interest rate and exchange rate. The results of impulse response functions suggest that one standard deviation innovation on government expenditure and interest rate reduces the agricultural output thus threatening food security in the short, medium and long term. While results of the variance decomposition indicate that, a significant variation in Nigeria's agricultural food output is due to changes in exchange rate and government expenditure movements. This implies the imperative of the role played by both fiscal and monetary policy in an effort to ensure food security.

By studying the effect of monetary policy management implications on the movement of agricultural prices in Nigeria, Hassan (2012) evaluated the long-run neutrality of money supply on agricultural prices; the effect of money supply on agricultural prices; and effect of key macroeconomic indicators on agricultural prices in Nigeria. Using least square estimation, it was observed that money supply had significant impact on agricultural prices and that agricultural prices do not react more sensitively than aggregate price to changes in money supply. Money supply and exchange rate also accounts for 86.2% of variations in agricultural prices.

Furthermore, Musa (2015) analyzed the impact of monetary policy on agricultural, manufacturing and services sectors output in Nigeria using data from 1986 to 2012. The study therefore employed the Co-integration test and VAR methodology. Co-integration test reveals that there is long run

relationship between monetary policy variables, agricultural sector and manufacturing sector output and no long run relationship between monetary policy variables and services sector output. The result from impulse response function shows that monetary policy rate does not impact all the three sectoral outputs. The lending rate was found to impact all the three sectors. Also the variance decomposition shows that inflation was the most important variable that explains variation in the agricultural sector output, followed by M1 and lending rate. In the manufacturing sector, M2 was the most important variable that explains variation in its output, followed by lending rate and M1. The most important variable that explains variation in services sector output was M1, followed by M2, credit to private sector and lending rate.

Ajudua, Davis and Osmond (2015) reviewed monetary policy and agricultural sector performance in Nigeria by employing the ordinary least square (OLS) regression method, a multiple regression equation to check the economic relationship between agricultural output with Agriculture Gross Domestic Product (AGDP) as the dependent variable, and Money Supply (MS), Interest Rate (INT), Monetary Policy Rate (MPR) and Inflation Rate (INF) as explanatory variables. The study revealed that there exist a relationship between monetary policy and agricultural sector performance in Nigeria with an increase in the budgetary allocation to agricultural sector, and the effective utilization of these allocated funds, an effective and prudent management of monetary policies with concessionary low interest rate to encourage investment in the sector all proffered as recommendations to improve the agricultural sector.

Lastly, Udoka *et al.* (2016) examined the effect of commercial banks' credit on agricultural output in Nigeria. Estimated results showed that there was a positive and significant relationship between agricultural credit guarantee scheme fund and agricultural production. This means that an increase in agricultural credit guarantee scheme fund could lead to an increase in agricultural production in Nigeria; there was also a positive and significant relationship between commercial banks credit to the agricultural sector and agricultural production in Nigeria. However, the study also showed negative relationship between interest rate and agricultural output in line with theoretical postulations. This is because an increase in interest rate discourages farmers and other investors from borrowing and thus less agricultural investment and output.

Table 2.1: Summary of Empirical Review

Author	Title	Dependent Variable	Independent Variable	Method of Analysis
Udeorah and Vincent (2018)	Agricultural financing and performance of the agricultural sector in Nigeria.	Agricultural Output	ACGSF, Recurrent expenditure, Bank Financing	Error Correction regression model
Alenyi (1998)	The effect of monetary policy on commercial banks supply of agricultural credit in Nigeria.	Agricultural Credit	liquidity ratio, lending interest rate, discount rate and cash reserve ratio	Multiple Regression analysis
Christopher and Akorah (2012)	The impact of monetary policy on agricultural development in Nigeria	Agricultural sector output	Minimum Re-discount Rate (MRR), Treasury Bill Rate (TBR), and broad money supply (M2),	Ordinary Least Squares (OLS)
Musa (2015)	The impact of monetary policy on agricultural, manufacturing and services sectors output in Nigeria (1986-2012)	Agricultural, manufacturing and services sectors output	Narrow money supply, Broad money supply, Credit to the private sector and Lending Rate	Co-integration test and VAR Methodology
Ajudua, Davis and Osmond (2015)	Monetary policy and agricultural sector performance in Nigeria	Agricultural Gross Domestic Product	Money Supply, Interest Rate, Monetary Policy Rate and Inflation Rate	Ordinary Least Squares Multiple Regression

Source: Author's Compilation, 2019.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 THEORETICAL FRAMEWORK

The theoretical framework of this study is hinged on the classical theory which is concerned on the quantity theory of money, the Keynesian theory of monetary policy, as well as the monetarists view on monetary policy which strongly believe that monetary policy exact greater impact on economic activity as unanticipated change in the stock of money affects output and growth. Russell (2010) stated that long-run growth depends upon enhancement of productivity according to most modern economists. That if an appropriate mix of monetary policy is supplemented by the external environment of suitable liquidity, interest rate, robust demand, soft assistance from the world bank of the financial institutions and debt rescheduling, then, a sustainable economic growth will be achievable in the long-run thereby having an effect in the rate of production and consumption of goods and services by the people

However, with the emergence of empirical evidence ((Alenyi (1998); Ajibola (2018); Musa (2012); Ajudua, Davis and Osmond, 2015 and Chrisopher and Akorah (2012)) identifying monetary policy which includes variables like money supply, interest rate, inflation rate, and exchange rate as an independent and primary factor inputs which determines the production process, there is departure from the monetarists thinking to that which includes monetary policy variables as an independent factor of production. To this respect, our model for the level of agricultural financing constitutes an explicit inclusion of monetary policy variables as primary and independent function. The monetary policy variables will determine the rate of growth and the level of agricultural financing in Nigeria.

3.2 MODEL SPECIFICATION

The main aim of the study is to examine the impact of monetary policy on agricultural financing in Nigeria. In order to achieve this, the study benefits a lot from the work of (Alenyi, (1998); Musa, (2012); Ajudua, Davis and Osmond, (2015) and Chrisopher and Akorah (2012)). The study therefore adopts and modify the (Alenyi, 1998; Musa, 2012; Ajudua, Davis and Osmond, 2015 and Chrisopher and Akorah (2012)) model of the analysis of the effects of monetary policy

indicators on agricultural financing (ACGSF) while using 1981 to 2016 as the year of study. Their model was formally specified as below:

Y=f (INT, EXR, PSC, ASP, INF, U)

Where Y is sectoral output, INT is interest rate, EXR is exchange rate, PSC is credit to private sector, ASP is asset price, INF is Inflation rate and U is the error term.

For the purposes of this study the Credit to the private sector was replaced by banking sector credit to the economy while Agricultural output was replaced by ACGSF which is a measure of Agricultural financing. Therefore, the model for this study takes the form:

$ACGSF_t = \beta_0 + \beta_1 INTR_t + \beta_2 INFL_t + \beta_3 BSCEt + \beta 4 EXR_t + \beta 5 BMS_t + \mu_t$

Where;

$ACGSF_t$ = Agricultural Credit Guarantee Scheme Fund at time $_t$

$INTR_t$ = Interest Rate at time $_t$

NFL_t = Inflation Rate at time $_t$

BSCEt = Banking Sector Credit to the Economy at time $_t$

EXR_t = Exchange Rate at time $_t$

BMS_t = Broad Money Supply at time $_t$

3.3 DEFINITION AND MEASUREMENT OF DATA

The choice of the variables employed in this research is a function of the evidence provided by empirical literature and the economic relationship that exists between the dependent and the independent variables. Also, Onwumere, (2005) explained that the issue of data is at the very center of research and also the nature of data for any study depends entirely on the objectives of the research and the type of research undertaken.

Table 3.1: Variables, Definitions and their Sources

VARIABLE	DEFINITION	UNIT OF MEASUREMENT	SOURCES
Agricultural Credit Guarantee Scheme Fund	The ACGSF is one of the agricultural financing schemes established by Decree No. 20 of 1977, and started operations in April, 1978. Its original share capital and paid-up capital were ₦100 million and ₦85.6 million, respectively.	Measured in naira Thousand (N' Thousand)	Central Bank of Nigeria.
Interest Rate	Interest rate is a rate which is charged or paid for the use of money. An interest rate is often expressed as an annual percentage of the principal. It is calculated by dividing the amount of interest by the amount of principal.	Measured in percentage	Central Bank of Nigeria.

Banking Sector Credit to the Economy	This refers to financial resources provided by the banking sector to boost the productive capacity of an economy.	Measured in naira Billion (N` Billion).	Central Bank of Nigeria.
Inflation Rate	This can be defined as a persistent rise in the general price level of goods and services produced in an economy in a given period of time.	Measured in percentage.	Nigerian Bureau of Statistics
Broad Money Supply	The total stock of money circulating in an economy is the money supply. The circulating money involves the currency, printed notes, money in the deposit accounts and in the form of other liquid assets.	Measured in naira Billion (N` Billion).	Central Bank of Nigeria and Nigerian Bureau of Statistics
Exchange Rate	This can be defined as the rate at which a country's currency can be exchanged for	Measured in absolute value in Naira exchange to the dollar.	Central Bank of Nigeria.

	other countries currency.		

Source: Author's Compilation, 2019.

3.4 ESTIMATION TECHNIQUE

Model estimation follows after model specification. Estimation of model involves obtaining numerical estimates of the coefficient of the variables. It is a technical stage that requires knowledge of various econometrics models.

The study intends to use the Ordinary Least Square method (OLS) based on the methods of analysis from empirical evidences i.e. regression analysis shall be utilized in the estimation of the model. The Ordinary Least Square method (OLS) among other methods of model estimation is adopted because it is proved to be the Best, Linear, unbiased, and estimator (BLUE). The Ordinary Least Square method is the best estimator of a linear model because it has v the least variance compared to the variances of other estimators. It is also an unbiased estimator because the expected value or mean of the parameters is always equal to the mean of each of the parameters.

3.5 METHOD OF EVALUATION PROCEDURE

Evaluation methods are crucial in research works to aid the determination of the statistical significance or otherwise of model estimates and examine the extent of their conformity with theoretical assertions and what is obtainable realistically. Evaluation criteria are majorly divided into three; the economic or *a-priori* criteria, statistical criteria and econometric criteria. Evaluation in this study will be done using three major criteria which are:

3.5.1 ECONOMIC OR A PRIORI CRITERIA:

This depicts the expectation about the estimated parameter based on theory. The priority here is to determine whether the signs conform to what obtains from theory. The magnitude of estimated parameters will also be examined.

The *a-priori* expectation for this study is thus that:

$\beta1<0$; $\beta2<0$; $\beta3>0$; $\beta4<0$; $\beta5>0$; $\beta6>0$.

The model specified in this study, as could be seen above, is a multiple regression model which is more reliable in terms of the estimates of the parameters than a single regression model. Various statistical and econometric tools will be adopted in interpreting the results. These include the coefficient of determination, R-squared, t-statistics, Durbin-Watson statistics and others.

Table 3.2: Variables and A-Priori Expectations

Variables	Parameters	Expected
INTR	β_1	Negative
INFL	β_2	Negative
BSCE	β_3	Positive
EXR	β_4	Negative
BMS	B_5	Positive

Source: Author's Compilation, 2019.

From table 3.2 above, it is expected that the higher the interest rate in an economy, the lower the level of credit for the financing of the agricultural sector. Therefore, interest rate has a negative relationship with the level of credit available for finance to the agricultural sector. Alongside the interest rate, the inflation rate as well as the exchange rate are expected to be negatively related to the Agricultural Credit Guarantee Scheme Fund (ACGSF). However, banking sector credit to the economy is expected to have a positive relationship with the level of finance available to the agricultural sector. That is, the higher the banking sector credit, the higher the value of ACGSF. The Broad money supply is therefore also expected to follow the direction of the banking sector credit to the economy.

3.5.2 STATISTICS CRITERIA OR FIRST ORDER TESTS

These would be used to determine whether estimates are statistically significant or not based on theory. Major first order test are T- test statistics, standard error test, F- test, R^2 etc. thus, the statistical tests to be used in this model are:

i. T-test statistics: the test indicates how often a difference would be found in a given sample when there is no true difference in the population and as such this test is used to assess the accuracy of the estimated parameters. It tells us the individual significance of the explanatory variables use in a model. If the probability at which the calculated T-value(TCAL) is significant in the regression for any independent variable is less or equal to the chosen level of significant, the null hypothesis (H_0) is rejected, which shows that the indent variable is significant in the model.

ii. F-test: this is used to test for simultaneous significant of all the estimated parameters. It aims at finding out whether the explanatory variables have any significant influence on the dependent variable. If the probability at which the calculated F-ratio (FCAL) is less than the critical or chosen level of significant, the null hypothesis (H_0) is rejected which shows that the regression is significant.

iii. R-squared (Coefficient of Multiple Determination): it measures the explanatory power of the model. It explains the percentage variation in the dependent variable explained by the explanatory variable(s). It also tells us the fitness of the model. The value of R^2 lies between 0 and 1; thus, the higher the percentage variation of the dependent variable that is explained by the independent variable. That is, the closer the value 1, the better the fit, and the closer to zero, the worse the fit.

3.5.3 ECONOMETRIC CRITERIA OR SECOND ORDER TEST

These criteria will be used to determine whether or not our model has violated the major econometric assumptions such as the absence of autocorrelation, multicollinearity and heteroscedasticity. The tests employed in this regard include Durbin- Watson statistic, Unit Root test, and co-integration test.

i. Durbin-Watson Test: this determines whether there is existence of auto or serial correlation in the model.

ii. Unit Root Test: this determines the stationary nature of the series collected for the research work.

iii. Engle-Granger Co-integration Test: this determines whether or not the non- stationary series are co-integrated and have a long-run relationship.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF RESULT

4.0 INTRODUCTION

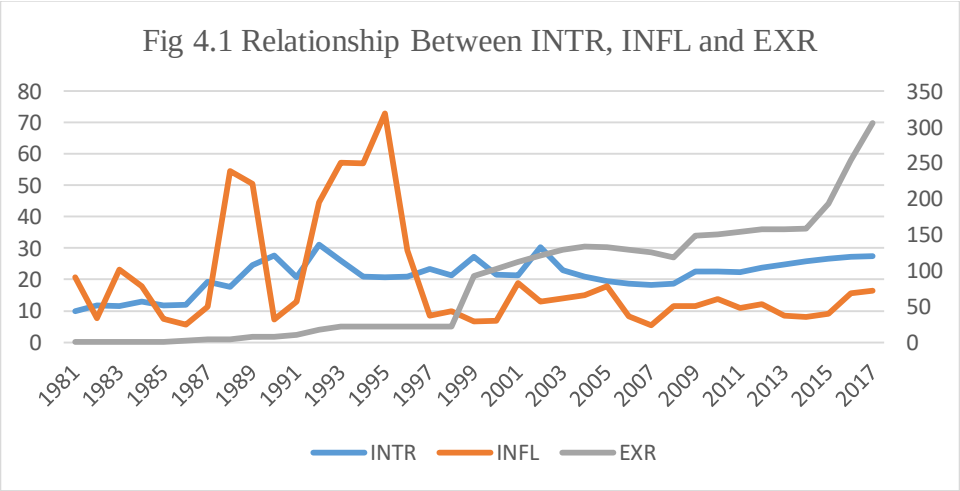
This chapter deals with the analysis of data used and the presentation of the results from its estimations. The researcher conducted some pre-test like the Unit root test of Augmented Dickey Fuller to check for stationarity of the variables data and proceeded to testing the variables of I (1) series to ascertain for long-run relationship among them using Engle Granger Single Co-integration test. The Co-integration regression of Fully Modified Ordinary Least Square (FMOLS) technique was adopted to estimate the model due to the significance of at least a variable. Economic implication is discussed afterwards.

4.1 DESCRIPTIVE ANALYSIS

Graphs

This section reveals the structure and growth rate relationship that exist among the different variables of monetary policies used in this research work while breaking them down into classes and from 1981 to 2017. It shows the growth pattern of interest rate, inflation rate, and exchange rate, banking sector credit to the economy and broad money supply over a 37 years period.

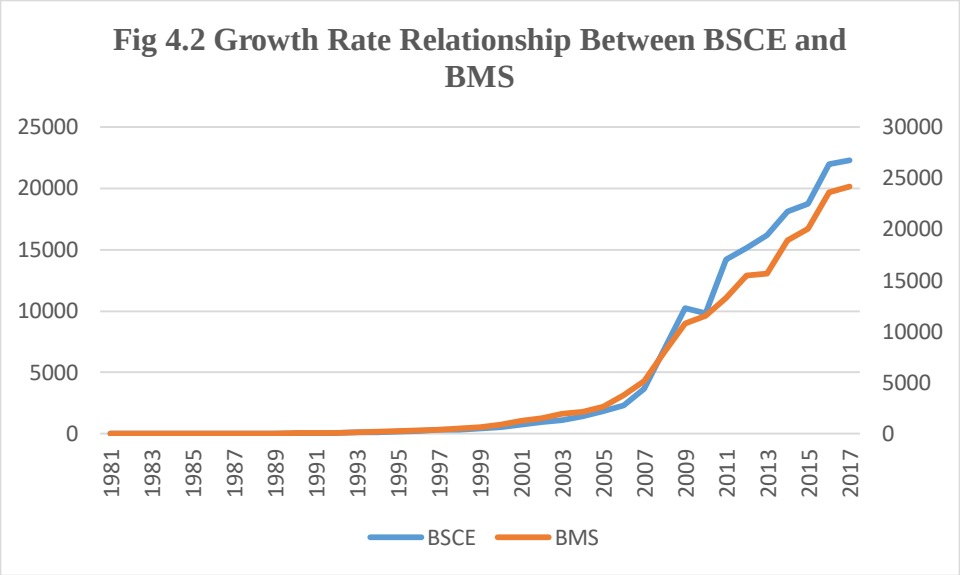
Graph 1: Relationship between Interest Rate, Inflation and Exchange Rate



The graph above shows the relationship between INTR, INFL and EXR from 1981 to 2017. The graph above empirically describes what the theory states on the relationship between interest rate and the level of inflation. As the level of inflation rises, interest rate also rises but not in the same proportion as the level of inflation. From the graph, it can be seen that the movement in interest rate from 1981 to 2017 has been a mild one with the exception of 1993 and 2002 when it rose sharply. In 1993 when the level of interest rate was highest, inflation grew to its highest point two years after reflecting how inflation slowly responds to an increase in interest rate. However, from 1997, this trend changed as inflation was below the level of interest rate when interest rate was moving gently. Therefore, the relationship between interest rate and inflation rate in Nigeria is one in which whenever the level of inflation falls, interest rate rises above it and vice-versa.

As at 1981, the naira rate to a dollar was one of the lowest in the world. However, the World Bank advised Nigeria that the currency was over-valued and the country needed to take a loan from IMF but must dance to its tune. This led to the devaluation of the naira and by 1987, sharp increase in the exchange rate began to be noticed. Between 1990 and 1993, exchange rate already increased by more than 100% from 8 naira in 1990 to 22 naira in 1993. This rate continued stabilizing at 21 naira until 1999 when it rose sharply to 92 naira. Ever since then, it has been moving by 3 figures and by 2017, the exchange rate was the highest at 305 naira.

Graph 2: Pattern of Growth Relationship between Banking Sector Credit to the Economy and Broad Money Supply.



The graph above shows that broad money supply to the economy from 1981 to 2018 has increased exponentially overtime from 14.47 billion naira in 1981 to 24.14 trillion naira as at December 2017. However, change in broad money supply was not visible from 1981 until 2001 when the broad money supply surpass the 1 trillion naira mark. During this period, broad money supply was 1.27 trillion naira. Going further, the broad money supply has increased by 250% from 2001 which it recorded its first trillion to 24.14 trillion naira as at December 2018.

Going further, it can be seen that there is a close relationship between banking sector to the economy and the broad money supply as whenever the broad money supply increases, the banking sector credit to the private sector also increases and this relationship is proportional. Two years after the broad money supply recorded its first trillion, the banking credit to the economy also reached the 1 trillion benchmark and by December 2017, it has grown to 22.29 trillion naira.

4.2 PRESENTATION OF ESTIMATED MODEL(S)

4.2.1 Augmented Dickey-Fuller Test (ADF)

The test for unit root using ADF test was conducted in order to ascertain whether time series data were stationary or non-stationary and also to determine the number of times (the level) at which the variables have to be differenced before becoming stationary.

Table 4.2: Unit Root Test Result

Variables	Level ADF t-statistics	First Difference ADF t-statistics	Probability values	Level of integration
ACGSF	-2.604063	-6.895372	0.0000***	I(1)
INTR	-3.148177	-8.685813	0.0000***	I(1)
INFL	-3.892563		0.0230**	I(0)
BSCE	0.240430	-6.669043	0.0000***	I(1)
EXR	-1.223377	-3.821345	0.0271**	I(1)
BMS	-3.848566		0.0286**	I(0)

(*), (**) and (***) denote significant at 10%, 5% and 1% respectively.

Source: Author's Computation, 2019 (E-views 9).

The Mackinnon values give the critical values for the determination of the order of integration. The values of the Mackinnon and the ADF test statistics are compared and decisions either to reject or accept the null hypothesis are taken. By taking the values of each variable in absolute terms, it will be observed that two of the variables (BMS and INFL) were stationary at first level and hence, they are regarded as I (0) series. However, four of the variables (ACGSF, INTR, EXR and BSCE) were stationary at first difference and hence, regarded as I (1) series.

The implication of this result is that using the Fully Modified Ordinary Least Square (FMOLS) method to estimate the parameters will lead to a spurious regression results since there are non-stationary (at level) series in the model. This necessitated a test of co-integration to check if at all there is a long run relationship among the variables used in the model before embarking on using FMOLS to check the significant relationships among the variables. A more accurate technique which will control for the non-stationary (at level) nature of those series was employed using Engle-Granger Single Equation Co-integration test for variables that are I (1) series.

4.2.2 Engle-Granger Single Equation Co integration Test

$H_{0:}$ series of variables are not co-integrated.

$H_{1:}$ series of variables are co-integrated.

Decision Rule: Reject the null hypothesis if the probability value is less than level of significance (1%, 5%, and 10%).

Table 4.3 Engle-Granger Single Equation Co integration Test Result

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*

ACGSF	-4.436547	0.2813	-27.30658	0.2108
INTR	-4.781589	0.1772	-28.17148	0.1779
INFL	-4.782842	0.1794	-48.16097	0.0001
BSCE	-5.711638	0.0382	-34.72797	0.0347
EXR	-3.517662	0.6728	-19.81121	0.6140
BMS	-5.748720	0.0357	-34.99779	0.0320

Conclusions From Co integration Test

Based on the table above, BSCE and BMS were both significant at 5%, thus the null hypothesis is rejected. This shows that there exists a long-run relationship among these variables and that they are co-integrated.

Thus the study proceeded to estimation of the parameters using a co-integration regression of Fully Modified Ordinary Least Square (FMOLS) method because the pre-test result has shown that the variables are non-stationary and are co-integrated.

4.2.3 Model Estimation (Co integration Regression)

The empirical results presented in the table below shows the estimated parameters, variable coefficient, standard error, t-statistics, and probability value. The result obtained from the estimation techniques is presented in the table below:

Table 4:4 Fully Modified Least Squares (FMOLS) Regression result

Dependent Variable: AGCSF

Method: Fully Modified Least Squares (FMOLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	-192426.7	54445.64	-3.534290	0.0014
INFL	-12468.79	13915.56	-0.896033	0.3776
BSCE	733.5536	484.3200	1.514605	0.1407
EXR	-18316.42	9576.438	-1.912655	0.0657
BMS	-425.8413	500.9590	-0.850052	0.4023
C	1595133.	993970.7	1.604809	0.1194
@TREND	338095.9	62369.86	5.420822	0.0000

R-squared	0.852913	Mean dependent var	3150958.
Adjusted R-squared	0.822482	S.D. dependent var	4098135.
S.E. of regression	1726664.	Sum squared resid	8.65E+13
Long-run variance	1.64E+12		

(**) and (***) denote significant at 5% and 10% respectively.

Source: Author's Computation, 2019 (E-views 9)

4.3 INTERPRETATION OF RESULTS

Interest Rate: An increase in the Interest Rate (INTR) by 1% reduces Agricultural Guarantee Credit Scheme Fund by 192,426 thousand naira, this shows there is a negative relationship between interest rate and the Agricultural Guarantee Credit Scheme Fund. This relationship is statistically significant. This is because its probability value (0.0014) is less than the chosen level of significance 0.10 or 10%. This implies that there is a negative relationship between interest rate and the Agricultural Guarantee Credit Scheme Fund, and interest rate should be taken as a key control variable to influence the Agricultural Guarantee Credit Scheme Fund.

Inflation Rate: The coefficient of inflation rate is -12468.79. This implies that there is also a negative relationship between inflation rate and the Agricultural Guarantee Credit Scheme Fund. An increase in the rate of inflation by 1 naira will result in a decrease in the the Agricultural Guarantee Credit Scheme Fund by 12,468.79 thousand naira.

Banking Sector Credit to the Economy: The coefficient of the banking sector credit to the economy is 733.5536. This implies that there is a positive relationship between banking sector credit to the economy and Agricultural Guarantee Credit Scheme Fund. An increase in the banking sector credit to the economy by a billion naira will result in an increase in the Agricultural Guarantee Credit Scheme Fund by about 734 thousand naira.

Exchange Rate: The regression result shows that a naira increase in the exchange rate (EXR) reduces the Agricultural Guarantee Credit Scheme Fund by -18316.42 thousand naira. This shows that EXR in Nigeria makes the Agricultural Guarantee Credit Scheme Fund increase. This relationship however is statistically significant. This is because its probability value (0.0657) is less than the chosen level of significance. This implies that there is a negative relationship between exchange rate and the Agricultural Guarantee Credit Scheme Fund, and this exchange rate should be taken as a key control variable to influence the Agricultural Guarantee Credit Scheme Fund in the Nigerian economy.

Broad Money Supply: An increase in the broad money supply (BMS) by billion naira reduces Agricultural Guarantee Credit Scheme Fund by 425 thousand naira, this shows there is a negative relationship between broad money supply and the Agricultural Guarantee Credit Scheme Fund.

4.3.1 Statistical Criteria (First order test)

Coefficient of Multiple Determinants (R^2)

The R-Squared (R^2) which measures the overall goodness of fit of the entire regression shows a value of 0.852913 (approximately 85%). This indicates that the independent variables (INTR, INFL, BSCE, EXR and BMS) account for about 85% of the variations in the dependent variable (ACGSF).

Table 4.5: T – Statistics Result

Variables	Probability value	Remarks
INTR	0.0014	Significant
INFL	0.3776	Not Significant
BSCE	0.1407	Not Significant
EXR	0.0657	Significant
BMS	0.4023	Not Significant

Source: Author's computation (2019)

The result of the t-statistics shows that Inflation Rate (INFL), Banking Sector Credit to the Economy (BSCE) and Broad Money Supply (BMS) are not significant in the model while Interest Rate (INTR) and Exchange Rate (EXR) were significant in the model at the chosen level of significance (10%).

4.3.2 Economic Criteria

The table below shows each variable and their conformity to a-priori expectations;

Table 4.6: Variables and conformity to prior expectation

Variables	Parameters	Expected	Observed	Remarks

INTR	β_1	Negative	Negative	Conform
INFL	β_2	Negative	Negative	Conform
BSCE	β_3	Positive	Positive	Conform
EXR	β_4	Negative	Negative	Conform
BMS	β_5	Positive	Negative	Not Conform

Source: Author's computation (2019)

From the table above, it can be seen that almost all the variables conform to the a-priori expectation except from BMS. This shows that the monetary variable as an independent variable affects the level of agricultural funding (measured by the Agricultural Credit Guarantee Scheme Fund) both theoretically and empirically. Therefore, based on the coefficient of determination and conformity of the variables, it can be concluded that the model is a fit one.

4.4 DISCUSSION AND ECONOMIC IMPLICATION OF THE RESULTS

The result of the fully modified Ordinary Least Square indicates that the model is a fit one as approximately 85% of the variations in the agricultural credit guarantee scheme fund is influenced by all the monetary variables (INTR, INFL, BSCE, EXR and BMS) included in the model.

However, of all the monetary variables included in the model, only one of them (BMS) do not conform to our a-priori expectation due to several reasons one of which is as a result of the empirical framework which served as the foundation for which the model is based. In addition, some of the variables (INFL, BSCE and BMS) are also not statistically significant at the 10% chosen level of significant. Therefore appropriate policy measures cannot be targeted towards improving them. But because our model is a fit one, therefore we will not be concerned with the sign and significance of the variables that are not conformed to our a-priori expectations because the result is based on the data gotten. Also, only BMS will not be taken into consideration because it is the only variable that do not both conform to expectation and is not significant.

In conclusion and based on this result, in order to boost the agricultural sector through the provision of fund, there is the need to take into account the interest rate, and exchange rate as key variables to influence the level of investment towards the agricultural sector because a percentage change in

them changes the amount allocated to the ACGSF by more than their percentage increase and they are significant. One major policy implication of this is that an increased interest rates induce agricultural investors to be wary of pouring funds into the sector because farmers will be unwilling to use funds at high interest rates. It therefore necessitates the need for the Central Bank of Nigeria to enact policies which will effectively reduce interest rates while boosting foreign reserves so as to maintain stable foreign exchange and low level of interest rates.

Therefore, policy measures should be targeted towards influencing the monetary policy variables that boost the level of investment and fund towards the agricultural sector in the economy.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The main objective of this study was to look at the impact of monetary policy on agricultural financing in Nigeria from 1981 to 2018, that is, to evaluate monetary policy in Nigeria and its significant effect on Agricultural credit guarantee scheme fund. This was done using the data gotten from the 2018 CBN statistical bulletin. The other objectives were to identify and examine the components of Nigeria's monetary policies over the years as well as their growth pattern relationships.

This was done with the use of both descriptive and inferential analysis. The descriptive analysis used were the measures of central tendency, measures of dispersion, and graphs. These were used to determine the relationship and individual growth pattern among the variables used for this study. The inferential analysis used was the fully modified ordinary least squares while testing for stationary and long run relationship using augmented dickey fuller test for unit root and Engel granger co integration test respectively.

The study found out that there exist mixed relationship between monetary policy and agricultural financing as some of the variables are favourable while some are not favourable towards improving agricultural finance. This could mean that the changes in some of the monetary policy variables affect agricultural financing in a positive way while some affect it in a negative way and this relationship is significant.

The study also revealed that interest and exchange rate have significant impact on the level of agricultural financing in Nigeria. This means that both interest rate and exchange rate are key variables that should be taken into consideration when trying to make policies to improve the level of funds granted towards the agricultural, thereby improving the diversification strategy of the country.

The findings of this study also reveal that there is a positive relationship between banking sector to the economy and agricultural financing. However, neither a too much credit nor too low of credit to the economy is good for the economy due to the fact that investors are wary of excess money in circulation which is not backed up by supply as it tends to lead to inflation in the economy.

5.2 CONCLUSION

The agricultural sector will continue to play an important role in Nigeria, over the next few decades especially in the area of, diversification, employment creation, reduction of poverty, as well as the infrastructural and economic development of the Nigerian economy. A major finding of this study is that government spending on agriculture plays a significant role in achieving food security and improved agricultural productivity in Nigeria, even though the inconsistencies in monetary and fiscal policies are always wading off the roles of the government spending.

According to the study, money supply and banking sector credit move in the same direction with funding towards the agricultural sector as an increase in broad money supply also increases the liquidity of banks towards providing fund to the economy. However, the relationship between broad money supply and agricultural financing is a negative one even though it is not significant. This could only mean one thing: that increase in the money supply does not necessarily translate to improve funding to the agricultural sector if the banking sector do not provide enough funding to the sector.

Lastly, the weakness of the productivity of the agricultural sector is as a result of negative attitude of the people towards the sector as it is seen as a brown collar job, too much of importation and preference for imported finished goods over locally made food. This weakness is expected to fade away through the orientation of re-orientation of the Nigerian citizens on the importance of the agricultural sector towards economic growth and development. Existing policies to boost the level of agricultural funding and productivity should be continued, while coming up with structural plans to enable the ease of doing business in Nigeria. Of paramount importance, the policy measures will speed of the process of promoting both domestic and foreign investment, while raising the living standard of the people of the economy as the need to increase the income of the people disappears.

5.3 RECOMMENDATIONS

Based on the findings of the study, it is consequently recommended that:

1. Commercial banks and other credit institutions should be encouraged to improve upon their loan procedures so that farmers, manufacturer and services providers can have access to their credit facilities, thereby improving the forward and backward integration in the food

production chain. The insistence of banks on collateral, high lending rates and others are repellent to bank customers such as producers in these sectors. This is because of the importance of the credit to the sectors as shown by the strength of the banking sector credit to the economy as well as the lending rate. The impact of the lending rate cut across all the three sectors.

2. The Central Bank of Nigeria should introduce more monetary instruments that are flexible enough to meet the ever-growing financial sector in order to attract both domestic and foreign investors; while more stringent punishment should be made for non-compliance to the monetary policies by financial institutions.
3. The Central Bank of Nigeria should also make the monetary policies the preferred efficient provider of favourable environment in terms of the implementation of the appropriate interest rate, exchange rate, etc. in order to attract both domestic and foreign investment to the agricultural sector.
4. To encourage the growth of output in the agricultural sector and make the efforts of increased funding to the sector be visible, low and stable inflation rate should be maintained in the economy. This is because of the effect rise in prices have on agricultural production and funding which encourage growth in output of the sector. While money supply should be emphasized to stimulate output growth in both the agricultural, manufacturing and services sector. In general, low and stable growth in monetary aggregates should be encouraged. This will ensure mild increase in price and encourage producers in these sectors.
5. Furthermore, the Government should increase the budgetary allocation to agricultural sector in a consistent manner due of the primary and vital importance it plays in the national economy, hoping that with proper monitoring of fund, it would contribute more significantly to the economy of the country.
6. Lastly and in order to ensure low rates of inflation, an expansionary fiscal policy that is not inflationary should be rigorously pursued to improve food production in the country. This may be in terms of research funding and establishment of more fertilizer plants to make available agricultural input locally. This will also aid the sector in avoiding the negative impact of depreciation of Naira due to increasing rate of exchange.

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APPENDIX

Year	ACGSF	INTR	INFL	BSCE	EXR	BMS
1981	35642.4	10	20.81	8.57005	0.61	14.47117
1982	31763.9	11.75	7.7	10.66834	0.6729	15.78674
1983	36307.5	11.5	23.21	11.66804	0.7241	17.68793
1984	24654.9	13	17.82	12.46293	0.7649	20.10594
1985	44243.6	11.75	7.44	13.07034	0.8938	22.29924
1986	68417.4	12	5.72	15.24745	2.0206	23.8064
1987	102152.5	19.2	11.29	21.08299	4.0179	27.57358
1988	118611	17.6	54.51	27.32642	4.5367	38.3568
1989	129300.3	24.6	50.47	30.40322	7.3916	45.90288
1990	98494.5	27.7	7.36	33.5477	8.0378	52.85703
1991	79107.4	20.8	13.01	41.35246	9.9095	75.40118
1992	91953.1	31.2	44.59	58.12295	17.2984	111.1123
1993	80845.8	26	57.17	127.1177	22.0511	165.3387
1994	104463	21	57.03	143.4242	21.8861	230.2926
1995	164133.1	20.79	72.84	180.0048	21.8861	289.0911
1996	225519.5	20.8575	29.27	238.5966	21.8861	345.854
1997	242028.3	23.315	8.53	316.2071	21.8861	413.2801
1998	219144.2	21.3375	10	351.9562	21.8861	488.1458
1999	241839	27.19	6.62	431.1684	92.6934	628.9522
2000	361449	21.55	6.93	530.3733	102.1052	878.4573
2001	728545.4	21.3375	18.87	764.9615	111.9433	1269.322
2002	1050982	30.19	12.88	930.4939	120.9702	1505.964
2003	1151015	22.88	14.03	1096.536	129.3565	1952.921
2004	2083745	20.82	15	1421.664	133.5004	2131.819
2005	9366393	19.49	17.86	1838.39	132.147	2637.913
2006	4195100	18.7	8.24	2290.618	128.6516	3797.909
2007	4087448	18.3625	5.38	3680.09	125.8331	5127.401
2008	6497959	18.69743	11.58	6941.383	118.5669	8008.204
2009	8328566	22.6225	11.54	10219.34	148.8802	10780.63
2010	7840497	22.50886	13.72	9830.344	150.298	11525.53
2011	10028989	22.41598	10.84	14183.59	153.8616	13303.49
2012	9332484	23.7875	12.22	15151.76	157.4994	15483.85
2013	9256677	24.6918	8.48	16191.47	157.3112	15688.96
2014	12456251	25.74362	8.06	18126.05	158.5526	18913.03
2015	10857381	26.71	9.02	18720.51	193.2792	20029.83
2016	7858643	27.29	15.7	21982.15	253.4923	23591.73
2017	5849389	27.5	16.5	22290.66	305.2899	24140.63

	ACGSF	INTR	INFL	BSCE	BMS	EXR
Mean	3066760.	21.26723	19.52000	4547.632	4967.403	82.77275
Median	242028.3	21.33750	12.88000	431.1684	628.9522	92.69340
Maximum	12456251	31.20000	72.84000	22290.66	24140.63	305.2899
Minimum	24654.90	10.00000	5.380000	8.570050	14.47117	0.610000
Std. Dev.	4073143.	5.384695	17.45077	7195.179	7496.524	80.36784
Skewness	0.942133	-0.446593	1.699904	1.384191	1.388606	0.711107
Kurtosis	2.278927	2.648606	4.677819	3.362866	3.517647	2.858970
Jarque-Bera	6.275205	1.420272	22.15956	12.01823	12.30383	3.148977
Probability	0.043387	0.491577	0.000015	0.002456	0.002129	0.207113
Sum	1.13E+08	786.8877	722.2400	168262.4	183793.9	3062.592
Sum Sq. Dev.	5.97E+14	1043.818	10963.06	1.86E+09	2.02E+09	232523.7
Observations	37	37	37	37	37	37

Null Hypothesis: D(ACGSF) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.895372	0.0000
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(ACGSF,2)
Method: Least Squares
Date: 05/24/19 Time: 08:01
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ACGSF(-1))	-1.217302	0.176539	-6.895372	0.0000
C	215224.1	682773.4	0.315220	0.7546
@TREND("1981")	-22.95873	31775.24	-0.000723	0.9994

R-squared	0.598414	Mean dependent var	-57296.46
Adjusted R-squared	0.573314	S.D. dependent var	2902304.
S.E. of regression	1895819.	Akaike info criterion	31.83002
Sum squared resid	1.15E+14	Schwarz criterion	31.96333
Log likelihood	-554.0253	Hannan-Quinn criter.	31.87604
F-statistic	23.84198	Durbin-Watson stat	2.047394
Prob(F-statistic)	0.000000		

Null Hypothesis: D(BSCE) has a unit root

Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.669043	0.0000
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BSCE,2)
Method: Least Squares
Date: 05/24/19 Time: 08:11
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(BSCE(-1))	-1.196652	0.179434	-6.669043	0.0000
C	-742.4352	367.3099	-2.021277	0.0517
@TREND("1981")	79.07725	20.36771	3.882481	0.0005

R-squared	0.582033	Mean dependent var	8.754599
Adjusted R-squared	0.555911	S.D. dependent var	1437.722
S.E. of regression	958.0986	Akaike info criterion	16.64959
Sum squared resid	29374493	Schwarz criterion	16.78291
Log likelihood	-288.3679	Hannan-Quinn criter.	16.69562
F-statistic	22.28058	Durbin-Watson stat	1.879902
Prob(F-statistic)	0.000001		

Null Hypothesis: D(INTR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.685813	0.0000
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INTR,2)
Method: Least Squares
Date: 05/24/19 Time: 08:12
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INTR(-1))	-1.403635	0.161601	-8.685813	0.0000
C	1.213410	1.376612	0.881447	0.3846
@TREND("1981")	-0.029685	0.063691	-0.466075	0.6443

R-squared	0.702186	Mean dependent var	-0.044000
Adjusted R-squared	0.683572	S.D. dependent var	6.751862
S.E. of regression	3.798051	Akaike info criterion	5.588670
Sum squared resid	461.6062	Schwarz criterion	5.721985
Log likelihood	-94.80172	Hannan-Quinn criter.	5.634690
F-statistic	37.72474	Durbin-Watson stat	2.210067
Prob(F-statistic)	0.000000		

Null Hypothesis: INFL has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.892653	0.0230
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL)
Method: Least Squares
Date: 05/24/19 Time: 08:13
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFL(-1)	-0.592526	0.152217	-3.892653	0.0005
D(INFL(-1))	0.345497	0.163899	2.107987	0.0432
C	19.44175	6.646097	2.925289	0.0064
@TREND("1981")	-0.397078	0.239241	-1.659743	0.1071

R-squared	0.331667	Mean dependent var	0.251429
Adjusted R-squared	0.266989	S.D. dependent var	15.65705
S.E. of regression	13.40494	Akaike info criterion	8.136335
Sum squared resid	5570.468	Schwarz criterion	8.314089
Log likelihood	-138.3859	Hannan-Quinn criter.	8.197696
F-statistic	5.128014	Durbin-Watson stat	1.821025
Prob(F-statistic)	0.005372		

Null Hypothesis: D(EXR) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.821345	0.0271
Test critical values:	1% level	-4.243644	
	5% level	-3.544284	
	10% level	-3.204699	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXR,2)
Method: Least Squares
Date: 05/24/19 Time: 08:17
Sample (adjusted): 1983 2017
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXR(-1))	-0.685800	0.179466	-3.821345	0.0006
C	-3.543640	5.997836	-0.590820	0.5588
@TREND("1981")	0.525096	0.292612	1.794514	0.0822

R-squared	0.319209	Mean dependent var	1.478136
Adjusted R-squared	0.276659	S.D. dependent var	19.53006
S.E. of regression	16.61021	Akaike info criterion	8.539728
Sum squared resid	8828.769	Schwarz criterion	8.673044
Log likelihood	-146.4452	Hannan-Quinn criter.	8.585749
F-statistic	7.502058	Durbin-Watson stat	1.974296
Prob(F-statistic)	0.002129		

Null Hypothesis: BMS has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 8 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.848566	0.0286
Test critical values:	1% level	-4.323979	
	5% level	-3.580623	
	10% level	-3.225334	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(BMS)
Method: Least Squares
Date: 05/24/19 Time: 08:18
Sample (adjusted): 1990 2017
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BMS(-1)	-2.761375	0.717507	-3.848566	0.0013

D(BMS(-1))	3.190455	0.943693	3.380819	0.0036
D(BMS(-2))	2.541547	0.502180	5.061023	0.0001
D(BMS(-3))	3.469146	1.145996	3.027190	0.0076
D(BMS(-4))	3.314973	0.840146	3.945711	0.0010
D(BMS(-5))	2.816240	1.303277	2.160892	0.0453
D(BMS(-6))	3.456709	0.951260	3.633820	0.0021
D(BMS(-7))	1.552276	1.212865	1.279843	0.2178
D(BMS(-8))	8.910020	2.155456	4.133706	0.0007
C	-856.9395	543.0546	-1.577999	0.1330
@TREND("1981")	66.25377	32.52633	2.036928	0.0575

R-squared	0.822928	Mean dependent var	860.5261
Adjusted R-squared	0.718769	S.D. dependent var	1093.944
S.E. of regression	580.1320	Akaike info criterion	15.85111
Sum squared resid	5721404.	Schwarz criterion	16.37448
Log likelihood	-210.9156	Hannan-Quinn criter.	16.01111
F-statistic	7.900641	Durbin-Watson stat	2.209997
Prob(F-statistic)	0.000122		

Date: 05/24/19 Time: 08:39
Series: ACGSF INTR INFL BSCE EXR BMS
Sample: 1981 2017
Included observations: 37
Null hypothesis: Series are not cointegrated
Cointegrating equation deterministics: C @TREND
Automatic lags specification based on Schwarz criterion (maxlag=8)

Dependent	tau-statistic	Prob.*	z-statistic	Prob.*
ACGSF	-4.436547	0.2813	-27.30658	0.2108
INTR	-4.781589	0.1772	-28.17148	0.1779
INFL	-4.782842	0.1794	-48.16097	0.0001
BSCE	-5.711638	0.0382	-34.72797	0.0347
EXR	-3.517662	0.6728	-19.81121	0.6140
BMS	-5.748720	0.0357	-34.99779	0.0320

*MacKinnon (1996) p-values.

Intermediate Results:

	ACGSF	INTR	INFL	BSCE	EXR	BMS
Rho - 1	-0.758516	-0.782541	-0.817298	-0.964666	-0.550312	-0.972161
Rho S.E.	0.170970	0.163657	0.170881	0.168895	0.156442	0.169109
Residual variance	2.30E+12	12.42905	171.0812	191488.2	367.7552	184281.0
Long-run residual variance	2.30E+12	12.42905	484.9491	191488.2	367.7552	184281.0
Number of lags	0	0	1	0	0	0
Number of observations	36	36	35	36	36	36
Number of stochastic trends**	6	6	6	6	6	6

**Number of stochastic trends in asymptotic distribution

Dependent Variable: ACGSF
Method: Fully Modified Least Squares (FMOLS)
Date: 05/24/19 Time: 08:45
Sample (adjusted): 1982 2017

Included observations: 36 after adjustments
Cointegrating equation deterministics: C @TREND
Regressor equations estimated using differences
Long-run covariance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INTR	-192426.7	54445.64	-3.534290	0.0014
INFL	-12468.79	13915.56	-0.896033	0.3776
BSCE	733.5536	484.3200	1.514605	0.1407
EXR	-18316.42	9576.438	-1.912655	0.0657
BMS	-425.8413	500.9590	-0.850052	0.4023
C	1595133.	993970.7	1.604809	0.1194
@TREND	338095.9	62369.86	5.420822	0.0000

R-squared	0.852913	Mean dependent var	3150958.
Adjusted R-squared	0.822482	S.D. dependent var	4098135.
S.E. of regression	1726664.	Sum squared resid	8.65E+13
Long-run variance	1.64E+12		