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BANK CREDIT ON AGRICULTURAL AND MANUFACTURING SECTORS' OUTPUTS IN NIGERIA

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Abstract: This study while assessing the impact of bank credit on agricultural and manufacturing sectors' outputs in Nigeria focused on the following specific objectives, to: examine the effect of bank credit on the agricultural sector outputs in Nigeria, and investigate the influence of bank credit on manufacturing sector outputs in Nigeria. *Ex-post facto* research design was adopted to ascertain the cause and effect of the key variables. Two hypotheses were tested using Ordinary Least Square (OLS). The findings showed that the total credit to private sector had a positive and significant effect on agricultural sector outputs; and that total credit to private sector had a positive and significant influence o manufacturing sector outputs. The study recommended that government should ensure that credits were sufficiently allocated to particularly the agricultural and manufacturing sectors in Nigeria and made obtainable at very reasonable lending rates. This will enable the two critical sectors attain production possibilities, thereby accelerating economic growth and development in the long run

Keywords: Bank credits, agricultural and manufacturing sectors' outputs, ordinary least square, Nigeria

1. INTRODUCTION

Finance plays pivotal role, especially in determining the health condition and progress of every economy, organizations or any other economic agents. To provide the needed finance, there are varieties of institutions rendering financial services. Financial institutions are divided into money and capital market channels. This channel involves channeling funds from the surplus spending to the deficient spending units of the economy (Yakubu & Affoi, 2014). Given the history of economics, banking emerged with development of exchanger stores in the 15th and 16th centuries.

Existence of a smoothly operating and non-fragile financial structure in developing countries is one of the most crucial indicators for economic growth. So, banks that are present in this financial structure appear as institutions which facilitate economic life (Yakubu & Affoi, 2014). At the same time the primary functions of banks are to collect deposits from clients, preserving them and lending some part of their collected deposits in exchange for a certain price that can be counted (Suna, 2015).

Banks assume an important intermediary role in providing increase of investments. When banks contract credits that they let use, they can cause economic stagnation and for some sectors to go through a difficult period. Banks can also ensure effective distribution of resources in economy by transferring resources that they have collected to certain regions and sectors in need (Suna, 2015).

A sufficient increase in savings cannot be witnessed in developing countries especially Nigeria towards their Agricultural and Manufacturing sector outputs. Therefore, an advanced financial system is really important at this point. A well-functioning financial system accelerates information flow between borrower and lender, thereby making it possible to diversify risks for both saving and investing entrepreneurs (Central Bank of Nigeria, 2009). So, this ensures more effective operation of credit system. The important of bank credit to the Nigerian economy has led to sustained increase of credit to Agricultural and Manufacturing sector outputs of the Nigerian economy. Adekanye (2016) opines that banks are rendering a great social service, because through their actions, production is increased, capital investment are expanded and a higher standard of living is realized.

The contribution of bank credit to the growth of Nigeria's informal economy cannot be overemphasized considering the contribution of this sector to the overall growth of the Nigeria's economy. Over 40% of the population of Nigeria is employed in the informal sector which has enormous growth potential (Central Bank of Nigeria, 2009). Consequently, distribution of bank credit is often meant to stimulate the productive sectors (agriculture and manufacturing) and consequently lead to increased economic growth in the country.

Unfortunately, IMF (2002) observes that the Nigeria's financial system is vulnerable to a number of risks, such as fiscal indiscipline/dominance, the economy's high dependence on volatile oil prices, and financial abuse. The report further notes that there are serious concerns about the soundness and stability of the Nigerian banking system. The Central Bank of Nigeria (2009) also reveals that the flow of credit to the priority sectors do not meet the prescribed targets, thereby failing to impact positively on investment, output and domestic pricing policies. Certainly, these critical observations have evoked some questions bothering the strength, effectiveness, and productivity of bank credit in the Nigerian economy. Many studies has been carried out in this area mostly in the developed economies. However, this study is focused on the impact of bank credit on Nigeria's economy with s disaggregated outlook on the agriculture, and manufacturing sectors.

The broad objective of the study was to assess the impact of bank credit to the agricultural and manufacturing sectors outputs in Nigeria. Other specific objectives included, to: examine the effect of total bank credit to the private sector on the agricultural sector outputs in Nigeria, and investigate the influence of total bank credit to the private sector on manufacturing sector outputs in Nigeria.

Two hypotheses were tested to determine whether total bank credit to private sector impacted positively and significantly on the agricultural and manufacturing sectors outputs in Nigeria spanning the period, 2000-2018. The base year (2000) was chosen to capture the post-year of restoration of democracy to Nigeria.

2. REVIEW OF RELATED LITERATURE

2.1 Credit/Bank Credit

Credit is the money from the lender to the borrower (Nwanyanwu, 2010). According to Spencer (2017) credit implies a promise by one party to pay another for money borrowed or goods and services received. Ajayi (2000) notes that credit implies a promise by one party to pay another for money borrowed or goods and services received (CBN 2003). The factors that determine lending in Nigeria include contact position of the bank, risk and profitability of various types of bank credit, economic condition, monetary policies, ability and exposure of bank personnel, credit need of the area served and the nature of the source of bank (Nzotta 2002). The scholar maintains that bank credit is the act of a bank giving out advances to a debtor after considering the risk and profitability that must follow such lending decision. Anuolam (2008) defines commercial bank credit as a process where a commercial bank provides loan or advance to a single borrower or group of individual or client. It is believed that bank credit contributes significantly to banks' profitability, with its disparities explained by

the difference in their lending rates, lending policies and unavoidable competition that may be between banks (Olajide, 2016).

2.2 Agricultural Sector Output

Conceptually, agriculture is the production of food, feed, fibre and other goods by the systematic growing and harvesting of plants and animals. The agricultural sector to the physiocrats is the only genuinely productive sector of the economy and the generator of surplus upon which all other sectors depends on (Abula and Ben, 2016).

2.3 Manufacturing Sector Output

In the modern world, manufacturing sector is regarded as a basis for determining a nation's economic efficiency (Amakom, 2012, Englama, 2010). Manufacturing is a subset of the industrial sector (processing, quarrying, craft and mining). Manufacturing, thus involves the conversion of raw materials into finished consumer goods or intermediate or producer goods. Manufacturing like other industrial activities creates avenue for employment, helps to boost agriculture and helps to diversify the economy while it helps the nation to increase its foreign exchange thus helping local labour to acquire skills (Kaldor, 2007).

Manufacturing sector refers to those industries and activities which are involved in the manufacturing and processing of items and indulge in either the creation of new commodities or in value addition (Adebayo, 2010). Indeed, Mbelede (2012) opened that manufacturing sector is involved in the process of adding value to raw materials by turning them into products.

The final products can either serve as finished goods for sale to consumers for final use or as intermediate goods used in the production process. Activities in the manufacturing sector cover a broad spectrum which includes; agro processing, metal/plastic, ICT/electrical, textile, clothing, footwear, cement and building etc (Imoughele & Ismaila, 2014; Aderibigbe, 2004).

Bank credits to the manufacturing are often referred to as business loans/advances. Business loan provides financial assistance for either small businesses that are in dare need of capital or large ones that need additional funding for expansions (Sanusi, 2009). The term 'loan' refers to the amount borrowed by one person or organization from another. The amount is in the nature of loan and refers to the sum paid to the borrower. Thus, from the view point of borrower, it is 'borrowing' and from the view point of bank, it is lending.

2.4 Theoretical Framework

2.4.1 Theory of Credit Creation

The theory of credit creation was propounded by Werner in (2014, 2016). The credit creation theory of banking is third theory of banking at odds with the other two theories by representing banks not as financial intermediaries neither in aggregate nor individually. Instead, each bank is said to create credit and money out of nothing whenever it executes bank loan contracts or purchases assets. So banks do not need to first gather deposits or reserves to lend. Since bank lending is said to create new credit and deposit money, an increase in total balances takes place without a commensurate decrease elsewhere.

Therefore according to this theory, over time bank balance sheets and measures of the money supply tend to show a rising trend in time periods when outstanding bank credit grows unlike with the financial intermediation theory, where only existing purchasing power can be re-allocated and the money supply does not rise. Supporters include Macleod (1856), Withers (1916), Schumpeter (1912), Wicksell (1898), Cassel (1918), Hahn (1920), Hawtrey (1919) and others. There were more supporters of this theory in the era of widespread bank note issuance by commercial banks, but our concern here is with writers that considered individual banks to be creators of credit and money even if they do not engage in note issuance.

Assumption of theory credit creation explained that credit creation is the expansion of deposits. The bank's credit creation process is based on the assumption that during any time interval, only a fraction of its customers genuinely need cash. Also, the bank assumes that all its customers would not turn up demanding cash against their deposits at one point in time.

This theory relate to the study because banks, agricultural and manufacturing sectors are instrument of financial movement in one way or the other. the business of banks, agricultural and manufacturing sectors is not to lend money, but to create Credit: and by means of the accepting transferred from one sector to another, just as easily as a Credit is transferred from one account to another in the same bank by means of a cheque. The relationship lies on any transaction involves money must attract a bank deposit that is a consequence of fulfilling a loan agreement, extending an overdraft facility, or purchasing assets.

3 Empirical Review

A number of relevant works were reviewed chronologically as presented hereunder. Empirically, Ogunjinmi (2021) assessed the role of public financing in agricultural output growth in Nigeria for the periods 1981 to 2019. The study utilized the autoregressive distributed lag (ARDL) to estimate the parameters and Granger causality to establish the causal links between government agriculture expenditure and agricultural output growth. The ARDL bounds test revealed that there was a long run relationship between government agriculture expenditure and agricultural output growth in Nigeria. The study found that government agriculture expenditure contributed negatively and significantly to the Nigerian agricultural output growth in the short run, while contributing positively and significantly in long run agricultural output growth.

In similar study of Sulaimon (2021), examined agricultural credit guarantee scheme fund (ACGSF) and agricultural performance in Nigeria. The purpose of this study was to evaluate the thresholds of ACGSF on agricultural performance in Nigeria between 1981 and 2019. Although insignificant, the results showed a U-shaped relationship between real agricultural GDP and ACGSF. In addition, ACGSF had a significant positive effect on real agricultural GDP at 1060389 (₦' thousand) and 5951809 (₦' thousand) thresholds.

In relations with previous studies, Mile, Ijirshar, Asom, Sokpo and Fefa (2021) confirmed an empirical analysis of government agricultural spending and agricultural output in Nigeria. This study used descriptive and analytical techniques such as descriptive statistics, Augmented Dickey-Fuller test, VEC Granger Causality/Block Exogeneity Wald test, Johansen co-integration test, vector error correction test, impulse response, and variance decomposition. The study found that all variables were not stationary at level but became stationary at first difference. The study also revealed that there is a positive effect of government agricultural spending on agricultural output in Nigeria, though, significant in the long-run only.

In view of Kalu., Obasikene., Oleka., Nwadike and Okoyeuzu (2017) studied the relative impact of bank credit on manufacturing sector in Nigeria. The study adopted the autoregressive distributed lag (ARDL) bound cointegration test approach and error correction representations. Our results imply the presence of co integrating vectors of long run equilibrium relationships among the variables of interest. This result is corroborated by the Dynamic ordinary least squares results as well as the long run estimates of the ARDL. Overwhelmingly, we found evidence of a certain return to the long-run equilibrium in the model. The error correction term is negative and statistically significant. The negative value shows that there exists an adjustment speed from short-run disequilibrium towards the long-run equilibrium.

In related study, Ebere and Iorember (2016) examined the effect of commercial bank credit on the manufacturing sector output in Nigeria from 1980 to 2015 using Cochrane-Orcutt method. The study discovered that inflation rate and interest rate have negative effect on manufacturing sector output while loans and advances and broad money supply have positive effect with manufacturing sector output in Nigeria.

Empirically, Yakubu and Affoi (2014) analyzed commercial banks' credit on economic growth in Nigeria from 1992 to 2012 employed the ordinary least square and found that the commercial bank credit has significant effect on the economic growth in Nigerian.

Imoughele and Mohameed (2013) examined commercial bank credit accessibility and sectoral output performance in a deregulated financial market economy. The work also revealed that commercial bank credit has direct and insignificant impact on sectoral output performance but cumulative supply and demand for credit

in the previous period has direct and significant impact on the growth of agriculture, manufacturing and the services sectors output.

Nuno (2012) assessed the link between bank lending and economic growth for European Union countries (EU-27) for the period 1990-2010, used dynamic panel data generalized method of moments, system estimator. The study showed that savings promotes growth of bank credit while bank credit showed a negative impact on economic growth.

Tawose (2012) investigated the effect of bank loans and advances on industrial performance in Nigeria between 1975 and 2009. Long run relationship and adjustment to shocks and dynamics were checked using Co-integration and error correction technique. The results showed that industrial performance co-integrated with all the identified explanatory variables. Industrial sector as dependent variable was proxied by real GDP, while Commercial Banks' loan and advances to industrial sector (BLM), aggregate saving (SAV), interest rate (INT), inflation rate (INF) were used as the independent variables.

Onuorah and Anyachukwu (2013) explored the necessity of bank credit and economic growth of Nigeria, by examining the relationship between bank credit and economic growth in Nigeria over the period 1980 to 2011. The study alluded that the problems associated with bank credit facility revolved around the constraint and regulations imposed by the monetary authorities with emphasis on credit to entrepreneurs.

Following up the recent local and international studies as shown above, it is manifestly gathered that there is inconclusive evidence on the empirical investigation of bank credit to the agricultural sector output and manufacturing sector output in Nigeria. Taking a stand in this argument, this study would ensure currency of data and adequacy of analytical technique in studying the investigation of bank credit to the agricultural sector output and manufacturing sector output within the Nigerian economic, financial environment and business environment.

3. METHODOLOGY

The study adopted an *ex-post facto* design since it dealt with data that had already been compiled. Also, since the study is focused on the cause-effect relationship among variables and investigates variables that cannot be observed experimentally, such as those studied in this work.

3.1 Model Specification

The model for this study was structured to empirically assess the impact of bank credit to the private sector on agricultural and manufacturing sector outputs in Nigeria. The variables used include agricultural sector output and manufacturing sector outputs against aggregate economic growth proxied by Gross Domestic Product (GDP). The model follows the classical linear regression equation adapted from Books (2014) thus:

$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_n + \varepsilon$ ---------- eq.1

To capture the effect of credit to the private sector on the agricultural and manufacturing sectors outputs in Nigeria, the above model was modified to reflect the two hypotheses formulated earlier in the introductory part as shown thus:

Hypothesis One

$AS_t = \beta_0 + \beta_{1t}TCPS + \beta_{2t}INTR + \varepsilon_t$ ---------- eq.2

Where,

AS =Agricultural sector
TCPS =Total credit to the private sector
INTR =Interest Rate used as control variables
ε =Error term
β_0 =Constant
β_1, β_2, =Coefficient of the independent variables

Hypothesis Two

$MS_t = \beta_0 + \beta_{1t}TCPS + \beta_{2t}INTR + \varepsilon_t$ ---------- eq.3

Where,
MS =Manufacturing sector
TCPS =Total credit to the private sector
INTR =Interest rate used as control variables
ε =Error term
β_0 =Constant
β_1, β_2, =Coefficient of the independent variables.

4.1 Data Description

The descriptive statistics was performed to describe the variables of study using some descriptive measures such as mean, standard deviation, skewness and kurtosis. The results of the descriptive analysis were presented in chart (figure 1 below).

The descriptive statistics in figure 1 presents the measures of central tendency as well as spread of the variables under study. The Skewness which measure symmetry or departure from symmetry and Kurtosis which is a measure of peakedness or flatness of the distribution or series are also shown. The series which is reported platykurtosis because in normally distributed. In Jarque – Bera which is a test for normality is also reported. The statistical relationship between GDP and the explanatory variables is further shown in the graph

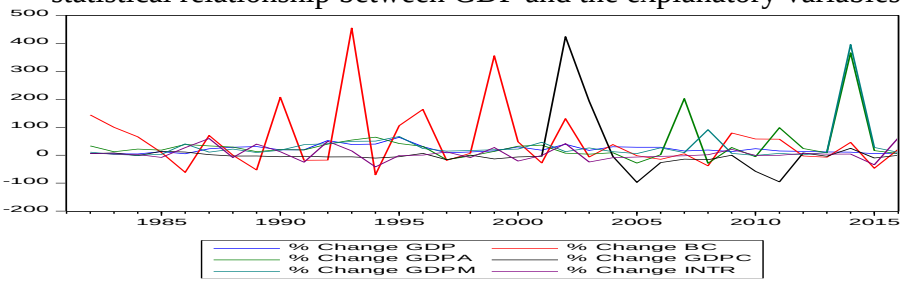

Figure: 1 A line graph showing the percentage change on bank credit and the three variants of economic growth under study. The slope of the graph shows that there is vacillation between GDP and other explanatory variables over the period under study.

4.2 Hypothesis Testing

The hypotheses stated earlier in this research were tested using the Classical Regression Model econometric technique. In arriving at a decision, the following steps were taken:

(i) The hypotheses were restated in null and alternate forms,
(ii) The test results were presented and analyzed and,
(iii) The decision involving the rejection or acceptance of the null hypothesis based on the decision criterion of the techniques of analysis is made.

4.2.1 Hypothesis One

Step One: Restatement of the null hypothesis in null and alternate form thus:

H_0: Total credit to private sector did not positively and significantly affect agricultural sector output in Nigeria during the review period

H_1: Total credit to private sector had a positive and significant effect on agricultural sector output in Nigeria during the review period.

Step Two: the test results for hypotheses one are presented in box 4.3 below:

Coeff = *0.811060*
t = *(5.133408)*
Se= *[0.157996]*
PVALUE = *0.00000<0.05* R^2 *= 97%, Adjusted* R^2 *= 97%, F-stat = 232.1645 (0.000000), DW-Stat = 1.9*

Source: Extract from Regression Model Estimation Results in Appendix 3

As revealed from table 4.2.1, Total credit to private sector has a positive and significant effect on agricultural sector output (coefficient of total credit to private sector = 0.811060, t-value = 5.133408). This indicates that a one percent decrease in agricultural sector output in Nigeria is due to 0.811% increase in total credit to private sector. The probability value of 0.0000<0.05 confirms the significance of the result. The coefficient of determination which measures the goodness fit of the model that is the R-square (R^2) shows that the independent variables jointly explain about 97% of the total variations in economic growth while the remaining unexplained 3% is attributable to other variables not included in the model. The Durbin-Watson statistic value of 1.9 which is approximately 2; indicates that there is no serial correlation in the model.

Step Three: The decision involving the rejection or acceptance of the null hypothesis based on the decision criterion of the techniques of analysis is made thus:

Decision for Hypothesis One: Given the t-statistics of total credit to private (0.811060) and the probability of t-statistics 0.00000<0.05 being significant, we reject the null hypothesis and conclude that the total credit to private sector positively and significantly affected agricultural sector outputs in Nigeria during the review period.

4.2.2 Hypothesis Two

H_0: There is no positive and significant relationship between manufacturing sector outputs and total credit to private sector.

H_1: There is positive and significant relationship between manufacturing sector outputs and total credit to private sector.

Step Two: the test results for hypotheses one are presented in box 4.3 below:

Coff =	*0.970395*
t =	*(4.832409)*
Se=	*[0.200810]*
PVALUE =	*0.000000<0.05*

R^2 = 99%, Adjusted R^2 = 98%, F-stat = 460.2060 (0.000000), DW-Stat = 1.6

Source: Extract from Regression Model Estimation Results in Appendix 3

As revealed from table 4.2.2, total credit to private sector has a positive and significant effect to Manufacturing sector Outputs (coefficient of total credit to private sector = 0.970395, t-value = 4.832409). This indicates that a one percent decrease in GDP Manufacturing sector output in Nigeria is due to .970% increase in total credit to private sector. The probability value of 0.000000 < 0.05 confirms the significance of the result. The coefficient of determination which measures the goodness fit of the model that is the R-square (R^2) shows that the independent variables jointly explain about 97% of the total variations in economic growth while the remaining unexplained 3% is attributable to other variables not included in the model. The Durbin-Watson statistic value of 1.6 which is approximately 2; indicates that there is no serial correlation in the model.

Step Three: The decision involving the rejection or acceptance of the null hypothesis based on the decision criterion of the techniques of analysis is made thus:

Decision for Hypothesis Two*:* Given the t-statistics of TCPS =4.322409 and the probability of t-statistics of 0.000000 <0.05 being significant, we reject the null hypothesis and conclude that total credit to private sector positively and significantly influenced manufacturing sector outputs in Nigeria over the review period.

4.3 Discussion of Results

Objective One: examine the effect of total bank credit to the private sector on the agricultural sector outputs in Nigeria. Given the t-statistics of total credit to private (0.811060) and the probability of t-statistics 0.00000<0.05 being significant, we reject the null hypothesis and conclude that the total credit to private sector positively and significantly affected agricultural sector outputs in Nigeria during the review period. The present result was consistent with the study of Mile, Ijirshar, Asom, Sokpo and Fefa (2021) confirmed an empirical analysis of government agricultural spending and agricultural output in Nigeria. The study found that all

variables were not stationary at level but became stationary at first difference. The study also revealed that there is a positive effect of government agricultural spending on agricultural output in Nigeria, though, significant in the long-run only. In negative contradiction with related study of Ogunjinmi (2021) assessed the role of public financing in agricultural output growth in Nigeria for the periods 1981 to 2019. The study found that government agriculture expenditure contributed negatively and significantly to the Nigerian agricultural output growth in the short run, while contributing positively and significantly in long run agricultural output growth.

Objective Two: investigate the influence of total bank credit to the private sector on manufacturing sector outputs in Nigeria. Given the t-statistics of TCPS =4.322409 and the probability of t-statistics of 0.000000 <0.05 being significant, we reject the null hypothesis and conclude that total credit to private sector positively and significantly influenced manufacturing sector outputs in Nigeria over the review period. The present result was inconsistent with the study of Kalu., Obasikene., Oleka., Nwadike and Okoyeuzu (2017) studied the relative impact of bank credit on manufacturing sector in Nigeria. The study found every explanatory variable and their following lags as significant functions of volume of output of the manufacturing sector at 5% except exchange rate and its lags. The error correction term is negative and statistically significant. The negative value shows that there exists an adjustment speed from short-run disequilibrium towards the long-run equilibrium. Even study of Ebere and Iorember (2016) examined the effect of commercial bank credit on the manufacturing sector output in Nigeria from 1980 to 2015 using Cochrane-Orcutt method. The study discovered that inflation rate and interest rate have negative effect on manufacturing sector output while loans and advances and broad money supply have positive effect with manufacturing sector output in Nigeria.

5 Summary of Findings

The findings from the specific objectives of this study are as follows:

1. Total credit to private sector had a positive and significant effect to Agricultural sector output in Nigeria during the review period.
2. Total credit to private sector had a positive and significant influence on manufacturing sector output in Nigeria over the review period.

Based on the findings, the following conclusions were made:

The major conclusion of this study, there is a significant relationship between bank credit to the Agricultural sector outputs and the manufacturing sector in Nigeria. This is possible in that when there is an increase bank credit to the Agricultural sector outputs and manufacturing sector outputs in Nigeria., it will encourage the manufacturing sector, Agricultural sector in Nigeria to expand their businesses and scope of operation which will ultimately lead to increase growth in Nigeria and vice versa. From the foregoing, this research also proves why the rate of unemployment is distressing in the country as the manufacturing sector; Agricultural sector; in Nigeria cannot expand because of lack of sufficient credit. This means that the Agricultural sector and manufacturing sector in Nigeria is not operating on their production possibility curve. In the long run, this will contribute to low productivity.

Based on the finding from the study, the researcher makes the following recommendations:

The government should endeavour to ensure that there are available and sufficient credit allocated to the agricultural sector and manufacturing sector in Nigeria with reasonable or affordable lending rates. This will enable the agricultural sector and manufacturing sector in Nigeria to operate on their production possibility curve, which is full capacity. In the long run it will lead to development of the Nigerian economy, through employment generation, innovation, competition, economic dynamism and promotion of indigenous technology.

For Nigeria to meet it millemium developmental goals and objectives, it should be depending more on products and services produced within her boundaries; hence the need to encourage the sectors. In will afford her the privileges of enjoying favourable balance of payments, as well as favourable terms of trade, which are the fundamentals for economic growth and development in the 21st century.

This research work adds to existing works in this area of finance, banking and economics. In very specific terms, this works contributes to knowledge as a major contribution to knowledge which this study has made is in the area measuring the contribution of bank credit to the growth of Nigeria economy. This means that this work is Nigerian based and its findings can improve on policy making on the macroeconomic situations in Nigeria. In addition, it can also be adopted for the purposes of generalization.

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