

## Selected monetary variables and small and medium-scale enterprise in Nigeria

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### Abstract

*This study investigated the effect of selected monetary instruments on small and medium scale enterprises output in Nigeria for a period of 1981-2021. There are a lot of different findings and divergent views of different authors which lead to inconclusive results in the study of the relationship between monetary variables and small and medium scale enterprise in Nigeria. Ordinary least square was used as a method of data analysis. The study used secondary data, collated from Central Bank of Nigeria Statistical Bulletin of various years. The variables were cash reserve ratio, liquidity ratio, inflation rate, interest rate and small and medium scale enterprise. The researchers employed unit root test, co-integration and Error Correction Model (ECM). The study reveals that cash reserve ratio has negative impact on small and medium enterprise in Nigeria and inflation rate has no significant effect on small and medium enterprise in Nigeria. The study concludes that monetary variables have no significant effect on small and medium scale enterprises in Nigeria. The researchers recommends that interest rate must be allowed to operate through market mechanism to ensure that interest rate is determined by demand for loanable fund. Government should in sincerity control inflation rate since it adversely affects interest rate in Nigeria. If the amount charge on investible loans is high it will manifest negatively on the growth of the enterprise. Banks should negotiate a reduced Cash Reserve Ratio with the Central Bank of Nigeria to improve performance of SMEs.*

**Keywords:** *Cash recover ratio, interest rate, inflation rate, monetary policy.*

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### Introduction

The contribution of monetary policy in Nigeria cannot be over emphasized when considering its role in the process and development of small and medium scale enterprises. The efforts are directed at policies that could enhance growth of the Nigerian economy. Monetary policy instruments have been largely debated by finance experts as viable tools to influence small and medium scale enterprises in Nigeria. It is hard, if not impossible for any country to witness significant growth in its economy without a well-developed and dynamic small and medium scale enterprises. Small and medium scale enterprises serves as the vehicle for the production of goods and services, the generation of employment and the enhancement of incomes, (Olorunfemi, 2013). Loto (2016) described industry and in particular the small and medium scale enterprises, as the heart and engine of growth of the economy. This fact is supported

by evidences from the developed countries of the world as virtually all of them are industrialized with the manufacturing sector leading the process (World Bank Development Indicators, 2014).

In the work of Charles (2012), it is posited that the small and medium scale enterprises create employment which helps to boost agriculture and diversify the economy on the process of helping the nation to increase its foreign exchange earnings. Small and medium scale enterprises came into being with the occurrence of technological and socioeconomic transformations in the western countries in the 18th -19th centuries. This period was widely known as industrial revolution. It all began in Britain and replaced the labour intensive textile production with mechanization and use of fuels.

Monetary policy is the well-considered procedural efforts of the relevant authority (currency board or central bank) of a country to achieve price stability through the control of money supply. Such policy, as explained by Chigbu and Okonkwo (2014), was usually deployed to influence economic activities. The real objective was to accomplish the desired macroeconomic stability by using the variations in the money supply, the direction of credit, the cost of credit, and the size of credit availability. The effects of monetary policy on the different sectors of the economy do differ. Nwosa, Agbeluyi and Saibu (2011) identified two monetary policy regimes: tight and loose. The deployment of either type depends on the need to achieve prices stability and the maintenance of balance of payment equilibrium. The essence of monetary policy as identified by Onyemu (2012) however, is the achievement of external and internal balance of the value of money in addition to the enhancement of the real sector of the economy, and the promotion of long run growth of the economy.

### **Statement of the Problem**

Over the past decades, monetary policy and small and medium scale enterprise performance has attracted significant attention from finance and development experts and have been debated extensively. Several studies were carried out on monetary policy and small and medium scale enterprise performance though with mixed findings.

Okonkwo, Egbulonu and Emerenini.(2015) examines the impact of monetary policy variables on small and medium scale enterprise in Nigeria from 1981-2012. The study revealed that money supply and credit to private sector exert tremendous influence on small and medium scale enterprise in Nigeria. Ezeaku, Ibe, Ugwuanyi. Modebe. and Agbaeze, (2012) study is to assess the industry effects of monetary policy transmission channels in Nigeria within the period1981-2014. Omini, Ehigocho and Okoiarikpo (2017) investigated the impact of monetary policy shocks on industrial output in Nigeria. Results show that contribution of manufacturing subsector to GDP responded positively to shocks in monetary policy.

The studies on negative findings were Bans-Akutey, Deh, and Mohammed. (2011) the study investigates the effect of inflation on manufacturing sector productivity in Ghana for the period 1968-2013. The findings suggest that inflation has led to a decrease in small and medium scale enterprise. Modebe and Ezeaku, (2016) studied the dynamics of inflation and small and medium scale enterprise in Nigeria: analysis of effect and causality. The baseline regression results reveal that inflation and interest rate have negative and non-significant effect on manufacturing sector growth. Okoye, Nwakoby, and Modebe, (2015) identify the effect of the interest rate liberalization policy of the government from 1986-2012. However, evidence from the study shows that inflation has a significant negative effect on the output of the sector. The effect of rising interest rates on the performances of the Nigerian small and medium scale enterprise. This implies that the rising interest rate in Nigeria impedes the activities and the performances of the Nigerian manufacturing sector.

In light of the above findings it is evident that the empirical studies which focus on the link showed mixed results and this may be attributed to the estimation methodologies and quality and span of data used as

well as the direction of causality. In Nigeria, there are few empirical studies that focus on the effect of monetary policy variable and small and medium enterprise in Nigeria using time series data. In addition, these studies do not examine the short-run and long-run effect, while a significant number of empirical studies in which Nigeria is included use panel and cross-section data. Furthermore there is no consensus on the findings. This may be due to the inconsistency of methodology. The current study, therefore, complements the existing empirical studies by using annual time series data, co-integration and error correction approach with a view of shedding light on this important relationship, by focusing on the short-run and long-run effect of monetary policy variable on small and medium enterprise in Nigeria.. However, the broad objective of this study is to examine the effect of selected monetary policy variables on small and medium scale enterprises output in Nigeria. The specific objective includes:

- To determine the impact of cash reserve ratio on small and medium enterprise output in Nigeria
- To evaluate the extend interest rate affects small and medium enterprise output in Nigeria.
- To access the effect of inflation rate on small and medium enterprise output in Nigeria.
- To investigates the effect of liquidity ratio on small and medium enterprise output in Nigeria

### **Research Hypotheses**

The followings are the hypotheses of this study stated in their null form;

Ho1: Cash reserve ratio has no significant impact on small and medium enterprise output in Nigeria

Ho2: Interest rate has no significant effect on small and medium enterprise in Nigeria

Ho3: Inflation rate has no significant effect on small and medium enterprise in Nigeria

Ho4: Liquidity ratio has no significant effect on small and medium enterprise output in Nigeria

### **Significance of the Study**

It is important to note that the study will be of educational values and has social benefits to government officials and unemployed graduates, the policy makers and the entire citizenry.

The study will also provide richly desired information to Nigeria Unemployed graduates and those pursuing higher degree in the discipline of Banking and Finance, public administration, entrepreneurs, economics and the likes in the way of tackling unemployment through industrialization in Nigeria.

Outcome will also be useful for policy makers in order to make policy that will improve the contributory impact of industrial output in Nigeria. The study will also serve as bases for policy makers to make a policy that will ginger industrial revolution

The knowledge of industrial development in Nigeria will assist the government to know where to amend in its industrial program and as well increase the chances of employment in Nigeria.

This study will offer information to other academic/researchers who intend to study in the same or related topic. It has a model and system of analysis that has been improved on, to better reflect the position of industries in Nigeria and proffer a better result

## **Review of Related Literature**

### **Conceptual Issues**

#### **Small and Medium Enterprise**

Small and medium enterprise refers to those industries which are involved in the manufacturing and processing of items and indulge or give free rein in either the creation of new commodities or in value addition (Adebayo, 2010). To Dickson (2010), small and medium enterprise accounts for a significant share of the industrial sector in developed countries. The final products can either serve as finished goods for sale to customers or as intermediate goods used in the production process. Loto, (2016) refers to

small and medium enterprises an avenue for increasing productivity in relation to import replacement and export expansion, creating foreign exchange earning capacity, raising employment and per capita income which causes unrepeatable consumption pattern.

Mbelede (2012) opined that small and medium enterprises involved in the process of adding value to raw materials by turning them into products. Thus, manufacturing industries is the key variable in an economy and motivates conversion of raw material into finished goods.

### **Interest Rate**

An interest rate is the rate at which interest is paid by borrowers for the use of money that they borrow from a lender. Specifically, the interest rate ( $I/m$ ) is a percent of principal ( $P$ ) paid at some rate ( $m$ ). Interest rates are normally expressed as a percentage of the principal for a period of one year. The *spread* of interest rates is the lending rate minus the deposit rate. This spread covers operating costs for banks providing loans and deposits. A negative spread is where a deposit rate is higher than the lending rate while the reverse holds for a positive spread. The central banks or reserve banks of countries generally tend to reduce interest rates when they wish to increase investment and consumption in the country's economy. However, a low interest rate as a macroeconomic policy can be risky and may lead to the creation of an economic bubble, in which large amounts of investments are poured into the real-estate market and stock market. For this reason, it is a very important macroeconomic variable for this study.

Interest rate is the charge a borrower pays for the money lend to him for business or other transaction motives. Investors borrow money from banks and other financial institutions. Interest rates is the other strong factors that affect financial policies as well as weaker financial payments in guiding principles of investors, it facilitate investment if the high interest rate is applicable on savings. Interest rate influences savings practically all commercial banks commencing macroeconomic theories. The negative influence of higher investment rate inhibits the macroeconomic effect of interest rate policy. In New York, borrow and cash offers money as a guarantee to the lender of collateral. This is the most common form reinvestment in business performance. This program takes the type of customized term loan of a portfolio of securities. Because the transaction is customized, it is difficult to make general statement regarding its use. That said borrowers may negotiate an annual free for rights to borrow securities from beneficial owners entire portfolio

### **Liquidity Ratio**

Liquidity is the capacity of business concerns to meet maturing financial obligations. It is also portrayed as the conversion and exchangeability of an asset for another in a timely and cost effective manner. Acharya & Naqvi (2012) views it as the speed and certainty of converting an asset to cash whenever at the discretion of the asset holder. .

In same vein, Kurotamunobaraomi (2016) adds that liquidity is "the capacity to exchange an asset at a negligible cost, price and (on) short notice, therefore adjudged among many others, on the grounds of its ability to facilitate transactions." Given its pivotal role, Jinghan (2010) asserts that banks need a high degree of liquidity in their assets portfolio. The bank must hold a sufficient large proportion of its assets the form of cash and liquid assets for the purpose enhancing customers' confidence and corporate performance (profitability). From the foregoing, it is apparent that liquidity is defined by marketability, stability and conservatism. Consequently, liquid assets have fixed and relatively (in comparison with real assets) lesser price variability. Also, conservatism establishes assets holders' capacity to market the assets with minimal price impact.

### **Cash Reserves Ratio**

This is the proportion of total deposit liabilities which the deposit money banks and other financial institutions are expected to keep as cash with the Central Bank Nigeria (CBN) (Udeh, 2015). It is the

statutory cash reserves that banks are to keep with the CBN and this cash ratio was designed to help rescue the liquidity of the banks and hence control the volume of banks credit that can be extended by the deposit money banks (Otalú, Aladesanmi & Mary, 2014). Reserve requirements is preferred tool to withdraw liquidity in the banking system, partially replacing other open market operation tools. Any monetary effects of CRR changes are hard to be isolated from those of other policy measures. The constraint of higher reserve requirements on bank lending seems more binding when initial excess reserves shrink below some threshold, restraining the subsequent loan expansion while leading to higher, more volatile market interest rates. In response to the higher CRR, banks charge borrowers more and widen their net interest margins and net interest spreads, thus helping to tighten domestic monetary conditions. An increase in reserve requirements is noted to have responded to short-term policy dilemmas by tightening domestic monetary conditions with fewer rate hikes, they are more likely to increase the cost of bank intermediation, which may prove counterproductive to financial market development. The monetary authorities usually employ legal reserve requirements as one of the major tools of monetary policy. Essentially, a bank's ability to expand money supply through credit creation is always limited by the amount of its legal reserves. Thus, reserve requirements serve to limit the expansion of credit and money supply. The reserve requirements constitute the fulcrum of monetary control, especially in a developed financial market.

### **Inflation**

In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation also reflects an erosion in the purchasing power of money – a loss of real value in the internal medium of exchange and unit of account within the economy. A chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index (normally the Consumer Price Index) over time. Inflation's effects on an economy are various and can be simultaneously positive and negative. Negative effects of inflation include an increase in the opportunity cost of holding money, and if inflation is rapid enough, shortages of goods will occur as consumers begin hoarding out of concern that prices will increase in the future. Positive effects include ensuring that central banks can adjust real interest rates (intended to mitigate recessions), and encouraging investment in non-monetary capital projects. Low or moderate inflation may be attributed to fluctuations in real demand for goods and services, or changes in available supplies such as during scarcities, as well as to growth in the money supply.

### **Theoretical Framework**

This study is anchored on Kaldor growth theory (1966). This theory include the Kaldor Growth Laws, and Big Push theory. Kaldor, 1966, while accounting for the growth rate differences between industrialized economies presents a series of laws. He further posited that the growth trajectory of developed economies in the post war period displayed the relationship between industrial growth and the performance of the economy as a whole. This observation is the origin of Kaldor's first law which states that there is a close relationship between the growth of manufacturing output and the growth of the gross domestic product (GDP). This first law is summed up in the expression that the "manufacturing industry is the engine of economic growth". The Linear specification of Kaldor's first law is as follow:  $gGDP = a_0 + a_1 gMANU$

where:  $gGDP$  is the growth of total output; and  $gMANU$  is the manufacturing output's growth. It is important to note that the correlation between the two variables is not only due to the fact that manufacturing output represents a large component of total output. The regression coefficient is expected to be positive and less than unity. This means that the overall growth rate of the economy is associated with the excess of growth rate of manufacturing output over the growth rate of non- manufacturing output. This means that high growth are usually found in cases where the share of manufacturing industry in GDP is increasing.

“Big Push” theory popularly associated with Rodenstein- Rodan (1968), postulates that comprehensive programme is needed in form of a high minimum amount of investment to overcome the obstacles to development in an underdeveloped economy and to launch it on the path of progress. The theory further states that successful industrialization of an underdeveloped economy requires a holistic and simultaneous approach; First there must be training of labour on skill acquisition, capacity building, simultaneously infrastructure facilities like good transport system, power and steel, telecommunication system etc. must be developed. Secondly other sectors of the economy like agriculture must be modernized to promote both forward and backward linkages. This assertion is the view of the proponents of the doctrine of the “balanced growth”. The theory of balanced growth advocated by Rodenstein-Rodan, Ragnar Nurkse and Arthur Lewis, which states that simultaneous investment in all sectors of the economy, is actually necessary to ensure that all sectors grow in unison because this will ensure economic growth and development. It also means the development of the manufacturing and agriculture sector.

### **Empirical Review**

Imoughele et al. (2013) examined commercial bank credit accessibility and sectoral output performance in a deregulated financial market economy: Empirical evidence from Nigeria using a time series data for a sample period of 1986-2010. The study utilized ordinary least squares techniques and discovered that various deposit money bank credit supply and other included variables has a long run relationship with sectoral output performance.. 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. Human capital investment and interest rate has direct and insignificant impact on the sector output performance while inflationary rate has inverse and insignificant impact on the various sector performances.

Okon, & Nathan, (2014) investigated the impacts of commercial bank credit on Nigeria industrial subsectors between 1972 and 2012. ECM method of analysis was used for the estimation of the three subsectors namely: the manufacturing; mining and quarry; and real estate and construction subsectors to commercial bank credits, as well as the response of aggregate output of the entire industrial sector to subsector’s output and their commercial bank credits. The results of estimation indicate the following: commercial bank credits impacted positively and significantly on the manufacturing sub-sector in Nigeria, commercial bank credits to mining and quarry is a positive and significant determinant of the current year Mining and Quarry output in Nigeria, previous year bank credits to real estate and construction is a positive determinant of the current year real estate and construction output, bank credits to manufacturing, mining and quarry as well as bank credits to real estate and construction correlated positively with aggregate industrial output with bank credits to real estate and construction having greater and a significant impact on industrial output. Interest rate was not an important determinant of industrial sector and industrial sub-sectors outputs, exchange rate is a negative and significant determinant of industrial sector’s outputs in Nigeria. These results point to the conclusion that, increase bank credits to industrial sector is indispensable in stimulating industrial sector growth in Nigeria.

Ogar, Nkamare, & Effiong, (2014) determine how commercial bank credit can influence small and medium enterprise in Nigeria from 1975-2012. The study shows that commercial bank credit if well channeled to the worthy customers or sector will enhance economic growth in Nigeria. The objective of the study was to investigate the impact of commercial bank loans on small and medium enterprise and to establish the relationship between interest rate and small and medium enterprise performance. Secondary source of data was employed using Central bank statistical bulletin. The included variables were manufacturing output, commercial bank loans, and commercial bank interest rate. OLS method was

used for the analysis. The finding revealed that commercial bank credit had a significant relationship on manufacturing sector. It was recommended that government should endeavour to ensure that there are available and sufficient credit allocated to the small and medium enterprise in Nigeria with reasonable or affordable interest rates, and for Nigeria to meet its millennium goals, she will have to depend on productive and services produced within her boundaries. The included variables were manufacturing output, commercial bank loans, and commercial bank interest rate

Emmanuel. Abiola. Adeleke, and Udoji, (2015) examined the impacts of private sector credit on economic growth in Nigeria using the Gregory and Hansen (1996) co-integration test that accounted for structural breaks and endogeneity problems. We found a co-integrating relationship between output and its selected determinants. Amongst others, findings from the error correction model confirmed a positive and statistically significant effect of private sector credit on output, while increased prime lending rate was inhibiting growth. In view of the financial intermediation roles of deposit money banks, the study supports the ongoing efforts of the Central Bank of Nigeria (CBN) in promoting a sound and real sector-friendly financial system. Also, the commitment of the CBN to the gradual reduction in interest rates is meaningful for the country's growth objectives.

Okoye, Nwakoby, & Modebe, (2015) identify the effect of the interest rate liberalization policy of the government from 1986-2012 (introduced in 1986 under the structural adjustment programme) on the performance of the industrial sector in Nigeria. Data sourced from CBN statistical bulletin, were analyzed using the analytical technique of the vector error correction model (VECM). The study shows that exchange rate volatility has an insignificant positive impact on industrial output performance. It also shows evidence of significant positive impact of lending rate and financial depth on industrial output growth. However, evidence from the study shows that inflation has a significant negative effect on the output of the sector. To enhance the performance of the sector in Nigeria, government should seek to stabilize exchange rate movements through proper diversification of sources of foreign exchange inflow as well as reduce its outflow in order to support her import-dependent industrial sector while simultaneously pursuing the development of an adequate and efficient infrastructure base for the economy. Properly functioning infrastructure will, among other things, greatly enhance the realization of low price levels and hence low level of inflation required to boost domestic production capacity.

Nwandu, (2016) examined the effect of rising interest rates on the performances of the Nigerian manufacturing sector. Data for the study spans thirty five (35) years covering 1981 to 2015. The models were analyzed using the ordinary least squares. Findings from the study shows that rising interest rate in Nigeria has a negative effect on the contribution of the small and medium enterprise to GDP as well as on the average capacity utilization of the Nigerian manufacturing sector. This implies that the rising interest rate in Nigeria impedes the performances of the Nigerian manufacturing sector. From the findings, the study recommends that aside from trying to manage interest rate for enhanced economic growth, the Nigerian Government should strive to provide infrastructural facilities particularly power and transportation to reduce the high cost

Nwokoro (2017) investigated the impact of Foreign Exchange and Interest Rates variations on the Nigeria's manufacturing Output during the period 1983 to 2014. The study employed the Ordinary Least Square (OLS), stationarity, co-integration, together with Error Correction Modelling, to know the significance and relationship between Foreign Exchange Rate, Interest Rate, Capacity Utilization, Government Expenditure on Manufacturing Sector, Investment in Industrial production and Manufacturing Output in Nigeria within the period under review. All the regressors (explanatory variables) appeared in their right signs according to a priori expectation being that Foreign Exchange Rate (FREX) and Interest Rates (INTR) have negative but significant relationship with manufacturing Output (MANO). Our current exchange rate policy should be reviewed to curb the international currency

depreciation we are facing. Promulgation and implementation of more realizable monetary and fiscal policies that will be targeted at reducing interest rate on loans to the manufacturing sector.

Okonkwo & Godslove, (2017) investigates the effect of interest rate fluctuation on industrial growth in Nigeria. Data for the study were obtained from the Central Bank of Nigeria statistical bulletin 2013 edition and indexmundi.com. Data collected were analyzed and tested using autoregressive distributed lag (ARDL) technique. The findings of the study revealed that inverse relationship exist between interest rate and industrial growth in Nigeria, meaning that increase in interest rate will decrease industrial growth and vice versa in Nigeria. It was then recommended that investment-friendly interest rate is a sine-quo-non for promoting industrial growth in Nigeria.

## Methodology

### Research Design

The type of research design adapted in this study is Ex-post facto research. This is because the researchers has no control over the variables and cannot manipulate them.

The study makes use of secondary data, which was sourced from the central Bank of Nigeria statistical bulletin of various issues. The software used in running this regression is E-view version 8.1.

### Model Specification

The studied modify the work of Okon, & Nathan, (2014) who studied the effect of Commercial Bank Credits and Industrial Subsector's Growth in Nigeria. Their model is stated as,  $MANGDP = f(MANBC, INTR, EXR, U)$

where

MANGDP = Manufacturing Gross Domestic Products

MANBC = Bank Credits to Manufacturing sub-sector

INTR = Interest rate

EXR = Real Exchange rate

### The model was adopted and modified to enable us look at the topic from another dimension

Where

$SMSE = f(CRR, INT, INFL, LQ)$

**Where:**

SMSE = Small and medium scale enterprise

CRR=Cash reserve ratio

INT=interest rate

INFL=Inflation rate

LQ=Liquidity ratio

$\mu$ = error term

The above equation can be put in an econometric form as;

$SMSE = b_0 + b_1 CRR + b_2 INT + b_3 INFL + b_4 LQ + \mu$

Where;

$\beta_0$  and  $\mu$  are the constant and error term respectively

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  are the coefficients of independent variables respectively

F= functional notation



**Presentation of Result and data analysis**

The study employed the ordinary least square method of analysis.

**Unit Root Test**

**Tables 4.1 unit root result**

| Variable | ADF       | Integration | Significance |
|----------|-----------|-------------|--------------|
| SMSE     | -4.752844 | I (1)       | 1%           |
| CRR      | -5.678777 | I (1)       | 1%           |
| INF      | -5.743782 | 1 (1)       | 1%           |
| INT      | -5.874869 | I (1)       | 1%           |
| LQ       | -6.617477 | I (1)       | 1%           |

**Source:** Author’s computation using e-view version 8.1

Following the result of ADF test above it is observed that none of the variables are stationary at level, but the entire variables become stationary at 1<sup>st</sup> difference. This also follows the simple rule of thumb that once a unit root is conform, co-integration is necessary to establish the direction of the relationship between the variables.

**Table 4.2 Co-integration result test**

**Unrestricted Co-Integration Rank Test (Trace)**

| Hypothesized No of CE(s) | Eigen value | Trace static | 0.05 critical value | Prob** |
|--------------------------|-------------|--------------|---------------------|--------|
| None *                   | 0.822668    | 126.9271     | 69.81889            | 0.0000 |
| At most 1*               | 0.669808    | 69.84593     | 47.85613            | 0.0001 |
| At most 2*               | 0.581050    | 33.27924     | 29.79707            | 0.0191 |
| At most 3*               | 0.101979    | 4.569105     | 15.49471            | 0.8527 |
| At most 4*               | 0.822668    | 126.9271     | 69.81889            | 0.0000 |

**Source:** Author’s computation using e-view version 8.1

Trace test indicates 3 co-integrating equ(s) as the 0.05 level\* denotes rejection of the hypothesis at the 0.05 level \*\* mackinnon-Haug-Michelis (1999) P – value

**Unrestricted Co-integration Rank Test (Maximum Eigen value)**

| Hypothesized No of CE(s) | Eigen value | Trace static | 0.05 critical value | Prob   |
|--------------------------|-------------|--------------|---------------------|--------|
| None *                   |             | 57.08117     | 33.87687            | 0.0000 |
| At most 1*               | 0.669808    | 36.56669     | 27.58434            | 0.0027 |
| At most 2*               | 0.581050    | 28.71014     | 21.13162            | 0.0035 |
| At most 3*               | 0.101979    | 3.549534     | 14.26460            | 0.9036 |
| At most 4*               | 0.030424    | 1.019571     | 3.841466            | 0.3126 |

**Source:** Author’s computation using e-view version 8.1

Max-Eigen value test indicates 2 co-integrating equ(s) at the 0.5 level\* denotes rejection of the hypothesis at the 0.05 level \*\*mackinnon-Haug-michelis (1999) P-values. Max-Eigen value and trace test indicates 4 & 5 co-integrating equations respectively at the 0.05 level. This suggests a long run equilibrium relationship among the variables. Co-integration is a pre-requisite for error correction mechanism following the result of co-integration, there is a long-run equilibrium relationship among the variable, hence, we can move over to error correction mechanism.

**Error Correction Model**

**Table 4.3 Error Correction Model Result**

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.    |
|--------------------|-------------|-----------------------|-------------|----------|
| C                  | 14.31693    | 1.272598              | 11.25015    | 0.0000   |
| CRR                | -0.023333   | 0.010562              | -2.209067   | 0.0349   |
| INF                | -0.015153   | 0.008256              | -1.835474   | 0.0764   |
| INT                | -0.020421   | 0.027895              | -0.732072   | 0.4698   |
| LQ                 | -0.021377   | 0.013642              | -1.566957   | 0.1276   |
| ECM(1)             | -0.954557   | 0.088812              | -10.74801   | 0.0000   |
| R-squared          | 0.855824    | Mean dependent var    |             | 11.26837 |
| Adjusted R-squared | 0.831795    | S.D. dependent var    |             | 1.698455 |
| S.E. of regression | 0.696584    | Akaike info criterion |             | 2.265756 |
| Sum squared resid  | 14.55690    | Schwarz criterion     |             | 2.529676 |
| Log likelihood     | -34.78361   | Hannan-Quinn criter.  |             | 2.357871 |
| F-statistic        | 35.61585    | Durbin-Watson stat    |             | 1.919411 |
| Prob(F-statistic)  | 0.000000    |                       |             |          |

**Source:** Authors computation using e-view version 8.1

**Interpretation of the Regression Result**

The value of the R-square and the adjusted R-square show that the explanatory variables are robust in explaining variation in the dependent variables (SMSE), given their values as 0.855824 and 0.831795 respectively.

The F-statistics measures the overall significance of the explanatory parameter. From the result report in table 4.2 above, our computed value of f-statistics is 35.61585, while its probability is 0.000000, given this value we reject the null hypothesis and accept the alternative hypothesis which state that there is a significant relationship between the variance of estimated regression model.

A' priori criteria which is used to determine the existing economic theories and indicates the sign of the economic parameter under consideration from the estimated regression model It was obtained from the coefficient Colum that all the variables conform to a'priori expectation ranging from cash reserve ratio, inflation rate, interest rate and liquidity rate all have negative sign as expected. This further suggests that decrease in any of these variables increase the performance of small and medium scale enterprises and vice versa at a given percentage respectively.

T-statistics, this is the measure use to determine the individual statistical significance of the variables in the model. From the model it was obtained that the bank cash reserve ratio is statistically significant at 5%, inflation rate, interest rate and liquidity has insignificant effect on the performance of small ad medium scale enterprises in Nigeria. However, this implies that they have not contribute significantly to the performance of small and medium enterprise of Nigeria.

The Durbin-Watson statistics is used to test for the presence or otherwise of autocorrelation in our model. When the value of Durbin-Watson is closer or a little bit above 2, it means the absence of autocorrelation amongst the explanatory parameter (Koutsoyannis 1997) from the table 4.3 above, it

was obtained that our Durbin-Watson result is (1.9), this satisfy the above stated condition. This means the absence of autocorrelation among the explanatory variables.

The error correction model term ECM (-1) of about 0.95% is significant with the expected negative sign. A significant error term with the right sign indicates strong feedback effect of deviation of the real gross domestic product from its long-run growth path. The coefficient of the error term is -0.954557 this shows that about 95% of the discrepancies between the actual and the equilibrium value of the small and medium scale enterprises is corrected in each period (annually)

## **Hypothesis Testing**

### **Hypothesis One**

#### **Ho1: Cash reserve ratio has no significant impact on small and medium enterprise in Nigeria**

From the regression result we discovered that in the t-statistics cash reserve ratio is -2.209067 while its probability is 0.0349. Since its probability is less than 0.05 desired level of significance, we accept the alternative hypothesis and reject the null hypothesis, we therefore conclude in favor of alternative hypothesis which state that cash reserve ratio has significant impact on small and medium enterprise in Nigeria.

### **Hypothesis Two**

#### **Ho2: inflation rate has no significant impact on small and medium enterprise in Nigeria**

From the regression result we discovered that in the t-statistics inflation rate is -1835474 is while its probability is 0.0764 Since its probability is greater than 0.05 desired level of significance, we accept the null hypothesis and reject the alternative hypothesis, we therefore conclude in favour of null hypothesis which state that inflation rate has no significant impact on small and medium enterprise in Nigeria.

### **Hypothesis Three**

#### **Ho3: Interest rate has no significant impact on small and medium enterprise in Nigeria**

From the regression result we discovered that in the t-statistics Inflation rate is -0.732072 is while its probability is 0.4698 Since its probability is greater than 0.05 desired level of significance, we reject the alternative hypothesis and accept the null hypothesis, we therefore conclude in favour of null hypothesis which state that interest rate has no significant impact on small and medium enterprise in Nigeria

### **Hypothesis Four**

#### **Ho4: Liquidity ratio has no significant impact on small and medium enterprise in Nigeria**

Drawing inference from the t-statistics Colum for Liquidity ratio is -1.566957 while its probability is 0.1279 since its probability is greater than 0.05 desired level of significance, we accept the alternative hypothesis and reject the null hypothesis, we therefore conclude in favour of alternative hypothesis which state that Liquidity ratio has no significant impact on small and medium enterprise in Nigeria

## **Summary of Finding, Recommendation and Conclusion**

### **Summary of Findings**

The research explores the impact of selected monetary policy variables on the small and medium enterprise output in Nigeria between the period of 1981-2020, from the empirical evidence done in this work it was realize that credit to private sector has significant affects on small and medium enterprise.

This finding is against the condition of null hypothesis, the study employ co integration and Error Correction Model (ECM). The research reveals the followings;

- The regression result shows that cash reserve ratio has significant impact on small and medium enterprise in Nigeria
- Inflation rate has no insignificant impact on small and medium enterprise in Nigeria.
- Interest rate has significant impact on small and medium enterprise in Nigeria
- Liquidity ratio has significant impact on small and medium enterprise in Nigeria.

### **Conclusion**

The study reveals that the monetary policy has significantly impacted on small and medium enterprise via inflation rate, interest rate and liquidity ratio. As it was observed that only cash reserve ratio is capable of influencing manufacturing output. Hence the cash reserve ratio remains one of the mainstream in every economy that has the power to influence or impact manufacturing output. The cash reserve ratio has impacted significantly on the small and medium enterprise while interest rate has insignificant impact on the manufacturing output. The government is therefore advised to put up measures to stem up investors' confidence and activities in the small and medium enterprise and more foreign investors should be encouraged to participate in the market for improvement in the declining market capitalization so that it could contribute significantly to the manufacturing sector

### **Recommendation**

The researcher has favoured the implementation of the following recommendation.

- Banks should negotiate a reduced Cash Reserve Ratio with the Central Bank of Nigeria to improve performance of SMEs.
- Interest rate must be allowed to operate through market mechanism to ensure that interest rate is determined by demand for loanable fund and the supply of loanable fund.
- Government should in sincerity control inflation rate since it inversely affects interest rate in Nigeria. If the amount charge on investible loans is high, it will manifest negatively on the growth.
- The financial companies especially quoted banks should seek to use cash or liquidity management models that will minimize the opportunity costs of excess liquidity.

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