IMPACT OF COMMERCIAL BANK CREDITS TO SMALL AND MEDIUM SCALE ENTERPRISES ON NIGERIAN ECONOMIC GROWTH

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ABSTRACT

The paper examined commercial bank credits to small and medium-sized enterprises and Nigeria's economy for thirty-one years (1992-2022). Specifically, the study analyzed the effect of commercial bank credits on SMEs, average commercial bank lending rate, output of SMEs proxied by wholesale and retail trade output, and inflation rate to SMEs' growth on Nigeria's economy measured in terms of GDP. Secondary data sourced from the Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistics for the period under study were collected and analyzed using descriptive, robust least squares regression and Granger causality analyses. The findings revealed that commercial bank credits to SMEs had a negative and insignificant impact on GDP. Average commercial bank lending rate to SMEs positively and significantly affected GDP. The inflation rate significantly but negatively impacts the gross domestic product. SME output showed a positive and significant relationship with GDP. The result also revealed no causal relationship between all the explanatory variables and GDP. Therefore, the paper recommends that the government should open up more opportunities for SMEs to access productive and affordable credits for sustained output that will translate to increased GDP. In addition, the lending rate of credits accessed by SMEs from commercial banks should be reduced to a digit figure by the government to enhance a reduction in the cost of production activities that will eventually translate to higher growth of the Nigerian economy.

Keywords: Commercial bank credits; SMEs; Growth; Robust least square; Nigeria

1.0   Introduction

In many nations today, the pace of development in the economy has slowed significantly in underdeveloped and developed countries. Still, over the past 15 years, Africa has experienced sustained economic growth with growth rates frequently exceeding 5% per annum. The experiences of developed economies are about the parts played by SMEs, strengthening the relevance of SMEs, placing excessive emphasis on developing countries. However, the general economic context is now becoming less favourable, especially with the slowing down of the growth of oil and mineral exporting countries. This growth generally is expected to continue but at a slower pace. In this changing climate, it is important to look at the growth and distinguish those that can be sustained (Onakoya, Fasanya, & Abdulrahman, 2013).

Small and Medium Scale Enterprise (SMEs) has proved to be significant tool developed nations adopt to attain socio-economic development. The small-scale business sector has recently been considered the backbone of the modern-day economy. Nigeria, a middle-

income, mixed economy, and emerging market with expanding manufacturing, financial, service, communications, technology, and entertainment sectors, is ranked as the 30th-largest economy in the world in terms of nominal GDP and the 23rd-largest in purchasing power parity. They have also implemented policies and established enterprise and economic development agencies to promote and coordinate investment activities in states like Ekiti. One such developmental strategy is the industrial development and expansion of small and medium-sized enterprises (SMEs). Past and present governments have emphasized the contributions of the internally developed economy by encouraging SMEs (Olajoye, Adedeji, and Ayeni-Agbaje, 2018).

In recent times, states have held numerous meetings with the Nigeria Association of Small and Medium Enterprises (SMEs) to promote the micro, small and medium enterprises in the state, Imoughelu and Ismaila (2014). The role of small and medium-sized enterprises (SMEs) in the national economy cannot be underestimated. They are the backbone of industrial development, which plays an important role in the economy of both developed and developing countries. In recent years, enterprises have been given proposed action awareness specifically in the world countries partly because of the disappointment strategies concentrating on large-scale capital and high import dependency on industrial plants. Despite endeavours and commitments of the previous and current Governments towards advancing SMEs, the promise made in the economy generally remains little regarding its effect on GDP (Gross domestic product), joblessness and neediness reduction. The rate of joblessness in the economy is high, and the more significant part of the populace still live in poverty. Many authors ascribed the absence of credit as a significant imperative to the acknowledgement of the advantages of SME (Osuagwu, 2001).

One of the problems SME operators face in Nigeria is that the government does not give them a chance or consider them when making policies that prioritise large organizations (Afolabi, 2013). This makes financing the main constraint to SMEs' growth and hinders their potential for enhancing economic growth in Nigeria. Available information from CBN 2012 shows that as at 1992, commercial bank loans to SMEs as a percentage of the total cost was 27.04% in 1997 and decreased to 8.68%, 0.85% and 0.14% in 2002, 2007 and 2010, while 2012 recorded 0.15%. Consequently, many SMEs in the country have continued to rely heavily on internally generated funds, which has limited their scope of operation. The crucial nature of this has made the Central Bank of Nigeria (CBN) to mandate all deposit money banks to maintain a loan to deposit ratio (LDR) of more than 60% in recent times. This underscore the importance attached to the role of bank credit as a backbone and catalyst to economic growth.

On this background, it is the objective of this paper to examine the relationship between commercial bank credits to small and medium scale enterprises is a significant instrument for stimulating economic growth in Nigeria. Other variables examined were SMEs output and commercial bank lending rate to SMEs

The paper has been structured into five sections. The second section covers brief literature review. The third section describes the employed econometric model and methods employed. The fourth section presents results and discussion, while the last section concludes the paper and profer policy recommendations.

2.0   Literature Review

2.1   Conceptual Review

2.1.1   Small and Medium Scale Enterprises (SMEs)

Small business enterprises are a collection of organization concerns engaged with financial exercises traversing from rural and small-scale enterprises to the modern industrial association that utilizes high technologies (Oke & Aluko, 2015).

Small and Medium Enterprises have been defined in several forms by different authors. The classification of a business as an SME usually follows the general criteria as recommended by the United Nations (UN) and Organisation for Economic Cooperation and Development (OECD) using turnover asset base and the number of employees. (Musa, 2013; Bamidele, 2012; Aluko, 2002). However, one major common point is the conceptualization of SMEs been country specific. In Nigeria, for instance, SMEs is defined by Small and Medium Indusries Equity Investment Scheme (SMIEIS) as enterprises having a total capital employed not less than £1.5 million, but not exceeding £200 million , including working capital but excluding cost of land with a staff strength between 10 and 300, (Imoughele and Ismaila, 2014). This conceptualization will be used for the purpose of this study bearing in mind that there are many definitions of SMEs by different authors in the literature. ESuh and Adebayo (2012) noted that they are businesses arising from entrepreneurial activities of individual.

Nigerian Industrial policy defined small scale business as industryies with total investment of between 100,000 thousand naira and, 2 million naira, exclusive of land but including working capital. According to Afolabi (2013), SMEs are businesses that employ not fewer than 15 employees under the Australian Fair Work Act (2009) to fewer than 500 employees under the US while the European Commission defined medium bussines as enterprises which employ fewer than 250 employees and nor having an annual balance sheet total not exceeding £43 million.

2.1.2   Roles of Small and Medium Enterprises in Nigeria's Economy

Small-scale enterprises play vital and critical roles in the industrial development of any country (Ahmed, 2006). Small-scale enterprises have the prospect of emerging domestic economy by producing tangible things and services that drive Nigeria's economy. Rehanet et al. (2015) posited that the need to concentrate on small-scale enterprises turned out to be critical towards Nigeria because it was considered a technique of assuring self-liberty, employment openings, with import revenues, fruitful and productive of native raw resources. Small-scale businesses in Nigeria contribute occupations and techniques to be businesspersons. The small enterprises enthused from merely donating communal produce hitherto as a vehicle to entrepreneurship. It seals in as a source of employment formation and financial development. This is the main reason considerations are continuously remunerated on small enterprises by strategy makers in Nigeria. Small and medium enterprises (SMEs) fill an imperative environment in the economic development of Nigeria as they embrace the massive potential for generating jobs, developing indigenous knowledge, and the divergence of the monetary and forward integration with established areas such as banking and so on. It

has played a role by remaining as the source of primary and secondary employment in Nigeria.

Furthermore, they help reduce the crime rate, Government's expenditure, and poverty social, creating wealth and raising the standard of living for Nigerians. More so, the role of small and medium enterprises in any nation's technological and industrial development justifies the need for greater attention to this sector. The foundation of growth in developed countries is usually attributed to the contribution of small and medium enterprises.. Given the vital contributions which SMEs play in developed and developing economies and considering the ongoing reforms by the Government of Nigeria, which are primarily aimed at creating wealth, reducing poverty, generating employment, re-orientating values, and stimulating real economic growth, it becomes compelling for the SME sub-sector to be revitalized toward playing its expected roles. The SMEs remain a veritable vehicle for the transformation of the Nigerian economy (Afolabi, 2013).

2.1.3   Credit to Small and Medium-Scale Enterprises

Provision of finance, otherwise lending by definition, is a bank's legal function. In essence, it is one of the primary functions or purposes of the existence of a bank. Lending is perhaps one of the most important roles performed by deposit money banks in Nigeria. These banks usually play their intermediation role by sourcing funds through customer deposits and lending such funds out as short-term, medium-term or long-term loans to corporate bodies, Governments at various levels, institutions and individuals. The practice of lending by deposit money banks essentially constitutes the pivot of their operations and business. This is the reason which informs their deployment of considerable expertise and skill on the part of the bank management teams on lending administration and management, (Anyanwokoro, 2008).

2.1.4   Concept of Commercial Bank Credits

Credit refers to lending and borrowing funds from financial able bodies such as banks, Government, individuals and financial institutions. It is also described as a means of obtaining resources at a certain period with an obligation to repay following terms and conditions attached to it. In creating credit, a bank has to know how much of its idle funds is available after satisfying the requirements of the regulatory authorities like the Central Bank of Nigeria and Nigeria Deposit Insurance Corporation. In doing this, the regulatory rules apply the reserve requirements (cash reserve ratio and liquidity ratio) and other monetary policy tools such as Open Market Operations (OMO), asymmetric corridor around the Monetary Policy Rate (MPR) and stabilization securities to control the volume, size, cost and flowbank credit (Nzotta, 2005).

Banks usually grant credit after a rigorous process of credit administration. These are typically referred to as lending and include character, capability or capacity, capital, cost, collateral and condition. Nzotta (2005) explained that most banks in Nigeria maintain stringent compliance to these cannons coupled with high cost of loans (high lending rate), hence making it difficult for some borrowers especially small and medium scale enterprises (SMEs), to access vital credit for growth and expansion.

Despite efforts aimed at ensuring an increased level of lending to SMEs in the country, banks in Nigeria have shown reluctance to provide the necessary assistance to raise entrepreneurial business, attributing this to the high level of risk associated with lending for small-scale enterprises. According to Nzotta (2005), the bankers' committee in Nigeria agreed to set aside 10% of the profit before taxes (PBT) of each bank to finance entrepreneurship. However, these financial intermediaries still determine the rules for allocating funds to the real sector and play a significant role in determining the type of investment activities, job creation, and income distribution to the industry.

One of the main reasons for the controlled and low provision of bank credit to small and medium-scale enterprises (SMEs), according to Adegbite (2009), is the high cost of administering such loans, the perceived high default rates and the rising cases of non-performing loans (NPLs) which is fast becoming a perennial problem in the banking industry in Nigeria. However, Nzotta (2005) posits that this may not be a plausible reason except for a developing economy lacking a robust financial system. Another reason for the inadequate funding of small and medium-scale enterprises is the government's poor structural support of SMEs. This discourages the banks from increasing the level of credit to entrepreneurship ventures.

However, it must be pointed out that some policies and programmes have been enunciated to help increase access to finance by SMEs in the country. One such policy is the recent mandatory directive by Central Bank of Nigeria (CBN) to banks, compelling them to increase their loan-to-deposit ratio (LDR) to 60% and a further 65% in the latest directive issued in October 2019. According to the regulatory authority, failure to adhere to this will make the banks forfeit a sizeable amount of their deposits with the apex bank. Also, the activities of the Government in providing special funds through the Central Bank of Nigeria (CBN), Bank of Agriculture (BOA) and Bank of Industry (BOI) constitute efforts at ensuring that funds are made available to small and medium-scale enterprises (SMEs) and organized private sector for productive activities.

2.1.5 Commercial Bank Credit and Economic Growth

In the words of Nzotta and Okereke (2009), economic growth is the ability of an economy to increase its capability to produce goods and services over time. A growing economy is witnessed an increase in the production of goods and services for some consecutive years. The time horizon differs from country to country. Still, a growing economy can record a continuous increase in the production of goods and services for at least four years.

Okafor (2005) posits that the economic success of any nation in the long run is represented by the expansion of a country's potential Gross Domestic Product (GDP) or national output. Thisexpansion is made possible through increased economic production, mainly in the real sector. Bank credit to the real sector aims to expand production in the economy. Thus, the role of bank credit and the growth of modern economies seems inseparable. Bencivenga and Smith (1991) explained that the development of banks and efficient financial intermediation contributes to economic growth by channelling savings to highly productive activities and reducing liquidity risks.

2.1.6 Challenges of Banking Sector Credit in Financing SMEs in Nigeria

It is generally accepted by both practitioners and academics that SMEs serve as catalysts for the economic growth of any nation's economy. However, SMEs are faced with many challenges in Nigeria; one of the major challenges faced by SMEs is inadequate capital to finance their operations (Fatai, 2009). Empirical evidence shows that financing contributes about 25% to the success of SMEs in Nigeria (Ogujuiba et al, 2004). A World Bank report showed that 39% of small-scale and 37% of medium-scale firms in Nigeria are financially constrained. Many SMEs in Nigeria lack the capital to continue their business and are forced to wind up because they cannot access the required funds. A 2001 World Bank survey on Nigeria showed that although 85% of the firms had a relationship with banks, most had no credit access (Terungwa, 2011).

The lack of adequate financing for SMEs is traceable to, among other reasons, the reluctance of banks to extend credits to them for the following reasons: Inadequate collateral by SME operators, weak demand for the products of SMEs as a result of the dwindling purchasing power of Nigerians, lack of patronage of locally produced goods and poor management practices by SMEs operators.

2.2   Theoretical Framework:

2.2.1   Loan theory pricing.

The Loan pricing theory is one of the major theories which seek to explain the behavior of money deposits banks in their lending activities to SMEs. This Loan theory was postulated by Thompson Reuters in 1965 when he posits that bank cannot always set high interest rates by trying to earn maximum interest income. According to Chodechai, (2004), if commercial banks set interest rates too high, they may induce adverse selection problems because high risk borrowers (SMEs) are willing to accept these high rates but developed moral hazard behavior soon after collecting the loan since they are likely to take on more risky projects or investment. This makes repayment difficult.This theory forms the basis of including lending rates in the model, though as a moderator.

2.2.2   Schumpeterian Supply-Leading Theory

Schumpeter (1934) introduced the supply-leading theory or the finance-led growth hypothesis. The theory establishes the link between finance and economic growth. According to Schumpeter (1934), a well-functioning financial sector is required to support expansion in the real sector, which leads to economic growth. In other words, how well the financial sector grows or deepens determines economic growth. As the financial industry matures, the supply of financial services expands. The central argument underlying the supply-leading hypothesis is that financial deepening is a determining cause of economic growth. It claims that the development of the financial sector leads to optimal resource allocation. According to the supply-leading hypothesis, causality flows from finance to economic growth without any feedback from economic growth. A well-developed financial sector is a pre-condition for economic growth. The supply-led growth model assumes that financial sector development granger causes economic growth.

Schumpeter (1934) argued that in the long run, efficient allocation of savings through the identificationand extension of credit to entrepreneurs with the best chances of successfully implementing innovativeproducts and manufacturing processes accelerates output growth. According to Schumpeter, financial intermediation helps increase the economy's productive capacity.

The Schumpeterian Supply-Leading theory of financial intermediation served as the theoretical basis for this research. Here, financial intermediation (through efficient credit delivery to SMEs), spurs the economy's productive capacity. Financial sector development and deepening is reflected in this study by the amount of credit delivered to SMEs within the country. The transmission to economic growth follows from the fact that when money is created in combination with interest-bearing debt, a growth imperative is necessarily created, mainly, the charging of interest on debt is itself an underlying driver for economic growth, hence the justification of Lending rate in the model designed for this paper to act as the moderating variable.

2.3   Empirical Review

The study reviewed several studies that assessed the relationship between formal credit on SME's and the economy. Kanu and Nwadiubu (2021) evaluated the impact of commercial bank loans on the performance of small and medium-scale enterprises in Nigeria from 1990 to 2019. The study used the Multiple regression analysis on an annual time series dataset of small and medium scale enterprises (SMEs) output, commercial bank loans to SMEs, average capacity utilization, unemployment rate, interest rate, inflation, and exchange rate. The empirical result of the study indicated that an inverse relationship (though not statistically significant) exists between the amount of commercial bank loans made available to SMEs and the output of SMEs in Nigeria.

In a similar study, Olaoye et al. (2018) Reached the same conclusion as Kanu and Nwadiubu (2021). However, their study used descriptive analysis, correlation analysis, Multiple regression analysis, and Granger causality test. Variables used in the analyses were GDP, commercialbank loans to SMEs, average commercial bank lending rate, and inflation rate. Findings revealed thatcommercial bank loans to SMEs had a negative and insignificant impact on GDP. Commercialbank lending rate to SMEs negatively and insignificantly impacted GDP. Meanwhile, the study revealed that the inflation rate exerted a negligible positive effect on GDP. The result also showed that no causal relationship between explanatory variables and GDP in the country.

Using annual time series data, Adewole and Aderemi (2021) investigated the relationship between SMEs financing and sustainable economic growth between 1992 and 2019 in Nigeria. The study used Multiple regression analysis and the Granger causality procedure to conduct its empirical research. Data used for the empirical research are GDP growth rate, commercial bank loans to SMEs, commercialbank total credit to the private sector, broad money supply, and gross fixed capital formation. Empiricalfindings revealed that SMEs and GDP growth rate possess a positive and significant relationship. Gross fixed capital formation and commercial bank total credit to the private sector showed an insignificant positive relationship with the

GDP growth rate. The study further found a unidirectional causal flow from Broad money supply to gross fixed capital formation.

Also, Onyeiwu et al. (2021) examined the extent to which SME financing influenced economic growth in Nigeria using annual time-series data from 1999 to 2018. Using the multiple regression technique, the variables used in the empirical estimation are the aggregate of SMEs' contribution to GDP, gross capital formation, commercial bank credit to SMEs, lending rate, and electricity distribution. The empirical findings revealed that credit to SMEs had a positive and statistically significant impact on growth, but its impact was weak.

Similarly, using annual time series data, Iloh and Chioke (2015) examined the relationship between commercial bank credit indicators and the availability of credit facilities to SMEs and the Nigerian economy from 1980 to 2010. The study used a generalized least squares estimation technique on the variables of SME output, commercial banks' credit to SMEs, the exchange rate of naira, and the lending rate. The analysis showed that commercial banks' credit to SMEs significantly affects Nigeria's economic growth by positively affecting GDP, implying that SME financing is a great catalyst and a driving force for economic growth in Nigeria.

Additionally, Oke and Aluko (2015) examined the impact of commercial banks in financing small and medium-scale enterprises (SMEs) in Nigeria between 2002 and 2012. The study used a sample of ten commercial banks in the country. The empirical analysis was carried out using Panel regression analysis. Variables used in the analysis were SME finance, commercial bank credit to SMEs, commercial bank equity, and the ratio of commercial bank loans to SMEs to total credit in the economy. The empirical finding revealed that commercial banks significantly impact SMEs' financing in Nigeria.

Odufuye (2017) examined bank credit and its impact on Nigeria's economic growth for 24 years (1992-2015). The findings revealed that each of the explanatory variables, which include bank credit to manufacturing, agriculture, and commercial sectors,s has an insignificant impact on gross domestic product. Based on the f-statistic result, it was also discovered that the joint variables of bank credit significantly impact the gross domestic product for the period under review. The study concluded that properly channelled bank credit catalyses Nigerian economic growth.

Ubesie et al. (2017) ascertained the effect of deposit money banks' credit on small and medium-scale enterprises growth in Nigeria. An ex-post facto research design that employed secondary data from the Central Bank of Nigeria (CBN) Statistical Bulletin 2015 and the National Bureau of Statistics (NBS) was adopted for the period 1986 - 2015. The ordinary least squares regression method was used in the analysis of the data after conducting a stationarity test on the variables. The study finds out that deposit money banks 'credit to small and medium-scale enterprises has no significant effect on small and medium-scale enterprises' growth in Nigeria. Again, the result indicates that deposit money banks' credit to the private sector significantly affects the growth of Nigeria's small- and medium-scale enterprises. The result also shows that bank interest rates significantly and seriously affect small and medium-scale enterprises in Nigeria.

Muhammad et al. (2018) present a comparative analysis of Nigeria's more viable SME financing. The study incorporates the NPV technique to determine whether conventional banks' usury is more feasible than Islamic bank financing for SMEs' growth and innovation. Results based on the difference between the present value of entire loans receivable and the discounted loans payable from the 2000 -2017 sampled periods showed that Islamic bank has a positive and higher NPV; thus, it is far better and more worthwhile for enterprises to grow and innovate than the usury source of finance.

Concerning previous literature, this study represents a recent attempt examining commercial bank credit to SMEs and economic growth in Nigeria. Unlike earlier studies on a related topic, this study used the gross national product and maximum lending rate (a better proxy to capture the cost of credit) in its model selection. Additionally, it employed Robust Least Square for the Regression analysis to take care of the outliers. Additionally, the use of Toda Yamamoto (T-Y) procedure was employed to carry out the causal analysis.

The major findings identified in most of the empirical works reviewed so far is that despite commercial banks commitment to the SMEs, the performance of the SMEs in terms of its contribution to the economy has been on the decline hence the need to find out the justification for the reasons. In addition, there is the need to adopt the use of different analytical technique distinctive from the ordinary least square (OLS) technique used by most contributors to the study. The use of robust least square technique as alternative is adopted instaed.

3.0   Methodology

This study covered a period of thirty years, spanning from 1992 to 2022, in which Gross domestic product (GDP) was used to proxy Nigeria's economy as the dependent variable, while Commercial Bank credits to SMEs (CBLSMES), Average Commercial Bank Lending Rate (ACBLRSMES), Small and Medium Scale Output (SMEQ) and Inflation Rate (INFR) were used to proxy Small and Medium Scale Enterprises (SMEs) as the explanatory variables. This research captures these facts and deems it necessary to research them.

In carry out this research, an ex-post facto research design was adopted. According to Anyanwu (2014), Ex-post facto research design is a systematic empirical inquiry in which the researcher does not have direct control of the independent variables because they are not manipulable. In effect, there was no interference from the researcher. A Robust Least Square regression analysis was used to estimate the study's parameters. This method is an alternative to Ordinary Least Square estimation as it is insensitive to small departures from idealized assumptions called outliers and also helpful in detecting influential observations.

3.1   Data sources

A secondary source of data was employed for this study. Secondary data were collected from the Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistics (for thirty – one years) from 1992 to 2022. Data were analyzed using correlation, regression, and the Granger causality test.

3.2   Variables and measurements

The research adopts the model of financial intermediation as specified by Afolabi (2013) and Dada (2014) in Ehikioya and Ismaila (2014) with modification by including inflation rates, which has persistently been on the increase in recent period in the Nigerian economy. Therefore, the model for the study is specified to examine the impact of commercial bank financing of small and medium sized enterprises on economic growth in Nigeria. The variables were measured in percentages hence do not required taking the logarithms of the data. A schematic presentation of the model is as follows:

$$GDP = f\left(CBCSMEs, ACBLRSMES, \ SMEQ, \ INFR\right) \tag{0.1}$$

Where;

GDP =Gross Domestic Product,

CBCSMEs = Commercial bank credit to SMEs,

ACBLRSMEs = Average commercial bank lending rate to SMEs,

SMEQ = SMEs output proxied for wholesale and retail trade output,

INFR = Inflation rate.

The econometric form of Equation 1 is presented as:

$$GDP = \alpha_0 + \beta_1 CBCSMEs + \beta_2 ACBLRSMES + \beta_3 INFR + \beta_4 SMEQ + \mu \tag{0.2}$$

Where

b_0 represents the intercepts or constants;

b_1– $b5$ indicates coefficient of the independent variables

μ represents disturbance term.

GDP was the dependent variable in the test of the hypothesis while CBCSMEs and SMEQ are the independent variables. ACBLRSMEs and INFR are the control variables. These variables will be used to ascertain the relationships.

3.3　Tools of Analysis

This sub-section describes the various tools used in carrying out the analysis.

3.3.1　Descriptive Statistics

A descriptive statistics of the variables is required to determine the mean, median and standard deviations of the variables from the mean. The value of the Jarque-Bera statistics will determine the normality of the distribution of the variables. A variable is not normally distributed when its probability value is less than 5% and vice versa.

3.3.2   Unit Root Test

This study applied unit root test to determine if the data is stationary before any analysis can be conducted. This is required to validate the data for analysis. The results of the unit root test using Augmented Dicky-Fuller are presented below. According to Gujarati and Porter (2009), the ADF rules state that ADF must be higher than the critical values in absolute term for it to be stationary.

3.3.3   Co-integration Test

The co-integration tests are used to check for long-run relationships between the dependent and independent variables. This was carried out using the Johansen technique.

3.3.4   Causality Test

According to Eingen and Granger (1987), causality test is used to test the relationship between variables in order to ascertain which of the variables affect the other and also know the direction of the causality (unidirectional, bi-directional or no causal relationship). The use of granger causality test for this paper is justified for the investigation of the relationship between CBCSMEs, SMEQ, ACBLRSMEs, INFR and GDP. The hypothesis is thus:

H_0 = There is no causality

H_1 = There is causality.

The decision rule is that when the probability value > 5%, we accept the null hypothesis and reject the alternate.

3.3.5   Robust Least Square

The model was estimated using the Robust Least Squares technique. Robust least squares refer to a variety of regression methods designed to be robust or less sensitive to outliers. E-view offers three methods for robust least squares: M-estimation, S-estimation, and MM-estimation. Robust is an alternative to least squares regression when data is contaminated with outliers or influential observations and can also be used to detect influential observations. It dampers the influence of outlying cases to provide a better fit to the majority of the data and provide less restrictive assumptions. This study adopts the MM estimation since it combines both the M-estimation and S-estimation techniques. It addresses outliers in dependent and independent variables (Yohai, 1987).

Robustness checks are necessary to examine how specific core regression coefficient estimates behave as a result of modification in some way by adding or removing regressors. Therefore, the Breusch-Pagan test is run to know if the effect of including additional control variables, as in this case, the inflation rate in the model will satisfy our a-priori expectation

of a positive relationship between CBCSMEs, SMEQ and GDP while it is expected that a negative relationship exist between INFR, ACBLRSMEs and GDP.

4.0   Data Analysis and Presentation.

The E-view 9.0 statistical package was used to carry out the analysis and the following results were obtained.

4.1   Descriptive statistics

Table 1: Descriptive statistics

	CBCSME	INFR	ACBLRSME	GDP	SMEQ
Mean	7.741613	18.52194	16.29452	4.305806	48.38323
Median	0.850000	12.90000	17.26000	4.230000	53.71000
Maximum	48.80000	72.80000	29.80000	15.33000	61.34000
Minimum	0.070000	5.400000	4.500000	-1.810000	29.29000
Std. Dev.	11.80691	16.10462	5.633206	3.627795	10.25823
Skewness	1.847462	2.111594	-0.386116	0.546511	-0.800675
Kurtosis	6.114753	6.537200	3.375900	4.139029	1.966485
Jarque-Bera	30.16577	39.19835	0.952791	3.218943	4.691949
Probability	0.000000	0.000000	0.621018	0.199993	0.095754
Sum	239.9900	574.1800	505.1300	133.4800	1499.880
Sum Sq. Dev.	4182.091	7780.762	951.9904	394.8270	3156.938
Observations	31	31	31	31	31

Source: Author's computation, 2023

It can be observed from Table 1 above that CBCSMEs had an average value of 7.741613. The maximum value recorded for CBCSMEs is 48.8000, with a standard deviation of 11.80691. GDP had a mean value of 4.305806, and the standard deviation around the mean was 3.627795. CBLRSMEs recorded an average of 16.29452 and a standard deviation of 5,633206. INFR and SMEQ recorded averages of 18.52194 and 48.38323, respectively, with standard deviations of 16.10462 and 10.25823, respectively.

Based on the probability values of the Jarque-Bera Statistics, CBCMSEs and INFR are not normally distributed because their probability values are less than 0.05 (5%), that is, 0.0000 and 0.0000, respectively. However, ACBLRSMEs, GDP, and SMEQ are typically distributed based on their probability values of 0.621018, 0.19993, and 0.095754, respectively. Hence, the null hypothesis that the variables are normally distributed can be rejected.

Table 2: Augmented Dicky-Fuller (ADF) unit root test results

Variable	Adf statistic	Critical value @ 5%	Probability value @ 5%	Order of stationarity	Decision
CBCSME	-5.852191	-4.374307	0.0004	1(0)	Stationary
INFR	-5.883567	-4.374307	0.0003	1(1)	Stationary
ACBLRSMEs	-3.3606542	-3.568379	0.0462	1(0)	Stationary
GDP	-7.055697	-3.574244	0.0000	1(1)	Stationary

| SMEQ | -4.310394 | -3.574244 | 0.0100 | 1(1) | Stationary |

Source: Author's computation, 2023

From table 2 table above, the ADF statistics show that CBCSMEs and ACBLRSMEs were stationary at level with 5% level of significance and probability values of 0.0004 and 0.0462 levels, respectively. On the other hand, INFR, GDP and SMEQ are all stationary at first, differing with intercept at a 5% level of significance and probability values of 0.0003, 0.0000, and 0.0100. Since these results exhibit stationarity at different levels, it is necessary to carry out a co-integration test using the Johansen Co-integration test to ascertain whether a long-run equilibrium relationship exists among the variables in the model.

4.3   Co-integration Test

Table 3a: Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.912451	138.8249	79.34145	0.0000
At most 1 *	0.708590	68.19383	55.24578	0.0024
At most 2	0.469770	32.43615	35.01090	0.0920
At most 3	0.308421	14.03728	18.39771	0.1833
At most 4	0.108871	3.342729	3.841466	0.0675

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level.Mackinnon-Hang-Michelis(1999) p-values

Table 3: Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.912451	70.63110	37.16359	0.0000
At most 1 *	0.708590	35.75768	30.81507	0.0115
At most 2	0.469770	18.39886	24.25202	0.2458
At most 3	0.308421	10.69455	17.14769	0.3363
At most 4	0.108871	3.342729	3.841466	0.0675

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source:Author's computation, 2023

From the tables above, since the trace statistic of 138.8249 is greater than the critical value of 79.34145 (table 3a) and the maximum eigenvalue statistic of 70.63110 is also greater than the critical value of 37.16359 (table 3b). when CE is none, the study rejects the null hypothesis at 5% level of no co-integration and concludes that co-integration exists between GDP and commercial bank lending to SMEs. The significance of the CE at none in both trace and maximum eigenvalue tests depicts two (2) co-integrating equations showing the long-run relationship between CBCSMEs, SMEQ, ACBLRSMEs, INFR and GDP in Nigeria.

4.4   Robust Least Square Regression Results

The results of the least square results using the M-estimation technique is presented in Table 4 below.

Table-4. Robust Least Square Regression Results.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
CBCSMEs	-0.010399	0.073831	-0.140854	0.8880
INFR	-0.077966	0.036566	-2.132209	0.0330
ACBLRSMEs	0431867	0.092448	4.671485	0.0228
C	-8.146826	3.611301	-2.255925	0.0241
	Robust Statistic			
R-squared	0.51491	Adjusted R-squared		0.440028
Rw-squared	0.661922	Adjust Rw-squared		0.661922
Akaike infor criterion	37.22098	Schwarz criterion		47.07034
Deviance	115.9708	Scale		1.969109
Rn- squared Statistic	39.49511	Prob (Rn- squared Stat)		0.000000

Source: Author's computation, 2023

The result presented in Table 4 revealed the impact of commercial bank credits to SMEs, average commercial bank lending rates to SMEs, and inflation rates on Nigeria's economy measured in terms of gross domestic product. As depicted in the table, INFR exerts a negative and significant relationship on GDP, which aligns with the apriori expectation as a 1% increase in inflation rate results in a 0.07% decrease in GDP. CBCSMEs exerts a negative impact on the gross domestic product. Commercial bank credits' relative impact on SMEs' GDP stood at -0.010399, with a non-significant probability value of 0.08880. This is against the a-priori expectation as the result shows that a 1% increase in CBCSMEs will result to 0.01% decrease in GDP. The Average commercial bank lending rate's relative impact on SMEs stood at 0.431867 with a significant probability value of 0.00000. The relative impact of the inflation rate stood at -0.077966 with a significant probability value of 0.0330. The relative impact of small and medium-scale output stood at 0.144123 with a significant probability value of 0.0228. The reported R-square value stood at 0.514691, which implies that about 51% of the systematic variation in Nigeria's economy measured in terms of the gross domestic product can be explained by commercial bank credits to SMEs and SMEs output with average commercial bank lending rate to SMEs and inflation rate taking as control variables.

4.5   Causality Test

Table-5. Causal Relationship between Gross domestic product and commercial bank credits to SMEs.

Null Hypothesis:	Obs	F-Statistic	Prob.
CBCSMES does not Granger Cause GDP	29	0.47440	**0.6280**
GDP does not Granger Cause CBCSMES		1.26357	**0.3008**

Source: Author's computation, 2023

The Granger causality test result in Table 3 reflects the causal relationship between Gross domesticproduct and commercial bank credits to SMEs. The result reported f-statistics of 1.26357 and 0.47440 alongside probability values of 0.3008 and 0.6280 for the hypotheses tested. The result revealed no causal relationship between commercial bank credits to SMEs and Nigeria's economy measured in terms of Gross Domestic Product.

Table-6. Causal Relationship between Gross domestic product and Average commercial bank lending rate to SMEs.

Null Hypothesis:	F-Statistic	Prob.
ACBLRSMES does not Granger Cause GDP	1.05672	0.3632
GDP does not Granger Cause ACBLRSMES	0.66977	0.5211

Source: Author's computation, 2023

The Granger causality test result presented in Table 4 reflects the causal relationship between Gross domesticproduct and Average commercial bank lending rate to SMEs. The result reported f-statistics of 0.66977 and 1.05672 alongside probability values of 0.5211 and 0.3632 for the hypotheses tested. The result revealedno causal relationship between the Average commercial bank lending rate to SMEs and Nigeria's economy measured in terms of Gross Domestic Product.

Table-7. Causal Relationship between Gross Domestic Product and Inflation Rate Inflation rate.

Null Hypothesis:	F-Statistic	Prob.
INFR does not Granger Cause GDP	0.71045	0.5015
GDP does not Granger Cause INFR	0.42267	0.6601

Source: Author's computation, 2023

The Granger causality test result in Table 5 reflects the causal relationship between GDP and Inflation rate. The result reported f-statistics of 0.42267 and 0.71045 alongside probability y values of 0.6601 and 0.5015 for the hypotheses tested. The result revealed no causal relationship between the Inflation rate and Nigeria's economy measured in terms of Gross Domestic Product.

Table-8. Causal Relationship between SMEs' output and Gross Domestic Product.

Null Hypothesis:	F-Statistic	Prob.
SMEQ does not Granger Cause GDP	0.79195	0.4644
GDP does not Granger Cause SMEQ	0.10904	0.8971

Source: Author's computation, 2023

The Granger causality test result in Table 6 reflects the causal relationship between SME output and GDP. The result reported f-statistics of 0.79195 and 0.10904 and probability values of 0.4644 and 0.8971 for the tested hypotheses. The result revealed that there is no causal relationship between SME output and GDP.

4.6   Diagnostic tests

Some diagnostic checks were carried out prior to discussing the results to guarantee that the estimated model is efficient and consistent. Table 9 summarises the results of the testing.

The Breusch-Godfrey serial correlation test reveals that there is no serial correlation in the model, as evidenced by an F-statistics of 0.334995 and a probability value of 0.7186. The F-statistics of 0.440657 with a probability value of 0.7781 from the Breusch-Pagan-Godfrey test suggest that there is no heteroscedasticity in the model. In general, the estimated probability values for all test statistics were determined to be significant at levels above 0.05.

Table 9: diagnostics test results

Test	f-start	Degree of freedom	Prob.
Serial correlation (Breush-Godfrey LM test)	0.334995	F(2,24)	0.7186
Heteroskedasticity test (Breush-Pagan Godfrey)	0.440657	F(4,26)	0.7781
Normality test (Jarque-Bera statistics)	1.872686	Na	0.3921

Source: Author's computation, 2023

4.7 Cusum Test

The study also used the cumulative sum of square residuals (CUSUM) and cumulation sum of squared recursive residuals (CUSUMSQ) tests to confirm the model's structural stability. At the 5% significance level, the blue lines in the CUSUM and CUSUMSQ plots stayed within the critical boundaries as shown in Figures 1 and 2 in the appendix.

4.8 Normality Test

Figure 3 in appendix shows that the value of Jacque-Bera statistics is 1.872686 with a p-value of 0.392059, indicating that it is insignificant at 5%. Therefore, we accept the null hypothesis, H0, and conclude that the model is not normally distributed or that the residuals are not generally normally distributed. The figure displayed high kurtosis with an appropriate value of 4.202892, above a normal distribution of 3.0. Therefore, the frequency of data values is negatively skewed; hence, the outliers are frequent and leptokurtic. The skewness value (-0.026796) is below 0.5. Consequently, the distribution is negatively skewed.

5.0 Conclusion and Recommendations

1 This study provides an attempt to examine commercial bank credits to small and medium-scale enterprises and their impact on the Nigerian economy. The study reveals that commercial bank credits to SMEs exert a negative non-significant probability value on the Nigerian economy, measured in terms of gross domestic product (GDP). This agrees with the work of Afolabi (2013), who found a negative relationship between the lending rate and economic growth. The relative impact of the inflation rate on the economy is negative and significant.

This is inconsistent with the findings of Olaoye et al (2018) and Ilegbinosa and Jumbo (2015) in their studies of Small and Medium Scale Enterprises financing and Nigeria's economic growth from 1970 to 2012. Both studies affirmed that the inflation rate positively influence economic growth. This study also revealed that commercial banks' financing of SMEs in Nigeria has a positive and significant relationship with the output of SMEs. This implies that the higher the funding to SMEs, the higher their output level. This affirmed the findings of Kekereowo and Zummo (2023) that SMEs' output level due to funding from commercial banks has a positive impact on the growth of the economy.

As a result of these outcomes, the study recommends that:

1. The Government should open up more opportunities for SMEs to access productive and affordable credits for increased output that translates to increased GDP.

2. In addition, the lending rate of credits accessed by SMEs from commercial banks should be reduced to a digit figure by the government to enhance a reduction in the unit cost of production and improve output that will eventually translate to higher growth of the Nigerian economy.

3. The study also recommends that government should exert adequate controls that could encourage the finances of SMEs, quanranty commercial banks loan to SMEs, favour the financial systems for SMEs, put flexible regulations in favour of SMEs in Nigeria, and provide social amenities that would enhance adequate credits to SMEs and consequently their productivity.

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Appendix

Figure 1: Cumulative Sum of Squared
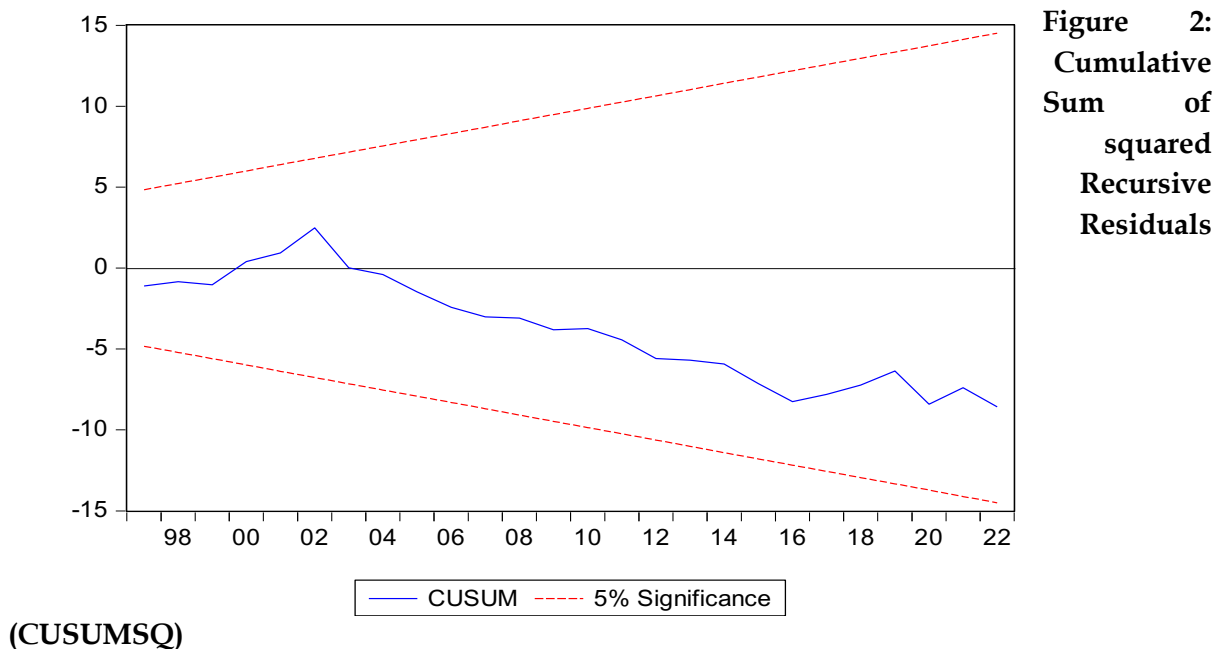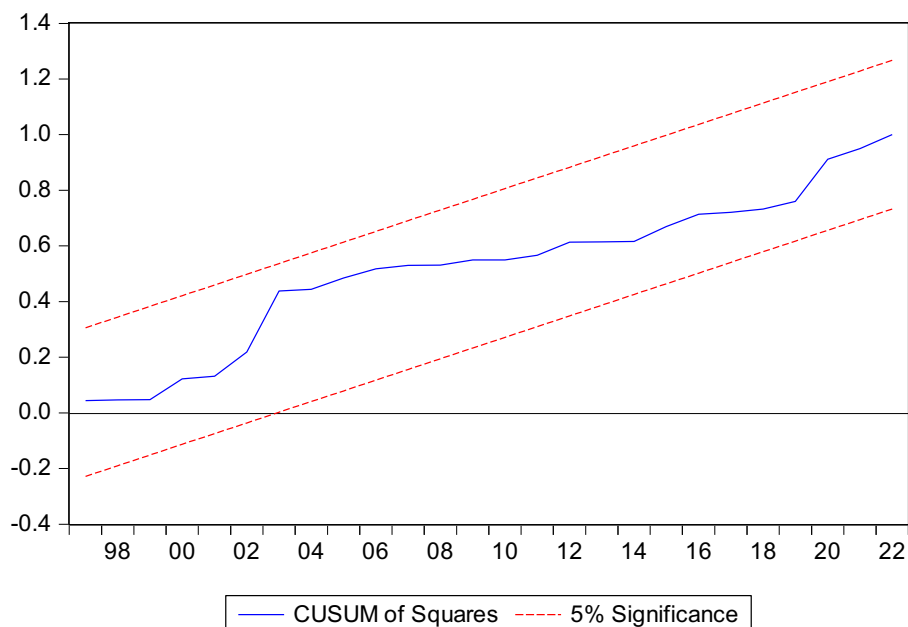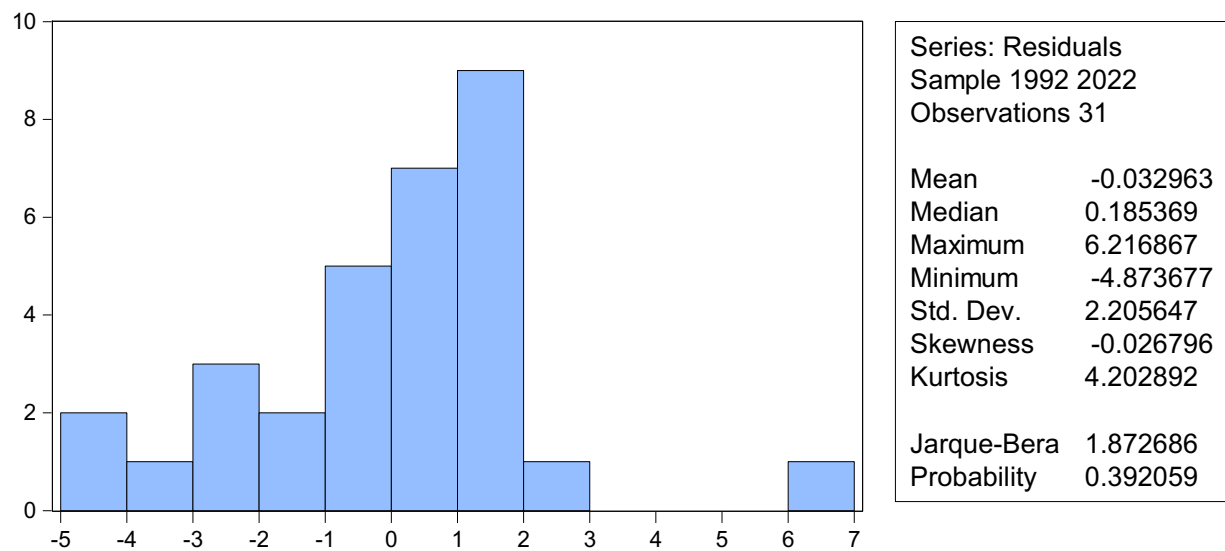
Square Residuals (CUSUM)

Figure 2: Cumulative Sum of squared Recursive Residuals

(CUSUMSQ)

Figure 3: Normality Test

Series: Residuals	
Sample 1992 2022	
Observations 31	
Mean	-0.032963
Median	0.185369
Maximum	6.216867
Minimum	-4.873677
Std. Dev.	2.205647
Skewness	-0.026796
Kurtosis	4.202892
Jarque-Bera	1.872686
Probability	0.392059

Source: Author's computation, 2023