



Bank sector credit allocation and industrial growth in Nigeria

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Abstract

This study examined the effect of bank sector credit allocation on industrial growth in Nigeria from the period of 1990 to 2023 (34years). Bank sector credit allocation proxied Credit to Manufacturing Sector (CMS), Credit to Agricultural Sector (CAS), Credit to Mining and Quarrying Sector (CMQS), Credit to Real Estate and Construction sector (CRECS), Credit to General Commerce Sector (CGCS) and Credit to Small and Medium Scale Enterprises (CSMSE) in relation to industrial growth proxied with Industrial Output (IO) in Nigeria. The CBN Statistical Bulletin from 1990-2023 were used to acquire data for the research and analyzed with Descriptive statistics, correlation analysis, diagnostics tests, unit root test, Johannsen cointegration test and ordinary least multiple regression analysis were used to assess the research hypotheses. In the light of the findings, CMS, CAS, MQS and CGCS have significant effects on IO in Nigeria while CRECS and CSME do not have significant effect on IO in Nigeria. Hence, the study concluded that bank sector credit allocation have significant effect on industrial growth in Nigeria in Nigeria. The study recommended that Policymakers should prioritize increasing credit access to the manufacturing sector to stimulate industrial growth. This can be achieved through favorable lending rates and incentives for financial institutions. The government should implement policies that encourage investment in the manufacturing and agricultural sectors, such as tax incentives and subsidies. The government should implement programs that facilitate credit access for agricultural producers, ensuring a steady supply of raw materials for the manufacturing sector. This study contributes to the existing body of knowledge by providing empirical evidence on the differential impacts of credit allocation across various sectors on industrial output in Nigeria. It highlights the sectors that are critical for industrial growth and underscores the need for strategic financial interventions.

Key Words: Bank Sector, Credit, Allocation, Manufacturing, Real Estate, Construction,

Introduction

The banking sector plays a pivotal role in the economic development of nations, particularly in emerging economies like Nigeria. As a critical intermediary in the financial system, banks facilitate the

allocation of credit, which is essential for fostering industrial growth and overall economic stability. The relationship between bank credit allocation and industrial growth has garnered significant attention from researchers and policymakers alike, as it is

widely recognized that access to finance is a fundamental driver of industrialization and economic diversification (Akinlo & Egbetunde, 2020; Ojo, 2020). Bank credit serves as a vital source of funding for businesses, enabling them to invest in capital, expand operations, and innovate. According to Akinlo and Akinlo (2021), access to credit is essential for enhancing productivity and fostering industrial growth. In Nigeria, where the manufacturing sector is crucial for job creation and economic diversification, the allocation of bank credit to this sector can significantly impact industrial output and growth (Ogunleye & Ojo, 2020). The banking sector plays a pivotal role in the economic development of nations, particularly in emerging economies like Nigeria. Credit allocation by banks is a critical determinant of industrial growth, as it influences the capacity of various sectors to expand, innovate, and contribute to overall economic productivity. In Nigeria, the allocation of credit to key sectors such as manufacturing, agriculture, small and medium-sized enterprises (SMEs), mining and quarrying, general commerce, as well as real estate and construction, has significant implications for industrial growth. The manufacturing sector is often regarded as the backbone of industrialization, providing jobs, enhancing productivity, and fostering technological advancement (Ogunleye, 2021). In Nigeria, the manufacturing sector has faced numerous challenges, including inadequate financing, which has hindered its growth potential. According to the Central Bank of Nigeria (CBN, 2022), a substantial portion of bank credit is directed towards manufacturing, yet the sector still struggles with undercapitalization and infrastructural deficits. This situation underscores the need for a more strategic allocation of credit to stimulate growth and competitiveness. Similarly, the agricultural sector is crucial for Nigeria's economy, employing a significant portion of the population and contributing to food

security (Akinwumi et al., 2020). Access to credit is essential for farmers to invest in modern technologies and practices that can enhance productivity. Recent studies indicate that increased bank credit to agriculture correlates positively with agricultural output, thereby supporting industrial growth through improved supply chains and raw material availability (Ojo & Adebayo, 2023). Small and medium-sized enterprises (SMEs) are often referred to as the engine of economic growth due to their potential for job creation and innovation. However, SMEs in Nigeria face significant barriers to accessing credit, which limits their ability to scale operations and contribute to industrial growth (Ogunbiyi, 2022). The Nigerian banking sector's focus on larger corporations often leaves SMEs underserved, highlighting the need for policies that promote equitable credit distribution. One of the critical factors influencing the growth and sustainability of this sector is access to credit, particularly credit extended to general commerce. The interplay between credit availability and industrial performance is profound, as it affects the capacity of businesses to invest in production, expand operations, and innovate. Recent studies indicate that the accessibility and affordability of credit can either bolster or hinder industrial growth, depending on various economic conditions and regulatory frameworks (Ogunleye & Adebayo, 2022; Uche & Nwankwo, 2023). In the context of Nigeria, credit to general commerce is crucial for small and medium-sized enterprises (SMEs) that often face challenges in accessing traditional banking services. The provision of credit enables these businesses to procure inventory, invest in technology, and expand their market reach, thereby enhancing their competitiveness in the industrial sector (Afolabi & Ojo, 2023). The mining and quarrying sector, while less emphasized, also plays a vital role in Nigeria's industrial landscape. The sector is rich in mineral

resources, and adequate credit allocation can facilitate exploration and extraction activities, thereby contributing to industrial growth (Nwankwo et al., 2021). Furthermore, the real estate and construction sector is integral to infrastructure development, which is essential for supporting other industries. Investment in this sector through bank credit can lead to improved facilities and services that enhance overall industrial productivity (Ojo, 2023). Thus, the impact of bank sector credit allocation on industrial growth in Nigeria is multifaceted and significant.

In Nigeria, the banking sector has undergone substantial reforms aimed at enhancing its efficiency and capacity to support industrial activities. These reforms have included the consolidation of banks, the introduction of new regulatory frameworks, and the promotion of financial inclusion initiatives (Central Bank of Nigeria [CBN], 2021). Despite these efforts, challenges such as inadequate credit supply, high-interest rates, and a lack of collateral continue to hinder the ability of industries, particularly small and medium-sized enterprises (SMEs), to access necessary funding (Ogunleye&Akinola, 2021). The Industrial sector in Nigeria is crucial for economic growth, contributing significantly to GDP and employment. However, it has faced numerous challenges, including infrastructural deficits, policy inconsistencies, and a volatile macroeconomic environment (World Bank, 2022). The interplay between bank credit allocation and industrial growth is therefore critical to understanding how financial resources can be effectively mobilized to stimulate industrial activities and enhance economic resilience.

This paper aims to investigate the impact of bank sector credit allocation on industrial growth in Nigeria, focusing on the mechanisms through which credit influences industrial performance. It will explore the extent to which access to bank credit affects investment decisions, production capacity,

and overall industrial output. By examining the dynamics of credit distribution to the manufacturing sector, agriculture, SMEs, mining and quarrying, general and real estate and construction, this study aims to provide insights into how strategic financial interventions can foster industrial growth in Nigeria.

Objectives of the Study

The main objective of this study is to examine the effect of bank sector credit allocation on industrial growth in Nigeria. To achieve this, the objectives are further broken into units that were outlined below:

1. Determine the effect of Credit to Manufacturing Sector (CMS) on Industrial Output (IO) in Nigeria.
2. Investigate the extent to which Credit to Agricultural Sector (CAS) enhance Industrial Output (IO) in Nigeria.
3. Evaluate the impact of Credit to Mining and Quarrying Sector (CMQS) on Industrial Output (IO) in Nigeria.
4. Investigate the extent to which Credit to Real Estate and Construction sector (CRECS) enhance Industrial Output (IO) in Nigeria.
5. Explore the effect of Credit to General Commerce Sector (CGCS) on Industrial Output (IO) in Nigeria.
6. Examine the extent to which Credit to Small and Medium Scale Enterprises (CSMSE) enhance Industrial Output (IO) in Nigeria.

Conceptual Review

Bank Sector Credit Allocation

The banking sector plays a pivotal role in the economic development of nations by facilitating credit allocation across various sectors. Credit allocation refers to the distribution of financial resources by banks to different sectors of the economy, which is crucial for fostering growth, innovation, and sustainability. Among the key sectors that benefit from bank credit are manufacturing,

agriculture, small and medium-sized enterprises (SMEs), mining and quarrying, general commerce and real estate and construction. Each of these sectors has unique characteristics and requirements that influence their access to credit, which in turn impacts overall industrial growth.

Credit to the Manufacturing Sector: The manufacturing sector is often regarded as the backbone of industrial economies, contributing significantly to GDP and employment. Access to credit is essential for manufacturers to invest in technology, expand production capacity, and enhance competitiveness. Recent studies indicate that increased credit availability to the manufacturing sector correlates with higher productivity and innovation (World Bank, 2022). However, challenges such as stringent lending criteria and high collateral requirements can hinder access to finance for manufacturers, particularly small and medium-sized firms (OECD, 2021).

Credit to the Agricultural Sector: Agriculture is another critical sector that relies heavily on bank credit for its operations. Access to financial resources enables farmers to invest in modern equipment, seeds, and fertilizers, thereby increasing productivity and food security. Despite its importance, the agricultural sector often faces barriers to credit, including perceived risks and lack of collateral (FAO, 2021). Recent initiatives aimed at improving financial inclusion for farmers, such as microfinance and agricultural credit schemes, have shown promise in enhancing credit access and promoting sustainable agricultural practices (IFAD, 2022).

Credit to Small and Medium Scale Enterprises (SMEs): SMEs are vital for economic growth, job creation, and innovation. However, they frequently encounter difficulties in securing credit due to their size, lack of credit history, and perceived risk by lenders. The banking sector's ability to

provide tailored financial products and services to SMEs is crucial for their growth and sustainability (European Commission, 2021). Recent trends indicate a growing recognition of the importance of SMEs, leading to the development of specialized lending programs and support initiatives aimed at enhancing their access to finance (World Bank, 2022).

Credit to Mining and Quarrying: The mining and quarrying sector is essential for resource extraction and contributes significantly to national economies. However, it is capital-intensive and often requires substantial upfront investment. Access to credit is critical for mining companies to finance exploration, development, and operational activities. The sector's cyclical nature and exposure to commodity price fluctuations can pose challenges for banks in assessing credit risk (International Council on Mining and Metals, 2021). Nevertheless, innovative financing solutions, such as project financing and partnerships, are emerging to support this sector's credit needs (Deloitte, 2022).

Credit to General Commerce: Credit to general commerce serves as a lifeline for businesses, particularly in developing economies like Nigeria, where access to financial resources is often limited. The significance of credit in fostering economic growth cannot be overstated, as it directly influences the operational capabilities of firms within the industrial sector. In Nigeria, the industrial landscape is characterized by a diverse range of activities, including manufacturing, construction, and services, all of which rely heavily on the availability of credit to sustain their operations and drive growth (Ogunleye & Adebayo, 2022). The Nigerian government has recognized the importance of credit to general commerce in stimulating industrial growth and has implemented various policies aimed at improving access to finance for businesses. However, challenges such as high-interest

rates, stringent lending criteria, and inadequate financial infrastructure continue to impede the flow of credit to the industrial sector (Uche & Nwankwo, 2023). Recent research highlights the need for innovative financing solutions and the role of microfinance institutions in bridging the credit gap for SMEs, which are vital for the industrial sector's growth (Afolabi & Ojo, 2023). Moreover, the impact of credit on the industrial sector extends beyond mere financial transactions; it influences the overall economic environment, including employment rates, technological advancement, and export capabilities.

Credit to Real Estate and Construction:

The real estate and construction sector is a significant driver of economic growth, providing employment and contributing to infrastructure development. Access to credit in this sector is vital for residential and commercial projects. However, the sector is often subject to regulatory constraints and market volatility, which can affect lending practices (McKinsey & Company, 2021). Recent trends indicate a shift towards sustainable construction practices, prompting banks to develop green financing options to support environmentally friendly projects (UNEP, 2022).

Industrial Growth

The interplay between credit allocation and industrial growth is complex and multifaceted. Adequate credit supply to key sectors can stimulate investment, enhance productivity, and drive economic expansion. Conversely, limited access to finance can stifle growth and innovation. Policymakers and financial institutions must work collaboratively to create an enabling environment that fosters credit availability while managing risks (IMF, 2022). As economies continue to evolve, understanding the dynamics of credit allocation across sectors will be crucial for sustainable industrial growth.

Theoretical Review

Supply-Leading Hypothesis

Theoretical propositions on the effect of bank lending on output growth dates back to Schumpeterian “supply-leading hypothesis”. Schumpeter (1934) argues that efficient allocation of savings through the identification and extension of credit to entrepreneurs with the best chances of successfully implementing innovative products and production process accelerates output growth in the long-run. To Schumpeter, financial intermediation serves as a useful tool for increasing the productive capacity of the economy. The supply-leading hypothesis posits that the growth of the financial sector, particularly through the allocation of credit, plays a crucial role in stimulating economic growth. This theory suggests that an increase in the supply of credit can lead to enhanced investment in productive sectors, thereby fostering industrial growth and overall economic development. In the context of Nigeria, a country characterized by a diverse economic landscape, the allocation of bank sector credit to various sectors such as manufacturing, agriculture, small and medium-sized enterprises (SMEs), mining and quarrying, and real estate and construction is pivotal for understanding the dynamics of industrial growth. Nigeria's economy has undergone significant transformations over the past few decades, with the financial sector emerging as a critical driver of economic activity. The banking sector's role in credit allocation is particularly important, as it influences the availability of funds for investment in key sectors that contribute to industrial output. For instance, the manufacturing sector, which is vital for job creation and economic diversification, relies heavily on access to credit for capital investment and operational expansion (Ogunleye&Akinola, 2021). Similarly, the agricultural sector, which employs a

significant portion of the Nigerian workforce, requires adequate financing to enhance productivity and ensure food security (Akinwumi et al., 2020).

Moreover, small and medium-sized enterprises (SMEs) are recognized as engines of growth in many economies, including Nigeria. They contribute substantially to employment and innovation but often face challenges in accessing credit (Oni & Adebayo, 2022). The mining and quarrying sector, with its potential for export and foreign exchange earnings, also depends on sufficient credit allocation to develop infrastructure and technology (Ogunbiyi et al., 2021). Lastly, the real estate and construction sector is crucial for urban development and infrastructure provision, necessitating significant investment that is often facilitated through bank credit (Ojo&Ojo, 2023). The relationship between bank credit allocation and industrial growth in Nigeria is complex and multifaceted. While the supply-leading hypothesis suggests that increased credit can stimulate growth, it is essential to consider the quality and efficiency of credit allocation. Factors such as interest rates, credit risk assessment, and the regulatory environment can significantly influence the effectiveness of credit in promoting industrial growth (Adegbe et al., 2022). Furthermore, the impact of credit allocation may vary across sectors, necessitating a nuanced understanding of how different sectors respond to changes in credit availability.

By implication, the supply-leading hypothesis provides a valuable framework for analyzing the impact of bank sector credit allocation on industrial growth in Nigeria. By examining the specific contributions of credit to the manufacturing sector, agriculture, SMEs, mining and quarrying, general commerce and real estate and construction, this study aims to shed light on the critical role of financial intermediation in fostering economic development in Nigeria.

Theory of Financial Intermediation

Financial intermediation theory was first formalized in the works of McKinnon (1973) and Shaw (1973) that see financial markets as playing a pivotal role in economic development, attributing the differences in economic growth across countries to the quantity and quality of services provided by financial institutions. The theory of financial intermediation plays a pivotal role in understanding the dynamics of financial systems and their impact on economic growth. Financial intermediaries, such as banks, serve as crucial conduits between savers and borrowers, facilitating the flow of funds within an economy. This intermediation process is essential for mobilizing savings, allocating resources efficiently, and managing risks, thereby fostering economic development (Diamond & Dybvig, 2019). In the context of Nigeria, a country characterized by a diverse economic landscape, the allocation of bank sector credit to various sectors—such as manufacturing, agriculture, small and medium-sized enterprises (SMEs), mining and quarrying, general commerce and real estate and construction—has significant implications for industrial growth.

The manufacturing sector is often viewed as a cornerstone of economic development, contributing to job creation, innovation, and export diversification (Ogunleye, 2020). Similarly, the agricultural sector remains vital for food security and rural development, while SMEs are recognized for their role in enhancing economic resilience and fostering entrepreneurship (Akanbi & Ojo, 2021). The mining and quarrying sector, alongside real estate and construction, also plays a critical role in infrastructure development and resource extraction, which are essential for industrial growth. In Nigeria, the allocation of credit to these sectors is influenced by various factors, including regulatory frameworks, economic policies, and the overall health of

the banking sector. The Central Bank of Nigeria (CBN) has implemented several initiatives aimed at enhancing credit access to these sectors, recognizing their potential to drive industrial growth and economic diversification (CBN, 2022). However, challenges such as inadequate infrastructure, high-interest rates, and limited financial literacy continue to hinder effective credit allocation and utilization.

Recent studies have highlighted the relationship between bank credit allocation and industrial growth in Nigeria. For instance, Adegbite et al. (2021) found that increased credit to the manufacturing sector positively correlates with industrial output, while credit to SMEs significantly contributes to job creation and economic stability. Furthermore, the agricultural sector's access to credit has been linked to improved productivity and income levels among farmers, thereby enhancing overall economic growth (Ojo & Ogunleye, 2022).

This paper aims to explore the theory of financial intermediation and its relevance to the impact of bank sector credit allocation on industrial growth in Nigeria. By examining the specific contributions of credit to the manufacturing sector, agriculture, SMEs, mining and quarrying, general commerce and real estate and construction, this study seeks to provide insights into the effectiveness of financial intermediation in promoting sustainable economic development in Nigeria.

Empirical Review

Nwankwo and Okafor (2022) investigate the role of credit to SMEs in promoting industrial growth in Nigeria. Mixed-method approach methodology was used with data from surveys and CBN data from 2010 to 2021. The data was analyzed with thematic analysis and regression. The findings revealed that credit to SMEs significantly boosts industrial growth and employment. Thus, SMEs are crucial for industrial development in Nigeria.

Financial institutions should develop tailored products for SMEs.

Okwu and Okwu (2022) analyzed the impact of credit to the agricultural sector on food security and industrial growth. A quantitative research was used with data from CBN and NBS data from 2000 to 2021 and analyzed with regression analysis. The findings revealed that agricultural credit significantly enhances food security and industrial growth. The study concluded investment in agriculture is crucial for overall economic stability. The study recommended that increase credit facilities for agricultural development.

Nwankwo and Ibe (2022) analyzed the impact of bank credit on the growth of the agricultural sector in Nigeria. Methodology: Quantitative analysis, data was sourced from CBN and NBS data from 2000 to 2021 and analyzed with regression analysis. The findings revealed that agricultural credit has a significant positive effect on agricultural output. The study concluded that increased credit to agriculture is vital for economic growth. The study recommended that financial institutions should enhance credit access for farmers.

Ojo and Ojo (2021) examined the impact of bank credit on the growth of the manufacturing sector in Nigeria. Quantitative analysis using time series data from Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS) from 2000 to 2020 and analyzed with Ordinary Least Squares (OLS) regression. The findings revealed that bank credit significantly influences manufacturing output, with a positive relationship observed. Increased bank credit allocation to manufacturing can enhance industrial growth. Policies should encourage banks to increase credit to the manufacturing sector.

Ibe and Okeke (2021) explored the relationship between bank credit allocation and industrial growth in Nigeria. The panel data analysis was sourced from CBN and NBS data from 2000 to 2020 and analyzed

with fixed effects model. A strong positive correlation exists between bank credit and industrial growth. The study concluded that bank credit is a critical driver of industrial growth. The study recommended that financial policies should focus on increasing credit to key industrial sectors.

Eze and Nwankwo (2021) assessed the impact of mining sector credit on industrial growth in Nigeria. Quantitative analysis was used and the data was sourced from CBN and NBS data from 2000 to 2020. The data was analyzed with time series analysis. The finding showed that Mining sector credit has a positive effect on industrial output. Thus, it was concluded that investment in mining can drive industrial growth. Policies should promote credit access for the mining sector.

Uche and Nwankwo (2021) assessed the impact of credit to SMEs on economic growth in Nigeria. Methodology: Descriptive and inferential statistics, data from CBN and NBS data from 2005 to 2020 and analyzed with OLS regression. The findings revealed that SME credit has a significant positive effect on economic growth. The study concluded that SMEs are vital for economic and industrial growth. The study recommended that financial institutions should enhance credit access for SMEs.

Eze and Afolabi (2021) investigated the impact of real estate credit on industrial growth in Nigeria. Methodology: Quantitative research design, data sourced from CBN and NBS data from 2005 to 2020 and analyzed with time series analysis. The findings revealed that real estate credit significantly contributes to industrial growth. The study concluded that real estate development is essential for industrial expansion. The study recommended that encourage banks to increase lending to the real estate sector.

Research Design

This study is adopted the ex-post facto research design. This research design was

used because the researcher has no control over the data (secondary data) and as such cannot manipulate them because the event that brought about the data has already taken place. Ex-post facto research design involves the ascertaining of the impact of past factors on the present happening or event. Ex-post facto research design is concerned with the existence of two variables: independent and dependent variables. It is also used because it is structured to find, describe and interpret a social phenomenon which this study is aimed at.

Method of Data Collection

The method of data collection that was used in this study is the secondary sources of data (time series data), from the CBN Statistical Bulletin for the period 1990-2023 (34years). Also, the CBN Statistical Bulletin was selected as source of data collection because it is the most reliable and accurate aggregates sources of data for the study.

Method of Data Analysis

The study conducted the descriptive statistics and the correlation analysis was used to determine the nature of relationship between the independent [Credit to Manufacturing Sector (CMS), Credit to Agricultural Sector (CAS), Credit to Mining and Quarrying Sector (CMQS), Credit to Real Estate and Construction sector (CRECS), Credit to General Commerce Sector (CGCS) and Credit to Small and Medium Scale Enterprises (CSMSE)] and dependent (Industrial Output (IO)) variables, several diagnostics tests were conducted, follow with unit roots test for the time series data in order to ascertain if they are stationary or not and Johannsen Cointegration test. While the hypotheses were tested with ordinary least squares regression analysis which was used through the regression model, using the statistical software, E-VIEWS 9.0. This is the

appropriate measures taken to analyze data as regards the study time series analysis.

Model Specification

The model for this study was adopted from the work of Ogunleye and Adebayo (2021) and was modified to suit the variables of this study. The model which specifies that industrial growth in Nigeria [proxy by Industrial Output (IO)] is significantly influenced by the bank sector credit allocation measures; Credit to Manufacturing Sector (CMS), Credit to Agricultural Sector (CAS), Credit to Mining and Quarrying Sector (CMQS), Credit to Real Estate and Construction sector (CRECS), Credit to General Commerce Sector (CGCS) and Credit to Small and Medium Scale Enterprises (CSMSE) were formulated as follows;

$IO = f(CMS, CAS, CMQS, CRECS, CGCS, CSMSE)$

$IO = \beta_0 + \beta_1 CRH + \beta_2 LRH + \beta_3 MRH + \beta_4 DRH + \beta_5 DRH + \beta_6 DRH + U$

Where:

IO = Industrial Output, β_0 = Constant Term, β_1 = Coefficient of Credit to Manufacturing Sector, CMS = Credit to Manufacturing Sector, β_2 = Coefficient of Credit to Agricultural Sector, CAS = Credit to Agricultural Sector, β_3 = Coefficient of Credit to Mining and Quarrying Sector, CMQS = Credit to Mining and Quarrying Sector β_4 = Coefficient of Credit to Real Estate and Construction sector, CRECS = Credit to Real Estate and Construction sector, β_5 = Coefficient of Credit to General Commerce Sector, CGCS = Credit to General Commerce Sector, β_6 = Coefficient of Credit to Small and Medium Scale Enterprises, CSMSE = Credit to Small and Medium Scale Enterprises, U = Disturbance Term (other variable not mentions in the model)

The apriori expectation is $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6 > 0$

Table 3.1: Variable Descriptions

Variables	Category of Variables	Description
Industrial Output (IO)	Dependent Variable	Industrial Output as calculated in CBN Statistical Bulletin
Credit to Manufacturing Sector (CMS)	Independent Variable	Credit to Manufacturing Sector as calculated in CBN Statistical Bulletin
Credit to Agricultural Sector (CAS)	Independent Variable	Credit to Agricultural Sector as calculated in CBN Statistical Bulletin.
Credit to Mining and Quarrying Sector (CMQS)	Independent Variable	Credit to Mining and Quarrying Sector as calculated in CBN Statistical Bulletin
Credit to Real Estate and Construction sector (CRECS)	Independent Variable	Credit to Real Estate and Construction sector as calculated in CBN Statistical Bulletin
Credit to General Commerce Sector (CGCS)	Independent Variable	Credit to General Commerce Sector as calculated in CBN Statistical Bulletin
Credit to Small and Medium Scale Enterprises (CSMSE)	Independent Variable	Credit to Small and Medium Scale Enterprises as calculated in CBN Statistical Bulletin

Source: Researcher Basis of Computation, 2024.

Data Presentation

The data for the analysis is presented below;

Table 4.1a: Data for the Independent and Dependent Variables of the Study

Years	Independent Variables						Dependent Variable
	CMS (N'Billion)	CAS (N'Billion)	CMQS (N'Billion)	CRECS (N'Billion)	CGCS (N'Billion)	CSME (N'Billion)	IO (N'Billion)
1990	7.9	4.2	0.4	3.6	4.8	16781.01	4118.77
1991	10.9	5	0.5	4.1	5	18772.1	5227.38
1992	15.4	7	0.8	5.4	7.3	20400	6291.53
1993	23.1	10.8	1.4	25.31	13.5	15462.9	7291.05
1994	34.8	17.8	2.3	34.53	7.6	20552.5	8137.26
1995	58.1	25.3	12.1	26.71	19.4	32374.5	9156.12
1996	72.2	33.3	15	34.47	33	42302.1	10402.19
1997	82.8	27.9	20.6	31.35	16.4	40844.3	10599.7
1998	96.7	27.2	22.8	26.43	29.8	42260.7	10641.26
1999	115.8	31	24.7	52.69	18.8	46824	10201.81
2000	141.3	41	32.3	66.55	25.3	44542.3	10962.84
2001	206.9	55.8	70.5	75.19	34.5	52428.4	11576.32
2002	233.5	59.8	70.2	45.87	26.7	82368.4	11725.42
2003	294.3	62.1	96	44.81	34.5	90176.5	13151.23
2004	332.1	67.7	131.1	36.18	31.3	54981.2	13382.86
2005	352	48.6	172.5	65.61	26.4	50672.6	13609.76
2006	445.8	49.4	251.5	89.78	52.7	25713.7	13342.47
2007	487.6	149.6	490.7	117.16	66.6	41100.4	13085.27
2008	932.8	106.4	846.9	466.8	220.1	13512.2	12817.79
2009	993.5	135.7	1190.73	778.1	1245.1	16366.49	13138.95
2010	987.6	128.4	1178.1	670.3	943.2	12550.3	13826.43
2011	1053.21	255.21	1295.3	453.5	791.9	15611.7	14986.62
2012	1068.34	316.36	1771.5	539.8	756.6	13863.46	15350.45
2013	1179.69	343.7	2155.86	726.9	766.7	15353.04	15682.46
2014	1647.45	478.91	18.21	556.19	1045.19	16.07	16742.15
2015	1736.19	449.31	11.71	531.74	985.69	12.95	16366.66
2016	2215.74	525.95	21.28	631.09	984.9	10.75	14918.15
2017	2171.37	528.24	25.25	657.08	1023.78	10.75	15238.28
2018	2230.15	610.15	20.69	614.51	1076.72	44.82	15523.43
2019	2622.54	772.38	11.31	723.15	1247.37	123.93	15882.35
2020	3191.37	1049.68	11.88	965.19	1343.59	62.51	14953.72
2021	4089.29	1457.82	23.64	1069.5	1708.38	83.74	14883.774
2022	5566.43	1812.47	30.09	1164.6	2214.41	71.89	14195.583
2023	7732.46	2255.36	41.89	1819.28	3558.74	94.46	14298.466

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 1990-2023

In the bids to conform the data uniformity due to natural logarithm of base ten in Table 4.1b to disparity in datasets, the data was subjected below:

Table 4.1b: Data for the Independent and Dependent Variables of the Study

Years	Independent Variables						Dependent Variable
	LogCMS	LogCAS	LogCMQS	LogCRECS	LogCGCS	LogCSME	LogIO
1990	0.897627	0.623249	-0.39794	0.556303	0.681241	4.224818	3.614768
1991	1.037426	0.69897	-0.30103	0.612784	0.69897	4.273513	3.718284
1992	1.187521	0.845098	-0.09691	0.732394	0.863323	4.30963	3.798756
1993	1.363612	1.033424	0.146128	1.403292	1.130334	4.189291	3.86279
1994	1.541579	1.25042	0.361728	1.538197	0.880814	4.312865	3.910478
1995	1.764176	1.403121	1.082785	1.426674	1.287802	4.510203	3.961711
1996	1.858537	1.522444	1.176091	1.537441	1.518514	4.626362	4.017125
1997	1.91803	1.445604	1.313867	1.496238	1.214844	4.611131	4.025294
1998	1.985426	1.434569	1.357935	1.422097	1.474216	4.625937	4.026993
1999	2.063709	1.491362	1.392697	1.721728	1.274158	4.670469	4.008677
2000	2.150142	1.612784	1.509203	1.823148	1.403121	4.648773	4.039923
2001	2.31576	1.746634	1.848189	1.87616	1.537819	4.719567	4.063571
2002	2.368287	1.776701	1.846337	1.661529	1.426511	4.915761	4.069128
2003	2.46879	1.793092	1.982271	1.651375	1.537819	4.955093	4.118966
2004	2.521269	1.830589	2.117603	1.558469	1.495544	4.740214	4.126549
2005	2.546543	1.686636	2.236789	1.81697	1.421604	4.704773	4.13385
2006	2.64914	1.693727	2.400538	1.95318	1.721811	4.410165	4.125236
2007	2.688064	2.174932	2.690816	2.068779	1.823474	4.613846	4.116783
2008	2.969789	2.026942	2.927832	2.669131	2.34262	4.130726	4.107813
2009	2.997168	2.13258	3.075813	2.891035	3.095204	4.213956	4.118561
2010	2.994581	2.108565	3.071182	2.826269	2.974604	4.098654	4.14071
2011	3.022515	2.406898	3.11237	2.656577	2.89867	4.19345	4.175704
2012	3.028709	2.500182	3.248341	2.732233	2.878866	4.141872	4.186121
2013	3.071768	2.53618	3.333621	2.861475	2.884625	4.186194	4.195414
2014	3.216812	2.680254	1.26031	2.745223	3.019195	1.206016	4.223811
2015	3.239597	2.652546	1.068557	2.725699	2.99374	1.11227	4.21396
2016	3.345519	2.720944	1.327972	2.800091	2.993392	1.031408	4.173715
2017	3.336734	2.722831	1.402261	2.817618	3.010207	1.031408	4.182936
2018	3.348334	2.785437	1.31576	2.788529	3.032103	1.651472	4.190988
2019	3.418722	2.887831	1.053463	2.859228	3.095995	2.093176	4.200915
2020	3.503977	3.021057	1.074816	2.984613	3.128267	1.795949	4.174749
2021	3.611648	3.163704	1.373647	3.029181	3.232584	1.922933	4.172713
2022	3.745577	3.258271	1.478422	3.066177	3.345258	1.856668	4.152153
2023	3.888318	3.353216	1.62211	3.2599	3.551296	1.975248	4.155289

Source: Researcher Excel Computation, 2024.

Data Analysis

Table 4.2: Descriptive Statistics

	LOGIO	LOGCMS	LOGCAS	LOGCMQS	LOGCRECS	LOGCGCS	LOGCSME
Mean	4.073660	2.590159	2.030023	1.600399	2.134404	2.113781	3.608936
Median	4.122101	2.668602	1.928765	1.397479	2.010979	1.772642	4.219387
Maximum	4.223811	3.888318	3.353216	3.333621	3.259900	3.551296	4.955093
Minimum	3.614768	0.897627	0.623249	-0.397940	0.556303	0.681241	1.031408
Std. Dev.	0.145104	0.810886	0.744599	0.998358	0.767400	0.924403	1.373496
Skewness	-1.586315	-0.444058	-0.021804	-0.042798	-0.383401	0.007340	-0.904833
Kurtosis	5.022170	2.235229	2.107518	2.538469	2.042247	1.403766	2.069177
Observations	34	34	34	34	34	34	34

Source: EVIEW, 9.0 Outputs, 2024.

Table 4.2 above is the presentation of the descriptive statistics. The mean value for the CMS recorded a mean value of 4.0737 with a standard deviation of 0.8109. Also, CAS, recorded a mean of 2.0300 and standard deviation of 0.7446, CMQS recorded that a mean of 1.6004 with a standard deviation of 0.9984, CRECS recorded that a mean of 2.1344 with a standard deviation of 0.7446, CGCS recorded that a mean of 2.1138 with a standard deviation of 0.9244 and CSME recorded that a mean of 3.6089 with a standard deviation of 1.3735 while IO recorded a mean of 4.0737 and standard deviation of 0.1451. Since the standard

deviations for all the variables are greater than respectively means, it shows that the data are widely dispersed.

The normal distribution has a kurtosis of three, which indicates that the distribution has neither fat nor thin tails. Consequently, if an observed distribution has a kurtosis greater than three, the distribution has heavy tails when compared to the normal distribution. Since some the kurtosis coefficients in Table 4.2 are lesser than 3, this shows that CMS, CAS, CMQS, CRECS, CGCS and CSMSE have thin tails while IO is thick tails because the kurtosis is greater than 3 when compared to the normal distribution.

Table 4.3: Correlation Matrix

	LOGIO	LOGCMS	LOGCAS	LOGCMQS	LOGCRECS	LOGCGCS	LOGCSME
LOGIO	1.000000						
LOGCMS	0.707610	1.000000					
LOGCAS	0.753714	0.776909	1.000000				
LOGCMQS	0.681783	0.540919	0.413261	1.000000			
LOGCRECS	0.762534	0.762345	0.747162	0.551937	1.000000		
LOGCGCS	0.700033	0.744429	0.747608	0.457930	0.768682	1.000000	
LOGCSME	-0.468222	-0.677350	-0.749634	0.183616	-0.665511	-0.741507	1.000000

Source: EVIEW, 9.0 Outputs, 2024.

The correlation test is presented in Table 4.3 and it shows the absence of multi-co linearity among the variables since the correlation values are less than 0.7. Furthermore, the

result shows the explanatory variables namely; CMS, CAS, CMQS, CRECS and CGCS has positive strong correlation with IO in Nigeria except for SME.

Table 4.4: Variance Inflation Factors Multicollinearity Test

Variance Inflation Factors			
Date: 11/28/24 Time: 20:24			
Sample: 1990 2023			
Included observations: 34			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
C	0.022918	32.20971	NA
LOGCMS	0.006503	67.14856	5.832757
LOGCAS	0.005867	38.41487	4.436861
LOGCMQS	0.000865	42.88064	2.175591
LOGCRECS	0.003554	25.61028	8.255006
LOGCGCS	0.002170	16.15713	5.229614
LOGCSME	0.000533	11.13318	3.172221

Source: EVIEW, 9.0 Outputs, 2024.

Since the data for the study are annual time series, the multicollinearity test was conducted to ascertain if the data contained multicollinearity, this is presented in Table 4.4 above. Multicollinearity occurs in a data set when two or more independent variables in multiple regression models are highly correlated. In order to ensure that the results of this study are valid, the variance inflation factor (VIF) computed as shown in Table 4.3. Furthermore, the Centered Variance Inflation

Factor (CVIF) statistics for all the independent variables consistently lies between 5.8328, 4.4369, 2.1756, 8.2550, 5.2296 and 3.1722 for CMS, CAS, CMQS, CRECS, CGCS and CSMSE respectively. This indicates the absence of multicollinearity problems among the variables under investigation because the cut off value of VIF is 10. Values of VIF that exceed 10 are often regarded as indicating multicollinearity.

Table 4.5a: Breusch-Godfrey Serial Correlation LM Test			
F-statistic	4.266370	Prob. F(2,25)	0.0755
Obs*R-squared	8.651639	Prob. Chi-Square(2)	0.0632

Source: E-VIEW, 9.0 Outputs, 2024.

Prior to estimating the models, residuals of the variables were ascertained to check for the presence of serial correlation. This was done using the serial correlation LM test. The serial correlation LM test in Table 4.5a details that there is no element of serial correlation in the models owing to the fact that the p-values of the f-statistics are insignificant at 5% level of significance.

Table 4.5b: Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.048875	Prob. F(6,27)	0.4166
Obs*R-squared	6.426842	Prob. Chi-Square(6)	0.3771
Scaled explained SS	5.281972	Prob. Chi-Square(6)	0.5082

Source: E-VIEW, 9.0 Outputs, 2024.

The situation in which the variability of a variable is unequal across the range of values of a second variable that predicts it leads to problem of heteroskedasticity. To ensure that there is homoscedasticity in the model

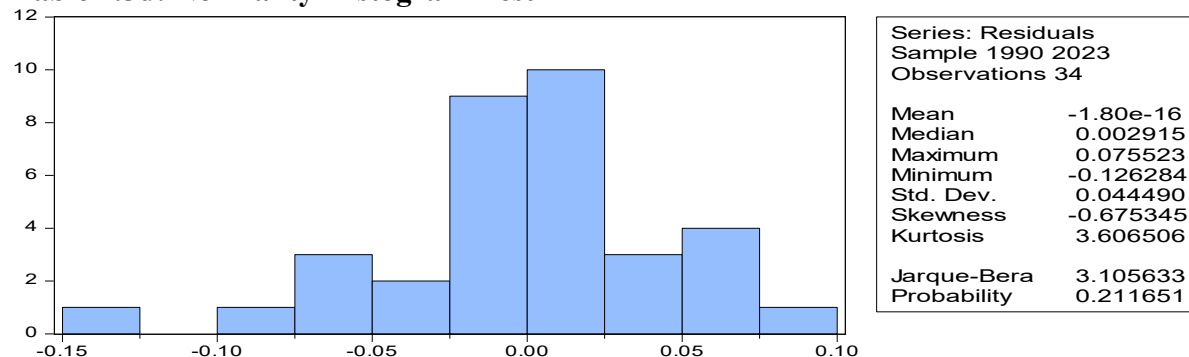
estimation, the heteroskedasticity test via the Breusch-Pagan-Godfrey was performed. With the result there is no problem of heteroskedasticity in the models as the p-values of the f-statistics are insignificant at 5% significance level.

Table 4.5c: Ramsey RESET Test			
Equation: UNTITLED			
Specification: LOGIO C LOGCMS LOGCAS LOGCMQS LOGCRECS			
LOGCGCS LOGCSME			
Omitted Variables: Squares of fitted values			
	Value	Df	Probability
t-statistic	8.541065	26	0.1625
F-statistic	72.94978	(1, 26)	0.1781
Likelihood ratio	45.44154	1	0.2718
F-test summary:			
	Sum of Sq.	Df	Mean Squares
Test SSR	0.048155	1	0.088155
Restricted SSR	0.065318	27	0.072419
Unrestricted SSR	0.017163	26	0.060660

Source: E-VIEW, 9.0 Outputs, 2024

From the Table 4.4c above, it confirms that the Durbin Watson stat that our data has no traits of autocorrelation. Indicates that the model is homoskendastic since the probability

values of three parameters are greater than 0.05 level of significance. Ramsey test result reveals that our model is correctly specified and is stable for regression analysis.

Table 4.5d: Normality Histogram Test**Source: E-VIEW 9.0 Output, 2024.**

The test of residuals for normality was conducted to assess the distribution normality of the model residuals. When residuals are not

normally distributed, it denotes the presence of significant outliers in the data which affects the standard errors and then the significance

levels of the coefficients. From the test result, it indicates that the residuals are normally distributed as the histogram assumes a bell-shape and the J-B statistic probability value is 0.3556 which is greater than 0.05(5%), this forms the premise to reject the null hypotheses that the residuals are not normally distributed.

Augmented Dickey-Fuller (ADF) Unit Root Test

Testing for the existence of unit roots is a principal concern in the study of time series

models and co-integration. The rationale behind this test is to avoid the problem of spurious regression which is commonly associated with time series data. The presence of a unit root implies that the time-series data under investigation is non-stationary; while the absence of a unit root shows that the stochastic process is stationary. The unit root test was conducted using the Augmented Dickey-Fuller (ADF) Unit root test as presented in table 4.6 below:

Table 4.6: Augmented Dickey-Fuller Unit root Test ADF Test @ Level

Group unit root test: Summary				
Series: LOGIO, LOGCMS, LOGCAS, LOGCMQS, LOGCRECS, LOGCGCS, LOGCSME				
Date: 11/28/24 Time: 20:41				
Sample: 1990 2023				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	Sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.67909	0.0785	7	231
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.45209	0.0971	7	231
ADF - Fisher Chi-square	41.4518	0.0782	7	231
PP - Fisher Chi-square	37.6104	0.0776	7	231
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

ADF Test @ 1st Diff.

Group unit root test: Summary				
Series: LOGIO, LOGCMS, LOGCAS, LOGCMQS, LOGCRECS, LOGCGCS, LOGCSME				
Date: 11/28/24 Time: 20:42				
Sample: 1990 2023				
Exogenous variables: Individual effects				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	Sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.9328	0.0000	7	224
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-10.5254	0.0000	7	224
ADF - Fisher Chi-square	116.110	0.0000	7	224
PP - Fisher Chi-square	118.173	0.0000	7	224
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

Source: E-VIEW, 9.0 Outputs, 2024.

The summary of the ADF unit root test output in table 4.5, above revealed that all the variables under investigation i.e. IO, CMS, CAS, CMQS, CRECS, CGCS and CSMSE are not stationary at level but contain unit root test at their first difference 1(1). Evidence of this could be seen from the value of their respective ADF statistics which is more than

the critical value at 5%. Moreover, additional evidence of stationary series could also be seen from the p-value for all variables which is less than 5% level of significance greater than 95% confidence level. They all attained stationarity at first difference i.e. at order one, hence, the data are suitable for regression.

Table 4.7: Johansen Cointegration Test

Date: 11/28/24 Time: 20:46				
Sample (adjusted): 1992 2023				
Included observations: 32 after adjustments				
Trend assumption: Linear deterministic trend				
Series: LOGIO LOGCMS LOGCAS LOGCMQS LOGCRECS LOGCGCS LOGCSME				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.892332	191.4808	125.6154	0.0000
At most 1 *	0.697217	120.1622	95.75366	0.0004
At most 2 *	0.685756	81.93061	69.81889	0.0040
At most 3	0.567346	54.88789	47.85613	0.0125
At most 4	0.279271	30.07776	29.79707	0.0403
At most 5	0.198308	17.58027	15.49471	0.0393
At most 6	0.016274	4.525040	3.841466	0.0487
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.892332	71.31857	46.23142	0.0000
At most 1	0.697217	38.23163	37.07757	0.0395
At most 2 *	0.685756	37.04272	33.87687	0.0202
At most 3	0.567346	28.81014	27.58434	0.0426
At most 4	0.279271	22.47973	21.13162	0.0487
At most 5	0.198308	17.58027	15.49471	0.0393
At most 6	0.016274	4.525040	3.841466	0.0487
Max-eigenvalue test indicates 1 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: E-VIEW, 9.0 Outputs, 2024.

Table 4.7 above revealed that the result of the multivariate cointegration test by Johansen and Juselius cointegration technique reveal that both the trace statistic and the Maximum Eigenvalue statistic shows evidence of two cointegration relationship (at None and at most 1), where the values of the trace statistic

and the Maximum Eigenvalue statistic is greater than their respective critical values at 5% level of significance level. This result conforms to the existence of a stable long-run relationship between IO and CMS, CAS, CMQS, CRECS, CGCS and CSMSE.

Table 4.8: Multiple Regression Analysis

Dependent Variable: LOGIO				
Method: Least Squares				
Date: 11/28/24 Time: 20:21				
Sample: 1990 2023				
Included observations: 34				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.880061	0.151387	25.63007	0.0000
LOGCMS	0.204128	0.080641	2.531318	0.0276
LOGCAS	0.171547	0.076594	2.239692	0.0385
LOGCMQS	0.082890	0.029405	2.818926	0.0089
LOGCRECS	0.024758	0.059616	0.415292	0.6812
LOGCGCS	0.121803	0.046585	2.614656	0.0144
LOGCSME	-0.041393	0.023092	-1.792537	0.0843
R-squared	0.905993	Mean dependent var		4.073660
Adjusted R-squared	0.885103	S.D. dependent var		0.145104
S.E. of regression	0.049185	Akaike info criterion		-3.005205
Sum squared resid	0.065318	Schwarz criterion		-2.690955
Log likelihood	58.08849	Hannan-Quinn criter.		-2.898037
F-statistic	43.36879	Durbin-Watson stat		1.937917
Prob(F-statistic)	0.000000			

Source: EVIEW, 9.0 Outputs, 2024.

The multiple regression results in Table 4.8, the coefficient of CMS are 0.2041 with a t-value of 2.5313 and an associated p-value (sig. value) is 0.0276. This suggests that CMS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0276 is lesser than 0.05 (5%) level significance, hence, the alternate hypothesis is accepted and null hypothesis is rejected; which says that CMS does not have significant effect on IO in Nigeria. The coefficient of CMS is 0.2041, which imply that CMS has a positive trend with IO in Nigeria. One percent (1%) movement in CMS would lead to 20.41% increase in IO in Nigeria. Empirical studies have consistently shown that credit to the manufacturing sector has a positive and significant impact on industrial performance. For instance, a study by Akinlo and Egbetunde (2021) found that increased credit to manufacturing firms enhances their capacity to invest in technology and expand production, leading to

higher output levels. This aligns with the supply-leading hypothesis, which suggests that when financial institutions provide adequate credit, manufacturing firms can increase their production capabilities, thereby stimulating overall industrial growth. Moreover, the manufacturing sector often serves as a backbone for economic development, creating jobs and fostering innovation. According to Ojo and Ojo (2022), the multiplier effect of credit to manufacturing extends beyond the sector itself, positively influencing related industries and contributing to a more robust industrial ecosystem.

Also, the multiple regression results in Table 4.8, the CAS coefficient of 0.1715 with a t-value of 2.2397 and an associated p-value (sig. value) of 0.0385. This suggests that CAS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0385 is lesser than to 0.05 (5%) level significance, thus, the null

hypothesis which says that CAS does not have significant effect on IO in Nigeria is rejected and alternate hypothesis is accepted. The coefficient of CAS is 0.1715 which implies that CAS has a positive trend with IO in Nigeria. One percent (1%) movement in CAS with would lead to 17.15% increases in IO in Nigeria. The agricultural sector also demonstrates a positive significant effect on the industrial sector when provided with adequate credit. Research by Adeyemi and Ojo (2023) indicates that access to credit enables farmers to invest in better technologies and practices, which increases agricultural productivity. This, in turn, supplies raw materials to the manufacturing sector, thereby enhancing industrial output. The findings support the notion that a well-financed agricultural sector can lead to increased industrial activity, as it provides essential inputs for manufacturing processes. Furthermore, the agricultural sector's growth can lead to increased demand for manufactured goods, creating a symbiotic relationship between agriculture and industry. This relationship underscores the importance of financial intermediation in facilitating credit flow to agriculture, which is crucial for industrial development (Ogunleye& Adebayo, 2023).

More also, the multiple regression results in Table 4.8, the coefficient of CMQS is 0.0829 with a t-value of 2.8189 and an associated p-value (sig. value) is 0.0089. This suggests that CMQS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0089 is lesser than 0.05 (5%) level significance; hence, the null hypothesis which says that MRH does not have significant effect on IO in Nigeria is rejected while the alternate hypothesis is accepted. The coefficient of CMQS is 0.0829 which implies that CMQS has a positive trend with IO in Nigeria. One percent (1%) movement in CMQS with would lead to 8.29% increases in IO in Nigeria.

Credit to the mining and quarrying sector has also been found to have a positive significant effect on the industrial sector. According to a study by Nwankwo and Eze (2022), increased investment in mining activities, supported by credit, leads to enhanced extraction capabilities and the availability of raw materials for manufacturing. This relationship is particularly important in resource-rich countries where the mining sector can significantly contribute to industrial growth. The findings suggest that financial intermediation plays a vital role in mobilizing resources for the mining sector, which, in turn, supports industrial activities. The ability of mining firms to access credit allows them to invest in advanced technologies and expand their operations, thereby increasing the supply of essential minerals and resources needed for industrial processes (Ibrahim & Adebayo, 2023).

Contrarily, the OLS regression result in Table 4.8, the coefficient of CRECS is 0.02476 with a t-value of 2.6147 and an associated p-value (sig. value) is 0.6812. This suggests that CRECS have a positive insignificant effect on IO in Nigeria. This relationship is insignificant given the fact that the p-value of 0.6812 is greater than 0.05 (5%) level significance, the null hypothesis which says that there is no significant relationship between CRECS and IO in Nigeria is accepted and the alternate hypothesis is rejected. In contrast, credit to the real estate and construction sector has been found to have an insignificant effect on the industrial sector. A study by Eze and Nwankwo (2023) suggests that while real estate and construction is vital for infrastructure development, its direct impact on industrial output is limited. The real estate and construction sector often operates on longer time frames and may not immediately translate into increased industrial activity. This finding raises questions about the allocation of credit within the economy and suggests that financial institutions may

need to prioritize sectors that have a more direct and immediate impact on industrial growth. The lack of significant effects from real estate and construction credit may indicate a misalignment in credit allocation strategies, which could hinder overall economic development (Akinyemi&Ogunleye, 2023).

Away further, the multiple regression results in Table 4.8, the CGCS coefficient of 0.1218 with a t-value of 2.6147 and an associated p-value (sig. value) of 0.0144. This suggests that CGCS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0144 is lesser than to 0.05 (5%) level significance, thus, the null hypothesis which says that CGCS does not have significant effect on IO in Nigeria is rejected and alternate hypothesis is accepted. The coefficient of CGCS is 0.1218 which implies that CGCS has a positive trend with IO in Nigeria. One percent (1%) movement in CGCS with would lead to 12.18% increases in IO in Nigeria. The general commerce sector also exhibits a positive significant effect on the industrial sector. Research by Olaniyan and Akinyemi (2023) indicates that credit to commerce facilitates the distribution of manufactured goods, enhancing market access for industrial products. This increased accessibility can lead to higher sales volumes for manufacturers, thereby stimulating production and industrial growth. Moreover, the general commerce sector acts as a bridge between producers and consumers, and its growth can lead to increased demand for industrial goods. The findings highlight the importance of financial intermediation in ensuring that commerce-related businesses have access to credit, which is essential for maintaining a vibrant industrial sector (Ogunbiyi & Afolabi, 2023).

Finally, the OLS regression result in Table 4.8, the coefficient of CSME is -0.0414 with a t-value of -1.7925 and an associated p-value (sig. value) is 0.0843. This suggests that

CSME have a negative insignificant effect on IO in Nigeria. This relationship is insignificant given the fact that the p-value of 0.0843 is greater than 0.05 (5%) level significance, the null hypothesis which says that there is no significant relationship between CSME and IO in Nigeria is accepted and the alternate hypothesis is rejected. The coefficient of CSME is -0.0414 which implies that CSME has a negative trend with IO in Nigeria. One percent (1%) movement in CSME with would lead to 4.14% decrease in IO in Nigeria. Similarly, credit to small and medium-sized enterprises (SMEs) has shown insignificant effects on the industrial sector. Research by Ojo and Akinlo (2023) indicates that while SMEs are crucial for job creation and innovation, their limited access to credit often hampers their growth potential. The findings suggest that financial institutions may be hesitant to lend to SMEs due to perceived risks, leading to underinvestment in this sector. The insignificant impact of credit to SMEs on industrial performance highlights the need for targeted financial policies that enhance access to credit for these enterprises. By improving credit availability, SMEs can contribute more significantly to industrial growth, aligning with the principles of financial intermediation theory, which emphasizes the importance of directing funds to productive sectors (Nwankwo& Ibrahim, 2023).

Summary of Findings

Based on the findings in the previous chapter, it showed that:

1. CMS with an associated p-value (sig. value) is 0.0276. This suggests that CMS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0276 is lesser than 0.05 (5%) level significance. Credit to the manufacturing sector showed a positive significant effect on industrial output. This indicates that increased financial resources

directed towards manufacturing activities enhance production capabilities, innovation, and overall industrial growth.

2. CAS with an associated p-value (sig. value) of 0.0385. This suggests that CAS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0385 is lesser than 0.05 (5%) level significance. Similarly, credit to the agricultural sector also exhibited a positive significant effect on industrial output. This suggests that investments in agriculture not only boost food production but also contribute to industrial activities through agro-processing and supply chain enhancements.

3. CMQS with an associated p-value (sig. value) is 0.0089. This suggests that CMQS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0089 is lesser than 0.05 (5%) level significance. The analysis found that credit to the mining and quarrying sector positively and significantly impacts industrial output. This highlights the importance of raw materials sourced from mining activities, which are crucial for various industrial processes.

4. CRECS with an associated p-value (sig. value) is 0.6812. This suggests that CRECS has positive insignificant effect on IO in Nigeria. This relationship is insignificant given the fact that the p-value of 0.6812 is greater than 0.05 (5%) level significance. In contrast, credit to the real estate and construction sector was found to have an insignificant effect on industrial output. This suggests that investments in real estate and construction do not directly translate into increased industrial productivity.

5. CGCS with an associated p-value (sig. value) is 0.0144. This suggests that CGCS have a positive significant effect on IO in Nigeria. This relationship is significant given the fact that the p-value of 0.0144 is lesser than 0.05 (5%) level significance. Credit to

the general commerce sector was found to have a positive significant effect on industrial output. This indicates that commerce plays a vital role in facilitating trade and distribution, which in turn supports industrial activities.

6. CSME with an associated p-value (sig. value) is 0.0843. This suggests that CSME has negative insignificant effect on IO in Nigeria. This relationship is insignificant given the fact that the p-value of 0.0843 is greater than 0.05 (5%) level significance. The study also revealed that credit to SMEs had an insignificant effect on industrial output. This finding raises questions about the capacity of SMEs to contribute to industrial growth despite their potential role in the economy.

Conclusion

This study examined the effect of bank sector credit allocation on industrial growth in Nigeria from the period of 1990 to 2023 (34years). Credit to Manufacturing Sector (CMS), Credit to Agricultural Sector (CAS), Credit to Mining and Quarrying Sector (CMQS), Credit to Real Estate and Construction sector (CRECS), Credit to General Commerce Sector (CGCS) and Credit to Small and Medium Scale Enterprises (CSMSE) as proxies for bank sector credit allocation while industrial growth proxied with Industrial Output (IO) in Nigeria. The study made use of aggregate secondary data from CBN Statistical Bulletin for the duration of the study. The study showed that targeted credit allocation to specific sectors, particularly manufacturing, agriculture, mining, and general commerce, is crucial for enhancing industrial output in Nigeria. The insignificant effects of credit to the real estate, construction, and SMEs sectors indicate a need for a more strategic approach to financing these areas to ensure they contribute effectively to industrial growth. In summary, the findings discussed highlight the critical role of credit allocation in influencing industrial performance. The positive

significant effects of credit to the manufacturing, agricultural, mining and quarrying, and general commerce sectors underscore the importance of financial intermediation in stimulating economic activity. Conversely, the insignificant effects of credit to the real estate and construction sector and SMEs suggest a need for more strategic credit allocation to maximize industrial growth. In the light of the findings, CMS, CAS, MQS and CGCS have significant effects on IO in Nigeria while CRECS and CSME do not have significant effect on IO in Nigeria. Hence, the study concluded that bank sector credit allocation have significant effect on industrial growth in Nigeria in Nigeria.

Recommendations

In line with the objectives and findings, we recommend that:

1. Policymakers should prioritize increasing credit access to the manufacturing sector to stimulate industrial growth. This can be achieved through favorable lending rates and incentives for financial institutions. The government should implement policies that encourage investment in the manufacturing and agricultural sectors, such as tax incentives and subsidies.
2. The government should implement programs that facilitate credit access for agricultural producers, ensuring a steady supply of raw materials for the manufacturing sector.

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3. There should be a strategic focus on enhancing credit facilities for the mining and quarrying sector to boost mineral extraction and processing, which are vital for industrial inputs.

4. Financial institutions should develop tailored products that support the commerce sector, enhancing distribution networks and market access for industrial goods. Financial institutions should prioritize credit allocation to the manufacturing, agricultural, mining, and commerce sectors to stimulate industrial growth.

5. A review of credit policies for the real estate and construction sectors is necessary to align them more closely with industrial objectives, possibly by integrating industrial needs into infrastructure development plans. Encourage the diversification of credit sources for the real estate and construction sectors to explore innovative financing models that could enhance their impact on industrial output.

6. Initiatives aimed at strengthening SMEs should focus on improving their access to markets and technology, which could enhance their contribution to industrial output. Programs aimed at strengthening the capacity of SMEs should be developed to enhance their contribution to industrial output. This could include training, access to technology, and improved financing options.

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