

FOREIGN EXCHANGE AND THE PERMAFORMANCE OF MANUFACTURING SECTOR IN NIGERIA: A DISAGGRAGATED ANAYLSIS

Abstract

The manufacturing sector in sub Saharan–Africa, particularly Nigeria is handicapped with numerous challenges like affordable energy, multiple taxation and inadequate funding which includes foreign exchange, a key driver of manufacturing activities. Therefore the key objective of this study is to examine the impact of foreign exchange on the performance of the manufacturing sector in Nigeria using disaggregated analysis. Data were sourced from secondary materials collected from the Central Bank of Nigeria Statistical Bulletin on manufacturing sector output, foreign exchange availability, foreign exchange rate, Nigeria foreign reserves and inflation rate from 1999 -2021. Econometric-view (E-view version 9) statistical tool was used to run the Ordinary Least Square Regression Analysis. The findings of the study revealed that foreign exchange availability was found to have no significant but positive influence on the growth of the manufacturing sector while foreign exchange rate and Nigeria foreign reserves showed significant and positive results. Inflation rate has a negative and non-significant effect on the growth of manufacturing sector. Based on the findings, the study recommended that monetary authority should take urgent steps to tackle the foreign exchange crisis and maintain a sustainable exchange rate. Importantly, foreign exchange is made available to importers of industrial raw materials and at the same time grow the country's foreign exchange reserves. Also, local industries should be developed to reduce dependence on imported materials and thereby conserved foreign exchange.

Keywords: Foreign exchange, foreign reserves, manufacturing output, and growth

INTRODUCTION

The manufacturing activity is of crucial importance for the growth and development of any economy. The ability of a nation to produce needed services is often predicted on the ability and efficient manufacture facilities. Manufacture sector plays significant role in Nigeria's economy. Therefore the favorable stances of government towards the manufacturing growth might has been informed by the positive relationship between the manufacture sector and the general development opportunities, capital formation, diffusion of technical and managerial skills, increase in the level of national income.

It is in recognition of the relative efficiency of growth in manufacturing sector that government introduced series of fiscal, monetary and infrastructure incentive to the private investors as a means of boosting their impact on the background that in the long run industrial breakthrough depends mostly in the level foreign exchange and more importantly on the level of growth of manufacturing sector.

Giwa (1996) in his writing "thoughts on the Nigeria economy" pointed out that the manufacturing industries in Nigeria had been majorly characterized by low productivity in output production and the sector's contribution to the Gross Domestic Product (GDP) of Nigeria has been relatively low over the years. The low output production and the low contribution of the sector to the Gross Domestic Product (GDP) was largely due to the exchange rate instability caused by the changing exchange rate policy.

It is imperative to mention that the instability in the exchange rate affects the output of manufacturing industries as a result of the over dependency on imported raw materials for the production of their output. Industrial production, in its entire sectors including manufacturing, mining and electricity fell to a record low from 122.1% in 1987 to 118.1% by the fourth quarter of 1994. In terms of contribution, the manufacturing sector performance has not been impressive for decades. The sector contributed a modest 4.8% in 1960, manufacturing sector's contribution to the country's GDP increased to 7.2% in 1970 and to 7.4% in 1975 (CBN, 2000). Recent statistics from the National Bureau of Statistics (NBS) revealed that the sector's contribution to GDP fell from 16.04% in Q4 2023 to 12.68% in Q2 2024, implying the sector is declining and struggling amid the country's economic challenges.

The Manufacturing Association of Nigeria (MAN) further reported a concerning trend within the industry, revealing that about 767 manufacturing companies shut down operations while 335

experienced distress in 2023. This development was attributed to various economic difficulties, including exchange rate volatility, rising inflation, and a general worsening of the investment climate. However, it has been noted after examining the stunted growth of the Nigeria manufacturing sector that one of the most critical hindrance to industrialization in Nigeria was the inconsistency in the exchange rate and non-availability. It has not been stable over the years thereby hampering cost and benefit projection of the Nigeria manufacturing sector. Therefore, this study aimed to investigate the impact of various components of foreign exchange on the performance of the manufacturing sector.

Statement of the problem

Investment in the manufacturing sector is expected to give the economy a lift towards development, but unfortunately to the present gross Domestic Product (GDP) has been very poor due to the changing policies of exchange rate which disputes its accessibility to foreign exchange and thus the acquisition of raw materials (Oladeji , 1990).

In developing countries such as Nigeria where the financial markets are still under developed and on economy still highly open in nature, allowing currency to float could produce fluctuations in exchange rate, thus creating a wide difference between other market clearing rate in the long run. A critical requirement for a freely floating exchange rate require is the absence of any form of economic rigidity. The flustering rate of exchange which came as a result of the changing foreign exchange policy practiced by the government particularly the unification of the foreign exchange has led to critical issues in economy with the about 767 manufacturing companies shut down operations while 335 experienced distress in 2023. This development was attributed to various economic difficulties, including exchange rate volatility, rising inflation, and a general worsening of the investment climate. Therefore the crux of the research is to examine the contribution and impact of the foreign exchange on the performance of manufacturing sector in Nigeria. .

Objectives of the study

The main of the objectiveto determine the contribution and impact of foreign exchange on the growth of manufacturing sector in Nigeria.

The specific objectives are to:

*investigate the effect of foreign exchange availability on the growth of manufacturing sector in Nigeria.

* examine the effect of foreign exchange rate on the growth of manufacturing sector in Nigeria.

* investigate the effect of Nigeria's foreign reserves on the growth of manufacturing sector in Nigeria.

* find out the impact of inflation on the growth of manufacturing sector in Nigeria.

Research Hypotheses

Based on the research questions, the following hypotheses were formulated:

Ho₁: There is no positive significant relationship between foreign exchange availability and growth of the manufacturing sector in Nigeria

Ho₂: There is no positive significant relationship between foreign exchange rate and growth of the manufacturing sector in Nigeria

Ho₃: There is no positive significant relationship between Nigeria's foreign reserve and growth of the manufacturing sector in Nigeria

Ho₄: There is no positive significant relationship between inflation and growth of manufacturing sector in Nigeria

LITERATURE REVIEW

Conceptual Literature

Manufacturing Sector is a key component of the industrial sector. It consists of industries engaged in chemical, mechanical or physical transformation of materials, substances, or components into consumer or industrial goods. The manufacturing industry accounts for a significant share of the industrial sector in Nigeria. While Foreign exchange refers to exchanging the currency of one country for another at prevailing exchange rates. It implies the act of converting one currency into another. The rate that is agreed upon by the two parties in the exchange is called exchange rate. There are two types of exchange rates that are commonly used in the foreign exchange market. The spot exchange rate is the exchange rate used on a direct exchange between two

currencies " on the spot," with the shortest time frame such as on a particular day. The main functions of the market are to (1) facilitate currency conversion, (2) provide instruments to manage foreign exchange risk (such as forward exchange), and (3) allow investors to speculate in the market for profit.

Overview of the Nigeria manufacturing Sector

Manufacturing sector of Nigeria was so narrow and pre-occupied with processing of agricultural and forestry products for domestic and foreign markets, as well dominated by a few European commercial firms with institutional impediments which characterized the British colonial administration (Adenikinju, 1997). The import-dependent industrialization strategy virtually came to a halt in the late 1970s and early 1980s when the liberal importation policy (which was a resultant effect of the oil boom of the mid 1970) expanded the imports of finished goods to the detriment of domestic production.

Nigerians generally developed penchant for imported goods as people's living standard was measured by their consumption of foreign made goods. This led to relative decline in manufacturing firms' production of exportable and thus, little diversification in products and production processes was achieved.

The introduction of the Structural Adjustment Programme (SAP) in July 1986 as a medium-term strategic policy programme aimed at revamping an economy under persistent recession and setting it on the path of sustainable growth. The policy was partly designed to revitalize the manufacturing sector by shifting emphasis to increased domestic sourcing

of inputs through monetary and fiscal incentives, the deregulation of the foreign exchange market was also affected to make non-oil exports especially manufactures more competitive even though, this also resulted in massive escalation in input costs (Loto, 2012) Therefore countries with these kinds of peculiarities find it difficult to development their manufacturing potentials. It is a common knowledge that countries of the world had in one time undertaken one form of economic reform or another and Nigeria is not an exception. The goals of these reforms according to Loto (2012) may differ from country to country; nevertheless, they are all closely aligned towards putting their economies on a path of sustainable growth and development. But the key questions are why have these reforms not met their targets? Other countries have faced similar challenges in the past and yet have overcome them, what is holding Nigeria back from achieving the same growth? Why has the country continued to witness massive closure/ relocation of manufacturing firms and other business outfits? In spite of the sector' s apparent poor performance so far and the inherent problems confronting individual firms operating in the sector, the development of the manufacturing sector is important for the Nigerian economy to the path of sustainable growth and development because: (i) the declining terms of trade faced by primary products in the global market; (ii) the direct linkage between manufactured exports and the economic growthperformance is relatively established in economic literature; (iii) trade in non-primary exports constitutes the most dynamic part of world merchandise trade; (iv) the employment generation capacity of the sector when viewed in relation to the total labour force is low, the development of the sector will definitely increase labour

absorption level of the sector and (v) the development of the manufacturing sector is needed to diversify the production and export base of the country away from oil, which has not induced substantial volatility in the economy. In recent years, the Nigerian government has taken various major steps to foster the non-oil (especially manufacturing) sector role in the country's economic and social development. It has been generally acknowledged that the path to economic recovery and growth require productivity improvement because many other countries that were in the present situation Nigeria has found herself were able to come out of it through productivity enhancement planning. Indonesia, South Korea, India, Malaysia, Brazil and Mexico are few examples of economies that have made high productivity an integral part of their national economic planning and today they have made significant progress and the results are noticeable.

Overview of the Nigeria's foreign exchange market

It is imperative to mention that the management of the country's Foreign exchange has been a major problem to every CBN Governor since the attainment of independence. Historically, in a bid to achieve macroeconomic stability, Nigeria monetary authority has adopted various exchange rate policies ranging from fixed exchange rate policy, floating or flexible rate regime and mixed or guided deregulation. Primarily, there are two phases to the country foreign exchange management. (Kwode, 2015)

The first phase is the pre-SAP era, where CBN adopted controlled exchange rate policy in which the exchange rate of the naira was pegged to the dollar. The second, phase the SAP and post SAP era in 1986. As a

matter of fact and following the oil glut of 1980s, it became obvious that Nigeria government which depend solely on revenue from oil would be unable to sustain the fixed exchange regime because reserves not only depleted but foreign debts also mounted; thus the monetary authority adopted a flexible exchange rate through the second tier foreign exchange market (SFEM) in 1986. SFEM allowed the determination of exchange rate and the allocation of foreign exchange to be through the interaction of markets i.e. demand and supply. In order to deepening the market, Bureau de change were introduced in 1989 to deal in privately sourced foreign exchange and to give small users access to foreign exchange.

Again in 1999, the monetary authority introduced the inter-bank foreign exchange market (IFEM); it is pertinent to state the banks exploited the system to their advantages by demanding so much foreign exchange for speculative and arbitrage purposes. In fact, like today, 60-70% of demand for foreign exchange at that period was speculative and about 21 banks were banned from IFEM. As noted by some economists that IFEM was abolished because of a persistent high demand for foreign exchange, continued depreciation of the naira, increase in the premium between official rate and the parallel market rate and continued depletion of reserves. Between 2002 – 2003, the Dutch Auction System (DAS) was introduced, in this system; the exchange rate was being determined based on the bids for foreign exchange. Again, the retail Dutch Auction System RDAS was dropped and in 2006, wholesale Dutch Auction System (WDAS) was introduced. Under this system, it was the banks that bid for foreign exchange supplied by CBN for onward sale to their customers and they

also sold on behalf of their customers to the CBN. Here, the banks and Bureau de Change are the primary players in foreign exchange market while the CBN regulates the operations.

In order to appreciate how the Naira has functioned as a medium of exchange and storage of value, it is important to look at its performance against the Dollar for the past years as shown below:

Year	Naira	Dollar
1990	N8	\$1
2000	N102	\$1
2005	N131	\$1
2010	N150	\$1
2015	N197	\$1
2020	N380	\$1
2024	N1540	\$1

Source: CBN

Theoretical framework

The theoretical framework for this is anchored on Mundell-Fleming also known as IS-LM BOP Model approach. The IS-LM BOP model portrayed a relationship between exchange rate, interest rate and output of an open economy. It is an extension of IS-LM framework which deals with a close economy. The model explains the causes of short-run fluctuations in aggregate income in an open economy. The model asserted that the behaviour of an economy depends crucially on the exchange rate system it adopts- whether it operates a floating exchange rate system or a fixed exchange rate system. (Mundell, Robert A., 1960)

The model is expressed as follows:

$$Y = C(Y - T) + I(r^*) + G + NX(e)$$

Where investment depends on the world rate of interest r^* since $r = r^*$ and NX depends on the exchange rate e which is the price of a foreign currency in terms of domestic currency.

Empirical Literature

A study by Momodu (2015); on the impact of foreign exchange market and growth the of manufacturing sector in Nigeria which he adopted the Ordinary Least Square method of regression reveals that exchange rate regimes in Nigeria do not influence the level of output nor reduce the Gross Domestic Product contrary to A priori expectations. He therefore recommends that future policies should focus encouraging local technology to improve productivity. He tried to find the influence of the various foreign exchange regimes in Nigeria on output. He identified the fixed exchange rate regime, floating exchange regime, managed floating exchange regime and the free floating system.

Obi and Gobna (2010) adopted the Co-integration and error correction model to empirically analyse the determinants of exchange rate in Nigeria from 1999-2016. They hinged their analysis on the Balassa-Samuel hypothesis which states that increases in productivity differentials lead to exchange rate appreciation.

Micheal (2019) examined the effect of foreign exchange crisis on the performance of manufacturing sector in Nigeria over the period of 35 years ranging from 1985 to 2019. The results reveal that foreign exchange rate has a negative and significant effect on manufacturing sector GDP in Nigeria. Trade openness has a positive and significant effect on manufacturing sector performance while foreign direct investment has a positive and significant effect on manufacturing sector GDP in Nigeria. The study concluded that foreign exchange crisis plays a

significant negative role in the performance of manufacturing sector in Nigeria. .

Akinlo and Lawal (2015) investigated the impact of exchange rate on industrial production for the period 1986-2010. The study employed the used

of Vector Error Correction Model (VECM). The findings show that there is long run relationship among exchange rate, industrial production index, inflation rate and money supply. The results also show that exchange rate depreciation does not have significant effect on industrial production in the short run; however, in the long run, the results showed that exchange rate depreciation had significant effect on the industrial production in Nigeria.

Lawal (2016) examined the effect of exchange rate fluctuations on the performance of Nigerian manufacturing sector for the period 1986-2014 using Autoregressive Distribution Lag (ARDL) model. The findings of the ARDL revealed evidence of long run and short run relationships among the variables under consideration. The result also showed that exchange rate has positive and significant effect on manufacturing sector output.

Nwokoro (2017) assessed the effect of exchange rate and interest rates fluctuations on the manufacturing output in Nigeria from the period 1983-2014 using Error Correction Modeling (ECM). The findings showed that exchange rate and interest rates have negative and significant influence on manufacturing Output.

Ugwu (2017) investigate the impact of exchange rate fluctuation on manufacturing performance in Nigeria for the period 1986-2016 using Ordinary Least Squares (OLS) technique. The findings revealed that a significant relationship exists between exchange rate fluctuations

and manufacturing performance in Nigeria.

Adegbemi (2018) examined the effect of the changes in the macroeconomic factors on the manufacturing sector performance in Nigeria for the period 1981-2015. The findings indicated a negative relationship among interest rate, inflation rate, broad money supply, exchange rate and manufacturing performance. The interest rate and inflation rate were found to be statistically non-significant. The result also showed that gross domestic product and unemployment have positive and significant impact on manufacturing performance in Nigeria.

Falaye (2018) assessed the impact of exchange rates on the performance of the Nigerian manufacturing sector over a period of 25 years using Error Correction Model (ECM). The empirical findings showed that devaluation of the Naira had a negative impact on the performance of the Nigerian manufacturing sector. Hunegnaw (2018) examined the effects of real exchange rates on manufacturing exports in 10 East African countries. The study used pooled mean group and mean group estimators with an Autoregressive Distributed Lag procedure to analyze disaggregated manufacturing exports, unlike past studies that often examined aggregate exports by adopting traditional empirical methods subject to various shortcomings. Findings suggest that exchange rate devaluation matters for export performance in Eastern Africa.

Orijibi (2019) examined the impact of exchange rate (EXCH) movements on the manufacturing sector in Nigeria over the period 1981-2016. An ordinary least square (OLS) estimation technique was employed in this study to address the specified objective. Specifically, the findings

showed that EXCH, government capital expenditure (GCEXP), imports and FDI were positively related to MGD

Summary of literature review

Different school of thoughts have written on foreign exchange and the growth of the manufacturing sector; some argued that foreign exchange has significant positive impact on the growth of manufacturing sector, while others maintained that it has not impact on the performance of the sector. This study examines the contribution and the impact of foreign exchange on the performance of the manufacturing sector in Nigeria by analyzing the various components of foreign exchange – availability of Foreign exchange, exchange rate and foreign reserves using current data.

METHODOLOGY

Sources of Data

The data used for this study are secondary data sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin for the year 2021. They are time series data spanning from 1999 to 2021. The primary aim of choosing a large data of 22 years is to satisfy the long-run requirement of econometric tests which give better results when the data are large.

Data Analysis Techniques

To determine the general impact of foreign exchange availability, foreign exchange rate and foreign reserves on manufacturing sector output; **this study adopts the Augmented Dickey-Fuller (ADF) technique.** The study adopted the Ordinary Least Square regression analysis using E-View Version 9 analytical tool. This is to enable us determine the direction of relationship between the dependent variable manufacturing sector and the independent variables- foreign exchange availability, foreign exchange rate, foreign reserves and inflation rate.

Model Specification

This study adopts the growth theory. The model for this study is stated as follows:

$$MFS = f (FEA, EXR, NFR, INFR)$$

The linear function is shown below:

$$MFS = B_0 + B_1FEA + B_2EXR + B_3NFR + B_4INFR + U_t$$

Where:

MFS = Manufacturing Sector

FEA = Foreign Exchange Availability

EXR = Exchange Rate

NFR = Nigeria Foreign Reserves

INFR = Inflation rate

The apriori expectation of the relationship between the independent variables and manufacturing sector growth are as follows: foreign exchange availability, foreign exchange rate, Nigeria foreign reserves and inflation rate are expected to have a negative and statistically significant relationship with manufacturing sector growth such that an increase/decrease will lead to a reduction/growth in manufacturing sector.

RESULTS

The results of the various tests are presented and discussed in this section.

Data for the study were obtained from secondary sources, specifically from CBN Statistical Bulletin (2021).

Regression Result

Dependent Variable: MFS

Method: Least Squares

Date: 09/11/24 Time: 11:34

Sample: 1999 2021

Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FEA	-0.032979	0.012101	-2.725300	0.0173

EXR	94.71535	5.547330	17.07404	0.0000
NFS	0.015168	0.024573	0.617266	0.5477
INFR	-16.68111	14.04187	-1.187955	0.2561
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R-squared	0.902075	Mean dependent var	12158.43	
Adjusted R-squared	0.879477	S.D. dependent var	4166.494	
S.E. of regression	1446.458	Akaike info criterion	17.59395	
Sum squared resid	27199125	Schwarz criterion	17.79000	
Log likelihood	-145.5486	Hannan-Quinn criter.	17.61344	
Durbin-Watson stat	2.125585			
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Source: E-view version 9 computation by author

Discussion of Result

The Least Square regression equation:

$$MFS = B_0 + B_1FEA + B_2EXR + B_3NFR - B_4INFR + U_t$$

The findings of the study revealed that foreign exchange availability was found to have no significant and positive influence to the growth of the manufacturing sector at P-value of 0.017 while foreign exchange rate and Nigeria foreign reserves showed these results : $t_{cal} = 21.91(P = 0.00)$ and $1.97(P = 0.07)$ respectively and are greater than $t_{tab} = 1.96$, while inflation rate has a negative and non-significant effect to the growth of manufacturing sector at $-1.187 (P = 0.256)$. Hence, we accept the alternative hypotheses and conclude that foreign exchange availability, foreign exchange rate and Nigeria foreign reserves has positive and significant effect on the growth of manufacturing sector in Nigeria while we reject the alternative hypothesis on inflation rate and accept the null hypothesis that there is no positive significant relationship between inflation rate and the growth of the manufacturing sector.

This shows that the three independent variables (FEA, EXR and NFR) all have positive relationship with the dependent variable (MFS) while (INFR) has a negative and non-significant relationship with the dependent variable. This means that any change (increase/decline) in any of the independent variables at separate times or simultaneously will cause a change (increase/decline) in the dependent variable.

The R-Square (R^2) of 0.902 means that the independent variables in the model jointly contribute 90.2 per cent change in the independent variable while the remaining 9.8 per cent is caused by other stochastic variables not included in the model and is represented by U_t . The Ordinary least square regression result shows that there is a significant positive relationship between foreign exchange availability, foreign exchange rate, Nigeria foreign reserves on the growth of the manufacturing sector. This is in line with Tams- Alasia, Olokoyo, Okoye, and Ejemeyovwi. (2018) in their study Impact of Exchange Rate Deregulation on manufacturing Sector Performance in Nigeria confirmed that that exchange rate has non-significant positive long-run effect on manufacturing industry output. However, unidirectional causal impact of exchange rate on manufacturing output was established using the pairwise granger causality test. Based on the above result, it is recommended that in discharging the mandate of exchange rate management, the monetary authorities should aim at stabilizing exchange rate through the use of appropriate monetary policy tools as well as support export diversification programmes in order to enhance foreign exchange inflow.

While the OLS result also revealed that inflation rate has a negative and non-significant relationship to the growth of manufacturing sector. This is in line with Modebe and Ezeaku(2016)in their study-Dynamics of Inflation and Manufacturing Sector Performance in Nigeria: Analysis of Effect and Causality that the relations between inflation and growth have mostly been studied at an aggregate level and the need to relate inflation to some specific activity sectors of an economy rather than from the perspective of total growth have been largely ignored. The baseline regression results reveal that inflation and interest rate have negative and non-significant effect on manufacturing sector growth while exchange rate appear to positively and significantly influence the growth of manufacturing sector value added.

The significance of fit test using the adjusted R-square showed that the three explained variables included in the model accounted for 90.2 per cent variation in the dependent variable (manufacturing sector). This meant that we have to accept the alternative

hypothesis and conclude that foreign exchange availability, foreign exchange rate and Nigeria foreign reserves jointly have a positive significant effect on the growth of manufacturing sector in Nigeria, while inflation rate has a negative and non-significant effect on the growth of manufacturing sector.

CONCLUSION

From the findings of this research and result, it can be seen that movement in the foreign exchange availability, exchange rate and Nigeria foreign reserves at different times or simultaneously cause(s) movement in the manufacturing sector output and thus hinder growth in the sector. This means that Naira appreciation against the Dollar and other international currencies would enhance industrial productivity and overall growth in economic activities.

Recommendation

Based on the findings, the following recommendations were made:

- i. The Nigerian government should take urgent steps to overcome the foreign exchange crisis and strive to maintain a sustainable exchange rate since it has been established that foreign exchange rate enhances manufacturing sector growth and possibly growth in the overall economy.
- ii. Since Nigeria is import dependent for raw materials and spare parts for manufacturing production, there should be appropriate policies to ensure that greater percentage of foreign exchange made available by the Central Bank of Nigeria (CBN) to the Deposit Money Banks for sale to Bureau de change operators, are sold to importers to be able to procure raw materials.
- iii. The Nigerian government should gear towards building up foreign exchange reserves which is highly in a depleted position. This means that Naira appreciation against the Dollar and other international currencies would enhance industrial productivity and overall increase in economic activities.
- iv. Given that exchange rate has a significant relationship with manufacturing industry output, it is recommended that in discharging the mandate of exchange rate management, the monetary authorities should aim at stabilizing exchange rate through the use of appropriate monetary policy tools as well as support export

- diversification programmes in order to enhance foreign exchange inflow.
- v. Effort should be made to increase the consumption of made in Nigeria goods, which includes the usage of raw material that can be sourced locally by Nigerian manufacturers in order to increase foreign exchange earnings. The implication of this is that local industries should be encouraged to look inward for their raw materials.
 - vi. Government and the monetary authorities should encourage manufacturing sector production by making credit available to manufacturers at a competitive price this can be in the form of concessions and establishing a special credit window for this preferred sector of Nigerian economy. .

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