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Real exchange rate and manufacturing sector of the Nigerian economy: 1999-2021

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Article Info

Abstract

Nigerian economy has been described as import dependent and the manufacturing sector has to compete with other sectors for available foreign currency. As the paper investigated the effect of real exchange rate on manufacturing sector in Nigeria from 1999 to 2021. Time series data drawn from Central Bank of Nigeria Statistical Bulletins and publications of National Bureau of Statistics was used in the study while Vector Autoregressive Estimates was used to analyze the effect of the explanatory variables (real exchange rate, foreign direct investment, trade openness and foreign portfolio investment) on the dependent variable (manufacturing sector, proxy by the contribution of manufacturing sector to GDP). The regression result indicated that real exchange rate had negative and no significant effect on manufacturing sector. The study recommends among others that market forces should be allowed to determine nominal exchange rate which will help in modulating real exchange rate; there should be effective implementation of local content policy and provision of incentives to encourage foreign investments. There is need for economic stabilization aimed at reducing cost of doing business. The government is advised to continue to improve the ease of doing business in Nigeria by promoting development of industry layouts, improving power supply and ensuring security of life and properties of the populace.

1. Introduction

Exchange rate is a key price variable in an economy and performs dual role of maintaining international competitiveness and serving as nominal anchor for domestic prices. It is the price of one currency *vis-a vis* another and is the number of units of a currency required to buy another currency (Mordi, 2006) [8]. Exchange rate is the price of one currency in terms of another currency. It is the current market price for which one national currency can be exchanged for another. The exchange rate assumes relevance because of cross-border flows of goods, services, financial assets and funds transfer (CBN, 2018). Exchange rate fluctuation refers to the swings of fluctuations in exchange rate over the period of time or the deviations in the exchange from benchmark or equilibrium exchange rate. Once exchange rate is not fixed, it is subject to variations, thus floating rate tends to be more volatile (Mordi, 2006) [8]. Changes in exchange rate have pervasive effects, with consequences for prices, wages, interest rates, production levels and employment opportunities (Kazi & Mohammed, 2013). Two concepts of exchange rate are commonly distinguished: nominal exchange rate and real exchange rate (RER). The nominal exchange rate (NER) is a monetary concept which measures the relative price of two currencies, example, naira in relation to the U.S dollar; but the real exchange rate (RER) as the name implies, is a real concept that measures the relative price of two goods, tradable goods (exports and imports) in relation to non-tradable goods (i.e. goods and services produced and consumed locally) (Obadan, 2006) [12].

Nevertheless, there is a link between the two concepts in that changes in the NER can cause short-run changes in the RER. The real effective exchange rate measures the value of a currency against a basket of other currencies; it takes into account changes in relative prices and shows what can actually be bought (Tejvan, 2017). The real exchange rate measures the value of currencies, taking into account changes in the price level.

In Nigeria, the management of the exchange rate is vested on the Central Bank of Nigeria (CBN, 2016). The CBN is empowered by the Foreign Exchange Regulation Act to regulate the foreign exchange regime. Exchange rate management has been a core macroeconomic policy function. The overriding objective has been to achieve a realistic and stable exchange rate consistent with internal and external balance.

In recent times, some manufacturing industries in Nigeria have been characterized by declining profitability rate, constant retrenchment of employees and total winding up of some and dwindling productivity rate which is caused by high cost of production, high exchange rate and inadequate government investments in infrastructure. It has also been argued that the persistent poor performance of the manufacturing sector in Nigeria is mainly due to massive importation of finished goods, high exchange rate, gradual exit of foreign investors and other variables which have resulted in the reduction in capital utilization and output of the manufacturing sector of the economy.

Production is so important in human life that its level and intensity have become an accepted index for measuring economic prosperity. A country is deemed developed if it has achieved and can sustain a high level of productive activity. The economy of Nigeria seems to have neglected promoting production especially by manufacturing firms, and is too dependent on oil and it is not progressing significantly due to inconsistency in macroeconomic policies for the growth of different sectors in the economy (Onayemi, 2010) [14]. It seems that the government works to safeguard the oil companies' interests.

Many researchers have studied related topic and shared that long run relationship exist between real exchange rate and manufacturing sector output as well as productivity growth (Rapetti, 2013) [16]. This study seeks to explore the relationship between real exchange rate and the contribution of manufacturing sector to the economy, foreign direct investment, and trade openness. Would the declining in manufacturing performance be attributed to fluctuations in real exchange rate?

2. Literature Review
Exchange rate
The exchange rate is one of the three critical and closely related average price indicators in the economy. The others are inflation (the average price change of goods in the domestic market) and the interest rate (the domestic price of capital) (Daniel, 1994) [3]. Conceptually, an exchange rate implies the price of one country currency in terms of another. It is the ratio between a unit of one currency and the amount of another currency for which that unit can be exchanged at a particular time (Ngerebo-a & Ibe, 2013) [9]. In other words, exchange rate is the price of one currency vis-a-vis another and is the number of units of a currency required to buy another currency (Mordi, 2006) [8].

Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade. Exchange rate regime and interest rate remain important issues of discourse in the International finance as well as in developing nations, with more economies embracing trade liberalization as a requisite for economic growth (Obansa, Okoroafor, Aluko & Millicent, 2013).

Obadan (2006) [12] revealed that exchange rate is an important and is a major price that affects all sectors of the economy and all economic agents. Therefore, the government has policies to ensure efficient management of the foreign exchange.

Exchange rate policy embodies two types of exchange rate regime. The first one is the fixed exchange rate regime in which the government controls the rate of exchange and adopts necessary changes to maintain the existing rates. This is anchored on the Bretton Woods system. The second system is the flexible exchange rate regime which emerged following the collapse of the Bretton Woods system of fixed exchange rate regime. The flexible exchange rate has been described as a reliable exchange rate system given that it is driven by the interplay of market forces (Ozigbo, 2019). The exchange rate plays a critical role in an economy because imports and exports constitute a large part of the economy (CBN, 2016).

Rodrik (2009) [17] advances a dramatically different argument both about the reason why exchange rate misalignment matters for growth and also about the mechanisms by which this relationship works. He argues that, while overvaluation is inimical to growth, real undervaluation expands exports and growth by reducing the foreign currency value of the additional transactions costs that the tradable sectors incur disproportionately as a result of domestic institutional weaknesses and market failures. He claims that maintaining an undervalued RER must be a proactive strategy and serves as a second-best policy instrument to compensate for the disproportionate adverse effect these distortions impose on the tradable sectors. Servén (2010) also claims that undervaluation raises growth by generating learning by doing externalities in the tradable sector which are sub-optimally produced in the absence of such policy intervention. Levy-Yeyati and Sturzenegger (2007) also argue that undervaluation is desirable for growth, but they claim that it works through increasing savings and capital accumulation of the economy.

Manufacturing sector refers to those industries which are involved in the manufacturing and processing of items and indulge or give free rein in either the creation of new commodities or in value addition (Nwanne, 2015) [11]. Manufacturing sector of any economy worldwide is reputed to be the engine of growth and a catalyst for sustainable transformation and national development. This is because of its enormous potentials as a tool for creating wealth, generating employment, contributing to the country's Gross Domestic Product as well as alleviating poverty among citizenry (Simbo, Iwuji & Bagshaw, 2012) [19]. Manufacturing activities have significant impact on the economy of a nation. It developed economies, for instance, they account for a substantial proportion of total economic activities. In Nigeria, the subsector is responsible for about 10% of total GDP annually. In terms of employment generation, manufacturing activities account for about 12 per cent of the labour force in the formal sector of the nation's economy. This is why manufacturing statistics are relevant indices of the economic performance of a nation. (NBS, 2018).

3. Theoretical Framework
3.1 Monetary approach
The monetary view of the balance of payments or the global monetarist approach immerged late 1950s. The monetary approach emerged in 1950s first as a monetary approach to

the balance of payment and then was refocused to the exchange rates. The first champion of the monetary approach is Palok, later redefined by Hahn, Pearce, Prais, Mundell, Johnson, and other followers. These monetarists suggest that the balance of payment is a monetary phenomenon. Thus, since the exchange rate is the price of one currency expressed in terms of another currency, the balance of payment should be expressed from the point of view of supply and demand of money. The model starts with the reasonable statement that, as the exchange rate is the relative price of foreign and domestic money, it should be determined by the relative supply and demand for these moneys. This simply suggests, if people demand more money than is being supplied by the central bank then the excess demand for money would be met by inflow of money from abroad, hence the trade balance will improve.

On the contrary, if the central bank supplies more money than is demanded, the excess supply of money is eliminated by outflow of money to the other countries and this will worsen the trade balance. It is inherent therefore that, any excess demand for goods, services and assets, resulting in a deficit of the *balance of payments*, reflects an excess supply or demand of the stock of money. It seems the central point of the monetary approach to the balance of payment is that balance of payment deficits or surpluses reflect stock disequilibrium between demand and supply in the market for money (Jhingan, 2009) [6].

With monetary approach therefore, it is important to emphasize the role of demand and supply of money in determining the exchange rates. Thus, similar to any merchandise which is for sale, the foreign exchange value is subjected to the law of supply and demand. This is the reason why the exchange rate will be explained using the same geometric artifices which are used to explain the formation of prices in general. Therefore, according to this approach, the exchange rate between two currencies is the ratio of their values determined on the basis of money supply and money demand positions of the two countries.

3.3 Empirical Review

Adebanjo *et al* (2019) [1] examined impact of exchange rates on the performance of the manufacturing sector and how it influences growth in different climes of the world. These studies have examined; drawing out the relationship between exchange rate and macroeconomic performance, with respect to manufacturing output and its related variables. This study examined the impact of exchange rates on the performance of the Nigerian manufacturing sector using the independent variables of exchange rates, inflation rates, capacity utilization rate, the manufacturing sector's foreign direct investments, and imports over a period of 25 years (1990-2014). Unit Root test, Johansen co-integration test, Granger causality test and Error Correction Model were used to test for stationarity, long-run relationship, causal relationship, and the short and long run equilibrium relationship respectively. The empirical results of the study show that a devaluation of the Naira has a negative impact on the performance of the Nigerian manufacturing sector as it was found that exchange rates has a negative significant relationship, long run relationship and causal relationship with the performance of the sector. It was also ascertained from the results that inflation rates (INF), and capacity utilization rates (CUR) have a positive significant relationship with the performance of the sector, while

exchange rates, imports (IMP) and manufacturing foreign direct investment (MFDI) have a negative significant relationship with the performance of the Nigerian manufacturing sector. The results of the analysis showed that the independent variables have a significant relationship with the R2 at 64.5%.

Hua (2020) investigated Real Exchange Rates and Manufacturing Industry in China. The Chinese real manufacturing value added increased at a higher growth rate (17% per year on average) during the strong depreciation period of the renminbi from 1984 to 1993 than that (10%) during the period of the strong appreciation from 1994 to 2016. On contrary, its productivity growth accelerated at an annual average rate of 9.7% during the real appreciation period relative to 3.6% during the real depreciation period. This paper originally argues that real appreciation of exchange rate may improve manufacturing productivity (rarely studied), mitigating its traditional negative effects; its total effect is thus uncertain; only an empirical investigation can reveal it. We propose a manufacturing value added function augmented of real exchange rate able to estimate these two kinds of effects. To this objective, we calculate three renminbi real exchange rates for the Chinese manufacturing at macro, product and sector levels. The obtained results confirm that the renminbi real appreciation exerted traditional negative effects on the size of tradable sector and employment, but positive effects on capital intensity, efficiency improvement of workers and staffs and competitiveness via Schumpeterian "creative destruction," innovation and high technology industries. The positive effects on manufacturing value added are however still too small to offset the negative ones. These results suggest that China should gradually revalue the renminbi in function of manufacturing productivity improvement to avoid the serious deceleration of manufacturing industry when its negative impacts on the size of tradable sector, resource allocation to non-tradable sector and employment are superior to positive effects of productivity improvement.

Irene (2020) [5] explored the impact of exchange rate volatility on the Nigerian manufacturing sector from 1981 to 2018. The study employed the vector autoregressive (VAR) model in analyzing the annual time series data. The GARCH (1, 1) model was used to ascertain the prevalence of exchange rate volatility persistency and to extract exchange rate volatility series. The VAR model was used to estimate the impact of exchange rate volatility on the manufacturing sector. The GARCH (1, 1) estimates obtained showed that there is persistent of volatility associated with exchange rate. Manufacturing output was further disaggregated into oil-related manufacturing output and non-oil related manufacturing output. The empirical results obtained from the VAR estimation show that exchange rate volatility has significant negative effect on aggregate manufacturing output in Nigeria.

Lawal (2016) [7] k examined the effect of exchange rate fluctuations on manufacturing sector output in Nigeria from 1986 to 2014, a period of 28 years. Data sourced from Central Bank of Nigeria (CBN) statistical Bulletin and World Development Indicators (WDI) on manufacturing output, Consumer Price Index (CPI), Government Capital Expenditure (GCE) and Real Effective Exchange Rate (EXC) were analyzed through the multiple regression analysis using Autoregressive Distribution Lag (ARDL) to examine the effect of exchange rate fluctuations on manufacturing sector.

Using ARDL it was discovered that exchange rate fluctuations have long run and short run relationship on manufacturing sector output. The result showed that exchange rate has a positive relationship on manufacturing sector output but not significant. However, from the empirical analysis it was discovered that exchange rate is positively related to manufacturing sector output.

Tams-Alasia *et al* (2018) [20] examined the impact of exchange rate deregulation on manufacturing output performance in Nigeria over the period 1980 to 2016. The normalized cointegration technique was used to test for long-run relationship between exchange rate and manufacturing output while the granger causality test was used to ascertain the direction of causality between them. Also, the error correction mechanism (ECM) was used to calculate the speed of adjustment of the model to short-run disequilibrium condition. The empirical findings revealed 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.

Nura (2020) [10] examined the Exchange Rate fluctuations on manufacturing performance in Nigeria over a period of 37 years (from 1981- 2018), using annual data obtained from collected from CBN, NBS and Index Mundi Nigeria. An ARDL approach was used for the analysis. The empirical results of the study shows that an exchange rate volatility has negatively affect the performance of the Nigerian manufacturing sector as can be seen from the respective coefficients of the estimated variables,, the long run relationship analysis and the causal relationship between the dependent and the independent variables.

Daniel (1994) [3] examined effect of real exchange rate on Kenya's agricultural exports. The study focused on the impact of RER on agricultural export prices relative to prices of non-traded home goods, non- agricultural products and the local food. This study investigated whether there is a relationship between real exchange rate movements and implicit agricultural export tax, agricultural export prices relative to prices of non-traded home goods, non- agricultural products and local food during 1970-90.This study also investigated the link between the RER movements and foreign incomes, weather, real agricultural exports and individual export commodities such as coffee and tea. Using Ordinary Least Squares (OLS) as method of estimation, the findings of the study indicate that the real exchange rate depreciated in real terms during the study period 1970- 90. The results also indicate that the real exchange rate exerts an independent statistical influence on most of the relative prices considered in the study. The results further indicate that real exchange rate exerts an independent statistical influence on the domestic prices of the individual traditional export.

Simbo, Iwuji, and Bagshaw (2012) [19] examine the performance of the Nigerian manufacturing sector since independence till 2012 using performance indices such as percentage contribution to gross domestic product, index of manufactured product, percentage growth rate, manufacturing value added, employment growth rate and percentage of capacity utilization within this period. The finding revealed that despite many policies and developmental initiatives undertaken by successive civilian and military administrations since independence, the Nigerian manufacturing sector has grossly underperformed in relation to its potentials: a 52 year analysis of growth and retrogression (1960-2012).

Mehdi, Arezoo and Alireza (2014) studied the effect of exchange rate fluctuations on economic growth considering the level of development of financial markets in selected developing countries The study showed that the effect of financial development on economic growth as well as the effect of exchange rate fluctuation on economic growth are negative and significant Devaluation of the national currency increases the price of imported goods including intermediate and capital goods, which in turn increases production costs.

4. Methodology

The study used secondary data collected from Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics (NBS), from 1999 to 2021 while Vector Autoregressive Estimates was used to analyze the data. The study adopted and modified the model of Tams-Alasia *et al* (2018) [20] who investigated the Impact of exchange rate deregulation on manufacturing sector performance in Nigeria). His model is stated thus:

IND = f (EXRT, INFL, MPR, M2, FDI, MCAP)   Eqn1

Where: IND = Manufacturing Industry output INFL = Inflation MPR = Monetary policy interest rate EXRT = Exchange rate FDI = Foreign direct investment M2 = Broad money supply MCAP = market capitalization.In order to capture how exchange rate affects manufacturing sector, the model was modified tp.

RMG = ∫ (REX, FDI, FPI, TROP)   Eqn2
RMG=β0+β1REX+β2FDI+β3FPI+β4TROP+Ut   Eqn.3

Where;
 RMG = contribution of manufacturing to GDP
REX = Real Exchange Rate
FDI=Foreign Direct Investment
FPI= Portfolio Investment
TROP =Trade Openness
∫ = Functional Notation
µt = Error term
β0 – β4 = Coefficients of Estimates

5. Results and Discussion

Table 1: Descriptive statistics results

Variables	Obs	Mean	Standard Dev	Min	Max	Skewness	Kurtosis
RMG	23	4069.670	7626.474	6.552800	25725.87	1.643957	4.420922
REX	23	91.79174	27.65168	53.76000	155.7500	1.068263	3.259330
FDI	23	1182.401	1965.991	92.79000	9922.390	4.042538	18.58308
FPI	23	484147.4	853882.2	-698290.8	2687233	1.646473	4.787279
TROP	23	0.318633	0.076239	0.178561	0.434540	-0.274308	1.815195

Source: Computer analysis using E-views 12.0

Table 1 shows the descriptive statistics results for the entire sample of the study. We observed that for the full sample, the mean (or standard deviation) values for contribution of manufacturing to GDP, Real Exchange Rate, Foreign Direct Investment, Portfolio Investment and Trade Openness are 4069.670, 91.79174, 1182.401, 484147.4and 0.318633 (or 7626.474, 27.65168, 1965.991, 853882.2 and 0.076239), respectively. The maximum and minimum values for the five variables are found to be between 2687233 and -698290.8,

respectively. The skewness has both negative and positive values, which shows a negatively and positively skewed distribution.

The attainment of stationarity by variable(s) is necessary in model estimation due to the influence of non-stationarity on regression output. To this effect, the Augmented Dickey-Fuller (ADF) test of unit root were used to prove that the data were stationary.

Table 2: Result of ADF Unit Root Test at 2nd Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
RMG	-7.873444(0.0000) **	-3.808546	-3.020686	Stationary
REX	-7.767020 (0.0000) **	-3.808546	-3.020686	Stationary
FDI	-10.42768 (0.0000) **	-3.808546	-3.020686	Stationary
FPI	-8.905419 (0.0000) **	-3.808546	-3.020686	Stationary
TROP	-8.370667 (0.0000) **	-3.808546	-3.020686	Stationary

Source: Author's Computation

Table 4 indicates at second difference all the variables were stationary meaning that the variables were stationary at second difference this encouraged the use of Vector Autoregressive Estimates (VAR) as a method of data analysis. With the determination of VAR as method of data analysis especially short run relationship there is need to determine the long run relationship using Johansen co-integration.

Co-Integration Text

Table 3: Presentation of Johansen Co-Integration Result

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.931644	120.0762	69.81889	0.0000
At most 1 *	0.880400	63.73273	47.85613	0.0008
At most 2	0.462188	19.13700	29.79707	0.4831
At most 3	0.251799	6.111832	15.49471	0.6823
At most 4	0.000956	0.020084	3.841466	0.8872

*(**) denotes rejection of hypothesis @ 5% significant level
L.R. test indicates 2 co-integrating equation @ 5% significant level

The co-integration test is used in the determination of the long-run relationship that exists between variables. Table 3 shows that long-run relationship (co-integration) exists among the variables. There is 2 cointegrating equation in the model. This is reflected in the trace statistic of Table 3 which shows a value greater than that of the 5% critical value respectively. With the existence of long run relationship, there is need to analyze normalized long run coefficients based on Johansen test. The result of the normalized coefficients shown in Table 4 shows a long-run relationship between real exchange rate and manufacturing sector.

Table 4: Normalized long-run coefficient based on Johansen test

| Dependent variable HDI				
RMG	REX	FDI	FPI	TROP
1.000000	15.03113	-3.784564	0.002337	15810.15
	(9.34541)	(0.19643)	(0.00040)	(5363.34)
	[1.608]	[-19.27]	[5.8425]	[2.93]

Source: Output Data from E-views 12.0

Note: Standard errors in ( ) and t- statistic in [ ].** implies significant at 1% level of significant. In long run FDI has a positive effect on manufacturing sector while REX,FPI and

TROP have negative effect on RMG. The coefficients of REX, FDI, FPI and TROP are statistically significant at the 1% level. Conclusion: The null hypothesis of no cointegration is rejected against the alternative of cointegrating relationship in the model. The nonstationary of data series and the cointegration of the vector variable in the equations lead to the execution of the second phase of Vector Autoregression Estimate (VAR). But before we carry out the analysis using VAR there is need for the researcher to carry out the diagnostic text to make sure that the regression model is correctly specified in terms of the regressors that have been included.

Diagnostic Test
Stability Test
The stability of the VAR model was investigated using the inverse roots of AR characteristic polynomial presented in figure 1.
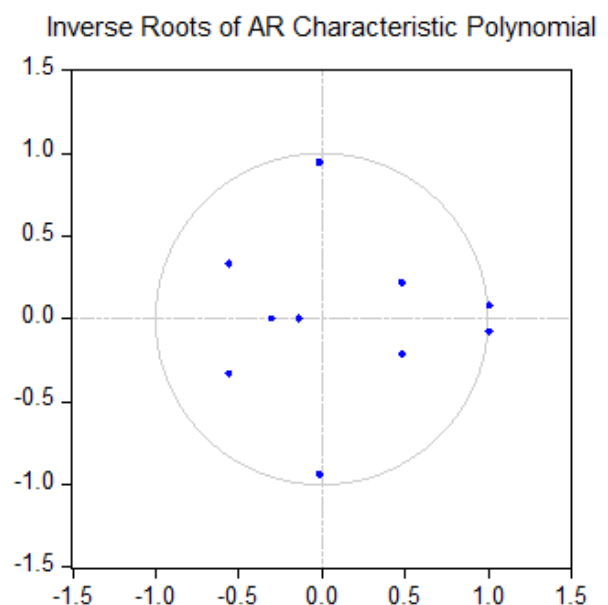
Source: Graphs Using E-view Statistical Package, Version 12

Fig 1: Inverse Root of AR Characteristics Polynomia

The result shows that the VAR is relatively stable since all dots are within the circle except one. The reverse would be

the case if the dots lie outside of the circled region.

VAR Residual Serial Correlation LM Tests
To test for serial correlation among the residuals, the LM test was conducted and the results are shown Table 5

Table 5: VAR Residual Serial Correlation LM Tests

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	24.26599	25	0.5040	0.682337	(25, 5.2)	0.7650
2	28.48767	25	0.2859	0.938317	(25, 5.2)	0.5958
3	54.18339	25	0.0006	5.126187	(25, 5.2)	0.0349

Source: Output Data from E-views 12.0

The result showed that there is absence of serial/autocorrelation among the residuals since the null hypothesis of no serial or autocorrelation is accepted at 0.05 level of significance for both lags 1,2 and 3. That is, the LM-statistics (LRE*stat and Rao F-stat) are not statistically significant (probability values are more than 0.05).

Vector Autoregressive Estimates

Table 6: Results of Vector Autoregressive Estimates Normalised on RMG

Parameters	Coefficient	Standard Error	t-statistic
RMG(-1)	0.448949	0.30582	1.46803
REX(-1)	-19.39211	29.4166	-0.65922
FDI(-1)	0.059336	0.36291	0.16350
FPI(-1)	-0.000759	0.00055	-1.38889
TROP(-1)	-20474.98	9966.73	-2.05433
C	13618.23	4444.03	3.06439

Source: Output Data from E-views 12.0
Adjusted R-squared = 0.94 F-Statistic = 32.71874

The result from Table 6 showed that RMG, FDI and C have positive effect on RMG while REX, FPI and TROP have negative effect on FDI. A one percent change in one-year lag of RMG, FDI and C will result to a positive change in RMG by 0.44 percent, 0.05 percent and 13618.23 percent respectively. On the other hand, a one percent change in one-year lag of REX, FPI and TROP will results to a negative change in RMG by -19.392 percent, -0.000759 percent and -20474.98 percent respectively. On the performance of the individual variables, the results revealed that TROP and C were statistically significant given the high value of t-statistics.

The result revealed that real exchange rate has negative and insignificant effect on manufacturing sector for the period under review. The insignificant effect indicates that as real exchange rate increases, foreign direct investment continues to dwindle. Increase in real exchange rate signifies inconsistency in management of exchange rate policy that erodes foreign investors' confidence of doing business. Also increase in real exchange rate leads to rise in cost of doing business limits foreign investors' active participation in manufacturing sector and eventually cumulates to gradual withdrawal of foreign investors from the country

The adjusted R-squared value of 0.94% indicates that, about 94% of the variations in RMG is explained by the combined effect of the independent variables. It also implies that the model has good fit in explaining the relationship. Similarly, the F-statistic which measures the overall significance of the model showed a high value of 32.71874 *which* indicates that effect of exchange rate on manufacturing sector is

statistically significant in Nigeria.

Table 7: Granger Causality Test

REX does not Granger Cause RMG	21	0.48001	0.6274
RMG does not Granger Cause REX		0.69454	0.5137
FDI does not Granger Cause RMG	21	0.36824	0.6977
RMG does not Granger Cause FDI		6.26403	0.0098
FPI does not Granger Cause RMG	21	0.39051	0.6830
RMG does not Granger Cause FPI		5.96512	0.0116
TROP does not Granger Cause RMG	21	4.55363	0.0272
RMG does not Granger Cause TROP		0.04514	0.9560

Source: Output Data from E-views 12.0

The probability value of less than 5% significance level in table 7 indicates a unidirectional causality between FDI, FPI and TROP on RMG with causality moving from RMG to FDI and FPI but from TROP to RMG. The result shows that exchange rate depreciation (appreciation) stimulates (dampens) investment by enhancing demands in both the domestic and export markets.

6. Conclusion and Policy Implication
This study examined the effect of real exchange rate on manufacturing sector of Nigerian economy over the period of 1999 to 2021. The results show that all employed variables were stationary at 2nd difference. The study assesses its performance using a variety of variables, such as real exchange rate, foreign direct investment, trade openness and foreign portfolio investment) and contribution of manufacturing sector to GDP. The study's findings revealed that the real exchange rate has a negative and non-significant effect on manufacturing performance. The insignificant effect indicates that the exchange rate has been volatile, resulting in high inflation, which has resulted in a lack of basic infrastructure and a lack of development projects such as the construction of roads, buildings, and other amenities that will boost productivity. This is also due to a lack of sufficient and reasonable exchange rates for acquiring raw materials for production. Due to a lack of raw materials to work with, the capital employed, such as machines and skilled and unskilled workers, is underutilized.

Based on the finding of the study the following recommendations were made, there is need for sustainable foreign exchange management that will favour manufacturing sector. The Central bank of Nigeria should continue to allow manufacture of infrastructural development such as cement and building material access to foreign currency on subsidized or controlled rate. Also, there is need for economic stabilization aimed at reducing cost of doing business. The government is advised to continue to improve the ease of doing business in Nigeria by promoting development of industry layouts, improving power supply and ensuring security of life and properties of the populace. Stakeholders including the various levels of government should continue to empower "active poor" with soft loan and grants in order to increase production of consumer goods. The research also work proposes effective implementation of local content policy and provision of incentives to encourage foreign investments. There is also the need to streamlined business policy through integrated economic plan that allow easy communication and synergy of all government units and agencies.

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