FOREIGN RESERVES AND MANUFACTURING SECTOR PERFORMANCE IN NIGERIA (1991-2021)

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Abstract

This study examined the effect of foreign reserve on manufacturing sector performance in Nigeria covering 1991 to 2021. Foreign reserve was proxied with foreign reserve, trade openness, foreign direct investment and exchange rate while manufacturing sector performance, the dependent variable was proxied with manufacturing sector's contribution to real gross domestic product (RGDP) in Nigeria. Data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. The study employed Augmented Dickey-Fuller unit root test for pre-test. The data was analyzed using error correction mechanism (ECM) and Johansen Co-Integration. To determine the residual's normality, the study used post estimation tests such as the Breausch Godfrey serial correlation, the Breausch Pagan Godfrey test, and histogram. The study revealed that all the explanatory variables except exchange rate have a positive relationship with manufacturing sector performance. Specifically, external reserves has an insignificant positive effect on manufacturing sector's performance with p-value of 0.070 > 0.05 *and adjusted* R^2 *of 60%. Consequently, the study concluded that foreign reserve has a positive effect but in significant effect on Nigerian manufacturing sector's performance. Thus, the study recommended that managers of external reserves should design more positive and progressive measures to continue to stimulate growth of important sectors like manufacturing.*

Keywords: *Foreign Reserve, Manufacturing, Performance, Trade Openness, Investment*

Introduction

Background to the Study

Numerous research studies that established the fact that a developing country like Nigeria requires a vibrant and productive manufacturing sector to aid the production of both capital and consumer goods and services which are necessary ingredients for a productive economy. To achieve the objective of having a vibrant and productive manufacturing sector, importation of capital goods, both semi and finished goods, and raw materials are required from developed countries. Making payment for such importation requires foreign currencies which are constitutionally domiciled

with Central Bank of Nigeria (CBN). The stock of these foreign currencies amount to foreign reserves which CBN allocates to competing usages. The quantity and subsequent allocation of these reserves have not yielded the required results compare to the

potentials of a crucial and important sector like manufacturing sector in Nigeria as evidenced in the less that 15% of the sector's contribution to gross domestic product (GDP) (Nteegah, & Olubiyi, 2022).

Consequently, other sectors of the economy which require the outputs of manufacturing sector to operate maximally have been negatively affected as they embarked on importation of goods which ought to be manufactured locally. The confirmation of failure of foreign reserves to stimulate growth in the Nigerian economy was put beyond any doubt with cancellation of multiple exchange rate management as practiced by the suspended governor of CBN and subsequent directives to deposit money banks and forex market dealers to sell foreign exchange at market-determined rates (Chukwuma, 2022). The failure of manufacturing sector to meet the needs of the country and the challenges of foreign reserves highlighted above will continue to attract academic research, investigate and enquiry until when these challenges are resolved. This is justification for embarking on this study to contribute to existing knowledge on the economic implication of foreign reserve management on manufacturing sector in Nigeria.

The findings from the empirical review (Chukwuma et.al., 2022; Nteegah & Olubiyi, 2022; Akpunonu & Orajaka, 2021; Iwedi, 2021; Irene et. al., 2022) revealed the studies reviewed did not include trade openness as an important variable relevant to this study, this study therefore combined trade openness with three other variables to determine the effect of foreign reserve of manufacturing sector performance in Nigeria.

This study is sectionalized into five sections, section one discussed the introduction while section two discussed literature review comprising conceptual, theoretical and empirical reviews, while methodology is section three and section four contained findings and discussions and the last section was conclusion and recommendations.

Literature Review

Conceptual Review

Foreign Reserves

Foreign reserves are cash and other reserve assets such as gold held by a central bank or other monetary authority that are primarily available to balance payments of the country, influence the foreign exchange rate of its currency and to maintain confidence in the financial markets (IMF (2023). Foreign reserves are held in one or more reserve currencies, nowadays, mostly the United State Dollar. Foreign exchange reserves assets can comprise bank notes, bank deposits, and government securities of the reserve currency, such as bonds and treasury bills. Some countries hold a part of their reserves in gold, and special drawing right are also considered reserve assets. According to CBN (2023), Foreign exchange reserves are assets held by a monetary authority in foreign currencies. These reserves are used to back liabilities and influence monetary policy. They

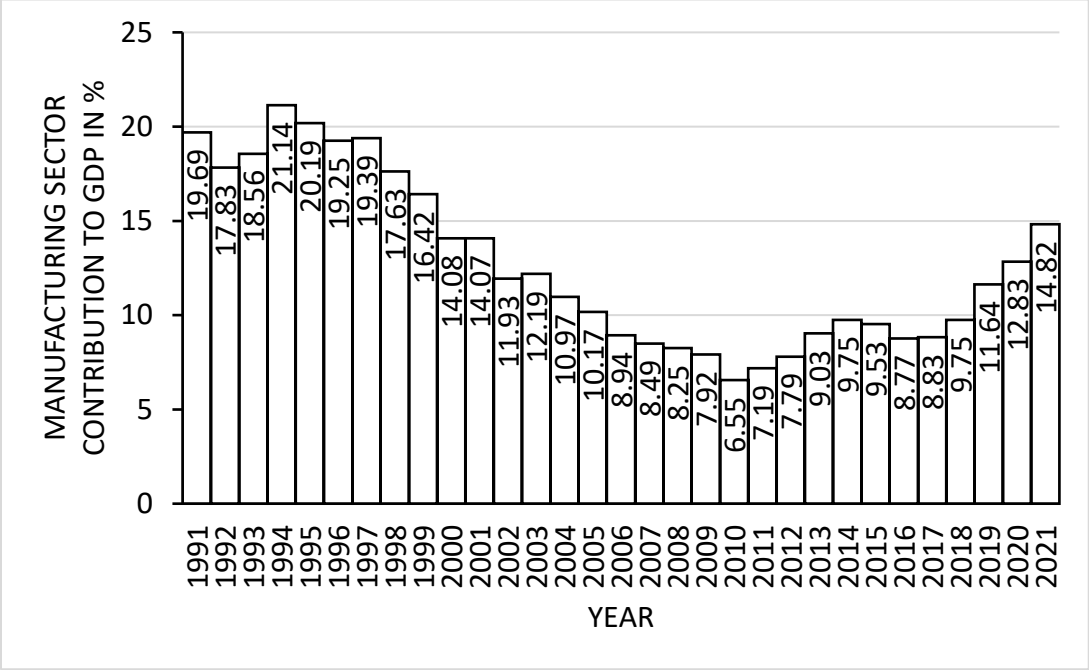
include foreign banknotes, deposits, bonds, treasury bills, and other foreign government securities. These assets serve many purposes but are most significantly held to ensure that a government or its agencies have backup funds if their national currency rapidly devalues. Foreign exchange reserves are also called international or external reserves (Chukwuma, et. al. 2022).

Manufacturing Sector Performance in Nigeria

Manufacturing sector is one of the industrial sub sectors in Nigeria. An industrial sector is a group of firms engaged in similar business interest and production/service line (Osakwe et. al. 2019). According

to the CBN (2017), the industrial activities in Nigeria are grouped in terms of activity sector. Manufacturing sector is one of the key sectors of many economies globally. It is a quest for improvement in production in association to import substitution and creating foreign exchange earnings capacity. Manufacturing is the production of goods through the application of labour, machines and tools. It involves both manpower and high technology through which raw materials are converted into finished product.

According to CBN Statistical Bulletin (2021), manufacturing sector contribution to GDP was 19.69% in 1991 and reduced to 14.08% in year 2000. Five years after it further reduced to 10.17% in 2005 and continued the downward trend in 2010 when it was 6.55%. It started increasing again in 2011 and went up to 7.19% and sustained the improvement in 2015 with 9.53%. Manufacturing contribution to GDP recorded an appreciable increase in 2019 when it moved from 9.75 of the previous year to 11.64% and sustained the upward movement in 2020 and 2021 with 12.83% and 14.82% respectively. The statistics available show that the highest contributions of manufacturing sector to GDP was recorded in 1994.



Note: Figure 1: Graphical Representation of Manufacturing Sector Contribution to the Nigerian Economy between 1991 and 2021

Source: Author's computation using CBN Statistical Bulletin 2021.

Theoretical Review

Theory of Unbalanced Growth

Hirschman (1966) propounded the theory of unbalanced growth as a strategy of development to be used by the underdeveloped countries. This theory stresses on the need of investment in strategic sectors of the economy instead of all the sectors simultaneously. According to this theory the other sectors would automatically develop themselves through what is known as "linkages effect". Creating imbalances in the

system is the best strategy for growth. Owing to the lack of availability of resources in the less developed countries, the little that is available must be used efficiently. Accordingly strategic sectors in the economy should get priority or precedence over others where income is concerned. Unbalanced growth according to Hirschman (196) generates externalities. Further explaining, it could be said that the growth of industry A leads to or stimulates the growth of industry B and C and so on, similarly the growth of industry B and C will lead to the subsequent growth of industries E and F. Thus, the growth of a strategic industries apart from providing the benefits belonging to it also stimulates the growth of other set of industries. The existing externalities are explored, and fresh ones generated.

Growth of output of industry A may generate the demand for the products of B and C and also may reduce the marginal cost of production in these industries. There are technical complimentaries which stimulate the growth of related industries, following the strategy of unbalanced growth. According to Hirschman (1966) economic growth follows the course of imbalances in the system. Competitions, tensions as well as inducements are the inevitable outcome of the unbalanced growth, and more these are, greater the prospects of growth.

Empirical Review

Nteegah and Olubiyi (2022) examined external sector and the performance of manufacturing sector in Nigeria. Data on, foreign direct investment, foreign debt and exchange rate of the naira to the US dollar were sourced from the World Bank data base and regressed on share of the manufacturing sector to GDP using Parsimonious Vector Error Correction model (VECM) method. The result of Johansen Cointegration test showed that there exists a long run relationship or cointegration between external sector and the performance of manufacturing sector in Nigeria. The result of Parsimonious Vector Error Correction Model showed that external debt have positive effects on the performance of manufacturing sector in Nigeria while foreign direct investment and exchange rate have negative effects on the performance of manufacturing sector in Nigeria over the period of investigated. This study did not include trade openness as a variable.

Akpunonu and Orajaka (2021) adopted manufacturing sector output to examine the effect of monetary policy on industrial growth in Nigeria between 1986 and 2019. Data for the study were

collected from the CBN Statistical bulletin, 2019 edition. A multiple regression model was developed and the Ordinary Least Square (OLS) regression technique employed for data analysis. The results showed that open market operation (OMO) measured by treasury bill rate had positive and significant effect on the Nigerian manufacturing domestic sector gross product; cash reserve ratio (CRR) has a positive and significant effect on the Nigerian manufacturing sector gross domestic product; and monetary policy rate (MPR) has a negative and significant effect on the Nigerian Manufacturing Sector Gross Domestic Product. The study concluded that monetary policy has a positive effect on manufacturing sector output. This study was limited to 2019 and didn't include trade openness as a variable.

Iwedi (2021) 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 study proxy foreign exchange crisis by exchange rate of U.S Dollar to Nigeria Naira, and foreign direct investment while performance of manufacturing sector was measured by manufacturing sector gross domestic product. Time series were used and sourced from Central Bank of Nigeria Statistical Bulletin for 2019. Ordinary least square (OLS) technique of regression was used to analyze the data. The R-square, T-statistics and F-statistics were used
to determine the extents to which the explanatory variables affect the explained variable. The results

reveal that foreign exchange rate has a negative and significant effect on manufacturing sector GDP in Nigeria. The study concluded that monetary policy has a positive effect on manufacturing sector output. This study was limited to 2019 and didn't include trade openness as a variable. Besides, the study didn't conduct unit root tests.

Oyeniran and Alamu (2020) adopted the buffer stock model advanced by Frenkel and Jovanovic (1981) to estimate the optimal level of foreign reserves for Nigeria. Optimal reserve level was the dependent variable while independent variables were reserve holding, adjustment and opportunity cost, import and exchange rate volatility. Secondary data were used for the study and was obtained from CBN statistical Bulletin. The Autoregressive Distributed Lag Approach (ARDL) was used to estimate the optimal foreign reserves function. The results show that the Nigeria's optimal reserves level responses to adjustment cost of holding reserves and exchange rate volatility and that import and opportunity cost of reserves holding have insignificant impact on Nigeria's optimal foreign reserves. This study didn't include trade openness as a variable. Besides, the study didn't conduct unit root tests.

Irene et. al. (2022) investigated effect of exchange rate volatility on manufacturing sector performance in Nigeria from 1981 to 2018. Aggregate manufacturing was the dependent variable while independent variables were oil-related manufacturing output, non-oil related manufacturing output, exchange rate volatility, exchange rate, domestic investment, price level. Secondary data were used for the study and was obtained from CBN statistical Bulletin. 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 showed that exchange rate volatility has significant negative effect on aggregate manufacturing output in Nigeria. This study was limited to 2018 and didn't include trade openness as a variable. Besides, the study didn't conduct unit root tests.

Methodology

The research design for this study was ex-post-facto design as it is suitable for the usage of historical data and the study collected secondary data from the CBN Statistical Bulletin for a period of thirty six years (30) covering 1991 to 2021.

Model Specification

To achieve the objectives of this study, the study adapted the model used by Chukuma, et al. (2022) where they did a study on external reserves and its effects on economic growth in Nigeria. Their model was expressed thus;

$EXTRti = f(\beta o + \beta 1GDPt + \beta 2NNIt + \beta 3AEXRt + \varepsilon t)$…….Equ. (1)

This model explained that economic growth is a function of the following:

EXTR = External reserve, GDP = Gross domestic product, NNI = Nigeria net national income AEXR = Agricultural export rate, ε = Error Term, βo = Coefficient (constant) to be estimated

$\beta i - \beta 6$ = Parameters of the independent variables to be estimated.

This current study adapted the above model by replacing economic growth with manufacturing performance and by including trade openness and foreign direct investment in the model because most reviewed existing study didn't include trade openness which this current study considers very important as most manufacturing inputs imported. Therefore, the new functional model of the study was stated as follows:

MSP = f (EXTR, TOP, FDI, EXC)……....Equ.(2)

Equation 2 above is transformed into stochastic model thus:

$MGDP = \beta 0 + \beta 1EXTR + \beta 2TOP + \beta 3FDI + \beta 4EXC + Ut$…….……...Equ.(3)

In natural logarithm, equation 3 was expressed as:

$MGDP = \beta 0 + \beta 11nEXTR + \beta 21nTOP + \beta 31nFDI + \beta 41nEXC + Ut$……....Equ.(4)

The ARDL model form of equation 4 is stated thus:

The ARDL model form of (4) is stated thus:

$\Delta MFP_t = \beta 0i + \beta_1 EXTR_{t-1} + \beta_2 TOP_{t-1} + \beta_3 FDI_{t-1} + \beta 4EXCRt_{-1}$

$\sum_{i=1}^{p} \theta_i \Delta MFP_{t-1} + {}_1 + \sum_{i=1}^{q} \gamma i \Delta EXTR_{t-1} + \sum_{i=1}^{q} \lambda i \Delta TOP_{t-1} + \sum_{i=1}^{q} \varphi i \Delta FDI_{t-1} + \sum_{i=1}^{q} \delta i \Delta EXCR + Ut$.....Equ. (5)

Where:

MFP = Manufacturing Sector Performance, EXTR = External reserves, TOP = Trade Openness FDI = Foreign Direct Investment, EXCR = Exchange Rate, $\beta 0$ = Regression Constant. $\beta 1$ - β 4 = Parameters to be estimated, et = Stochastic Error Term.

A *prori* Expectation

It was expected that all the independent variables would have a significant positive relationship with the manufacturing value added.

Method of Data Analysis

The data was analyzed using error correction mechanism (ECM) and Johansen Co-Integration. Furthermore, to determine the residual's normality, the study used post estimation tests such as the Breausch Godfrey serial correlation, the Breausch Pagan Godfrey test, and histogram.

Findings and Discussion

Stationarity Test

The study employed Augmented Dickey-Fuller as the stationarity test for the variables used. First, the study transformed all the variables into logarithms, except for FDI. ***Table.1*** presents the results of the stationarity test, and it was found that all the variables have unit root problems at level, they are non-stationary. However, testing these variables at the first difference I (1), the study found that these variables became stationary at the first difference I (1), making them stationary at first difference. This,

therefore, implies that variables were integrated of the same order. As a result, the study employed error correction mechanism as the estimation method for the specified model.

Table 1: Summary of the Augmented Dickey Fuller Test

Variables	Critical Test	@ level	@ 1st Diff	Integration
LMFP	T-Test	0.4891	-6.1138	I (1)
	Prob	0.9831	0.0000	
LEXTR	T-Test	-1.3091	-3.1181	I (1)
	Prob	0.609	0.038	
LEXCR	T-Test	-1.8618	-5.3804	I (1)
	Prob	0.3499	0.0001	
LTOP	T-Test	-2.5846	-6.5696	I (1)
	Prob	0.1072	0.0000	
FDI	T-Test	-2.8103	-5.0310	I (1)
	Prob	0.0692	0.0004	

Source: Researcher's Computation using EViews 10, 2023

The study further examined the co-integration between external reserves and manufacturing sector performance, to determine if the two variables move together in the long run. To achieve this, the study employed Johansen Co-integration test. The reason for using this method is based on the same order of integration of variables, as stated in ***Table 1.*** The result of the Johansen Co-

integration is presented in ***Table.2 and 3***. Unrestricted trace test revealed existence of five (5) co-integration equations which evidences that long run exists between external reserves and manufacturing sector performance. The decision is rule is that when the Eigen value is greater than the critical value at 5% level of significance, it evidences co-integration. From the table it was found that Eigen value for each equation is greater than the critical value at 5% level of significance.

Table 2: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.826909	123.8454	69.81889	0.0000
At most 1 *	0.620687	74.73518	47.85613	0.0000
At most 2 *	0.584336	47.59213	29.79707	0.0002
At most 3 *	0.411176	23.01156	15.49471	0.0031
At most 4 *	0.253390	8.181962	3.841466	0.0042

Source: Researcher's Computation using EViews 10, 2023

Likewise, table 3 presents unrestricted maximum Eigen value result between external reserves and manufacturing sector performance. The study found existence of 5 co-integration equation which evidences that external reserves and manufacturing sector move together. This is also confirmed as the Max-Eigen value is greater than critical values at 5% level of significance for (3) equations.

Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.826909	49.11025	33.87687	0.0004
At most 1	0.620687	27.14304	27.58434	0.0568
At most 2 *	0.584336	24.58057	21.13162	0.0157
At most 3 *	0.411176	14.82960	14.26460	0.0407
At most 4 *	0.253390	8.181962	3.841466	0.0042

Source: Researcher's Computation using EViews 10, 2023

Having obtained the results of the co-integration test, the study, therefore, estimated the long-run coefficients of the variables. The result is presented in ***Table 4.*** The study found that the lag value of the manufacturing sector performance (DLMFP) of 0.7206 positive effects on its current value, and its p-value of 0.0000 is statistically significant at 5% level. This implies that, while holding

other variables constant, DLMFP would contribute positively to its current value to the tune of 72.06 per cent.

Also, further findings revealed that DLEXTR of 0.0479, DLTOP of 0.1313 and DFDI of 0.0415 contributed positively to manufacturing sector performance, while DLEXCR of -0.0293 had negative effect on it. Checking the significance of the variables, the study revealed that all variables were statistically significant, except for external reserves DLEXTR and exchange rate DLEXCR. This implies that one unit increase in external reserves (DLEXTR), trade openness (TOP) and foreign direct investment (FDI) would contribute about 4.79%, 13.13% and 4.114% to manufacturing sector respectively, while one unit increase in exchange rate (DLEXCR) would bring about 2.93% decrease in manufacturing sector performance in the long run.

The error correction term coefficient ECM (-1) of -0.0415 is correctly signed, and its p-value of 0.0177 is statistically significant at the 5% level of significance. This means that the discrepancies between the short and long runs would be corrected at a rate of 4.15% annually.

The coefficient of determination R^2 of 0.6847 indicates that explanatory variables such as explained 68.47% of the variation in the dependent variables (DLMFP), while other variables not included in the model explained the remaining 31.63%. This implies that Nigeria's foreign reserve is a predictor of manufacturing sector performance. The adjusted R^2 of 59.87 percent depicts the true behaviour of the dependent variable according to the number of explanatory variables in the model

The study used F-Statistics of the test and its p-value to test the overall significance of the model. The calculated F-statistic of 7.9639 is higher than the tabulated F-statistic of 2.701. This demonstrates that the entire model is statistically significant. The p-value of 0.0001 is also significant at the 5% level of significance, confirming the F-statistics result. This implies that the model is significant and has a good fit. More importantly, the Durbin-Watson result of 1.60 indicates that the model does not have a serial auto-correlation problem because it can be approximated to 2, and it is within a range of 1.50-2.0. As a result, the study submitted that the model is significant for explaining the effect of external reserves on manufacturing sector performance in Nigeria within the period of review.

Table 4. Summary of Error correction Mechanism

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLMFP (-1)	0.720675	0.137523	5.240415	0.0000
DLEXTR	0.047943	0.025174	1.904482	0.0700
DLEXCR	-0.029380	0.047828	-0.614218	0.5454
DLTOP	0.131313	0.053369	2.460466	0.0222
DFDI	0.041944	0.013513	3.103893	0.0052
ECM (-1)	-0.041543	0.040635	1.022347	-0.0177
C	0.049567	0.029355	1.688533	0.1054
R^2=0.6847	Adj-R^2=0.5987	F-Stat=7.9639	Prob=0.00012	D.W=1.6088

Source: Researcher's Computation using EViews 10, 2023

The post-diagnostic tests on residual revealed that the residual of the model has no problem of serial correlation and heteroscedasticity and the variables are normally distributed as the probability of Jarque-Bera is above 5% level of significance.

Table 5: *Post Diagnostic Checks on Residual*

Diagnostic Test	F-Stat	Prob*
BGSC-LM	0.9876	0.3316
BGPT	1.7267	0.1618
Jarque Bera	0.7923	0.6728

Source: Researcher's Computation using EViews 10, 2023

Hypotheses Testing

To test the research hypotheses, the study used the p-values of each coefficient in Table 4.

H01: The first research hypothesis stated that external reserves have no significant effect on manufacturing sector performance in Nigeria. Looking at Table 4, the study found that the p-value for EXTR was 0.070, which is greater than the 5% level of significance. This implies that there is a positive effect of external reserves on manufacturing performance, but it is not significant. The study there retained the null hypothesis, which says that external reserves have no significant effect on manufacturing sector performance in Nigeria. This result is in agreement with study conducted by Chukwuma et.al. (2022) which all submitted that external reserve is a good determinant of manufacturing sector performance in Nigeria.

H02: The second hypothesis stated that trade openness does not have a significant impact on manufacturing sector performance in Nigeria. Looking at Table 4, the study found that the p-value for LTOP was 0.0222, which was below the 5% level of significance. This implies that the positive effect of trade openness on manufacturing performance is significant. The study there rejects the null hypothesis and accepts the null hypothesis, which says that trade openness does have a significant impact on manufacturing sector performance in Nigeria.

H03: The third hypothesis stated that foreign direct investment does not have a significant impact on manufacturing sector performance in Nigeria. Looking at Table 4, the study found that the p-value for

FDI was 0.0052, which was below the 5% level of significance. This implies that the positive effect of foreign direct investment on manufacturing performance is significant. The study there rejects the null hypothesis and accepts the null hypothesis, which says that foreign direct investment does have a significant impact on manufacturing sector performance in Nigeria.

H04: The fourth hypothesis stated that the exchange rate does not have a significant impact on manufacturing value added in Nigeria. Looking at Table 4, the study found that the p-value for

LEXCR was 0.5454, which was greater than the 5% level of significance. This implies that the negative effect of the exchange rate on manufacturing performance is insignificant. The study there retained the null hypothesis, which says that the exchange rate does not have a significant impact on manufacturing sector performance in Nigeria.This findings agreed with the findings from Nteegah and Olubiyi (2022); Iwedi (2021) and Irene et. al. (2022).

Conclusion and Recommendations

Conclusion

This study examined the economic implications of foreign reserve management on manufacturing sector performance in Nigeria. The study revealed that all the explanatory variables save exchange rate have a positive relationship with manufacturing sector performance. Therefore, based on the foregoing, the study concluded that foreign reserve has a positive implication on Nigerian manufacturing sector performance.

Recommendations

Based on the findings above, the study recommended as follows:

i. As a result of positive effect of external reserves on manufacturing performance, CBN should design more positive and progressive measures to continue to stimulate growth of manufacturing sector in Nigeria.
ii. Because of the negative effect of the exchange rate on manufacturing performance, the CBN and other agencies of government in charge of exchange rate management should develop and implement policies to promote export far and above the country import to stimulate exchange rate and generate earnings needed to enhance economic growth in Nigeria.
iii. Since foreign direct investment had a positive effect of manufacturing performance, both federal and state governments should put in place measures and policies that will encourage and enhance more foreign direct investment in Nigeria to stimulate more the performance of manufacturing sector.

References

Akpunonu, U. & Orajaka, U. P. (2021). Effect of monetary policy on industrial growth in Nigeria. *International Journal of Entrepreneurship and Business Innovation*, *4*(1), 47-60.

CBN. (2023). Foreign reserves management. *https://www.cbn.gov.ng*

CBN. (2021). CBN Statistical Bulletin. *https://www.cbn.gov.ng*

CBN. (2017). Reserve Management. http://www.cbn.gov.ng/IntOps/ReserveMgmt.asp

CBN. (1997). Building and managing external reserves for economic development. *The CBN Bullion*. *31*(2), 24-36.

Chukwuma, V. O., Ifeoma, M. I., & Ojiakor, I. (2022). External reserves and economic growth in Nigeria. *World Journal of Innovative Research*, 12(2), 10-22.

Frenkel, J. A. & Jovanovic, B. (1981). Optimal international reserves: A stochastic framework. *The Economic Journal*, *91*(362), 507-514.

Hirschman, A. O. (1966). *The strategy of economic development.* New Haven, Yale University Press.

IMF. (2023). Foreign reserve management in developing countries. *www.imf.org*

Irene, N.O., Obi, K.O., Ezenekwe, U.R., & Ukeje, C. D. (2022). Effect of exchange rate volatility on manufacturing sector performance in Nigeria. *International Journal of Economics, Commerce and Management, VIII* (3), 345-359

Iwedi, M. (2021). Effects of foreign exchange crisis on the performance of manufacturing sector in Nigeria. *Noble International Journal of Economics and Financial Research*, *6*(1), 01-07.

Nteegah, A., & Olubiyi, O. I. (2022). External sector and the performance of manufacturing sector in Nigeria. *International Journal of Research and Innovation in Social Science*, *6*(6), 775-784.

Osakwe, A., Ibenta, S. N., & Ezeabasili, V. N. (2019). Monetary policy and the performance of the manufacturing sector in Nigeria (1986-2017). *International Journal of Academic Research in Business and Social Sciences*, *9*(2), 399-413.

Oyeniran, I. W. & Alamu, S. A. (2020). Determination of optimal level of foreign reserves in Nigeria. *CBN Journal of Applied Statistics*, *11*(1), 65-85.