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EXCHANGE RATE MANAGEMENT AND THE SURVIVAL OF THE INDUSTRIAL SUBSECTOR OF NIGERIA 1990-2013

*Strictly as per the compliance and regulations of:*



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# Exchange Rate Management and the Survival of the Industrial Subsector of Nigeria (1990-2013)

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**Abstract-** This study, exchange rate management and the survival of the industrial subsector of Nigeria, identifies weak productive base as a major problem facing the industrial sector. In view of the above problem, the objective of the study is to examine how devaluation of the naira affects the survival of the industrial subsector in Nigeria (1990-2013) with the aim of proffering solutions of increased productivity in the economy. The study is anchored on balance of payment theory. Secondary data used for this study were sourced from CBN statistical bulletin. Ordinary Least Square (OLS) regression method was used to examine the relationship between manufacturing capacity utilization (dependent variable) and exchange rate, export, GDP and inflation (independent variables). The result shows that manufacturing capacity utilization has positive relationship with exchange rate and export. The study recommends that manufacturing firms should embark on production of quality goods and the Government should encourage the development of local industrial subsector.

## I. INTRODUCTION

The exchange rate, which is a price of the domestic currency in terms of other currency, is usually determined in principle by the interplay of supply and demand in a free market environment. In practice, no currency is allowed to float freely by the monetary authorities, so nation's monetary authorities regulate currency between the fixed and floating exchange rate systems and other regimes, such as dual managed. In Nigeria, according to Obadan (2002), past exchange rate policies have been designed with a bias towards demand management, as the supply side has always been limited by the monoculture base of the economy, where foreign exchange inflow is dominated by oil export proceeds. The main objectives of exchange rate policy in Nigeria are to preserve the international value of the domestic currency, maintain a favourable external reserve position. According to Obaseki (2001) the central bank has implemented different techniques in the management of the exchange rate of the naira. In low domestic output and high import levels of goods and services, the pressure in the foreign exchange market has been the inability of the manufacturing sector to increase its levels of output. Nnanna (2002),

states that the subsector has failed to produce enough import-substitutes that would have helped to switch demand away from the foreign products to the domestic substitutes. Also, the sub-sector has failed to expand exports to earn foreign exchange which would have increased the supply base thus, enhance the economy's external balance. It is acknowledged however that this failure by the local manufacturing industry is the direct result of the lack of a conducive environment and infrastructural deficiencies in critical areas of production, like erratic power supply, bad roads. This work looks at exchange rate management and survival of industrial subsector in Nigeria between 1990-2013, with particular reference to the manufacturing subsector.

Exchange Rate management varies from time to time according to market dynamism, where supply and demand are unstable. There is floating exchange rate which is market determined, according to basket of currencies: The Central Bank allows exchange rate of naira to other currencies to be determined by market forces. This makes the currencies of other countries to be part in determining the value of the naira. However, the mechanism with which the conversion takes place is hinged on rate of industrial productivity where our finished goods need to be exchanged with other countries. Nigeria as a developing nation produces less and imports more of the output used in industry, this affects the rate of industrialization and the exchange rate. Between 1990 to 2013 Nigeria has passed through series of exchange rate control, because productive base of the economy is weak, so the rate of exchange of naira to other currencies is weak, and this has direct proportionality between the exchange rate of naira and solidity of the productive base of the economy. Incidentally, exchange rate has been changing against the value of the naira consistently since 1990, this has adverse effect on manufacturing capacity utilization, exchange rate, export, Gross Domestic Products and rate of industrialization. Therefore, this study seeks to critically examine the extent to which exchange rate management affects the survival of the industrial subsector in Nigeria economy between 1990 to 2013.

The broad objective of the study is to ascertain the extent to which exchange rate management affects the survival of industrial subsector in Nigeria between 1990 and 2013, while the study specifically seeks to examine how devaluation of the naira affected survival of industrial subsector in Nigeria between 1990 and 2013.

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### a) Hypothesis

H<sub>A</sub> Devaluation of naira affects the survival of industrial subsector positively.

## II. REVIEW OF RELATED LITERATURE

### a) Conceptual Review

Because of the importance of exchange rates, governments take active interest in their determination, exchange rate management is associated with currency transactions designed to meet and receive overseas payment. According to Kofi Bofi (2013) effective foreign exchange management improves profitability. Beyond these transactions, foreign exchange management requires monetary authorities to understand the relevant factors that influence currency values and how they can be managed in order to optimize profit. The study considers some of these relevant variables as gross domestic product, exchange rate, export, manufacturing capacity utilization, rate of industrialization, and rate of inflation with regards to their contributions to the survival of industrial subsector. Exchange rate is the price of domestic currency in terms of other countries currency plays a vital role in connecting the price systems in different countries, thus enabling traders to compare prices directly (Darlington (2014). Manufacturing capacity utilization, this is the extent to which a nation or enterprises actually uses its installed productive capacity. Economically, if market demand grows, capacity utilization will rise, if demand weakens, capacity utilization will fall (Wikipedia). According to Paul Samuelson (2002) inflation rate is the percentage of annual increase in general price levels of goods and services. GDP is the monetary value of all the finished goods and services produced within a country's border in a specified period, usually one year. Export as well is a function of international trade whereby goods produced in one country are shipped to another country for future sale or trade. The sale of such goods adds to the production of nation's gross profit (Investopedia 2014). Rate of industrialization which is the process in which a society or country transforms its self from a primarily agricultural society into one based on the manufacturing of goods and services, individual manual labour is often replaced by mechanized mass production and craft- men replaced by assembly lines. This study seeks to x-ray the contributions of these variables as they concern effective exchange rate management visa-a-vise survival of the industrial subsector in Nigeria between 1990 to 2013.

### b) Theoretical Framework

This study adopts (BOP) balance of payment theory (www. losjournal.org) this theory explains that exchange is determined by the capital flow arising from international trade in goods and service and financial assets in such a manner that the balance of payment equality is maintained at all times. It thus, uses the

balance of payment equality as a condition of equilibrium in the foreign exchange market. This theory holds free of this study in that capital flow can only be increased when the weak productive base captured as one of the major problems of this study is strengthened for mass production that will ignite increase in demand of finished goods with direct increase in countries export.

### c) Empirical Review

A number of scholarly works have been carried out on exchange rate management, these include: Obadan, (2005:), carried out a research on the reason for constant fluctuation of exchange rate in Nigeria to discredit of the Naira. He interviewed 210 senior employee of central bank of Nigeria Lagos. 190, representing 90.48% agreed that constant fluctuation of the naira with respect to other currency especially British Pounds and U.S Dollar greatly undermines the value of the naira while 20 representing 9.52% disagreed.

Moser (2005:) carried out a research on why manufacturing firms and there output in Nigeria often fall below their counterparts in other developing countries in the area of cost of input minimization. He selected Green Turtus Apapa Lagos for his study. Of the 108 middle and the senior employee studied, 73 representing 67.59% agreed that cost of production is very high in Nigerian manufacturing firms while 35 representing 32.14% disagreed.

Masha and Adamgbe (2003:) carried out the research on whether Dutch Auction System affects manufacturing firms. They carried out their research in Aluminum Manufacturing Company (ANAMMCO) Emene Enugu. 77 senior and middle employees were interview. 52 representing 67.53% agreed that Dutch Auction System affect the productivity of manufacturing firms while 25 representing 32.47% disagreed. Morley (1992) analyzed the effect of real exchange rate on output for twenty eight developing countries that have devalued their currency using a regression framework. After the introduction of controls for factors that could simultaneously induce devaluation and reduce output including terms of trade, input growth, the money supply, and the fiscal balance, he discovered that depreciation of the level of the real exchange rate reduced the output. In Nigeria Odusola and Akinlo (2001) examined the linkage among exchange rate, inflation and output in Nigeria. A structural VAR model was employed which captured the interactions between exchange rate and output. Evidence from the contemporaneous models showed a contractionary impact of the parallel exchange rate on output only in short term. They added that output and parallel exchange rate were significant determinants of inflation dynamism in Nigeria. The authors concluded by suggesting the formulation of monetary policies that enhance income growth, Ubok-Udom (2004) examined

the relationship between exchange rate variations ( and currency depreciation) and the growth of domestic output in the Nigeria economy over a 25 year period (1971-1995) ,he expressed the growth of domestic output (total GDP, non-oil GDP and GDP) as a linear function of variation on the average nominal exchange rate, while a dummy variable was used to capture the period of currency depreciation and a time trend variable, which is expected to reflect the influence of any time trend on output growth. This equation was estimated using both naira value output and US dollar value output respectively. The result of the study showed that all the coefficient of the major explanatory variable (exchange rate variation dummy variable capturing currency depreciation) has negative signs in all the estimated equation. He interprets the result that the rate of growth of total GDP and non-oil GDP tends to decline or rise with nominal naira dollar exchange rate and the co-efficient of the major explanatory variables with naira valued GDP were statistically insignificant while that of dollar valued were statistically significant at 5% and 10% levels. Morley (1992) and Ubok –Udom (2004) nearly captured the tenets of this study but they lack time recency and Morley converged developing countries without a particular reference. Therefore, this study seeks to bridge these gaps by adopting empirical analysis in addition to ordinary least square (OLS) regression method to examine variables as well as

#### a) Model Specification

$$MCU=f(EXCH, EXP, GDP, RIND, INFL).....e_t$$

The model is restated in econometric form as shown below

$$MCU = a_0 + a_1 LEXCH + a_2 LEXP + a_3 LGDP + a_4 LRIND + a_5 LINFL + e_t.....i$$

Where

LMCU = Log of manufacturing capacity utilization

LEXCH = Log of Exchange rate

LEXP = Log of export

LGDP = Log of Gross Domestic Product

LRIND = Log of Rate of Industrial Production

LINFL = Log of Inflation

$a_0$  = Constant term

$a_1$  = Coefficient intercept/ parameter estimates

$e_t$  = Error term.

being specific to a particular country and filling the gap of time recency. Some of the above studies equally used simple percentage in their data analyses thereby creating a gap in knowledge. Therefore, this study seeks to bridge this gap by adopting empirical analyses in addition to Ordinary Least Square (OLS) regression method to examine the effect of exchange rate management on the survival of the industrial subsector vis-à-vis manufacturing capacity utilization, exchange rate, export, rate of industrial production, GDP and inflation.

### III. DATA ANALYSIS

The study adopts correlational survey. Usually such studies indicate the direction and magnitude of the relationship that exist between variables (Nworgu 2006). specifically the study applies regression approach in the analysis on how exchange rate management affects survival of industrial subsector in Nigeria (1990-2013). The study covers manufacturing firms and their contributions to GDP within south eastern part of Nigeria between 1990-2013. Secondary data were used for this study and these data were sourced from CBN statistical bulletin.

Model was specified in line with the objective of the study. Ordinary least square (OLS) regression method was used to analyze the data collected.

Table 3.1 : Exchange Rate and Industrial Subsector

Year	Manufacturing Capacity Utilization $Y$	Exchange Rate $X_1$	Export $X_2$	GDP Growth Rate $X_3$	Rate of Industrialization $X_4$	Inflation rate $X_5$
1990	40.3	8.04	405.50	8.30	-	7.50
1991	42.0	9.91	472.00	4.60	130.50	12.70
1992	38.1	17.30	244.40	3.00	138.80	44.81
1993	37.2	22.05	227.80	2.70	136.20	57.17
1994	30.4	21.89	244.40	1.30	131.70	57.03
1995	29.3	81.20	285.70	2.20	129.20	72.81
1996	32.5	81.20	927.57	3.40	128.80	29.29
1997	30.4	82.00	128.62	3.20	132.50	10.67



1998	32.4	84.00	121.25	2.40	140.60	7.86
1999	34.6	93.95	717.79	2.80	133.90	6.62
2000	36.1	102.10	116.95	3.90	129.10	8.94
2001	42.7	111.93	192.09	4.60	145.30	18.87
2002	44.3	121.0	183.98	3.50	145.20	12.89
2003	45.6	129.3	164.94	10.20	145.20	14.03
2004	45.0	133.5	299.31	10.20	143.10	15.01
2005	51.27	131.1	448.95	5.62	144.50	17.85
2006	30.00	128.28	714.06	59.96	144.30	8.24
2007	90.50	125.88	718.11	6.34	144.10	5.38
2008	82.00	118.86	795.04	6.72	144.30	11.60
2009	86.25	143.73	968.02	7.17	142.20	30.38
2010	84.13	151.23	881.53	5.52	142.20	11.76
2011	85.19	153.24	924.77	6.33	142.20	3.55
2012	84.66	154.11	903.15	7.11	142.20	0.99
2013	84.93	155.75	913.96	8.02	142.20	2.42

Source: CBN Statistical Bulletin 2014 [www.cenbank/rate/exchangeratebycurrency.asp](http://www.cenbank/rate/exchangeratebycurrency.asp)

Table 3.2 : Regression Result

Dependent Variable: MCU

Method: Least Squares

Sample: 19902013

Included observations: 24

MCU=C(1)+C(2)\*EXCHR+C(3)\*EXPRT+C(4)\*GDP+C(5)\*INDP+C(6)\*INFL

	Coefficient	Std. Error	t-Statistic	Prob.
LMCU)	22.94734	14.69579	1.561491	0.1358
LEXCHR	0.181405	0.095692	1.895727	0.0742
LEXPRT	0.040222	0.010769	3.734979	0.0015
LGDP	-0.620459	0.265917	-2.333283	0.0314
LRIND	-0.017921	0.128666	-0.139285	0.8908
LINFL	-0.113513	0.191069	-0.594093	0.5598
R-squared	0.705429	Mean dependent var		51.65958
Adjusted R-squared	0.623603	S.D. dependent var		22.81810
S.E. of regression	13.99917	Akaike info criterion		8.328191
Sum squared resid	3527.583	Schwarz criterion		8.622705
Log likelihood	-93.93830	Hannan-Quinn criter.		8.406326
F-statistic	8.621146	Durbin-Watson stat		1.095549
Prob(F-statistic)	0.000260			

#### IV. FINDINGS

The p-value of the model is less than 0.05 which implies the model is adequate. Also, the t-test which shows the significance of each parameter in the model shows that three variables are significant in the model and just two, namely industrialization and inflation are insignificant. Overall, the Coefficient of determination is 70.5% which implies the independent variables considered can adequately explain up to 70.5% of the variation in the dependent variable.

Mathematically, the model formulated:

MCU= 22.94+0.18\*EXCHR+0.04\*EXPRT-0.62\*GDP-0.01\*INDP-0.11\*INFL The model can be interpreted thus: exchange rate, and export rate have positive impact on the MCU but GDP, INDP and INFL have negative effect on the manufacturing capacity of the country.

After the hypotheses testing, the following are found out:

1. There was positive correlation between Exchange Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013.
2. There was Positive correlation between Export Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013.
3. There was no positive correlation between Growth Rate of GDP and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013.
4. There was no positive correlation between Rate of Industrialization and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013.

5. There was no positive correlation between Inflation Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013.

## V. DISCUSSION OF FINDINGS

There was positive correlation between Exchange Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013. This implies that the industrialists were encouraged in their capacity utilizations as argued by Nnanna, (2002:) in the Literature Review that the subsector has failed to produce enough import substitutes that would have helped to switch demand away from the foreign products to the domestic products. The study discovered that there was Positive correlation between Export Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013. This agrees with that of Moha (2010:) in the literature review that the more market forces determine the exchange rate of the naira the better for the economy of the industries. But this is not strictly so always as there are times when governments peg the exchange rate undermining the market forces. The study discovered that there was no positive correlation between Growth Rate of GDP and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013. This agrees with the view of Obadan (2002:) in the Literature Review that excise duty did not contribute much to the developing economy of Nigeria. The study discovered that there was no positive correlation between Rate of Industrialization and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013. This agrees with the view of Torrey (2013:) in the literature review that allowing trade liberalization to entirely determine international trade is detrimental to the local economy. That explains why despite the merits of liberalization, countries still impose restrictions on international trade. The study discovered that there was no positive correlation between Inflation Rate and survival of industrial subsector in Nigeria as depicted by the rate of Manufacturing Capacity Utilization between 1990 and 2013. This agrees with the observation of Osaka, Masha and Adamgbe (2003:) in the literature review that double digit inflation has greatly retarded growth of the Nigeria Economy since 1990.

## VI. CONCLUSION

A number of factors have contributed to the dwindling fortunes of the naira in all the foreign exchange markets. Some of them are fundamental while others are secondary (Obadan, 2001). The fundamental

factors emanate from structural imbalances relating to: Weak production base and undiversified nature of the economy; Import-dependent production structure; fragile export base and weak non-oil export earnings;

## VII. RECOMMENDATIONS

In view of the arguments so far in this research the following are recommended:

1. Manufacturing firms should produce quality goods that attract international patronage in order to boost GDP.
2. Manufacturing firms should always employ high quality factors of production as a necessary condition to efficient services and quality products.
3. Government should liberalize trade with caution in order to grow the local economy.
4. Government should encourage the development of local industrial subsector in order to boost GDP
5. Government should encourage good reward to factor of production rendered on quality basis.
6. Government should necessarily encourage increased productivity of manufacturing firms in order to boost GDP.

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