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Exchange Rate Instability and Profitability of Selected Breweries in Nigeria (1990-2018)

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Abstract: **This paper investigated the extent to which exchange rate instability influence the profitability of breweries in Nigeria from 1990 to 2018. In consideration of the vulnerability of brewing companies' earnings to exchange rates movements, the multiple regression analysis of the ordinary least square (OLS) estimation technique through the use of secondary data was employed in this study. The model formulated depicts net profit as the dependent variable while Exchange Rate, export at a particular point in time, import at a particular point in time, investment and industrial production are proxied as independent variables. The results revealed that exchange rate instability has a significant negative impact on the profitability of breweries in Nigeria. The implication is that exchange rate instability brings about decrease in the profitability of the three breweries studied. From the findings, this paper recommends that policy makers and brewers should emphasis substitution of imported with local raw materials to save the high cost of foreign exchange for procuring foreign raw materials. They should also embark on backward and/or forward integration for easy and cost effective acquisition of input materials.**

Keywords: **Exchange Rate instability, profitability, breweries, Nigeria, manufacturing, industrial production, business environment.**

1. INTRODUCTION

1.1 Background of the Study

Exchange rate is the price for which the currency of a country can be exchanged for another country's currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade.

The effect of exchange rate volatility on macroeconomic performance gained considerable importance in literature when many developing countries shifted towards floating exchange rate from fixed exchange rate regime, (Azeez, Kolapo and. Ajayi, 2012). Flexible exchange rate is accompanied by the fluctuation of exchange rate making it the major focus in the debate due to its impact on business performance. Adeniran, Yusuf, and Adeyemi (2014) agreed that the exchange rate of the naira was relatively stable until Nigeria moved from a peg regime to a flexible exchange rate regime in 1986 when Federal government adopted Structural Adjustment Policy (SAP). From then, exchange rate was left completely to be determined by market forces but rather the prevailing system is the managed float whereby monetary authorities intervene periodically in the foreign exchange market in order to attain some strategic objectives (Mordi, 2006). This inconsistency in exchange rate policies resulted in the unstable nature of the naira rate (Gbosi, 2005).

The brewing industry is highly capital intensive. The technology for the industry, spare parts and expert technicians are rarely available in the country and therefore highly dependent on foreign exchange. When exchange rate fluctuates, it affects the purchasing power of breweries and the profitability of the business. Because about 40 per cent of brewing materials and services are imported from outside the country, they are exposed to exchange rate risks Adetu (2013). The constraints arising from exchange rate and other environmental volatilities leads to less reliable information affecting organization's decision making and they pose great threat to brewing industry for managers to assess the direction of the industry. This problem of instability in the macroeconomic environment which includes exchange rate volatility becomes one of the most disturbing problems hampering efficient and effective performance of the breweries (Jamodu 2013).

Other problems emanating from this environmental instability include but are not restricted to high rate of inflation, low investment, increased import and reduced export impacting on the performance of brewing subsector. As much as businesses factor in uncertainties, the one thing that firms including breweries want to avoid at all cost is the instability in business environment. Thus, the vulnerability of brewing companies' earnings to exchange rates movements cannot be over emphasised as many of their raw material inputs as well as production costs are directly impacted by exchange rate volatility positively or negatively.

The problems highlighted above could be reasons for the fluctuation in growth of selected breweries in Nigeria which reflected in the review of the recent financial performance of the selected breweries in Nigeria. Guinness Nigeria recorded deterioration in the overall performance from 2012 to 2016; this was as a result of weaknesses in both profitability indicators and revenue generating capability of assets. Operating profit margin and net profit margin have been declining consistently over the past five years for Guinness (Guinness Annual Reports and Financial statements 2017, Meristem Equity research report 2014).The profitability indicators for Nigeria breweries and international breweries have also been fluctuating for the past few years.

In recognition of the above weaknesses in profitability indicators of the breweries and other problems therefore, this study seeks to examine the extent to which the Nigerian volatile, unpredictable exchange rate movement influence the profitability of the breweries selected for this study.

1.2 Scope of the Study

The study assessed exchange rate instability and its influence on the profitability of selected breweries in Nigeria. The breweries studied include Nigeria Breweries Plc (NB Plc), Guinness Nigeria Plc (Guinness), and International Breweries Plc (INTBREW).

2. EMPIRICAL REVIEW OF RELATED LITERATURE

The study of firm performance has yielded a vast body of literature, showing that firm performance is determined by a vast number of factors. However, empirical evidence on the effect of exchange rate volatility on performance has produced mixed pattern of results providing positive, negative or no effects.

Eme and Johnson (2012) in their study on the effect of exchange rate movement on real output growth in Nigeria for the period 1986 to 2010 revealed that there is no evidence of a strong direct relationship between changes in exchange rate and output growth. According to King-George (2013) on the effect of exchange rate fluctuations on the Nigeria manufacturing Sector using annual time series data for the period from 1986 to 2010. He adopted multiple linear regressions and employed Ordinary Least Square (OLS) techniques. The result of the analysis indicated that exchange rate has no significant effect on economic growth of Nigeria. During the same period, Ehinomen and Oladipo (2012) examined the impact of exchange rate management on the growth of the manufacturing sector in Nigeria. They employed the Ordinary Least Square (OLS) multiple regression analysis using time-series data which spanned from 1986 to 2010 and found that depreciation which forms part of the structural adjustment policy (SAP) 1986, and which dominated the period under review has no significant relationship with the manufacturing sector productivity.

In contrast, Enekwe (2013) showed that exchange rate fluctuations have a positive effect on manufacturing sector in Nigeria. He however found that exchange rate fluctuations have no significant effect on the quantity and quality of goods manufactured by Nigeria firms. Exchange rate appears not to be an important variable for manufacturing Gross Domestic products.

Adeniran, Yusuf, and Adeyemi (2014) in their study on the impact of exchange rate fluctuation on the Nigerian economic growth: an empirical investigation using the correlation and regression analysis of the ordinary least square (OLS) found that exchange rate has positive but not significant impact on economic growth.

A similar study, Azeez, Kolapo & Ajayi (2012) in their study on effects of exchange rate volatility on macroeconomic performance in Nigeria from 1986 – 2010 employed OLS and found that exchange rate volatility contributes positively to the GDP in the long run though not significant.

David, Umeh and Ameh (2010) also examined the effect of exchange rate fluctuations on Nigerian manufacturing industry. They employed multiple regression econometric tools which revealed a negative relationship between exchange rate volatility and manufacturing sector performance. Opaluwa, Umeh and Abu (2010) examined the impact of exchange rate fluctuations on the Nigerian manufacturing sector between 1986 – 2005 using time series data. They employed the

econometric tool of regression to the estimated model using e-views software package. The finding showed that fluctuations in the rate of exchange has a negative effect on economic activities in the manufacturing sector implying that there is an inverse relationship between exchange rate fluctuations and the manufacturing sector performance. Yaqub (2010) studied the effect of exchange rate on output of different sectors in Nigeria using data on Nigeria from 1970 to 2007. He adopted the modified IS-LM framework and estimated the behavioural equations. And the results indicated that exchange rate had significant contractionary effects on agricultural and manufacturing sectors while it had expansionary effect on services sector. She opined that the existing structures in Nigeria could not support an expansionary depreciation argument in the basic sectors during the period of study. During the same period, the study by Baggs, Beaulieu & Lapham (2011) observed a negative exchange rate effect on retail firm performance due to a net effect on the prices of input driven by a rise in the domestic exchange rate. According to the study, exchange rate volatility influences the levels of sales, which decrease as the rate of exchange appreciates and increases as the rate of exchange depreciates.

Abdallah, (2016) in his study on Exchange Rate Variability and Manufacturing Sector Performance in Ghana: Evidence from Cointegration Analysis examined the effect of exchange rate variability on manufacturing sector performance in Ghana. Using time series data from the period 1986-2013 and employing the autoregressive distributed lag (ARDL) approach, the empirical results show that there exists both a short as well as long run relationship between exchange rate and manufacturing sector performance. Thus, in Ghana as the exchange rate appreciates, the manufacturing sector performance improves and as it depreciates, the sector is adversely affected.

Kim (2018), investigated the effects of exchange rate movements on firm performance in Korea and the empirical results from the firm level analysis shows that the industries that are more linked with export (higher export share), appreciation of the real exchange rate causes a loss in the price competitiveness of firms and decrease their productivity; 10 per cent appreciation of real exchange rate may have an additional 1-1.8 per cent decrease of firm productivity for industries that only produce export goods, compared to industries that only produce domestic goods. On the other hand, firms with low exports and high reliance on intermediate imports show little impact on their productivity.

Volatility of exchange rate induces uncertainty and risk in investment decision with destabilizing impact on the macroeconomic performance (Mahmood and Ali, 2011).

From the above review, the researchers seeks to identify whether exchange rate instability and its influence on the profitability of organisations differ over other time periods and in other organizational settings both in Nigeria and elsewhere.

3. METHODOLOGY

In order to compliment the study, regression models were specified for exchange rate instability and profitability of selected breweries in Nigeria. Time series data ranging from 1990 – 2017 were collected for this study. The basic (secondary) statistical data were sourced from various publications of breweries which include CBN statistical bulletin, Annual financial reports and accounts of the firms studied (various issues), Nigeria security and exchange commission's publications and other publications associated with the brewing firms. Specifically the research aims at some macroeconomic variables such as net profit, exchange rate, industrial production, investment, export at a particular point in time and import at a particular point in time for the period 1990 - 2017.

The aim is to specify a model that serves as guide for providing solutions to the research questions and the objectives. The multiple regression analysis of the ordinary least square (OLS) through the use of secondary data is the estimation technique that is being employed in this study. The OLS is preferred because it guards against bias and also obtains the direct relationship between variables measured. The models which form the framework for the study are as stated below:

3.1. PROFITABILITY EQUATION

This equation assesses the extent to which exchange rate instability influence the profitability of selected breweries in Nigeria. The estimation model is as stated below:

$PRT = f(EXCHR, INV, IMP_{t-1}, EXP_{t-1}, INDP)e_t$ ---------- (1)

This can be restated thus:

$PRT = a_0 + a_1 LEXCHR + a_2 LINV + a_3 LIMP_{t-1} + a_4 LEXP_{t-1} + a_5 LINDP + e_t$……. (2)

Where:

e_t = error term

a_0-a_6 = parameter estimates/structure

PRT = Profit

LEXCHR = log of exchange rate

LINV = log of investment

$LIMP_{t-1}$ = log of import at a particular point in time

$LEXP_{t-1}$ = log of export at a particular point in time

LINDP = log of industrial production

Profitability proxied by net profit is presented in this equation as the dependent variable while exchange rate, investment, import at a particular point in time, export at a particular point in time and industrial production are the independent variables. Profit making is very important to breweries. Profit or bottom line is a measure of profitability of a venture after accounting for all costs. Profit is the dependent variable and has a functional relationship with the independent variables. Exchange rate serves as one of the explanatory variables and it's the price for which the currency of a country can be exchanged for another country's currency. This study used the variability in exchange rate to measure exchange rate instability. Investment is the money committed or property acquired for future income (business dictionary, 2018). The amount invested in breweries may be a determinant of the profitability of the brewing firms because breweries depend largely on foreign exchange for acquisition of both their human and material resources. Export 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 producing nation's gross output. Most of the largest brewing companies derive a substantial portion of their annual revenues from exports to other countries. Currency exchange rates can either help or hurt the exporting of firms' products to specific foreign markets. Importation by breweries may also have a significant influence on their profitability considering the fact that most of their technologies are imported. Industrial production is a measure of output of the industrial sector of the economy

4. DATA ANALYSIS AND INTERPRETATION OF RESULTS

This section of the study focused on the empirical investigation of the influence of exchange rate instability on profitability variables and the regression results shown below was obtained using the Ordinary Least Square technique.

Table 4.1 RESULTS ON PROFIT EQUATION (NB PLC)

Regression result of the influence of exchange rate instability on the profitability of Nigeria Breweries PLC.

Dependent variable: nPRT Ramsey's RESET2 = .293879 [.592]

Current Sample: 1990-2018 Schwarz B.I.C = 42.2368

Number of Observations: 29 Log likelihood = .33.5725

Mean of dep. Var. 10.6159 Jarque-Bera test = 14,26060 [.001]

std. dev. Of dep. Var =2.21737

Sum of squared residuals = 15.2738 Variance of residuals = 565696

Std error of regression = .152128 Durbin-Watson = 2.15973 [.350,.907]

Adjusted r-squared = .899791 R-squared = .984945

LM het. Test = .899791 F statistics= 60.609 [.001]

R = -0.873452

VARIABLES	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTICS	P-VALUE
ΔC	3.91534	3.60048	2.3619	[.183]
ΔLEXCHR	-1.43381	2.76488	-2.518581	[.008]
ΔLINV	.385398	1.75352	2.19728	[.000]
$\Delta LIMP_{t-1}$	.013046	.016981	-.868282	[.000]
$\Delta LEXP_{t-1}$	.660997	.159042	4.55263	[.000]
ΔLINDP	-347878	.18792	-.98722	[.000]

Source: Gret L. Package

Table 4.2 RESULTS ON PROFITABILITY EQUATION (GUINNESS PLC)

Regression result of the influence of exchange rate instability on the profitability of Guinness Nigeria Plc.

Dependent variable: nPRT

Current Sample: 1990-2018

Number of Observations: 29

Mean of dep. Var. 11.1849 Jarque-Bera test = 1.15252 [.562]

Sum of squared residuals = 9.18888 std. dev. Of dep. Var =1.69819

Std error of regression = .606263 Variance of residuals = .600652

Adjusted r-squared = .872548 R-squared = .9348327

Durbin-Watson = 2.18375 [.208,773] LM het. Test = 2.65808 [.103]

Ramsey's RESET2 = 3.20454 [.086] F statistics = 363714 [.000]

Schwarz B.I.C = 37.5722 Log likelihood = .25.4422

R = -0.663396

VARIABLES	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTICS	P-VALUE
ΔC	2.44098	497.122	1.491022	[.627]
ΔLXCHR	-268.351	791.836	4.338897	[007]
ΔLINV	391.948	1103.46	7.355200	[.000]
$\Delta LIMP_{t-1}$	287.030	121.193	-2.36837	[.000]
$\Delta LEXP_{t-1}$	.13993E-02	.011201	.116949	[.000]
ΔLINDP	.228917	0.231185	1.99872	[.000]

Source: Gret L. Package

Table 4.3 RESULTS ON PROFITABILITY EQUATION (INTBREW PLC)

Regression result of the influence of exchange rate instability on the profitability of International Breweries Plc.

Dependent variable: PRT

Current Sample: 1990-2018

Number of Observations: 29

Mean of dep. Var. 15.0886 Jarque-Bera test = .503095 [.778]

Sum of squared residuals = 2.60787 std. dev. Of dep. Var =1.95346

Std error of regression = .310786 Variance of residuals =.096588

Adjusted r-squared = .974689 R-squared = .977955

Durbin-Watson = 1.45978 [.006,227] LM het. Test = .779561 [.377]

Ramsey's RESET2 = 199374 [.659] F statistics = 299.437 [.000]

Schwarz B.I.C = 13.9551 Log likelihood = 5.29079

R = -0.750932

VARIABLES	ESTIMATED COEFFICIENT	STANDARD ERROR	T-STATISTICS	P-VALU
ΔC	33.7875	63.4163	.532788	[.599]
ΔLEXCHR	-2.90529	5.18621	-.560195	[.000]
ΔLINV	.17767	1.63076	2.110895	[.000]
$\Delta LIMP_{t-1}$	.054903	.947989	2.057916	[.000]
$\Delta LEXP_{t-1}$	1.41947	3.19415	1.66397	[.000]
ΔLINDP	76.1360	3.40986	2.23282	[.000]

Source: Gret L. Package

5. DISCUSSION OF FINDINGS

The regression result for profitability versus exchange rate, investment, import, export at a particular point in time and industrial production for the three companies studied indicates that exchange rate instability has a significant influence on the profitability of breweries. The result revealed that the estimated coefficients of the constant term is positively signed (3.91534, 2.44098 & 33.7875) and it is statistically significant at 0.2 percent, 0.01 percent and 0.6 per cent in the case of Nigeria breweries PLC, Guinness Nigeria Plc and International Breweries Plc respectively.This implies that a percentage increase in exchange rate, holding other variables constant will result in a change in the profitability of Nigeria breweries, Guinness Breweries and International Breweries by 4 percent, 2 percent and 34 percent respectively. The result in the case of NB PLC shows that profitability decreases by 1 percent as a result of increase in exchange rate instability. For Guinness breweries, the result shows that profit decreases with increase in exchange rate instability by 26 per cent. However, investment is both positively signed and statistically significant at better than 0.1 percent implying that increase in investment results in subsequent increase in profitability of NB PLC, Guinness Breweries and Intbrew. This is in line with management expectation..

A close inspection of the result indicates that the specified model has a high coefficient of determination. This can be seen from R-squared of .984945 (98 percent), .934832(93 percent) and .977955 (98 percent) for NB PLC, Guinness Nigeria and INTBREW respectively. The R-squared shows the percentage variation in the dependent variable that was accounted for by variations in the explanatory variables. The fitness of every regression model is based on its R-squared. The result revealed that the independent variables account for over 80 per cent of the variations in the dependent variable.

The f-statistics value of 60.6091, 36.3714 and 299.437 for NB PLC, Guinness Nigeria and INTBREW respectively shows that the overall model is statistically significant. Exchange rate instability is expected to have an influence on the profitability of breweries since it is unpredictable and brewing equipments are mostly imported and capital intensive. This study was carried out to know the extent to which exchange rate affects the profitability of breweries. Looking at the correlation coefficient R from the results, the empirical evidence shows that increase in exchange rate instability actually has more than 60 percent negative influence on brewer's profit.

Based on this result, the objective of the study which is to determine the extent to which exchange rate instability influence the profitability of selected breweries in Nigeria is achieved.

6. CONCLUSION AND RECOMMENDATION

The goal of the study was to examine the influence of exchange rate instability on the profitability of breweries in Nigeria. Using the multiple regression technique, the result revealed that exchange rate instability has a significant negative impact on the profitability of the breweries in Nigeria. Overall, this study suggests that the higher the exchange rate volatility, the lesser the brewers make profit.

From our findings, this paper recommends that policy makers and brewers should emphasis substitution of imported with local raw materials to save the high cost of foreign exchange for procuring foreign raw materials, as well as save procurement time. They should also embark on backward and/or forward integration for easy and cost effective acquisition of input materials. These advocacies, the study believes will enhance the profitability of breweries in Nigeria.

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