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AN EMPIRICAL ANALYSIS OF FOREIGN EXCHANGE RATE RISK EXPOSURE AND THE PERFORMANCE OF NIGERIAN COMPANIES: 2002-2011

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ABSTRACT

The study investigated foreign exchange rate risk exposure and the performance of 30 sampled Nigerian companies for the period of 2002-2011. The study further investigated the difference in exposure by financial and non-financial firms. The study made use of descriptive and analytical research design and samples were drawn out of the population using random sampling method. A simple linear regression approach of measuring economic exposure as slope co-efficient of the regression of stock returns on exchange rates movements was used. The study utilized three alternative currency exchange rates, viz; the US Dollar, UK pound sterling and Euro effective record exchange rates. The study revealed that Nigerian listed companies are generally exposed to adverse exchange rate risk of the three currencies under consideration, with a higher magnitude of exposure to the US dollar. The study concluded that exchange rate instability is a significant hindrance to corporate performance. Hence, it was recommended that Nigerian companies should try and identify the kind of risk they are exposed to (translational exposure), then employ devices such as hedging, monetary balance, matching receipt and payment, Naira invoicing, currency swap among others in dealing with these risks.

Keywords: Exchange rate risk exposure, Hedging, Monetary balance, Matching receipt and payment, Naira invoicing, Currency swap

INTRODUCTION

In Nigeria, foreign exchange management policies have traversed the extremes of fixed and flexible regimes with a view to preserve the value of the domestic currency, the naira; maintain a favourable external reserve position and ensure price stability. It shifted from a fixed regime in the 1960s to a pegged arrangement between the 1970s and the mid 1980s. The fixed exchange rate regime induced an over valuation of the naira, necessitating it being supported by exchange control regulations that engendered significant distortion in the economy that gave vent to massive importation of finished goods with adverse consequences for domestic production; balance of payment position and the nation's external reserves level. Moreover, the period was bedeviled with sharp practices perpetrated by dealers and end-users of foreign exchange. These and many other problems led to the adoption of the Structural Adjustment Programme (SAP) in 1986, aimed at revamping the ailing economy, eliminating distortion in the economy and creation of stable growth in the economy. Since 1986, exchange rate management has passed through many flexible regimes of managed float, without any strong commitment to defending any particular parity, being the predominant characteristic of the floating regime in Nigeria. The resultant of the foregoing has been unstable movements in exchange rate occasioned by incessant regime changes over the years. Variability in exchange rate is a major source of macroeconomic uncertainty affecting

firms. The implication of considerable exchange rate fluctuations over the last three decades, which is of policy and research relevance in Nigeria, is its risk exposure to domestic agents. More specifically it is widely believed that changes in exchange rates have important implication for financial decision-making and for the profitability (Asuquo, 2012). Again, as explained by Asuquo (2012), exchange rate is the price of foreign currency in terms of the domestic currency. Like other prices in a market economy, it sends signals that affect consumption and investment decisions and, therefore, influences the composition and value of aggregate demand and supply, as well as the performances of those firms that are engaged in these activities.

Adler and Dumas (1984) define a firm exposure to exchange rate risks when its share value is influenced by Changes in currency values. There are theoretically various channels through which the exchange rate might affect profitability of a firm. Firms that export to foreign markets may benefit from a depreciation of the local currency if its products become more affordable to foreign consumers. On the other hand, firms that rely on imported intermediate products may see their profits shrink as a consequence of increasing cost of production. The price of currency can either rise or fall, therefore leading to an appreciation or depreciation of exchange rate. These continuous changes do have either positive or negative effect on firms. The problem the study is analyzing is "the extent to which changes in exchange rate affect the performance of Nigerian companies". This study was aimed at determining the relationship between exchange rate risk exposure and the performance of Nigerian companies. In view of the objectives of the study, this null research hypothesis was tested: There is no significant relationship between exchange rate exposure and profitability of Nigerian companies.

LITERATURE REVIEW

A brief review of exchange rate policy in Nigeria

Nigeria adopted Structural Adjustment Programme (SAP) in September, 1986 due to previous failures in macroeconomic policies on the pursuant of a realistic exchange rate. With the introduction of SAP, the second -tier Foreign Exchange Market (SFEM) was established and was expected to produce a market-determined exchange rate that would remove the overvaluation of the naira which persisted in the pre-SAP era. A fixed rate of 22/$1 was re-introduced after various policies ranging from dual exchange rate to unified exchange rate system were adopted in 1987. Due to inherent abuses and bureaucratic bottlenecks associated with regulation the system short-lived. In 1995, the Autonomous Foreign exchange Market (AFEM) was introduced following the promulgation of foreign exchange decrees 17 of 1995 (monitoring and miscellaneous provisions) and the abolition of exchange control Act of 1962. Under the Autonomous Foreign exchange market, the CBN was to intervene in the market as short notice. Failure of AFEM led to the formation of Inter-bank foreign market (IFEM) whose aim among others, was depending on interbank foreign market as well as having a stable naira exchange rate. Negative developments in IFEM led to its abandonment and the re-introduction of DAS in July 2002 to address the failure of IFEM. DAS was specifically geared towards achieving the following: determination of exchange rate of naira, conserve external reserve position, ensure stability in naira rate etc. Having operated DAS for about three and half years, CBN in 2005 introduced the wholesale Dutch auction system (WDAS) which has since being in existence (Udoayang, Akpanuko and Asuquo, 2009).

Exchange rate risk exposure: Empirical Review

Economic theory postulates that under a floating exchange rate regime, exchange rate affects the competitiveness of firms, especially those engaged in international trade. Home currency depreciation promotes the competitiveness of firms in home country by allowing them to undercut prices charged for goods manufactured abroad (Luehrman, 1991). On the other hand, exchange rate appreciation reduces the competitiveness of export markets; it has a negative effect on the domestic stock market. Conversely, if the country is denominated, exchange rate appreciation may have effect on the stock market by lowering input costs. Thus, an increase in the value of the home country firm in response to a real drop in the value of the home currency. A considerable number of studies aimed at testing the foregoing postulates have been conducted to determine the exposure of firms to exchange rate movements. Below are some reviews of the extent literature on exchange rate risk exposure undertaken. Luehrman (1991) tested the hypothesis that an exogenous real home currency depreciation enhance the competitiveness of home country manufacturers vis a vis foreign competitors. His findings did not support the hypothesis. Firms did not benefit from a depreciation of the home currency. On the contrary a significant decline in the market share of the industry was found in a depreciation of the home currency.

The only study to my knowledge that explains exchange rate risk exposure of firms from African perspective is that of Zubeiru, kofi and Adjasi (2007) for the Ghanaian firms. They examined the foreign exchange exposure of listed companies on the Ghana stock exchange over a period of January 1999 to December 2004. The researchers used different exchange rate measures namely; the cedi to US dollar, the cedi to UK pounds sterling, the cedi to euro and a trade-weighted exchange rate index to determine the degree of exposure. The Jorion (1990) two-factor model which regresses the returns on a firm against changes in the exchange rate and return on the market was used to estimate the exchange rate exposure for the sample of twenty firm used in the study. About 55 percent of firms in the sample have a statistical significant exposure to the US dollar, 35 percent were statistically exposed to the UK pounds sterling and the rest euro. The sector specific exposure showed that manufacturing and retail sector were significantly exposed to the US dollar exchange rate risk. Though the financial sector did not show any effect to any of the international currencies.

Determinants of Exchange Rate

Differentials in inflation: As a general rule, a country with a constantly lower inflation rate exhibits a rising currency value, as its purchasing power increases relation to other currencies. Countries with higher inflation typically see depreciation in their currency in relation to the currencies of their trading partners.

Differentials in interest rates: Interest rate, exchange rate and inflation are all highly correlated. By manipulating interest rates, central banks exert influence over both inflation and exchange rate, and changing interest rates impact on inflation and currency values. High interest rates attract foreign capital and cause the exchange rate to rise while low interest rate tends to decrease exchange rate. However, the monetary theories attempt to explain changes in exchange rates in terms of changes in the demand and supply of money between two countries (Asuquo, 2012).

Current - Account Deficits: The current account is the balance of trade between countries, reflecting all payment between countries for goods, services, interest and dividends. A deficit in the current account shows the country is spending more on foreign trade than it is earning and that it is borrowing capital from foreign sources to make up the deficit. The excess

demand for foreign currency lowers the country's exchange rate.

Public Debt: Countries will engage in large scale deficit financing to pay for public sector projects and governmental funding. A large debt encourages inflation and if inflation is high change in exchange rate.

Terms of trade: A ratio comparing export price to import prices the terms of trade is related to the current account and balance of payment. A favourably term of trade shows greater demand for country's export. And, this union results in rising revenues from exports, which provides increase in value and demand of country's currency. It should be noted that the international transfer price plays important role in determining the ratio of export price to import price in Tran border trade as well as international taxation (Udoayang, Akpanuko and Asuquo, 2009).

Political stability and economic performance: Foreign investors inevitably seek out stable countries with strong economic performance in which to invest their capital. Countries with positive attribute will draw investment funds away from others perceived to have more political and economic risk and the international transfer price would in turn affect the economic performance subsidiary firms that depend on the parent for operational requirement (Udoayang, Akpanuko and Asuquo, 2009).

RESEARCH METHOD

In this research work, the descriptive and analytical research designs were employed. The descriptive method transformed raw data into a form that makes them easy to understand, analyzed and interpreted. The analytical method on the other hand made use of analytical tools for data processing and attempted to measure the statistical significance of the various independent variables on the dependent variable. These methods were chosen because our basic objective was to empirically determine the relationship between exchange rate risk exposure and the performance of Nigerian companies. This study employed secondary data sourced from Annual reports, Accounts of sampled companies and Nigerian Stock Exchange (NSE) Fact-books on quoted companies. The financial data on EPS of the 30 sampled companies were also extracted from secondary sources.

Model specification

The specified model for the study read thus:

$R_{it} = a_i + b_i Ex_{it} + e_{it}$

Where:

R_{it} = Stock return for companies

a_i = Constant term

Ex_t = Percentage change in exchange rate.

b_i = The sensitivity of a company I's stock returns to exchange rate movements.

DATA ANALYSIS

Table 1: Foreign Exchange Rate Risk Exposure of Nigerian Firms to the US Dollar

	All firms	Financial Firms	Non-Financial Firms
Sample Size	30	14	16
Exposure Coefficient (b_i): Means	0.222	0.221	0.332
Minimum	-0.012	-0.316	-0.233
Maximum	0.644	0.827	0.772
Significant Exposure:			
Number of Firms	27	12	15
Percentage of Total	88%	78%	95.3%
Sign of Exposure Coefficient (b_i):			
Positive	11 (40.7%)	5 (46.3%)	6 (39.7%)
Negative	16 (59.3%)	7 (53.7%)	9 (61.3%)

Source: Researcher's Estimation, 2012

Table 2: Foreign Exchange Rate Risk Exposure of Nigerian Firms to the UK Pound

	All firms	**Financial Firms**	**Non-Financial Firms**
Sample Size	30	14	16
Exposure Coefficient (b_i): Means	0.321	0.432	0.115
Minimum	-0.188	-0.211	-0.413
Maximum	0.812	0.734	0.791
Significant Exposure:			
Number of Firms	23	9	14
Percentage of Total	75.2%	61.5%	86.1%
Sign of Exposure Coefficient (b_i):			
Positive	11 (47.8%)	5 (59.4%)	6 (42.8%)
Negative	12 (52.2%)	4(40.6%)	8 (57.2%)

Source: Researcher Estimation, 2012

Table 3: Foreign Exchange Rate Risk Exposure of Nigerian Firms to the UK Euro

	All firms	**Financial Firms**	**Non-Financial Firms**
Sample Size	30	14	16
Exposure Coefficient (b_i): Means	0.255	0.127	0.221
Minimum	-0.321	-0.251	-0.254
Maximum	0.822	0.776	0.654
Significant Exposure:			
Number of Firms	16	7	9
Percentage of Total	53.8%	55.7%	52.3%
Sign of Exposure Coefficient (b_i):			
Positive	9 (56.3%)	5 (65.5%)	4 (41.2%)
Negative	7 (43.7%)	2(34.5%)	5 (58.8%)

Source: Researcher's Estimation, 2012

The model $R_{it} = a_i + b_iEx_{it} + e_{it}$ was estimated by ordinary least square regression method. First we regressed real effective exchange rate change of the three foreign currencies respectively on all sampled values. Then samples were divided into two groups as financial and non-financial firms and exchange rate sensitivity of each group was examined. Table 1 to table 3 above respectively present summary statistics of sampled firms' sensitivity to movements of the Nigerian naira to the US dollar, the Naira to UK pound and the Naira to the euro.

Table 1 above presents estimate of exchange rate sensitivity of Nigerian listed firms to movement in Naira/US dollar real effective exchange rate. Column 2 of the table presents results for all sampled firms, while column 3 and 4 respectively indicated results for the sub-sample divisions into financial and non-financial firm. Exchange rate risk exposure co-efficient for all firms range between -0.012 and 0.644 with mean value of 0.222 as indicated in the table a total of 27 out of 30 sampled firms indicated a statistically significant dollar exchange rate exposure representing 88% of total sampled firms. Further, 11 (40.7%) were positively exposed while 16 (59.3%) were adversely exposed to the dollar.

For the financial sector firms, exposure coefficients range between -0.316 and 0.827 with mean value 0.221.41. (78.8%) of 14 financial firms were statistically sensitive to dollar exchange rate movements. 5 firms positively exposed while the remaining 7 were adversely exposed. The non-financial firms indicated a mean exchange rate exposure coefficient of 0.3332.62 (95.3%) of the 16 sampled non-financial firms was significantly exposed to US dollar exchange rate. Out of these 6 (38.7%) were favourably exposed while 9(61.3%) were adversely exposed to the dollar exchange rates.

The summary of results presented above indicated that majority of Nigerian listed firms' returns are sensitive to dollar exchange rate with the largest proportion being adversely exposed. The result failed to indicate any significant differences in pattern of exposure between the financial and non-financial firms, thus providing no evidence to support the thesis that financial firms possess requisites to hedge exchange rates risks. However, non-financial firms have a higher value of mean exposure coefficient compared to the financial sector.

Table 2 and Table 3 respectively present results of Nigeria firms' sensitivity to changes in UK sterling and Euro real effective exchange rates. Similar to the result represented above, Nigeria's listed firms are generally exposed to risk of exchange rates movement. 23 (75.2%) of total sampled firms were significantly exposed to risk in UK pound sterling exchange rate movement while 16(53.8%) were significantly exposed to the Euro. In general terms, large proportion of exposure incidence were adverse exposure, indicating that exchange rate instability is significant hindrance to corporate performance in Nigerian listed firms.

Overall regression equations have good statistical fit with the t values significant for most variables. The adjusted R^2 and R were sufficiently high indicating that the independent variables explained sufficient quantity of the variations in the dependent variables. Durbin Watson statistic (DW) also revealed the absence of serious auto correlation for all the equations. These test results showed the reliability of our estimate equations in modeling the problem under investigation.

CONCLUSION/RECOMMENDATIONS

This study concluded that exchange rate instability is significant hindrance to corporate performance in Nigerian listed companies. For policy monitoring, exchange rates management should emphasize achieving sustainable stability in exchange rate movement. The presence of risk in business is something that cannot be avoided; it only becomes a problem when it cannot be controlled. Our recommendation for companies whose rate of profitability is negatively affected

by exchange rate risk exposure is that, they should try and identify the kind of risk they are exposed to (translational exposure), then employ devices such as hedging, monetary balance, matching receipt and payment, Naira invoicing, currency swap among other in controlling these risks.

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APPENDIX I

Foreign exchanger rate between the Naira and US Dollar; UK Pound and Euro and changes in their rate

	US Dollar		UK Pound		UK Euro	
Year	₦/dollar	% change	₦/UK pound	% change	₦/Euro	% change
2002	85.98	-	176.84	-	172.84	-
2003	102.5	19%	188.31	6.49%	178.33	3.1%
2004	111	8%	202.02	7.81%	181.08	1.5%
2005	120.05	8.5%	208.19	2.55%	174.2	-3.7%
2006	128.5	6.6%	213.18	2.34%	175.45	0.72%
2007	129.00	0.4%	218.30	2.40%	173.32	-1.2%
2008	134	3.9%	212.41	-2.30%	188.35	8.6%
2009	130.15	-2.9%	218.35	2.79%	185	-1.78%
2010	122.5	-5.88%	223.41	2.32%	208.53	12.7%
2011	149.58	22%	225.1	0.75%	216.3	-1.07%

APPENDIX II

Earnings per shares (Eps) for the year 2002-2011 for financial firms

S/N	LIST OF FINANCIAL FIRMS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1.	Union Bank	1.19	0.65	1.08	0.98	1.53	2.19	1.73	1.44	2.22	(5.37)
2.	Stanbic IBTC Bank	0.39	0.51	0.76	0.53	0.79k	0.42	0.33	0.46	0.13	0.25
3.	FCMB Plc	0.15	0.10	0.15	0.13	0.17k	0.17k	0.16k	1.19	2.48	2.63
4.	Zenith Bank Plc	6.11	5.01	5.18	5.07	3.10	5.07	3.46	5.33	6.25	6.53
5.	Ecobank Plc	1.13	0.92	1.25	0.96	1.52	2.11	1.10	1.44	2.54	2.10
6.	UBA Plc	0.32	0.85	0.53	0.39	(0.85)	0.11	0.23	0.52	0.52	0.62
7.	First Bank Plc	0.50	0.42	(0.18)	0.32	0.32	0.81	0.63	0.15	1.03	1.11
8.	Access Bank Plc	0.53	0.82	0.18	0.42	0.35	0.15	1.34	0.18	1.23	0.89
9.	Wema Bank Plc	0.32	0.12	0.19	0.30	0.11	0.51	0.42	0.43	0.53	0.51
10.	Guaranty Trust Bank	5.31	3.82	3.11	5.42	5.33	6.21	5.02	4.34	5.08	6.15
11.	Diamond Bank Plc	0.17	0.13	0.15	1.32	1.11	(0.52)	1.03	1.58	0.22	0.18
12.	AB Microfinance Bank Ltd	0.10	0.08	0.19	0.13	0.25	0.31	0.19	0.32	0.18	0.23
13.	Cornerstone Leasing & Invest Ltd.	2.10	1.88	1.92	2.53	2.58	3.21	2.17	2.23	1.22	1.82
14.	Sterling Bank Plc	0.46	0.33	0.52	0.15	(0.32)	1.21	1.08	1.55	2.15	2.19

APPENDIX III

Earnings per shares (EPS) for the year 2002-2011 for nonfinancial firms

S/N	LIST OF NON FINANCIAL FIRMS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1.	WAPCO	0.25	0.34	0.39	1.15	1.33	1.52	1.02	2.13	2.18	3.2
2.	Lever Brother	1.32	1.58	2.81	1.05	1.28	1.54	2.39	3.25	3.26	3.30
3.	Incar Nigeria Plc	1.83	1.53	1.28	2.53	5.21	(2.53)	1.89	2.38	3.11	5.8
4.	Calbury	1.21	1.53	0.66	1.89	1.25	1.25	1.97	2.18	1.83	1.54
5.	Chellarams	0.36	0.35	0.56	0.54	0.77	0.85	1.35	1.85	1.57	2.39
6.	Unilever	0.27	0.33	0.28	0.52	0.32	0.43	(0.43)	0.28	0.69	1.08
7.	Ap plc	1.49	1.42	1.52	2.04	2.06	(4.52)	2.74	7.26	6.47	6.17
8.	PZ Industry	0.35	0.59	1.52	0.51	0.59	1.35	1.36	1.88	1.39	2.80
9.	Dangote	4.32	4.59	5.34	3.21	3.93	4.83	5.22	5.14	6.52	6.88
10.	United Nig Textiles	3.21	3.44	3.33	4.54	3.92	4.52	5.21	5.48	5.44	5.86
11.	AF print	1.33	1.02	1.59	2.32	1.34	1.56	2.11	2.53	4.49	4.32
12.	AG Leventis	0.35	0.44	0.52	0.32	(1.82)	0.35	0.55	1.53	1.82	3.21
13.	Berger paint	0.53	0.42	0.13	0.39	1.51	1.32	1.69	1.88	1.39	2.20
14.	Vono	0.35	1.52	1.82	1.39	1.08	0.17	1.32	1.89	1.33	1.48
15.	Wapland. Cemt	0.39	1.39	1.36	1.41	1.02	0.83	1.91	1.82	2.31	2.52
16.	Nig. Bottling company	0.11	1.17	1.17	0.97	0.93	0.99	1.52	1.81	1.39	2.32