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## Need for Managing own Exposure to Foreign Exchange Risk: Empirical Evidence from the Nigerian Economy

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### ABSTRACT

**Purpose:** The Nigerian national currency (the Naira) has suffered series of exchange rate fluctuation on numerous occasions in the last two years. As a result, the value of the currency has changed significantly and rapidly many times, impacting on both visible and invisible trade. It is common today to hear importers, exporters and even consumers complaining about the adverse consequences of these trends which manifested in form of general rise in prices of goods and services. Studies have shown that many Nigerian foreign traders, particularly those in the small and medium sector, either lack the basic knowledge on how to manage foreign exchange risk or are skeptical about its efficacy. This is surprising considering how costly, in terms of cash flow and profitability, unfavorable changes in the value of the Naira can be. In response to this gap, this paper utilized secondary data on Naira/Dollar exchange rate spanning over 18 months period (January 2015 to June 2016), to provide an empirical understanding of the intricacies of Naira/Dollar exchange rate and how the resultant trends can affect domestic users of foreign exchange in Nigeria and hence the need to privately manage same. The paper thus introduces the subject matter of foreign exchange risk, its determination/calculation using facts and figures and its management to both the public and private business sectors in Nigeria. The empirical results clearly established why it makes sense for stakeholders to reduce exposure to currency risk. The paper also highlighted some of the common techniques and instruments that can be used to mitigate this risk.

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### 1. Introduction

Ample evidence abounds to prove that over the last two years, the 'Naira' has been passing through difficult period. The currency which was officially pinned to an exchange rate of N192 to one US Dollar is depreciated so drastically that as at end of 2016 to date, it exchanges for N350 and above to the Dollar. Experts have attributed this development to the crash of crude oil price which inadvertently reduced the country's foreign exchange earnings. Following this, government finds it difficult to fulfill its obligation

of supplying adequate foreign exchange; and so a number of measures aimed at reducing demand were put in place. These measures among others include banning the importation of certain goods into the country, refraining from making foreign exchange allocations to some major players (notably Bureau de change), putting increased emphasis on the much orchestrated need for diversification of the economy and lately, the re introduction of the flexible exchange rate regimes.

In spite of these moves the Naira currency continue to provide grounds for enormous negative media headlines as the competitive exchange rate maintained an above N300 level thereby impacting significantly and rapidly on both domestic and international transactions. While on one hand importers complain of acute shortage of foreign currency, which makes it difficult and exorbitant for them to import, on the other the largely underdeveloped domestic sector grabbles with the problems of take-up, epileptic power supply, insecurity, unreliable business atmosphere and unstable government policy. Further, the increased pressure coming from government quarters aimed towards economic diversification, self-sufficiency and self-reliance, all appear to have fundamentally compounded the situation leaving the national economy prone to excessive and persistent inflationary trends.

The success of the re-introduced flexible exchange rate policy equally relies on effective management of trends in the market which is expected to come through periodic intervention. What this implies is that the government would still play the role of tailoring the market towards ‘a shadow exchange rate’ alongside a competitive rate that exists in the market. Under this dispensation, economic agents, notably importers, exporters and Nigerian consumers would be left to face the full wrath of market forces; which given other macroeconomic policies, will reduce pressure on the Naira.

The argument in this study is that while this exchange regime reigns, there is need for end-users of foreign exchange to fine tune avenues for independent defense that would hedge them against exchange rate escalation. Hence there is need for the economy as a whole to move towards adopting a double edge mechanism for managing foreign exchange pressure as is done in most market oriented economies. In the context of this policy, the formal decision on the type of exchange rate system to be followed and its management still resides with the authority while other economic agents, both profit and none profit making, should assume a pro-active role through careful focus and analysis of exchange rate situation to safeguard against unforeseen negative consequences that can impact on businesses profitability and cash flow.

This strategy has for long been practiced by large business sectors in, especially developed countries, which more often than not placed them at advantage in minimizing foreign exchange risk. In developing countries like Nigeria however, a predominant part of the business class may not have adequate knowledge/ access to such remedial measures due mainly to their types, sizes and general lack of awareness. This paper is thus intended to serve as a source of reference for all categories of foreign exchange users in Nigeria. Firstly, it provides an empirical understanding of the intricacies of Naira/Dollar exchange rate; and secondly, it creates awareness on the need for some form of ‘own control’ of foreign exchange risk. The knowledge of the common techniques and instruments that can be used to mitigate foreign exchange risks is also highlighted. On the over all, the attendant consequences of both falling domestic exchange rate (depreciation) and rising domestic exchange rate (appreciation) were looked into and highlights made on how companies in Nigeria can be affected.

## **2. Literature Review**

### **2.1 Foreign Exchange Risk**

Access to finance and its effective management are essential ingredients to success in all forms of organizations. However, this fact is threatened by a number of constraints. According to Olutunla (2001) poor financing and/or lack of its effective management is a great hindrance to acquiring material inputs and better technologies for production. Finance is related to foreign exchange because some

organizations source their finances from foreign countries. In addition, most capital goods, raw materials and expertise are purchased from abroad. Thus, foreign traders would have to either convert a foreign currency for use locally (if sourced from a foreign body) or convert local currency to foreign one (to patronize foreign markets).

Clearly, converting one foreign currency to another necessitates the use of exchange rate defined as the price of a foreign currency in terms of a domestic one. According to Nwude (2012), Exchange rate is a key variable in the context of general economic policy formulation as it affects the performance of other macroeconomic variables. Its appreciation or depreciation in both the short and long run according to Mustapha and Fabumi (1990), Adetifa (2003), Esezabor (2004), Agene (1991) and Levi (1990) depend on specific factors namely: (i) interest rate differentials (ii) speculation (iii) central bank intervention (iv) hot money (v) hedging (vi) demand and supply (vii) exchange controls and regulation, and (viii) political and general economic climates. These factors are not entirely government centered. For instance, activities of speculation and hedging can be carried out by both the government and end-users of foreign exchange. There is need therefore for both parties to be involved in the process. Accordingly, while government is saddled with the responsibility to adopt the most appropriate exchange rate policy for the economy as a whole, end-users of foreign exchange are expected to determine whether there is need to hedge and which hedging instrument is appropriate for minimizing their individual exchange risk.

According to Madura (1989) foreign exchange risk refers to the effect of unexpected exchange rate changes on the value of a firm. Papaioannou (2006) sees it as the possible direct loss (as a result of an unhedged exposure) or indirect loss in the firm's cash flows, assets and liabilities, net profit and, in turn, its stock market value from an exchange rate movement downward or upward. For companies that sell their goods and services internationally and get paid in a foreign currency for example, foreign exchange risk is the likelihood that a downward change (depreciation) in exchange rates will result in the company receiving a lower amount of domestic currency than originally anticipated because the foreign client will be paying less than before of his own currency. With currency depreciation, importers will be paying more of the domestic currency than initially planned. On the other hand an upward change in exchange rates (appreciation) would mean that exporters will receive more in foreign currency and by extension the domestic one; while importers will be paying less of domestic currency to obtain same amount of the foreign currency. Generally, a Foreign exchange risk is a financial risk caused by an exposure to changes in the exchange rate between two currencies which could result in a loss. It is also called currency or exchange risk.

According to CPA (2009) foreign exchange risk can originate from any of the following:

- Where there are business imports or exports between 2 or more countries.
- where other costs, such as capital expenditure, are denominated in foreign currency
- where revenue from exports is received in foreign currency
- where incomes, such as royalties, interest, dividends etc., are received in foreign currency
- where the business's loans are denominated (and therefore payable) in foreign currency
- where the business has offshore assets such as operations, subsidiaries or foreign currency deposits

Shapiro (1996); Madura (1989) and Papaioannou (2006), identified three different types of exchange risks namely:

1. Transaction risk. This is basically cash flow risk dealing with the effect of exchange rate movement on transactional account exposure related to receivables (export contracts), payables (import contracts) or repatriation of dividends. An exchange rate change in the currency of denomination of any such contract will result in a direct transaction exchange rate risk to the firm;

2. Translation/Accounting risk. This is a balance sheet exchange rate risk which relates exchange rate movements to the valuation of a foreign subsidiary and, in turn, to the consolidation of a foreign subsidiary to the parent company's balance sheet.
3. Economic risk. This reflects on the risk to the firm's present value of future operating cash flows from exchange rate movements. In essence, economic risk concerns the effect of exchange rate changes on revenues (domestic sales and exports) and operating expenses (cost of domestic inputs and imports). Economic risk is usually applied to the present value of future cash flow operations of a firm's parent company and foreign subsidiaries.

It is pertinent to point out that exchange risk, notwithstanding the type, can impact adversely on business profitability and cash flow. According to CPA (2009) exchange risk effects can be highlighted into two major categories as follows:

1. Declining domestic exchange rate which can result to;
  - a. Making domestically produced goods more competitive against imported goods
  - b. Increasing the cost of capital expenditure where such capitals are imported
  - c. Increases the cost of servicing foreign currency debt
  - d. Increases exporters' competitiveness in terms of cost, thereby potentially increasing their market share and profitability.
  - e. Domestic business could become more attractive to foreign investors
  - f. Increases the cost of investing overseas and thus makes it unattractive.
2. Rising domestic exchange rate. This can lead to;
  - a. Making exports less competitive, thus reducing the profitability of exporters
  - b. Decreasing dividends, which in turn can lead to a fall in the market value of the business
  - c. Decreasing the value of investment in foreign subsidiaries and monetary assets (when translating the value of such assets into the domestic currency)
  - d. decrease in the value of foreign currency income from investments, such as foreign currency dividends, when translated into the domestic currency
  - e. Decrease in the cost of foreign inputs, thus giving importers a competitive advantage over domestic producers
  - f. Decrease in the value of foreign currency liabilities. Hence lowering the cost of servicing these liabilities decreases
  - g. Decrease in the cost of imported capital equipment thereby lowering capital expenditure
  - h. Decrease in the cost of investing overseas thereby encouraging capital flights
  - i. Makes the economy less attractive to foreign investors

## **2.2 Foreign Exchange Risk Management**

### **2.2.1 The Rationales**

Managing foreign exchange risk is a technical subject requiring knowledge of hedging instruments and techniques. For most users of foreign exchange this may seem too complex, costly or time-consuming. Others yet may not have broad knowledge about hedging instruments and techniques or may simply believe that hedging is a mere speculative activity. Export Development Canada (2010), identified the following as the main importance of exchange risk management to business organizations

- i. minimizing the adverse effects of exchange rate movements on profit margins
- ii. increasing the predictability of future cash flows
- iii. eliminating the need to accurately forecast the future direction of exchange rates
- iv. facilitate the pricing of products sold on export markets and;
- v. Offers temporary protection to business competitiveness in the event of a rise in the value of local currencies (thereby buying time for businesses to improve productivity).

The adoption of a foreign exchange management strategy is similar to taking on an insurance policy in which the insurance company accepts to indemnify the insured against any unexpected eventuality (risk) that may affect the insured assets. The insured risk, in this case, is the reduction in cash flows and/or profit margins caused by un-favorable changes in the exchange rate. According to Export Development Canada (EDC) (2010) effective exchange risk management does not only protect a company's cash flow but also ensure that the company's efforts and talent are focused on its core business activities.

Allen (2003); and Jacque (1996), assert that effective currency risk management decision requires the establishment of an operational framework of best practices. It is thus a multi-step process. EDC (2010), IMF 2006 and Habibie (2013) identified five stages as follows:

- i. **Determining/ calculating company Exposure**  
This involves identifying and measuring the foreign exchange exposures that you want to manage. As mentioned earlier, the focus for most companies is on *transaction risk*. For an exporting company paid in U.S. dollars for example, measuring exposure may involve subtracting the U.S. dollars it expects to receive over a one year period, against the money it will need in order to make payments in U.S. dollars over the same period. The difference determines the exposure to be hedged.
- ii. **Development of an exchange rate risk management strategy.**  
After identifying the types of currency risk and measuring the firm's risk exposure, a currency strategy needs to be established on how to deal with these risks. In particular, this strategy should specify the firm's currency hedging objectives and whether and why the firm should fully or partially hedge its currency exposures.
- iii. **Creation of an entity to deal with the execution of exchange rate hedging.**  
This entity will be responsible for exchange rate forecasting, the hedging approach mechanisms, the accounting procedures regarding currency risk, costs of currency hedging, and the establishment of benchmarks for measuring the performance of currency hedging.
- iv. **Development of a set of controls for periodic monitoring of hedging performance.**  
This includes setting position limits for each hedging instrument, position monitoring through mark-to-market valuations of all currency positions on a daily basis (or intraday), and the establishment of currency hedging benchmarks for periodic monitoring of hedging performance (usually monthly).
- v. **Establishment of a risk oversight committee.**  
This committee would in particular approve limits on position taking, examine the appropriateness of hedging instruments and review the risk management policy on a regular basis.

### **2.2.2 Common Techniques and Instruments**

According to EDC (2010); CPA (2009); Papaioannou (2006); and Florena-Olivia (undated), there are two broad methods that can be used to manage foreign exchange risks.

### **2.2.3 Natural hedging**

The objective of natural hedging is to reduce the difference between receipts and payments in a given foreign currency so that ultimately, the net amount to be received would have been minimized. Natural hedging can be by way of using foreign currency proceeds to make payment abroad, borrowing from abroad, increasing procurements from foreign suppliers, and building or buying a production facility abroad.

An inherent disadvantage of natural hedging however is, it takes time to implement. (e.g. finding new suppliers in another country, initiating and securing credit facility or building a production facility abroad may after all be cumbersome).

#### **2.2.4 Financial hedging**

This method involves buying foreign exchange hedging instruments that are typically sold by banks and foreign exchange brokers. The ones most commonly used are foreign exchange forward contracts, currency options and swaps.

#### **2.2.5 Forward contracts**

This allows a foreign exchange user to set the exchange rate at which he will buy or sell a given quantity of foreign currency in the future (on either a fixed date or during a fixed period of time). They are flexible instruments that can easily match future transaction exposures (generally up to one year).

Forward contracts are easy to use and carry no purchase price – which makes them very popular. The only obligation being that the exporter has a contractual commitment to deliver to (or purchase from) a bank or foreign exchange broker a fixed quantity of foreign exchange at a future date. If he does not, then the forward contract could be terminated or extended which could carry a price tag. This last point explains why foreign exchange brokers set limits on the maximum amount that can be hedged using forward contracts. It also serves to explain why collateral is often required when you buy a forward contract.

#### **2.2.6 Currency options**

Standard options give a foreign exchange user the right, but not the obligation, to buy or sell foreign exchange in the future at a pre-determined exchange rate. Because these options do not oblige the company to sell or buy foreign currency (contrary to forward contracts), they are often used by companies that bid on contracts. Currency options allow companies to benefit from favorable movements in exchange rates, which is why most types of currency options carry an upfront cost.

The perceived complexity of currency options and the fact that most of them carry a purchase price has restricted their application. Yet basic options are not difficult to understand and some of them, commonly called “Zero-Cost Collars” or “Participating Forwards”, cost nothing to purchase. In addition, they provide protection when exchange rate moves in an unfavorable direction and participation when it moves in a favorable one. Also, options can lead to an increase in market share and improvement in business margins.

#### **2.2.7 Swaps**

This involves the simultaneous selling and buying (or buying and selling) of a foreign currency. Swaps are simply a combination of a “spot” transaction (purchase or sale of foreign currency for delivery within 24–48 hours) and a forward contract. There are no direct costs associated with the purchase of swaps (some collateral may need to be posted). Swaps are extensively used by companies around the world for cash management purposes and to borrow in foreign currencies.

Generally, the argument on the appropriate strategy to manage (hedge) the different types of exchange rate risk is yet to be settled (Jacque, 1996). In practice, however, corporate treasurers have used various currency risk management strategies depending, *ceteris paribus*, on the prevalence of a certain type of risk and the size of the firm (Allen, 2003).

### **3. Methodology**

The study utilized secondary data on Naira/Dollar exchange rate based on the operations of parallel markets (Bureau de change) in Nigeria over a period of 18 months (January 2015 – June 2016). The study utilized descriptive tools such as tables, percentage, and polygons to clearly portray the monthly changing trends and how it affects Nigerian importers and exporters. The ultimate focus of the study is to assess the extent of exchange rate volatility between the two currencies and whether the resultant variations warrant

the adoption of hedging techniques by Nigerian business enterprises.

#### 4. Results and Discussion

##### 4.1 Trends in the Naira/Dollar Exchange Rate Fluctuations

The data utilized in this paper, shown in Table1 below, is on the operations of the autonomous foreign exchange market in Nigeria.

**Table 1: Naira/Dollar Exchange Rate over 18 Months Period: January 2015 – June 2016**

Mont.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Xrate	211	213	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211	211
%Δ		0.9	-0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: CBN, 2016.

**Key:** Mont. = Month; Xrate = Exchange Rate; %Δ = Percentage Change

The first column of table 1 presents the raw data (Naira/dollar exchange rate) as obtained from the CBN source. The second column shows the percentage change between successive months over the one year six months period. It can be observed that fluctuation was a recurrent feature of the exchange rate throughout the period. It is revealed that the Naira currency is disfavoured in 11 of the 17 variations witnessed (constituting 59%), all of which are above 3 percentage point. On the other hand, of the 4 variations (24%) in which the Naira currency was favoured, only 2 were above 3 percentage point. This clearly shows the predominance of adverse volatility trends which can significantly affect business profitability and cash flow. This outcome is made clearer in the polygon as presented in Figure.

**Figure 1: Naira/Dollar Exchange Rate over 18 Months Period  
January 2015 to June 2016**

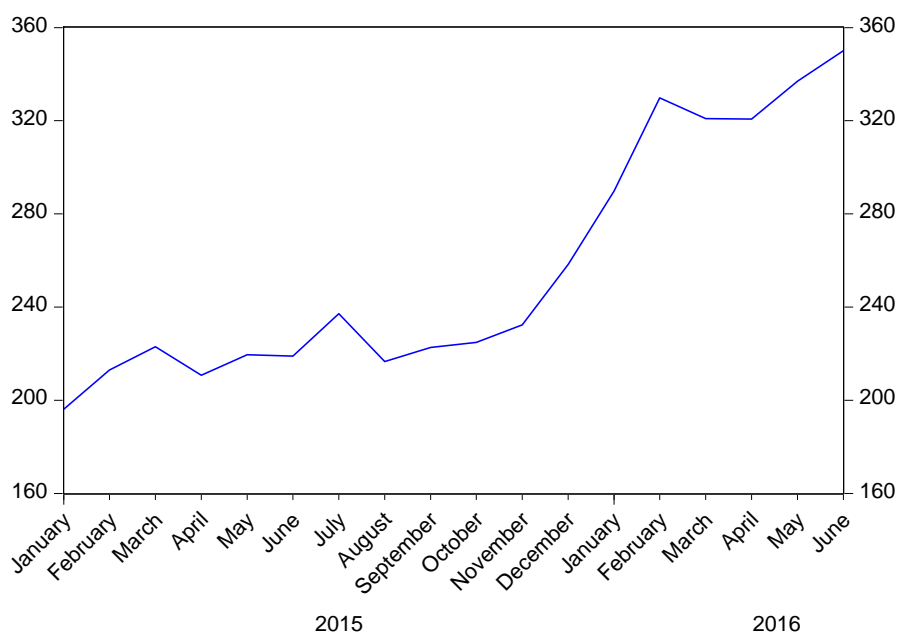
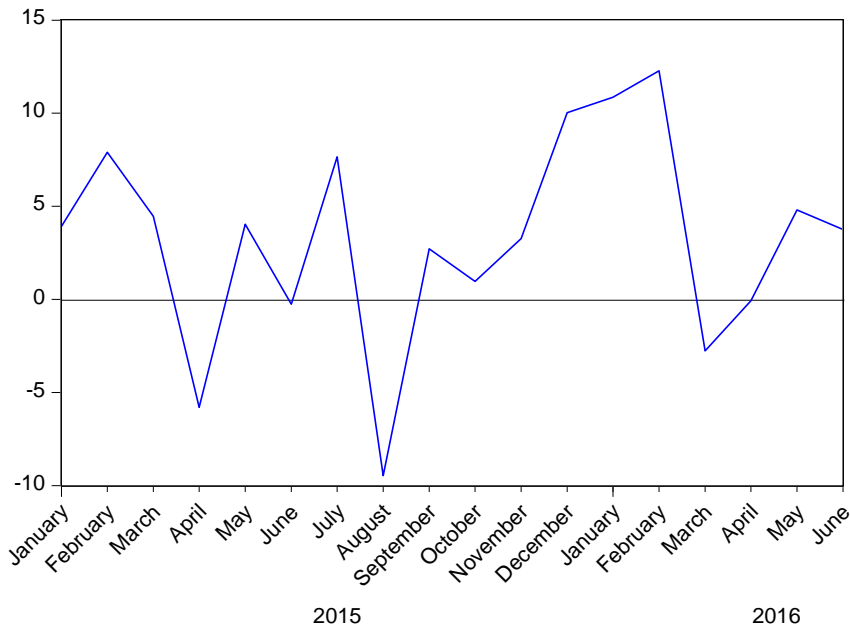


Figure 2: Percentage Change in Naira/Dollar Exchange Rate Over 18 Months Period  
January 2015 to June 2016



#### 4.2 Measurement of Foreign Exchange Risk

The data presented in the previous section is utilized in Table 2 to compute the risk of exposure to foreign exchange risk and to analyze how it can affect importers and exporters.

**Table 2: Exchange Rate Fluctuation and its Effects on Imports and Exports - Jan. 2015 to Jun. 2016**

Month	EXR(Nominal)	EXR (Ratio)	Net Changes	Import Effect	Export Effect
January	196	0.0051	-	-	-
February	213	0.0047	0.00040721	Negative	Positive
March	223	0.0045	0.00021053	Negative	Positive
April	211	0.0047	-0.00025503	Positive	Negative
May	220	0.0045	0.00193881	Negative	Positive
June	219	0.0046	-0.00002075	Positive	Negative
July	237	0.0042	0.00034680	Negative	Positive
August	217	0.0046	-0.00038889	Positive	Negative
September	223	0.0045	0.00012399	Negative	Positive
October	225	0.0044	0.00003986	Negative	Positive
November	232	0.0043	0.00013410	Negative	Positive
December	258	0.0039	0.00043438	Negative	Positive
January	290	0.0034	0.00042769	Negative	Positive
February	330	0.0030	0.00041797	Negative	Positive
March	321	0.0031	-0.00008496	Positive	Negative
April	321	0.0031	0.00000000	Negative	Positive
May	337	0.0030	0.00014791	Negative	Positive
June	350	0.0026	0.00038022	Negative	Positive

Computed by Author, 2016

It is clear from the table that the two parties are affected differently following different fluctuation trends over the periods. The table shows how rising and falling currency value can affect profitability and cash flow for both importers and exporters.

To make the above point clearer, we assume that a Nigerian exporter sold Cocoa to a U.S. based buyer, for say US\$100,000 in the month of March 2015. If, as shown the table, the USD/Naira exchange rate



during this period was 0.0045 and that this rate was used for the transaction, the exporter would have expected to receive N22, 222, 222. Assume further that the US\$100,000 was only received one month later (in April) when the Naira is worth 0.0047 USD/N (which is equivalent to a 5.8% increase in the value of the Naira). This would mean that the exporter could receive only N21,276,595 implying a reduction of N945,627 than expected. In this circumstance the company must have suffered a loss of nearly a million naira, which is avoidable if it had adopted a hedging strategy.

A second scenario is where a Nigerian based firm initiated a transaction with a US based supplier to buy automobiles worth USD100,000. This, it is assumed, was in November 2015 when as shown in Table 2, the Naira/Dollar exchange rate was 0.0043. Assume further that the transaction was actually completed in March 2016 when the exchange rate has appreciated to 0.0031. This means the Nigerian firm must have paid N322, 258, 064, which is higher than N23, 255, 813, being what it would have paid if the transaction was finalized in the month of November. The net loss to the firm of N9,002,251 was due to naira depreciation over the period which could have been avoided if the firm had a hedging strategy in place.

It is pertinent to point out that both depreciation and appreciation have distinct economic advantages and disadvantages depending on economic exigency and need (refer to the effects of rising and falling domestic currency value in the literature section). Thus, while importers would prefer currency appreciation as it tends to reduce their Dollar requirement for purchase abroad, exporters would be more comfortable with depreciation since it increases the total Naira quantity received in the event of a transaction. To the government both may be desirable depending on the country's economic policy and situation.

The above analysis has revealed that both importers and exporters can suffer a monetary loss following volatility in currency exchange rate irrespective of the effectiveness of government exchange rate policy. This necessitates that users of foreign exchange should be vigilant to ensure that unwarranted exposure to risk is detected and remedied.

## **5. Conclusion and Recommendation**

One of the attributes of an ideal currency anywhere in the world is that it should allow for complete freedom of monetary flows, so that traders and investors could willingly and easily move funds from one country/currency to another in response to perceived economic opportunities. An irony however is that this does not happen in reality.

In spite of this constraint there is increasing evidence to show that in response to emerging socio-economic realities, more and more businesses in Nigeria and other third world countries are increasingly pursuing overseas business opportunities. This form of trade, unlike internal, involves foreign currency which necessitates the use of exchange rate. Thus, although it is the statutory responsibility of government to provide a well-managed foreign exchange atmosphere, the other parties involved in such transactions should equally be concerned with how such cross currency dealings may inhibit their profitability and smooth cash flow. This implies that the responsibility to put a favorable exchange rate in place is a joint one, between the State and the business interest.

This paper has utilized practical evidence to prove that exchange risk is indeed a reality and that traders dealing in trans-border activities can use hedging tools to safeguard against the unforeseen adverse effects on inputs costs, output price, credit sources, and overall asset value.

We conclude by asserting that the desire for firms and individuals to hedge is deterministic. It is determined by the interaction of a number of concurrent activities within the immediate business environment, the foreign exchange market and the economy at large. Therefore stakeholders must carefully assess when to hedge and using what strategy for achieving maximum business success and sustainability.

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