Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.6, No.6, 2015

Assessing the Impact of Exchange Rate Risk on Banks Performance in Nigeria

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Abstract
Managing exchange rate risk exposure has gained prominence in the last decade as a result of the unusual occurrence of a large number of currency crises. From the corporate management perspectives currency risk management is increasingly viewed as a product approach to reducing a bank or firm's vulnerabilities from major exchange rate movement. This attitude has also been reinforced by recent international attention to both accounting and balance sheet risk. This study there assesses the impact of exchange rate risk on bank performance in Nigeria. The study employs the usage of secondary sources of information and utilises an auto regression conditional model as means for measuring risk. The model specified the conditional variance as a deterministic function of lagged squared residual. The study revealed that unit increases in exchange rate is driven by an increase in profit after tax (PAT) and equally indicated that there is a significant relationship between exchange rate management and performance of financial institutions, most especially banks. It is recommended that as an effective way of managing exchange rate risk, bank should create a centralized entity within its operations as an institutional strategy to deal with the practical aspects of the execution of exchange rate forecasting, while the hedging approach mechanism should be adopted in the accounting procedure regarding currency risk. Also the type of exchange rate risk that a bank or firm is exposed to, as well as the measurement of the associated risk exposure must be meticulously identified, as a prerequisite for effective management of exchange risk.
Keywords: Banks, Exchange Rate, Exchange Risk, Performance, Purchasing Power Parity

1. INTRODUCTION

Prior to the monetary-approach emphasis of the 1970s, it was common to emphasize international trade flows as primary determinants of exchange rates. This was due, in part, to the fact that governments maintained tight restrictions on international flows of financial capital. The role of exchange rate changes in eliminating international trade imbalances suggests countries with current trade surpluses are expected to have an appreciating currency, whereas countries with trade deficits should have depreciating currencies. Such exchange rate changes would lead to changes in international relative prices that would work to eliminate the trade imbalance. In recent years, it has become clear that the world does not work in the simple way just considered. For instance, with financial liberalization, it has been observed that the volume of international trade in financial assets now dwarfs trade in goods and services. Moreover, there are instances where countries with trade surpluses have depreciating currencies, whereas countries with trade deficits have appreciating currencies. Economists have responded to such real-world events by devising several alternative views of exchange rate determination. These theories place a much greater emphasis on the role of the exchange rate as one of many prices in the worldwide market for financial assets.

It is a widely held view that exchange rate movement should affect corporate expected cash flows and stock returns, by causing changes in the home currency value of foreign currency denominated revenues (cost) and the terms of competition for multinational and firms with international activities (importers and exporters). In general, however, if purchasing power parity (PPP) is violated exposure to exchange rate is not limited to firms with direct foreign trade activities. The growing emphasis on exchange risk management the extensive use of foreign currency derivative and other hedging instrument by corporation to protect their foreign currency dominated cash flow from unexpected exchange rate movement, implies that the market value of the firm is sensitive to exchange rate uncertainty, unpredictable and probabilistic in nature.

In view of this, the objective of market policies in different countries is to lead their economies particularly in the banking sectors to a stable growth path. In order to avoid fluctuation in the overall economy, it is important to assess the various policy variables employed to stabilize economy fluctuations the world over with specific focus on developing economies. This research work therefore seeks to examine the effect of exchange rate risk occurrence on the performance of banks, most especially when making a sectorial analysis and given that bank sizes are usually measured by total asset or total deposit (which becomes a critical factor). Foreign exchange intervention then occurs when the monetary authority of a country buys and sells foreign exchange in the foreign exchange market in order to exert an influence on the exchange rate. Most of the bank performance ratios are highly sensitive to the size or group within which the bank falls. Key earning and risk measures changes dramatically as the banks appraisal moves from the smallest banks to the largest banking firms.

For example, the most profitable bank in terms of return on asset (ROA) tend to be in the medium size ranges, while the largest banks often report the average returns on asset (ROA), while it usually reaches the highest level among billion dollar plus size banks.

On the other hand, middle size banks with assets ranging from $100 million up to $10 billion in total asset display, the most favourable net interest and net operating margins, the best earning spread, and the best operating efficiency ratios with the lowest operating expense to revenue ratio. In contrast, the largest banks generally report the highest (least negative) non-interest margins and therefore, greater spreads between interest revenue and interest cost because most of their deposits and small denomination accounts with lower average interest cost. Moreover, a large proportion of small and medium size loans tend to be high consumer loans and the transaction in foreign exchange falls under the treasury operation of Apex banks. In treasury operation management, a sub- section of the unit is centred on treasury operation as a whole with a full range of service beyond core management of which foreign exchange is among. Precisely the core treasury function is to see that banks offer comprehensive range of service to enrich the customer relationship at any point in time. Furthermore, the ability to handle operation at an international level is crucial to any major financial institution. The same is also true about the need for automating the production and delivery of treasury service for treasury activities to be effectively carried out, computer communication and artificial intelligence must provide gateway to planning, execution and control. This statement is valid and it essentially means that every issues that has undergone substantial evolution to changes in financial techniques and technology, impacts greatly on financial market demand.

The significant role played by the foreign exchange market on the exchange rate translation is very critical to banks performance and to a great extent determines the impact of the risk on bank performance. Banks on the other hand are regarded as the bed rock of a nation's economy due their intermediation function and the importance attached to the foreign exchange rate stability in any given economy. Therefore, considering that foreign exchange risk has been a topical area of discourse, most especially in banking operations, this study will seek to examine:

- How critical the effective management of foreign exchange risk is on bank's performance.
- What factors can be identified as being responsible foreign exchange risks.
- What measures can be adopted as an interventionist approach to address the problems of foreign exchange rate risks.

Thus, the relationship between exchange and macroeconomics indices need to be established both empirically and theoretically to account for the bank performance of the foreign rate of risk and how best to involve a realistic exchange value and as such emphasis will be placed on assessing the foregoing with focus on First bank of Nigeria plc, which is one of the leading banks in Nigeria. In other to further appraise the issue in question, emphasis will be placed on the following:

- To determine the various exchange risks which the treasury of the selected bank is exposed to its foreign exchange transaction.
- To investigate how these risks affecting the banks can be effectively managed.
- To identify the risk affecting the bank and exposure management technique required for treasury management.
- To determine the overall effect of exchange rate risk on the performance of the selected bank.

Consequently, the aim of such an appraisal as the foregoing is to lead the policy makers within the economy to a growth path, avoid fluctuation in the overall economy, and create a basis for aligning various policy variables to the overall stability of the economy.

2. LITERATURE REVIEW

Allayanmis, Hrigs, and Weston, (2001), maintain that the exchange rate risk management is an integral part of every firm's decision about foreign currency exposure. Currency risks require understanding of economic agents and techniques to deal with the consequent risk implication (Barton, Shenkir, and walker, 2002). Selecting the appropriate degree of risk exposure and deciding on the appropriate degree of risk exposure that ought to be covered, is a critical issue that must always be brought into focus by any organization. According to Paparioannon (2001), the need for currency risk management gained prominence in the world around 1973, after the breakdown of the Bre-Hon woods system when the US dollar was pegged to gold. The issue of currency risk management for non-financial firms is independent from their core business and is usually dealt with by their corporate treasuries. Most banks also have risk committees to oversee the treasury strategy in managing the exchange rate and interest rate as opined by Ham (2002). This shows the importance that firms attaches to risk issues and techniques.

According to Saunders and Swary (1986), the sensitivity of bank returns and profits exerts a great influence on interest rate and exchange rate risks through traditional on-balance sheet banking operations. Allen (2003) posits that international investors usually manage their exchange rate risk internally from the asset and

liabilities perspective. Based on the fact that their currency exposure is related to transaction risk on assets and liabilities denominated in foreign currencies, they tend to consider currencies as a separate asset class requiring a currency overlay mandate. The price of foreign currencies in terms of a local currency (foreign exchange) is therefore importance to the understanding of the growth trajectory of all countries of the world. The consequences of substantial misalignments of exchange rate can lead to output contraction and extensive economic hardship. Moreover, Izard, (2007) opined that there is reasonably strong evidence that that the alignment of exchange rate has critical impact on the rate of growth of per capital output in low- income countries.

Nigeria, like many other low-income open economic of the world, has adopted the two main exchange rate regimes for the purpose of gaining internal balances. The augments and condition for each of the regime is clear, given that they are all aimed at maintaining stability in exchange rates. Direct administration control exchange rate policy has however been used to manage Nigeria's foreign exchange from independence in 1960, but the country changed to a market regulated regime from 1986. One of the most important ingredients of reform programmes which have generated a lot of controversies, is the movement to flexible exchange rate (among developing countries), which first occurred around 1973. The controversy centred on whether flexible exchange rate is actually as beneficial as mostly claimed the world over. Mauta (1999) observed that the misalignment in real exchange rate could distort production activities and consequently hinder exports growth and generate macro-economic instability. Exchange rate policies guide an investor on the best way to strike a balance between profit maximization and cost minimization. The exchange rate movement equally has an effect on inflation, prices incentives, and fiscal viability, competitive of export, efficiency in resources allocation, international confidence and balances of payment equilibrium. Instability and fluctuation in exchange rate hurt production and investor alike because it affects their projected (planned) revenue and cost, including profits margin.

Prior to the 1986, Nigeria practiced a fixed exchange rate when the naira was pegged against the British pound and later on the American dollar. However with the collapse of the Breton wood institutions, a flexible exchange rate policy was adopted, and the Nigerian exchange rate was allowed to float and its value relative to the American dollar determined by market forces of demand and supply. Some of the policies employed to ensure exchange rate stability included among others; Second –tier foreign exchange market (SFEM), Autonomous foreign exchange market(AFEM), Inter-bank foreign exchange market (IFEM), the enlarged foreign exchange market(FEM) and Dutch auctions system (DAS).

In more recent times, the Naira has witnessed a sustained level of depreciation against the American dollar, a situation which some analyst have attributed the recent the decline in the nation's foreign exchange reserve and the dwindling price of oil in the international market. Others argue that the activities of banks (as a fall out of the previously witnessed global economic meltdown), is forcing some banks to engage in sharp practises, such as round tripping - a situation in which bank buy foreign exchange from the central bank of Nigeria (CBN) and sell to parallel market operators at price other than the official price. These practices lead to exchange rate instability, fluctuations and misalignment.

2.1 Conceptual Framework

Exchange rate risk often results due to speculation and mismatches in foreign exchange exposure. Exchange rate exposure according to Spiro (1980) refers to the sensitivity of a bank market value to an unanticipated exchange rate movements. Consequently exchange rate movement is estimated by the regression, coefficient describing the market value of the bank. This explains why export-oriented firms' use of currency hedging derivative will depend on the managements familiarity with derivative product and the existence of substantial fixed cost required in developing and managing a currency hedging programmed.

In the views of Mordi (2006), the existence of many parallel market side by side with the officially recognized institutions, are usually responsible for the rise in exchange rate misalignment, most especially in developing countries. Madura (1989) posits that the exchange rate risk relates to the effect of unexpected exchange rate changes on the value of the bank . In particular, it is explained as the possible direct loss coming as a result of an unhinged exposure or indirect loss in the firm's cash flows, cash flows, assets and liabilities, net profit and stock market value from an exchange rate move. The efforts of banks to eliminate and correct such risks in the exchange rate inherent in their operations, requires the determination of the specific type of current risk exposure, the hedging strategy and the available instruments to deal with their currency risks.

In the views of Shapiro (1996) and Madura (1989), there are three main types of exchange rate risk: namely transaction risk, translation risk and economic risk. The Transaction risk is basically a form of cash flow risk and it deals with the effect of exchange rate moves on transactional account exposure related to receivables (Export contract), payable (Import contracts) or repatriation of dividends. An exchange rate in the currency of denomination of any such contract will result in a direct transaction exchange rate risk to the firm. Translation risk on the other hand is basically a balance sheet exchange rate risk and relates exchange rate moves to the

valuation of a foreign subsidiary and, in turn to the consolidation of a foreign subsidiary to the parent company's balance sheet. Translation risk for a foreign subsidiary is usually measured by the exposure of net assets (assets less liabilities) to potential exchange rate moves. Economic risk is one which reflects the risk to the firm's present value of future operation cash flows from exchange rate movements. In essence, economic risk concerns the effect of exchange rate change on revenues (domestic sales and export) and operating expenses (cost of domestic input and output). Economics risk is usually applied to the value of future cash flow operation of a firm's parent company and foreign subsidiaries.

2.2 Theoretical Framework

Demburg and McDougall (1980), defined exchange rate as the domestic price of foreign currency which can be determined either administratively or by the market forces of demand and supply of currencies through imports and exports respectively in exchange rate market. The importance of this definition is that it focuses on the concept of price as a nature of exchange rate. Bartov and Bodnar (1994) opine that long-term impact of exchange rate movements are difficult to ascertain, hedging effectiveness for future cash-flows is however, doubtful. Moreover, Brown, (2001), states the underlying assumption that the market should be aware of the impact of companies' risk management practices on an ongoing basis seems unlikely. The counter-intuitiveness of empirical findings has thus influenced the developments of new foreign exchange exposure estimation procedures. Jhinghan (2003) states that, the demand for a country's currency is an important determinant of the exchange rate. Manta (1999), also posits that if the demand for a country's currency is high, it will lead to exchange rate appreciation and vice-verse, while government fiscal policy also influences the movement of the exchange rate such that an expansionary fiscal policy that raises government consumption expenditure would lead to high domestic demand for both traceable and non-traceable. Consequently, this would in turn lead to increase in commodity prices and exchange rate appreciation. However, the most fundamental theories underling the exchange risk discourse is closely examined below.

2.2.1 Purchasing Power Theory

This is the idea that in a stable market place, the relationship between exchange rates of different countries should be in the same ratio as the price of a fixed basket of goods and services. In other words, there is parity between the purchasing power of currencies and their exchange rates. There are different ways of expressing this but most commonly it is expressed as:

Rate of change of exchange rate = different inflation rates

In other words, these also examine or determine the appropriate equilibrium exchange rate at which countries should regain their monetary standard. The specific case of the 'law of one price' assert that allowing for transportation costs and absence of non-price barriers to trade commodity arbitrage will ensure that the price of any one goods, say a particular models of car, is equalized in domestic and foreign currency terms. The purchasing power parity can be explained in two forms; firstly "absolute form" which states that the exchange rate equalizes the general purchasing power of income in terms of domestic and foreign prices. Secondly, there is the "reactive form" which also asserts that the change in the exchange rate, when measured from a base year, will reflect relative rates in two countries. In practices, there are many practical difficulties in inferring equilibrium speed of adjustment between asset markets and goods market, and the problem of selecting the appropriate price index in calculating PPP rate.

2.2.2 Currency Base Theory

This theory was developed by Aliber (1971) and the currency base theory is based on imperfect foreign exchange and capital market. He postulates that internationalization of firm can best be explained in the in terms of the relative strength of different currencies, such as firms from a strong-country and firms from a weak country. In a weak-currency country, the income stream is fraught with greater exchange risk and as a result, the income of a strong-currency firm country firm is capitalized at a higher rate, implying that such a firm is to acquire a large segment of income generation in the weak currency country corporate sector.

2.2.3 The Monetary Approach

The theory emphasized the role of financial transaction or the capital account of the balance of payment (BOPs) in producing exchange rate changes. Excess demand for or supply of money is seen to give rise to overall BOP disequilibrium, but it is capital transaction which brings about an adjustment through a change in the exchange rate. Thus the position suggests that exchange rate change as a result of the firm's stock disequilibrium the willingness of resident to hold the outstanding stock of money rather than firm the flow of receipt and payment arising from international trade over any given period of time. Hence, exchange rate is seen to be the price of foreign money in term of domestic money. The approach can further be explained with a simple illustration. Consider an increase in the exogenously determined money supply brought about by a central bank purchase of government bonds in the open market (which clearly represents an increase in the demand sources component of the monetary base or high-powered money). The supply of foreign currency and demand for same in the overseas country are taken, and given the domestic interest rate, output and price level. A rise in domestic

nominal interest rates will reduce the demand for real money balances and given the nominal money stock lead to a depreciation of the exchange rate and an increase in the domestic price level. Thus the monetary model or approach provides a satisfactory explanation of the break in the link between the exchange rate and transaction flows represented in the current account of the balance of payment (BOPs).

2.2.4 The Traditional Theory

This theory consider exchange rate as the price which brings into equilibrium the supply and demand for home currency in exchange for foreign currency arising from international transaction in goods, services and financial assets. The impact of change in the stance of analyzing exchange rate determination and an easy monetary policy will tend to lead to an ex-ante BOPs deficit. An increase may worsen the current account, while lowering interest rates, will lead to a capital outflow. The traditional approach or theory basically gives further insight into exchange rate movements.

2.2.5 The Portfolio Balance Model/ Theory

The portfolio balance theory stresses the role of assets market adjustment or capital transaction in exchange rate determination. However, unlike the monetary theory it explains that exchange rate change reflect the supplied of and demand for a wide range of different currency denominated assets. In a single portfolio balance framework, individual are assumed to allocate wealth between money and domestic and foreign bonds. Only debt assured by the government and by non-residents are regarded as perfect substitutes. This is due to risk (such as political risk) and as such risk aversed investors are no longer indifferent between the mix of domestic and foreign securities held in their portfolio. Consequently, the current account and the stance of fiscal policy are brought to the forefront of the analysis, as well as monetary factors. The portfolio balance framework or net financial wealth is explained as the sum of non-interest bearing money, domestic bonds and foreign bonds expressed in unit of domestic currency. The demand for domestic bonds relates positively to the domestic interest rate and negatively to the foreign interest rate, conversely the demand for foreign bonds is a positive function of the foreign interest rate and a negative function of the domestic interest rate, the foreign rate is assumed to be fixed. Stocks of domestic and foreign currency denominated assets are assumed to be fixed in the short run.

2.2.6 The Flexible – Price Monetary Theory

The flexible - price monetary model or theory (FPMM), attempts to demonstrate how changes in supply of and demand for money both directly and indirectly affect exchange rate. This can be further explained under the assumption of a two-country global economy – for example a domestic country (such as Nigeria) and a foreign country (such as the USA). If money supplied (M) in the two countries are exogenously determined by the respective central bank; real demand for money (M-P) is determined by the level of income (Y) and the level of interest rate (I) and that their respective elasticity are the same in both countries. For emphasis, and asterisk to denote foreign variable and parameter monetary equilibrium is achieved when the supply of and demand for money in each country are equalized.

2.2.7 The Asset Approach

Modern exchange rate models emphasize financial-asset markets, rather than the traditional view of exchange rates adjusting to equilibrate international trade in goods, the exchange rate is viewed as adjusting to equilibrate international trade in financial assets. Because goods prices adjust slowly relative to financial asset prices and financial assets are traded continuously each business day, the shift in emphasis from goods markets to asset markets has important implications. Exchange rates will change every day or even every minute as supplies of and demands for financial assets of different nations change. An implication of the asset approach is that exchange rates should be much more variable than goods prices. The empirical considerations are consistent with the fact that exchange rates respond to changing conditions in financial-asset markets and are not simply reacting to changes in international goods trade. Exchange rate models emphasizing financial-asset markets typically assume perfect capital mobility**.** In other words, capital flows freely between nations as there are no significant transactions costs or capital controls to serve as barriers to investment. In such a world, covered interest arbitrage will ensure covered interest rate parity. Within the family of asset-approach models, there are two basic groups: the monetary approach and the portfolio-balance approach. In the monetary approach the exchange rate for any two currencies is determined by relative money demand and money supply between the two countries. Relative supplies of domestic and foreign bonds are unimportant. The portfolio-balance approach allows relative bond supplies and demands as well as relative money-market conditions to determine the exchange rate. Hence, the essential difference is that monetary-approach (MA) models assume domestic and foreign bonds to be perfect substitutes, whereas portfolio-balance (PB) models assume imperfect substitutability. If domestic and foreign bonds are perfect substitutes, then demanders are indifferent toward the currency of denomination of the bond as long as the expected return is the same. In this case, bond holders do not require a premium to hold foreign bonds—they would just as soon hold foreign bonds as domestic ones—so there is no risk premium, and uncovered interest rate parity holds in MA models.

2.3 Review of Empirical Studies

Many scholars have conducted empirical research in order to examine factor that influence the movement of the exchange rate risk. Yu Hsing (2006) empirically examined that the determination of short-term real exchange, has positive effect on exchange rate and broad money supply, while country risk and the expected rate of inflation have negative impact on exchange rate on the performance of the banks. It follows therefore that the respective national authority would need to avoid fiscal indisciple in order to prevent the exchange rate from real appreciation since it will significantly influence the country's export from declining. Annofe (2005) investigated the variably that affect exchange rate movement in Sweden, United Kingdom and Japan against the US dollar for the period 1995 to 2004. The result indicated that interest rate differential is statistically significant in explaining changes in exchange rate in the three countries, while, interest rate has negative effect in exchange rate in Sweden and the United Kingdom, however, the influence of money supply, industrial production and inflation differential on exchange rate varies between the countries. Odedokun (1997) studied a group of macroeconomic policies, devaluation and fundament on real exchange rate movement. The empirical study revealed that public sector fiscal deficits, growth of domestic credit, domestic consumption, GDP ratio, government consumption, private consumption, improvement in terms of trade income per capital and black market exchange rate premium lead to real exchange rate appreciation. On the contrary, devaluation, investment-GDP ratio, consumer-wholesale price ratio in trade and economic growth in industrialised economies, result in real exchange rate depreciation. Based on studies by Hsieh (1982), Marston (1987), Edison and Wouland (1987), there is an indication that productivity differential lead to exchange rate appreciation.

Imeddrine and Christopher (2003) analyzed the main determinants of the real exchange rate in the Middle East and North Africa countries. The findings indicated that output per capital, government expenditure, real interest rate differentials, and the degree of openness of the economy influence the real exchange rate. Beatrice (2001), employed a co-integration technique to investigate the long- run determination of the real exchange rate for import and exports and of the internal real exchange rate in Zambia. The result showed that real exchange rate for import is affected by terms of trade and government share. Moreover terms of trade, central bank reserves and trade taxes have long-run impact on the real exchange rate for exports. It was also revealed that terms of trade, investment share and the rate of growth of real GDP have long-run effect on the internal real exchange rate, while foreign aid and openness in dealings (financial/economic liberalization), all have short-run inflation on the real exchange rate indices. David Faulkner and Konstantin Makrelor (2008) used the single engle granger techniques to examine the drivers of the manufacturing equilibrium exchange rate over the period of 1995 to 2006 in South Africa. The author's results showed that unit labour cost, productivity, government expenditure and openness are the main drivers of the manufacturing exchange rate. Manta Chowdbury (1999) observed that nominal devaluation plays an important role in the real exchange rate determination. Similarly, empirical evidences suggest that net capital flow, foreign aid, trade retraction and macroeconomic policies lead to real exchange rate appreciation in Papua Guinea. However, the evidences did not confirm any signification influence of the improvement in external terms of trade on trade- weighted real exchange rate. MacDonald and Ricci (2003) posited that terms of trade, real interest rate differential, net foreign asset, and GDP per capital have positive influence on real exchange rate in most emerging economies. On the other hand, the degrees of openness and overall fiscal balance have negative impact on real exchange rate. Speller (2006) while investigating the exchange rate determinants in the industrialized commodity currency economics discovered that, the price of the commodity exports was an important determinant of the real exchange in the group of countries studies. Frankel (2007) analysed that real exchange rate is positively related to terms of trade, real interest differential and lagged real exchange rate. However, capita account liberalization, risk premium and per capital income have effect on real exchange rate. Patel and Srivastata (1997), identified that investment – GDP ratio, overall fiscal deficit and nominal exchange rate have effect on real exchange rate in India. In Angola, Takaendea (2006) confirmed that terms of trade real interest rate differential, domestic credit, openness and technology progress have long- term impact on real exchange rate. Overall, terms of trade, domestic credit and economic systems and financial liberalization all have significant influence on real exchange in the short – run, while terms of trade and the domestic credit have both short – run and long – run effect of real exchange rate.

2.4 Management of foreign exchange exposure or Risk

The nominal rate of exchange is the number of units of a given currency, (say a unit of the US dollar), in terms of the units of a domestic currency like the (Nigeria Naira). The effective exchange rate (EER) are the rate that takes into account the fact that currency say naira, varies differently against all currencies. It is calculated as a weight of the individual bilateral rates, and expressed an index number. The major types of foreign exchange exposure or risk include the Economic, Translation, Tax and Transaction exposure. The economic exposure involves the measure of potential for the future losses or gain arising from exchange rate change. The Translation exposure is a risk that involves gains or losses arising on settlement of transaction in foreign

exchange. The Tax exposure is change in exchange rate that has tax liabilities, that is it has certain immediate income tax implication, given that only realized foreign exchange losses are deductible for the purposes of calculating income tax, more so, only realized gain create taxable income. The Transaction exposure or risk, measures the impact of exchange rate change or recorded economic position of a firm or financial institution (such as a commercial bank).

After identifying the type of exchange rate risk and exposure, financial institutions (most especially banks) need to decide whether or not to hedge these risks. In international finance, the issue of the appropriate strategy to manage (hedge) the different type of exchange rate has yet to be settled according to Jacque (1996). In practice, however, Allen (2003) posits that corporate firms have used various currency risk management strategies depending on the provenance of a certain type of risk and size of the firm and within the framework of a firm's best profile. The currency and maturity composition of a firm's debt determine the susceptibility of its net equity and earning to exchange rate changes. Hedging the remaining currency exposure after the optimization of the debt composition is a difficult task. A firm may use tactical hedging, in addition to optimization, to reduce the residual currency risk. Moreover, if exchange rates do not move in the anticipated direction, transaction risk hedging may cause either cash flow or earning volatility. Economic risk is difficult to quantify in terms of reflecting the potential impact of exchange rate moves on the present value of future cash flows. This may requires measuring the potential impact on an exchange rate deviation from the benchmark rate used to forecast a firm's revenues and cost streams over a given period. In this case, the impact of each flow may be netted out over product lines and across market, with the net economic risk becoming small for firms that invest in many foreign rate change follow inflation differentials (through PPP). If a firm has a subsidiary that faces cost inflation above the general inflation rate, the firm could find its competitiveness eroding and its original value deteriorating as a result of exchange rate adjustment that are not in line with PPP according to Froot and Thaler (1990). Although this approach to managing risk provides the last-cost hedging structure for a given risk profile, it critically depends on the corporate treasure's view of the exchange rate. Note that such optimization can be used for transaction, translation or economic currency view, which is a possible exchange rate to utilize over a specified time periods.

2.5 The Measurement and Types of Banking Risk

Measuring and assessing risk is critical to banks because, measuring risk related to futuristic events or events that may occur in the future accurately is not always possible. Besides, not all risks are amenable to quantitative assessment. Even where they can be rationalized, the ratios are matters that may have serious reservations. What is required is some indication of the probability as a guide or trigger factor, with which to maximize profitability and safety consistent with prudential and regulatory constraint. Over the years some risk indicators, both quantitative and qualitative, have been developed by bank analyst and supervisor. Consequently, an identification of the specific type of risk facing the banking institution is essential and enumerated below.

2.5.1 Liquidity Risk

This is the risk that arises when a bank is unable to meet the demand by depositors. It arises when the bank persistently fails to meet its payment obligations and unable to fulfil its commitment over a long period of time, while being unable to undertake new transactions, even when they are desirable. This risk arises from financing mismatch in the domains of assets and liability resulting in losses from liquefying assets or switching liability in an adverse market condition to meet liquidity claims. It is a direct consequence of a faulty balance sheet and cash flow stricture that is unable to generates enough assets that the bank requires to meet its obligation as at when due and undertake transaction when desirable.

2.5.2 Credit Risk

The Credit risks is the risk that interest or the principal (or both) on loans and securities will not be paid as agreed, or as at when due. It occurs when loans and facilities become uncontrollable and are written-off by the bank and as such the bank losses both earning assets and some portion of its expected revenues. When unrecoverable loans and losses continue to persist overtime, the banks will source for cushion effects and unless additional funds are injected, the banks may be forced to liquidate. However a number of factors indicates and serve as pointers to the degree of credit risks in a bank's loan and investment portfolio.

2.5.3 Earning Risk

Closely related to the interest rate risk is earning or profit risk. This arises from changes in interest risk and asset price in operating expenses, as well as from change in the pace of inflation. Earning risk is concerned with factors that can widen or narrow down the net income after all expenses, including taxes have been deducted. Earning may decline unexpectedly owing to factors internal to bank, such as operating expenses change in the macroeconomic environment, which is capable of significantly affecting the bank's position.

2.5.4 Operation Risk

Banks, like other institution, face the risk that their operating expenses may exceed their operating revenue, resulting in their inability to meet all due obligations, such that the going concern of the institution may be

threatened overtime. Operation expenses are inevitable in any organization and indeed in life itself, however, they become a threat when there are weaknesses in internal controls. Generally with controls out of place in financial institutions, there is a possibility of improper or inadequate operating procedures, inadequate checks and balances and inadequate accountability. Thus, identifying and measuring banking risk is the primarily step in managing and controlling risk in banking industry, while a more critical step is for management to develop a more effective strategy and management must equally specify how these strategies best meet the objective of effectively managing risks.

2.6 Exchange Rates and the trade balance

There is a recent shift the world over from emphasis on exchange rate models that rely on international trade in goods, to exchange rate models based on financial assets. However, there is still a useful role for trade flows in asset-approach models, since trade flows have implications for financial-asset flows. If balance-of-trade deficits are financed by depleting domestic stocks of foreign currency, and trade surpluses are associated with increases in domestic holdings of foreign money, the role for the trade account becomes obvious. If the exchange rate adjusts so that the stocks of domestic and foreign money are willingly held, then the country with a trade surplus will be accumulating foreign currency. As holdings of foreign money increase relative to domestic money, the relative value of foreign money will fall, or the foreign currency will depreciate. Although realized trade flows and the consequent changes in currency holdings will determine the current spot exchange rate, the expected future change in the spot rate will be affected by expectations regarding the future balance of trade and its implied currency holdings. An important aspect of this analysis is that changes in the future expected value of a currency can have an immediate impact on current spot rates. For instance, if there is suddenly a change in the world economy that leads to expectations of a larger trade deficit in the future - say, an international oil cartel has developed so that the domestic economy will have to pay much more for oil imports - then forward-looking individuals will anticipate a decrease in domestic holdings of foreign money over time. This anticipation will, in turn, cause expectations of a higher rate of appreciation in the value of foreign currency in the future, or an equivalently faster expected depreciation of the domestic currency, because foreign currency will be relatively more scarce. This higher expected rate of depreciation of the domestic currency leads to an immediate attempt by individuals and firms (especially banks), to shift from domestic to foreign money. Because at this moment the total available stocks of foreign and domestic money have not changed, the attempt to exchange domestic for foreign money will cause an immediate appreciation of the foreign currency to maintain equilibrium so that the existing supplies of domestic and foreign money are willingly held.

The point is that events that are anticipated to occur in the future have effects on prices today. It has been noted that current spot exchange rates are affected by changes in expectations concerning future trade flows, as well as by current international trade flows. As is often the case in economic phenomena, the short-run effect of some new event determining the balance of trade can differ from the long-run result. Suppose that the long-run equilibrium under floating exchange rates is balanced trade, where exports equal imports. If the point is initially in equilibrium and then experience a disturbance like the oil cartel formation, in the short run it is expected that there large balance-of-trade deficits will occur; but in the long run, as all prices and quantities adjust to the situation, there will be a return to the long-run equilibrium of balanced trade. The new long-run equilibrium exchange rate will be higher than the old rate, because foreigners will have larger stocks of domestic currency, while domestic residents will hold less foreign currency due to the period of the trade deficit. The exchange rate need not move to the new equilibrium immediately. In the short run, during which trade deficits are experienced, the exchange rate will tend to be below the new equilibrium rate. Thus, as the outflow of money from the domestic economy proceeds with the deficits, there is steady depreciation of the domestic currency to maintain the short-run equilibrium, where quantities of monies demanded and supplied are equal. The inclusion of the balance of trade as a determinant of exchange rates allows analysts to reconcile the modern theory of exchange rate determination with accounts in the popular press, which often emphasize the trade account in explanations of exchange rate behaviour. As previously shown, it is possible to make sense of balance of- trade flows in a model where the exchange rate is determined by desired and actual financial-asset flows, so that the role of trade flows in exchange rate determination may be consistent with the modern asset approach to the exchange rate.

3. METHODOLOGY

This study exploited the usage of secondary sources of information. The data is analysed through the usage of an auto regression conditional model which is a means for measuring risk. This type of model specifies the conditional variance as a deterministic function of lagged squared residual and the specification does allow the uncertainty measure to be affected by the state of the economy and it equally allows this measure to be entered into a Variable Auto Regressive (VAR) model specification, while directly measuring access to the dynamic relationship between the risk and economic performance.

Given the nature of the issue in question, the data used is entirely from secondary sources. The data for this research effort were sourced from the central bank of Nigeria (CBN), Federal office of statistic (FOS) Security and Exchange Commission (SEC) Fact book and other online sources relevant to the study. More also the Central Bank of Nigeria (CBN) website and its statistical bulletin volume covering the periods of 1997-2013, were reviewed, while emphasises was laid on one of the biggest banks in Nigeria-First Bank of Nigeria (FBN) plc-as the case study. The study further made use of both foreign exchange ratio and quality traded during these allocation market arrangements.

From the objectives of this research work, a multiple regression was used to ascertain if a long run equilibrium association exists between exchange rate and quality foreign exchange traded, thus specifying the performance of foreign exchange rate risk on bank performance. Specifically, relevant data from records of First bank of Nigeria Plc were tested to ascertain if there is an improvement in the financial support of foreign exchange rate responsible for an accelerate growth in the economy, and this yielded the following function.

$PAT = F(ER, INF, INT, TA)$

The econometric function estimate from the above function is expressed as:

$PAT = B0 + B1ER + B2INF + B3INT + B4TA + 0$

Where:

B0 = Variable use to measure the change in exchange rate if other variable are held constant.
B1 = Coefficient of exchange rate with respect to PAT.
B2 = Coefficient of interest rate with respect to PAT.
B3 = Coefficient of inflation rate with respect to change in PAT.
B4 = Coefficient of total cost asset with respect to change in PAT.
B0-intercept, B1, B2, B3, B4, are parameter estimates/coefficient of the parameters.
PAT= is the dependent variable while ER, INT, INF and TA are the independent variable,
Given That:
PAT = Profit after tax of the bank
ER = Exchange rate.
INF = Inflation rate.
INT = Interest rate.
TA = Total asset of the bank.

The estimation techniques adopted is the ordinary least square method of regression analysis and at the same time the T- test is applied to test the significant of the parameters.

4. RESULT AND DISCUSSIONS

The analysis and interpretation of data obtained are brought into focus, through the presentation of data and estimation of regression result. Also empirical analysis and interpretation of data collection on the subject matter, which is an appraisal of the impact of exchange rate risk on bank performance, are equally presented. The data analysis method adopted, is the ordinary lead square (OLS) method of multiple regression, necessary for the stimulation of the necessary parameter, with a view to using the magnitude and the signs of various co-efficient arrive at, as necessary input for valid conclusions regarding the issue in question. Furthermore a detailed description and analysis of the relationship between the dependent variable, profit After Tax (PAT) and other explanatory variables including Exchange Rate (ER), Interest Rate (INT), Inflation Rate (INF) and Total Asset (TA) are provided. This data collected and analyzed are for the purpose of making a contribution on the existing body of knowledge of the impact of exchange rate risk on bank performance. The data obtained for 17 years ranging from 1997 to 2013 is presented below.

Table 4.1: Distribution of Explanatory Variable from 1997 to 2013

YEAR	PAT	ER	INT	INF	TA
1997	1202	21.8861	20.86	29.30	77267
1998	2011	21.8861	23.32	8.50	65321
1999	2027	21.8861	21.34	10.00	102418
2000	3360	21.8861	27.19	6.60	102418
2001	4739	92.6934	21.55	6.90	102418
2002	5066	102.1052	21.34	18.90	194744
2003	4776	111.8433	29.7	12.90	290593
2004	11010	120.3565	23.47	14.00	409083
2005	11483	129.3565	20.62	15.00	384211
2006	13234	133.504	19.11	17.90	409083
2007	17383	128.6516	18.36	8.20	6168824
2008	20636	121.21	18.7	15.20	911427
2009	36679	127.7880	18.7	10.40	1528234
2010	12569	125.883	18.5	7.93	200914
2011	18384	118.5669	17.4	7.87	210814
2012	12786	148.9017	18.3	6.45	220714
2013	17236	150.2980	17.45	7.56	207312

Table 4.1 above shows the distribution of the explanatory variables as obtained from statistic bulletin for the relevant years from 1997 to 2013. The sources of this data are from the publication of CBN statistical bulletin and Federal Office of Statistical (FOS) Annual Report and periodicals from First Bank of Nigeria Plc.
The result obtained thereof is subsequently presented below:

Table 4.2: Presentation of Result

DEPENDENT VARIABLE	INDEPENDENT VARIABLE					SUMMARY OF STATISTICS			
	Constant	ER	INT	INF	TA	R^2	Adjusted R^2	$\mathbf{F^2}$	Durbin Watson
Gross domestic Product (GPD)	8006.193 (0.622412)	102.7818 (0.622414)	-344.88	-22.35859 (-0.19067)	0.00105 (0.73797)	0.5623	0.403191	**3.5334**	**0.0434**
Standard Error Test	12863.17	54.265	445.867	117.257	0.00143				

Note: - T - test calculated is show in parenthesis (bracket). The result of the data presented in the table 4.1 is summarized in the table above. The estimate regression equation is presented below as:

PAT = F (ER, INT, INE, TA)
PAT = 8006.293 + 102.7818 ER – 22.35859 INF + 0.00105TA

4.1 Interpretation of Result

The coefficient shows the rate of change in the dependent variable (PAT) for a given change in the respective explanatory variable, that is ER, INT, INF, TA. The coefficient of ER is 102.7818. Thus shows a positive relationship between exchange rate ER and profit after tax (PAT). This is in line with the prior expectation. It shows that a unit increase in ER will lead to 102.7818 increases in PAT.

$$\frac{PAT}{ER} = 102.781870 > 0$$

The coefficient of INT is – 344.88, which shows that a unit increase in interest rate (INT) will bring about -344.88 decrease in profit after tax PAT. It equally indicates a negative relationship between (INT) interest rate and profit after tax (PAT). This again is in line with prior expectation.

$$\frac{PAT}{INT} = -344.88 > 0$$

The Coefficient of inflationary rate (INF) is – 22.358 this indicate a negative relationship between inflation rates (INF) and profit After Tax (PAT). A unit increase in inflationary rate (INF) will lead to – 22.358 decrease in PAT.

$$\frac{PAT}{INF} = -22.358 > 0$$

The coefficient of (TA) total Asset is 0.00105. This shows a positive relationship between (TA) Total Asset Tax (PAT). This is in line with prior expectation; as a unit increase in total asset (TA) will lead to 0.00105: an increase in (PAT).

$$\frac{PAT}{TA} = 0.00105 > 0$$

At the point where ER, INF, INT, TA are constant. PAT is equal to 8006.193.

The coefficient determinant of 0.5623 shows a 56.2% variation in the dependent variable (PAT) and also explained by the independent variable (ER, INF, INT, TA), while the remaining 43.8% can be explained by the variable outside the model.

4.2 Summary of Finding

A summary of the analysis above shows that there exist a strong and positive relationship among the variables identified, which includes the dependent (PAT) and the independent (ER, INT, INF, TA) variables. The result show that a unit in ER will lead to 102.7818, an increase in (PAT), thus showing a positive relationship. Similarly, the result indicates that a unit increase in INT will result in -344.88: a decrease in (PAT), which implies a negative relationship. The result of INF shows that a unit increase in INF will result into -22.35859: a decrease in (PAT) which implies a negative relationship. Moreover, there is a positive relationship between (TA) and (PAT). The result shows that a unit increase in TA will lead to 0.00105: showing an increase in (PAT).

Analysis of the empirical investigation also reveals that the explanatory variable (ER, INT, INF, TA), account for 56.25% variation in PAT while the remaining 43.8% variation is explained by other variable not included in the model. These variations are represented by the error term in the model. The coefficient of determination (R) 56.2% also implies a strong positive relationship between PAT and explanatory variables (ER, INT, INF, TA).

The F-test showed a result of 3.5334 for F cal which furthers shows that the overall model is statistically significant. This implies that there exist a significant linear relationship between the dependant variable (PAT) and the explanatory variable (ER, INT, INF, TA). A unit increase in ER will lead to an increase in (PAT), and this suggests that a currency that is persistently appreciating will have a high purchasing power, with a subsequent multiplier effect on the worth of the bank. Consequently, a rational investor would want to undertake an investment that will create a high yield in returns. The underlying implication is that when the value of the domestic currency (say the Naira) increases it will reduce profitability of banks. Also, when exchange rate increases, the banks will purchase the foreign currency at a loss, but they make profit when they sell. Similarly, when the value of exchange rate reduces, banks are likely to makes loss when they sell and obtain profit when they make purchases.

A unit increase in inflation will lead to -344.88 showing a decrease in (PAT). The implication is that when inflation rate is on the increase, high prices becomes prevalent, following the popular axiom ‘two much money chasing few goods’. Interest rate is the reward for parting with the dues of funds for a given period of time, and as such a unit increase in interest rate implies high cost of goods and services. The implication is that high interest on lending will increase the profitability of the bank while high interest on borrow will reduce the profitability of the bank. A unit increase in TA will lead to 0.00105 in profitability. This also suggests that when a bank acquires more asset, most especially those necessary for running the activities of the firm, such decision will help to improve the performance and profitability of the bank, thus showing that the explanatory variable have adverse effect on economic performance.

5. CONCLUSION AND RECOMMENDATION

Considering the analysis of exchange rate determination brought under review in the course of this research, there is a tendency to assume that with all this knowledge, experts should be quite adept at forecasting future exchange rates. In fact, forecasting future spot exchange rates is difficult. Although researchers have shown the analysis covered in this study to be relevant in terms of explaining systematic patterns of exchange rate behaviour, the usefulness of these theories for predicting future exchange rates is limited by the propensity for the unexpected to occur. The real world is characterized by unpredictable shocks or surprises.

Consequently, the findings in this study revealed that real exchange rate is positively related to terms of trade, real interest differential and lagged real exchange rate. However, capital account liberation risk premium and per capital income have negative effect on the real exchange rate. The evidence in the regression indicated that there has been a significant change in the exchange rate on bank performance in recent time, and the changes in rates significantly affect the performance of the financial institution in general and the banking industry specifically within the overall economy. The evidences obtained also indicated that the exchange rate changes also exert an impact on bank performance over a period of time.

Given the foregoing, it is therefore concluded that there is a significant impact of exchange rate risk on bank performance and a well managed exchange rate is capable of driving immediate and improved performance of banks within the Nigeria economy. Besides, external factors and predetermined internal factors go a long way in determining the impact of exchange rate on bank performance, and such factors include tax rates, interest rates, exchange rates, total asset among several others, which are also crucial to the development of the banking system.

Conversely, international investors usually manage their exchange rate risk independently from the asset and liabilities. Since their currency exposure is related to translation risk on asset and liability denominated in foreign currencies, they tend to consider currencies as a separate assets class requiring a currency over lay mandate. Overall, the prices of foreign currencies in term of a local currency (foreign exchange), is therefore important to the understanding of the growth trajectory of countries the world over and also critical to direct administrative control of exchange firm independence. Similarly, the portfolio balance frame work, net financial wealth (explained as the sum of non-interest bearing money), domestic bonds (expressed in a unit of domestic currency), are all critical to achieving a low risk foreign exchange position.

It is therefore recommended that a sound exchange rate policy should be instituted by the management of banks, as an effective measure of managing exchange rate risk. It is equally recommended that Nigeria banking industry should operate within the framework of best global practises and external requirement as regard exchange rate position in order to avoid exchange rate fluctuations and rigidities.

It is equally suggested that relevant regulatory authorities should pay more attention to macroeconomic stability and the enhancement of efficiency which will guarantee a more stable economic environment which in turn will encourage the performance of banking sectors for exchange rate stability in Nigeria economy.

Foreign exchange rate fluctuations or instability should be effectively managed, because failure of effectively managing same will result in an adverse effect, such that industrialists, investors, and major players in cross national trading will be significantly constrained in their projected plan, revenue and cost as well as profit margin.

It is equally recommended exchange rate changes should follow inflation differential through (PPP) purchasing power pricing which will help individual firms and banks to have alternatives that will enable them to introduce cost inflation above the general inflation rate and ultimately find these alternatives competitiveness eroding.

Banks are encouraged to create a centralized entity within its operations as an institutional strategy to deal with the practical aspects of the execution of exchange rate forecasting, while the hedging approach mechanism should be adopted in the accounting procedure regarding currency risk. Other recommendations include:

-. Development of an exchange rate risk management strategy. After identifying the type of currency risk and measuring the firm's risk exposure, a currency strategy needs to be established for dealing with these risks. In particular the strategy should specify the firm's currency hedging objectives, whether and why the firm should fully or partially hedge its currency exposures.

-. Development of a set of controls to monitor a firm's exchange rate risk and ensure appropriate position is taking. This includes setting limits for each hedging instrument position monitoring through mark-to-mark valuation of all currency position on a daily basis (or intraday). And the establishment of currency hedging benchmarks for periodic monitoring of performance (usually monthly).

-. Establishment of a risk oversight committee, which would in particular approve limits on position taken, examine the appropriateness of hedging instrument and association VAR positions and review the risk management policy on regular basis.

-. A meticulous identification of the types of exchange rate that an individual bank or firm may be exposed to and measurement of the associated risk exposure. This involves determination of the transaction, translation and economic risk, along with specific reference to the currency risk – models.

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