

Does Exchange Rate Volatility Affect the Prices of Quoted Banks in Nigeria?

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Abstract

This study examined the effect exchange rate volatility on prices of quoted banks in Nigeria from 2008 to 2016. Secondary data extracted from the statistical bulletin of Central Bank of Nigeria and Nigerian Stock Exchange fact book was used. Analysis of data was done with the help of e-Views Statistical Package using yearly time series cross section data of four banks in Nigeria. To increase the robustness of the study, inflation rate (INFR) was introduced as one of the explanatory variables. The study used the Panel Ordinary least Square (OLS) multiple regression model to investigate the relationship among the variables. The study found out that exchange rate has a significant impact on share prices of quoted banks in Nigeria (proxied by prices of four quoted banks, namely Access Bank, FBN, Guaranty Trust Bank, and Zenith Bank). While inflation rate has a negative and insignificant relationship with share prices of quoted banks in Nigeria. The study recommended that investors in Nigerian stock market should take cognizance of the risk associated with exchange rate volatility while structuring their investment.

Keyword: Exchange rate, Volatility, Quoted banks, Nigeria, Investment

1.0 Introduction

Exchange rate plays an increasingly significant role in any economy as it directly affects domestic price level, profitability of traded goods and services, allocation of resources and investment decision. The stability of the exchange rate is today, formidable bedrock of all economic activities. Since the adoption of the Structural Adjustment Programme (SAP) in 1986, Nigeria has moved to various types of floating regimes of exchange rate from the fixed/pegged regimes between 1960s and the mid-1980s. Floating exchange rate has been shown to be preferable to the fixed arrangement because of the responsiveness of the rates to the foreign exchange market (Nwankwo, 1980). The liberalization of the exchange rate regime in 1986 has led to introduction of various techniques with the view of finding the most appropriate method for achieving acceptable exchange rate for the Naira. The frequency with which these measures were introduced and changed is informed by the determined efforts of the monetary authorities to unrelentlessly combat the unabating depreciation and instability of the Naira exchange rate.

In a continued effort to stabilize the exchange rate, as well as ensure a single exchange rate for the Naira, numerous variants of market determined rates have been adopted since 1986. The Second-tier Foreign Exchange Market (SFEM) was introduced in 1986, while the First and Second tier markets were merged into enlarged Foreign Exchange Market (FEM) in 1987, this was later changed to the Inter-Bank Foreign Exchange Market (IFEM) in January 1989. This new system allowed for bureau de change to source for their foreign exchange requirement from the IFEM. This was later modified the Autonomous Foreign Exchange Market (AFEM) in 1995 which allow the Central Bank to purchase foreign exchange from oil companies. Despite these policies, the exchange rate of the Naira has remained unstable since the deregulation period. The need to investigate the impact of this fluctuating exchange rate on the performance of the banking industry is important for the economy. For a country that is import dependent, the stability of its exchange rate is important for credit allocation (Adebiyi, 2006). It is therefore important to examine how the level of volatility of exchange rate affects the performance of the industry. Agu (2002) shows that optimal exchange rate policies must be aimed at cooling real exchange rate (RER) that maintain internal and external balance in an economy. Internal balance here is defined in terms of the level of economic activities consistent with satisfactory control of inflation and full employment of resources. External balance on the other hand is defined in term of payment equilibrium, sustainable current account deficit finance in a lasting basis of expected capital flow.

Any distribution in the real exchange rate will mostly probably lead to instability in both external and internal balance. Charles (2006) showed that exchange rate is one of the most important economic adjustment instrument and one of the most difficult and controversial economic policy tools. This stems from the basic make-up model of

pricing and the view that nominal wages tend to adjust to price changes. Exchange rate under this condition conveys information about the fundamentals in the economy and a fast-depreciating local currency may fuel inflationary expectations. The fact that a fast depreciating local currency can create instability within other macroeconomic variables has necessitated the efforts by the Central Bank, the pivot monetary authority in Nigeria to put in place different measures at stabilizing the local currency. The Central Bank of Nigeria has over the years done a lot in the area of exchange rate and foreign exchange market management with a view to achieving a realistic exchange rate that will aid economic growth and achieve a relative stability in the value of the Naira against the dollar. Changes in currency prices (exchange rate) are central in transmitting localized economic developments to other geographical domains with regard to its function in trans-border trade and investment. Volatile exchange rate regimes blur the predictability of the net worth of banks' assets denominated in currencies other than the domestic one. It also introduces wide swings in the value of external liabilities, which has consequence for credit creating potentials. In developing countries, banks are principal intermediaries in the loans' market and as such, exchange rate fluctuations which impact adversely on their balance sheets would reduce the quantity of loans advanced for real activity in the economy.

Owing to information asymmetries, depreciation in exchange rate might cause lending to decline in two different ways. First, if such depreciation worsens borrowers' balance sheets, then the default risk will be enlarged and banks would shy away from making loans. On the other hand, if banks are exposed to short term liabilities in foreign currencies, then such liabilities will be amplified to the tune of the extent of depreciation of the local currency and any other associated costs, thus, dampening their potential to create credit. The stock market tends to mirror the level of confidence in the economy in general and the financial system in particular. It reflects the strength of the productive sector and expectations about the stability of the financial system. Persistent increases in the stock indices would encourage banks to increase loans advanced, both for direct investment in the stock market and other sectors of the economy. Foreign investors catch in on the higher returns at the stock market and direct the inflow of foreign portfolio investment to that economy. This further boosts the capital base of banks and induces further increases in lending. This has been the experience since the 'clean-up' of the Nigerian banking system beginning from 2005. The new status of banks has also, among other things, attuned them to investments abroad. It has also improved their industry rating and consequently enhanced their potential to acquire autonomous foreign liabilities.

Currently, it is a burning issue, especially in Nigeria, how the global economic meltdown has impacted on the Nigerian economy. Deposit money banks are the most visible players in the Nigerian financial system. Their lending activities are a major influence on economic activities within the formal sector. The essence of this paper, therefore, is to investigate the nature of the relationship between exchange rate volatilities, equity price fluctuations of quoted banks in Nigeria.

1.1 Research Problem

Recently, the link between economic theory and practical outcomes has come under immense scrutiny. Particularly, the role which monetary policy plays in economic growth has been touted as opaque owing to the legion of transmission channels and the computed time of impact of policy action on real variables. The sheer lack of consensus on the efficacy of the different frameworks for monetary policy does not also make the effects of monetary policy less contentious. The current global economic meltdown has exposed several weaknesses in the running of the economy, especially as it affects regulation and risk management in the financial system. It has also put to test the traditional tools of monetary policy and the inability of these traditional 'medicines' to salvage the economic down turn has pitched (with more discordant tunes) exponents of discretionary monetary policy more firmly against their opponents.

In all the arguments, what is clear is that the speed of evolution and complexity of modern financial markets have outpaced prudential regulations set for them: Also, the sacred connections between money supply and economic variables – income, wealth, inflation etc., which held at a time is less firm. The challenge before policymakers right now, therefore, is to search out 'new' and working relationships between policy variables and other macroeconomic variables, and among macroeconomic variables themselves. The problem of tracing policy action through to real variables is more pronounced in developing economies, mainly for two reasons. One, financial markets are shallow and the informal sector is large, making the navigation of policy impulses less frictionless. Two governments are large and fiscal dominance is inextricable from the complementarities of monetary and fiscal policies.

The situation in Nigeria is not very different from other developing countries. The recent exchange rate depreciation and free fall of the stock market indices, as in other jurisdictions, have been linked to ineffective monetary policy.

Particularly, the role of margin loans in sustaining the stock market has received plenty commentary. Deposit money banks are at the centre of monetary policy transmission in Nigeria, being the largest players in all segments of the financial market- foreign exchange, money market, stock market. By how much the current financial crises could be linked to real activity in Nigeria can be ascertained by examining exchange rate volatilities and quoted banks price fluctuations. This paper aims to achieve this objective. This paper is organized as follows. This introductory section is followed by review of relevant literature, section three discusses the methodology. Section four explains the result of the empirical analysis, while section presents the concluding remarks.

2.1 Literature Review

This section uncovers whether or not existing theories and studies suggest that currency volatility has an impact on the stock market.

2.1.1 Conceptual Framework

Foreign exchange movements have been pivotal in the supply of money in the Nigerian economy, particularly, since the commercial exploration of crude oil. Foreign exchange policies have essentially sought to ensure a healthy balance of payments and the attainment of a stable exchange rate. Before deregulation of the economy external sector policies depended on foreign exchange allocations and administered exchange rates. In the circumstance, the levels of money supply flowing from net foreign earnings were fairly stable and predictable.

However, the relative effectiveness of monetary policy was reduced since the fixed exchange rate had to be defended regularly. With the deregulation of the economy, it was envisaged that the attainment of macroeconomic stability would eliminate distortions in the external sector, stimulate non-oil exports, increase foreign exchange inflows and moderate demand in the foreign exchange market. The immediate outcome of the foreign exchange deregulation was counter-productive as the parallel market flourished; the exchange rate depreciated freely and became more unstable, while the external sector remained under immense pressure. The large premium between official exchange and parallel exchange rates caused banks to increase their investments in the foreign exchange market, reducing the share of investible funds devoted to actual loans. However, in February 2006, the foreign exchange market was further liberalized, reducing restrictions to access foreign exchange through easier documentation requirements and increase in the amount and frequency of access to foreign exchange in Business travel and Personal Travel Allowances. The Whole Sale Dutch Auction System replaced the Retail Dutch Auction which had been in place since July, 2002. Perhaps, the boldest liberal move by the CBN was the admission of Bureau de Change companies to the official window for foreign exchange. As a consequence, the interbank foreign exchange rate converged with the parallel rate, a goal which had been elusive over several policy regimes.

2.1.2 Theoretical Framework

This part explores the theoretical literature applicable to this study, with considerations being made to the Flow oriented model, Stock oriented model and the Arbitrage Pricing Theory.

Flow Oriented Model

The model maintains that a causal relationship runs from the exchange rate to the stock prices. In other words, exchange rate movements affect the stock prices. Exchange rate changes affect the competitiveness of firms through their impact on input and output prices (Joseph, 2002). When the exchange rate appreciates, exporters will be negatively affected. An appreciation of the currency will cause their goods and services to be dearer on the international market. This will cause their exports to decline, as they will be seen as expensive by buyers on the international market. This will result in them losing competitiveness internationally. Consequently, their profits will decline and if profits decrease the firms will lose competitiveness on the domestic stock market. Their attractiveness on the domestic stock market will decrease and this will result in their stock prices decreasing in value. Resultantly, a negative relation between domestic currency and stock price can be confirmed.

Stock Oriented Model

Pilbeam (1992) points out an obvious problem with the flow oriented model as being that they have nothing to say about international capital movements, although it is known that international capital movements are very large and dominate the foreign currency market. Stock oriented models put much stress on the role of the financial (formerly capital) account in the exchange rates determination. Adjasi and Biekpe (2007) held that in the “stock oriented model, the exchange rate equates demand and supply for assets (bonds and stocks)”. Therefore, expectations of relative currency movements have a significant impact on price movements of financially held assets. In other words, currency fluctuations may influence stock price movements.

Arbitrage Pricing Theory (APT)

Chen *et al.* (1986) in Iqbal and Haider (2005) argue that risk factors (in the APT) arise from changes in some fundamental economic and financial variables such as interest rates, inflation, real business activity, exchange rate among other variables. Rashid and Karachi (2007) held that according to the Arbitrage theory, a rise in real interest rate reduces the present value of a firm's future cash flows and causes stock prices to fall. But at the same time, a higher interest rate stimulates the capital inflow, and therefore exchange rate falls. So the real interest rate disturbance may be a factor of a positive relationship between the average level of stock prices and exchange rates. In this regard, the model assumes that macroeconomic variables such as exchange rate can have an effect on the stock market.

2.2 Empirical Review

Muhammad and Rasheed (2011) conducted a study on the relationship between stock prices and exchange rates in four South Asian countries; Pakistan, India, Bangladesh and Sri-Lanka, for the period January 1994 to December 2000. The study employed cointegration, vector error correction modeling technique and standard Granger causality tests to examine the long-run and short-run association between stock prices and exchange rates. Results of the study showed no short-run association between the variables for all four countries. There was no long-run relationship between stock prices and exchange rates for Pakistan and India as well. However, for Bangladesh and Sri-Lanka, there appeared to be a bi-directional causality between these two financial variables. Sekmen (2011) examined the effects of exchange rate volatility, using the squared residuals from the autoregressive moving average (ARMA) models, on stock returns for the U.S. for the period 1980 to 2008. The study found that exchange rate volatility negatively affected U.S. stock returns since the availability of hedging instruments could not lessen the negative effect of exchange rate volatility on trade volume. Alam and Taofiques (2007) admit that there is need for continuous research in the area of exchange rates and stock markets. Moreover, studies in other countries also provided room for further research. Morales (2008) admitted that further research along these lines is required in order to establish more comprehensively the true nature of spillovers from exchange rates to equity markets.

A study by Agu (2002) in Nigeria using Egarch model revealed that indeed optimal exchange rate policies must be aimed at cooling real exchange rate (RER) that maintain internal and external balance in an economy. Internal balance here is defined in terms of the level of economic activities consistent with satisfactory control of inflation and full employment of resources. External balance on the other hand is defined in term of payment equilibrium sustainable current account deficit finance in a lasting basis of expected capital flow. Any distribution in the real exchange rate will mostly probably lead to instability in both external and internal balance. The study argues that a depreciation of the exchange rate only offer protection to domestic industry when the domestic cost of production increases much less than the rate of depreciation, while prices of imported equivalent increases by the full amount of the depreciation.

Obadan (2009), while carrying out a study in Nigeria while using the moving average standard deviation and GARCH (1, 1) as measures of variability also established the exchange rate plays a role in connecting the price system in different countries thus enabling traders to compare price directly. Changes in exchange rate have a powerful effect on imports and exports of the countries concerned through effects on relative prices of goods. He considered the exchange rate to be an important conditioning variable for counter-inflationary policy. This stems from the basic make-up model of pricing and the view that nominal wages tend to adjust to price changes. Exchange rate under this condition conveys information about the fundamentals in the economy and a fast-depreciating local currency may fuel inflationary expectations.

Olugbenga (2012) examined the long-run and short-run effects of exchange rate on stock market development in Nigeria using the Johansen cointegration tests. Results showed a significant positive stock market performance to exchange rate in the short-run and a significant negative stock market performance to exchange rate in the long-run. Empirical literature investigated by the study showed that that there are mixed views on the link between the two variables. In addition, Mongeri, (2011) did a study on the impact of foreign exchange rates and foreign exchange reserves on the performance of NSE share index whose objective was to determine the impact of foreign exchange rates and foreign exchange reserves on the performance of NSE index. The study used a longitudinal study design. Results showed a positive relationship between forex rates and stock market performance. Differences in forex rates had a direct impact on stock market performance.

3.0 Methodology

3.1 Nature and Sources of Data

Generally secondary data were used in this study. The data are panel data that reflects the yearly data of prices of four quoted banks in Nigeria from 2008 to 2016. Exchange Rate (EXR) and Inflation Rate (INFR) the control variable for the same period. These secondary data were sourced and extracted from existing documents and material. Data collected include data from the Central Bank of Nigeria Statistical Bulletin, Bureau of Statistics and various issues of Nigerian Stock Exchange Fact book.

3.2 Model Specification

This study adopted the model by Nkoro and Uko (2016) who did a study on exchange rate and inflation volatility and stock prices volatility. To investigate the effect of exchange rate volatility on prices of quoted bank in Nigeria, we employ the following model;

$$PQFBNK_{it} = \beta_0 + \beta_1 EXCHR_{it} + \beta_2 INFR_{it} + \mu_{it} \dots \dots \dots (1)$$

Where;

PQFBNK = Prices of Four Quoted Banks

EXCHR = Exchange Rate

INFR = Inflation Rate

β_1, β_1 and β_2 = Coefficient Parameters of the Variables

μ_i = Stochastic Error Term.

3.2 Description of Model Variables

There are two sets of variables used in this study. They are dependent and independent variables. The dependent variable is the prices of quoted banks in Nigeria (PFQBNK) while the independent variables are Exchange rate (EXCHR) Inflation rate (INFR) from 2008 to 2016.

4.0 Data Analysis and Discussion of Findings

Table 1: Panel Least Squares result (fixed effect)

Dependent Variable: SP				
Method: Panel Least Squares				
Date: 03/05/17 Time: 15:05				
Sample: 2008 2016				
Periods included: 9				
Cross-sections included: 4				
Total panel (balanced) observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.24590	3.984682	4.829973	0.0000
EXCHR	-0.026043	0.010053	-2.590566	0.0342
INFR	-0.078018	0.367977	-0.212018	0.8335
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.557195	Mean dependent var	13.84917	
Adjusted R-squared	0.450061	S.D. dependent var	6.682396	
S.E. of regression	5.786888	Akaike info criterion	6.500078	
Sum squared resid	1004.642	Schwarz criterion	6.763998	
Log likelihood	-111.0014	Hannan-Quinn criter.	6.592193	
F-statistic	4.334096	Durbin-Watson stat	1.917600	
Prob(F-statistic)	0.016365			

Critical Values:

- (a) t-statistic, $t_{0.05} = 1.684$
- (b) F-statistic, $F_{0.05} (2,33) = 3.23$

The Panel Least Squares (OLS) result above was analyzed based on economic, statistical and econometric criteria. First, the result reveals that exchange rate has a negative and significant relationship with share prices of quoted firms in Nigeria. From the result, one percent increase in exchange rate leads to 0.03 percent decrease in share prices

of quoted firms in Nigeria. The computed t-statistic (2.59) in absolute terms is greater than the tabulated (critical) t-statistic (1.68) at five percent level of significance. To confirm this, we observe that the probability value of exchange rate (0.0342) is less than the significant test level (i.e. $P < 0.05$). Hence, we conclude that exchange rate has a significant impact on share prices of quoted firms in Nigeria. This finding corroborates Olugbenga (2012) which argued in favour of a negative and significant relationship between exchange rate and stock market behavior in Nigeria at least in the long run. Perhaps, this finding may be attributed to the fact that exchange rate volatility (instability) distorts cash flow and business planning thereby negatively influencing business decisions. As business decisions are negatively influenced, business investment especially in shares and stocks are undermined thereby affecting the share prices of quoted firms. This is against the backdrop that share prices being the highest amount an individual is willing to pay for a stock would be dampened by the unwillingness of shareholders to invest their monies because of instability in exchange rate.

This result is not surprising in the case of Nigeria because the exchange rate has been largely characterized by high degree of instability over the years. Recently, the volatility of exchange rate in Nigeria has become a national headache so much that businesses in Nigeria has become plagued by failures and closures since majority of them do not export their products rather rely on imported raw materials and machineries. Hence, it is not surprising that such high degree of instability in exchange rate would negatively and significantly affect the share prices of quoted firms in Nigeria as indicated in this study.

Second, the result reveals that inflation rate has a negative and insignificant relationship with share prices of quoted firms in Nigeria. From the result, one percent increase in inflation rate leads to 0.08 percent decrease in share prices of quoted firms in Nigeria. The computed t-statistic for inflation rate (0.21) in absolute terms is less than the tabulated (critical) t-statistic (1.68) at five percent level of significance. As a confirmation, the probability value of inflation rate (0.8335) is greater than the test significant level (i.e. $P > 0.05$). Hence, we conclude that inflation rate has an insignificant effect on share prices of quoted firms in Nigeria. This finding is similar to that of Nkoro and Uko (2016) which established a negative relationship between inflation rate and stock prices in Nigeria. Perhaps, the negative relationship between inflation rate and share prices may be attributed to the fact that inflation erodes the purchasing power of individuals, reduces their investment potentials and this has an undermining effect on the share prices of firms. This is against the backdrop that when shareholders' investments are reduced, firms in an effort to attract shareholders' investment may want to reduce share prices as well.

The coefficient of determination (R-squared) shows that 56 percent of the variations in share prices of quoted firms in Nigeria are caused by variations in exchange rate and inflation rate. Thus, the remaining 44 percent of the variations in share prices of quoted firms in Nigeria are due to other factors not included in the model. The computed F-statistic (4.33) is greater than the critical F-statistic (3.23) and this indicates that the entire model adopted in the study is significant as well as reliable.

Finally, the Durbin-Watson statistic (1.92) lies within the acceptable region and indicates that there is no presence of autocorrelation being that $2 \leq DW < 4$ and this shows that the regression result is not spurious.

5.0 Summary of Findings, Conclusion and Recommendations

5.1 Summary of Findings

The findings of the study as summarized as:

- (i) There exists a negative relationship between exchange rate and share prices of quoted firms in Nigeria.
- (ii) Exchange rate volatility (proxied by exchange rate) has a significant impact on share prices of quoted firms in Nigeria.
- (iii) There exists a negative relationship between inflation rate and share prices of quoted firms in Nigeria.
- (iv) Inflation rate does not have significant impact on share prices of quoted firms in Nigeria.

5.2 Conclusion

The study investigated the relationship between exchange rate volatility and share prices of quoted firms in Nigeria. The study adopted exchange rate and inflation rate as the independent variables while share prices of four quoted banks in the Nigerian Stock Exchange (NSE) namely Access Bank, FBN, Guaranty Trust Bank, and Zenith Bank served as the dependent variable. Because of the nature of the cross-sectional nature of the data comprising four firms, a panel data analysis was employed. The empirical evidence suggests that exchange rate volatility (proxied by exchange rate) in Nigeria has a negative and significant relationship with share prices of quoted firms while inflation rate (adopted as a control variable in the study) has a negative but insignificant relationship with share prices of

quoted firms in Nigeria. Overall, the study concluded that exchange rate volatility has a significant effect on share prices of quoted firms in Nigeria.

5.3 Recommendations

In line with the findings of the study, the following recommendations are made:

- (i) Investors in the Nigerian Stock Market should take cognizance of the risks associated with exchange rate volatility while structuring their investment portfolios.
- (ii) Firms especially banks in Nigeria should fashion out ways of making their products attractive so as to have fair stock (share) prices even in the midst of the exchange rate volatility as obtained in Nigeria.

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