Effect of Exchange Rate Risk on Performance of Listed Deposit Money Banks in Nigeria

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Abstract
This work empirically investigated the effect of exchange rate risk on performance of listed deposit money banks in Nigeria. The study is vital as it portrays the extent to which exchange rate risk influences banks' performance in Nigeria. Three hypotheses were formulated to guide the investigation and the statistical test of parameter estimates was conducted using panel least square model. The research design used is Ex Post Facto design and data for the study were obtained from the published annual financial reports of 12 selected deposit money banks spanning from 2018-2022. In order to determine the relationship between exchange rate risk and banks performance, some key proxy variables were used in the study, namely transaction risk, translation risk and interest rate risk while banks' performance is represented by return on equity. Using Panel Least Squares Regression Model, the findings generally indicate that transaction risk and translation risk have negative and insignificant influence on banks performance while interest rate risk has positive and significant influence on banks performance. Based on this, the study concludes that the shock from exchange rate risk (transaction and translation) moves at a negative and insignificant direction to the financial performance of deposit money banks while interest rate risk moves at a positive and significant direction to the financial performance of deposit money banks. In lieu of this, the study recommends that deposit money banks should develop a robust foreign exchange transaction risk management framework which will clearly show its currency risk assessment procedures and implementation of foreign exchange risk management strategy. Also, government and the central bank of Nigeria should increase the stabilization measurements for exchange rate to cushion its risk and by so doing; this could improve the performance of the deposit money banks in Nigeria.
Keyword: *Exchange Rate Risk; Transaction Risk, Translation Risk; Interest Rate Risk*

1. Introduction

The exchange rate movement in the financial sector performance and other sectors of the economy cannot be belittled. Armitage, Wold and Weissle (2022) are of the view that exchange rate fluctuations endanger firms' performance most especially financial institutions. An upward movement of foreign exchange in any economy will have an adverse effect on all the sectors, thereby resulting to price instability and soften growth of the economy. Exchange rate measures a country currency in terms of other countries' currencies. The essence of this is to allow international trade between two or more countries because the world is now a global village and no nation is self-sufficient. Meanwhile, exchange rate risk has been seen a fundamental issue affecting every sector of the Nigerian economy. This risk arises from the untold fluctuation of foreign exchange.

In Nigeria, exchange rate has been moving in a significant upward direction since the 1980s. Recently, in the last quarter of 2015 to the first and period 1 & 2 of the second quarter of 2016, the Nigerian official exchange rate to Dollar was ₦197 after which oscillated in the period 3 of the second quarter to ₦283. It was ₦313 at the beginning of quarter 3 of 2016 which was later stabilized at ₦305 at the end of the quarter three to the fourth quarter. Meanwhile, it was fluctuating from ₦258 to ₦455 at the start of the first quarter to the end of the quarter of 2016 in the foreign market (Kolapo & Naheem, 2020). This has left Nigeria business environment, especially the banking sector to experience high variation in the foreign exchange rate as Nigeria Naira depreciates against the key currency of US Dollar.

Since businesses could source their input and sale globally, the risk or variation of foreign exchange rate has affected them, and this has called for the relevant authority to introduce various measures to mitigate the variation in foreign exchange rate. Despite the series of measurement on exchange rate risk, prices have not return to normal nor reduce to the minimum level and this in turn affecting the performance of financial sector and other sectors of the economy. However, empirical literature has shown that few articles had been written on the exchange rate risk and financial sector performance in different countries most importantly in the developing countries such as Ngerebo (2021); Runo (2023); He, Fayman & Casey (2020); Sayedi (2020); Isaac (2019); Ahmed (2020); Ekinci (2021); Mansyur (2022); and Nzioka & Maseki (2022). Most of them have looked at the internal exchange risk factors on financial sector performance while some looked at the external factors. Hence, the present study seeks to look at both the internal exchange risk factors and external exchange risk factor with a view of expositing its effect on performance of deposit money banks in Nigeria.

Also, existing studies have concentrated on large firms operating within well-developed money and capital markets of industrialized economies of US and United Kingdom. Findings from these studies becomes difficult to generalized for relatively small sized firms in Nigeria that operates within a relatively segmented and less efficient markets, especially bearing in mind the argument that in the efficient markets, the exchange rate risk/changes do not matter, as they are absorbed instantly. While large bodies of empirical studies provide evidence on the relationship between foreign exchange rate risk and corporate performance, results from these studies are diverse and

inconclusive. While Many studies, have found the exchange rate risk significant (Allayannis, 2017; Dominguez & Tesar, 2021; Griffin & Stulz, 2021; Allayannis & Ihrig, 2022), many other studies argue that the value impact of exchange rate risk is weak (Bodnar & Gentry, 2019; Jorion, 2021).

Thus, the present study adapted and modified the model of Kolapo and Naheem (2020) by introducing more variable (internal and external exchange risk factors) to it. This is to capture the real effect of exchange rate risk on performance banks in Nigeria.

To this end, we formulated the following hypotheses to achieve the objectives of this study.

H_{01}: Transaction risk has no significant effect on performance of deposit money banks in Nigeria.

H_{02}: Translation risk has no significant effect on performance of deposit money banks in Nigeria.

H_{03}: Interest rate risk has no significant effect on performance of deposit money banks in Nigeria.

2. Review of Related Literature

2.1. Exchange Rate

A currency's "exchange rate" is the rate at which it can be purchased with another currency (foreign currency). When discussing the value of one country's currency in terms of another, we talk about the foreign exchange rate. Due to disparities in factor endowment, Osiegbu and Onuorah (2022) argue that no country can remain economically independent, making the exchange rate a vital part of international economic interactions. The interest rate, inflation rate, import and export levels, output levels, etc. all react to shifts in the currency rate. These specifics emphasize how crucial the exchange rate is to the economic development of any country that participates in international trade of goods and services. The significance of the exchange rate stems from the fact that it levels the playing field for businesses engaged in cross-border trade by eliminating the chasm between home pricing systems and overseas markets. It indicates that domestic prices are influenced by international trends. Because it has such a profound effect on the volume of imports and exports, the exchange rate has a profound effect on the balance of payments (Augustine & Olufemi, 2022).

2.1.1 Exchange Rate Risks

Exchange rate risks are caused by changes in the demand and supply of the currency in the FOREX market. When demand exceeds supply, the exchange rate will appreciate and rise in value. If however the supply exceeds demand, the exchange rate falls in value and depreciates. In the long-run, changes in the demand and supply of a currency depend on changes in the value of imports and exports as well as long-term capital flows such as foreign direct investments (FDI).

The determinants of this risk over time on different economies include: rates of inflation, interest rates, and rates of economic growth, labor productivity and measures of international competitiveness (Ani, Ugwunta & Okanya, 2023).

There are situations in which flexible exchange rates may be described as too volatile. That is, exchange rates can be fully consistent with fundamental economic variables, such as relative prices, and macroeconomic policies, while still responding excessively to shocks to those variables before adjusting gradually to new long-term equilibrium levels. Such exchange rate 'overshooting' may occur because international capital markets adjust almost instantaneously to shocks, while goods and services markets adjust slowly (Dornbush, 2019).

2.1.1.1 Determinants of Exchange Rate Risk

2.1.1.1.1 Transaction Risk

Transaction risk is referred to as the exposure to uncertainty factors that may impact the expected return from a deal or transaction. It can include but is not limited to foreign exchange risk, commodity, and time risk. It essentially encompasses all negative events that can prevent a deal from happening (Obiora, Omaliko & Okeke, 2022). Transaction risk is the adverse effect that foreign exchange rate fluctuations can have on a completed transaction prior to settlement. It is the exchange rate, or currency risk associated specifically with the time delay between entering into a trade or contract and then settling it (Jorion, 2021).

According to Dominguez and Tesar (2021), transaction risk refers to the adverse effect that foreign exchange rate fluctuations can have on a completed transaction prior to settlement. It is the exchange rate, or currency risk associated specifically with the time delay between entering into a trade or contract and then settling it.

2.1.1.1.2 Translation Risk

Translation exposure (also known as translation risk) is the risk that a company's equities, assets, liabilities, or income will change in value as a result of exchange rate changes. This occurs when a firm denominates a portion of its equities, assets, liabilities, or income in a foreign currency (Sayedi, 2020). According to Isaac (2019), translation risk is the possibility that the translation into a company’s assets, liabilities, revenues, expenses, gains and losses that are denominated in foreign currencies will result in foreign exchange gains and losses. Translation risk is also known as accounting risk.

Translation Risk is the risk of change in the company’s financial position (assets, liabilities, equity) due to exchange rate changes. It is usually seen while reporting the consolidated financial statements of multiple subsidiaries operating overseas in domestic currency.

2.1.1.1.3 Interest Rate Risk

The interest rate is the expense incurred by the lender in connection with lending money to a

debtor in return for the usage of those debtor's funds (creditor). According to Keynes's theory of interest, a high interest rate reduces private investment and hence retards economic growth. However, it may entice outside investors, which might increase the country's total debt. Nigeria's interest rate policy is an important instrument in the country's monetary policy armory, as it helps to encourage economic growth and development by mobilizing financial resources. The cost of borrowing money is expressed as an interest rate. Getting a loan means giving up the opportunity to put that money and time somewhere else. It's the sum that is sent to the lender as repayment. We must take this price into serious economic account. This is because interest rates have far-reaching repercussions for the economy, either through altering the cost of capital or the availability of credit, or both (Acha & Acha, 2022). An amount of money that is due every month, expressed as a percentage of the total loan, deposit or borrowing amount. It has been said that the interest rate is a measure of how much people value immediate cash flow above future earnings potential. The borrower has an immediate need or need for the loaned funds and is ready to pay a premium, represented by the interest rate, in exchange

Interest rate risk is the potential that a change in overall interest rates will reduce the value of a bond or other fixed-rate investment: As interest rates rise bond prices fall, and vice versa. This means that the market price of existing bonds drops to offset the more attractive rates of new bond issues (Osiegbu and Onuorah, 2022).

2.1.2 Firm Performance

Firm performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Okeke, 2015).

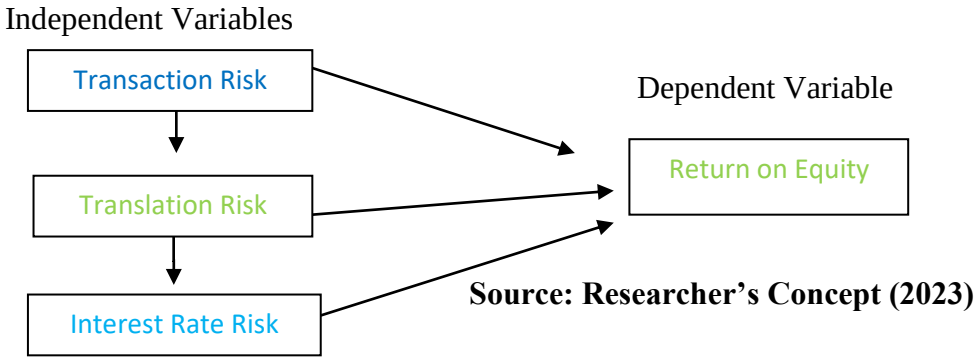
There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt.

For the purpose of this study, Return on Equity (ROE) was used to measure financial performance. This was captured as Net Profit After Tax (NPAT) divided by Total Equity i.e (ROE)

This is expressed mathematically as

$$ROE = \frac{NPAT}{\text{Total Equity}}$$

2.1.3 The Diagram of Conceptual Framework



Source: Researcher's Concept (2023)

2.2 Theoretical Framework

2.2.1 International Fisher Effect Theory

The theory was authored by Irving Fisher in 1930. The International Fisher Effect is the international counterpart of the Fisher Effect. It can be seen as a combination of the generalized version of the Fisher Effect and the relative version of the Purchasing Power Parity. The International Fisher Effect is based on the assumption that the changes in the spot rate of exchange between two currencies will be equal to the differences in their nominal interest rates. Furthermore, the International Fisher Effect theory proposes that higher interest rates will devalue currencies due to the higher nominal rates that replicate higher anticipated inflation. The International Fisher's Theory establishes connections between variances in the interest rate of two nations and their conforming differences in inflation, to the level that high inflation rates countries would possess nominal interest rates that are higher than the ones with lower inflation rates (Ebiringa & Anyaogu, 2014).

The theory contends that real interest rates among countries are equal because of the arbitrage opportunities possibility which normally arises in the form of capital flows between financial markets. Real interest rate equality denotes that the higher interest rate country ought to possess an inflation rate that is higher which, sequentially, establishes the ideal currency value decrease of the country in a precise period (Lagat & Nyandema, 2016). In support of the International Fishers Effect model, Lagat and Nyandema (2016) noted that the International Fisher Effect model expands on the Fisher Effect, suggesting that because nominal interest rates reflect anticipated inflation rates and currency exchange rate changes are driven by inflation rates, then currency changes are proportionate to the difference between the two nations' nominal interest rates. The International Fisher Effect has been criticized on the basis that it is applicable in the long run because average annual deviation as a measure for long-term validity tends towards zero.

The maximum annual deviation was however too large to support the theory in the short run. Furthermore, Robinson and Warburton (2005) disputed the validity of the International Fisher

Effect and argued that the possibility to earn a higher interest return would be eroded in the medium term by the appreciation of the currency with the lower interest rates relative to the currency with the higher interest rate. They concluded that superior returns could be earned and therefore argued that International Fisher Effect does not hold empirically. The International Fisher Effect Model is relevant to this study as it provides a link between interest rate and the exchange rate which implies that the changes in the spot rate of exchange between two currencies will be equal to the differences in their nominal interest rates.

Thus, the International Fisher Effect Model is relevant to this study as it provides a link between the exchange rate risk (translation risk, transaction risk and interest rate risk) and banks performance.

2.3 Empirical Review

Ayodele (2023) evaluated empirically the impact of exchange rate on the Nigerian economy. The study investigated how economic induces such as exchange rate and inflation rate affects changes in Gross Domestic Product (GDP) in Nigeria. The study used Secondary data collected from Annual Reports of Central Bank of Nigeria (CBN), Nigerian Stock Exchange (NSE), and Nigeria Securities and Exchange Commission (SEC) which were analyzed through the multiple regression analysis using the Ordinary Least Squares (OLS) method. The result showed that the two factors –exchange rate and inflation rate- impact significantly on the Gross Domestic Product and economic growth of Nigeria. Exchange rate has a negative impact on the GDP because as it increases, the economic growth is negatively affected, while inflation rate exerts a positive impact on GDP, indicating that firms are more willing to produce when inflation rate is high and vice versa. The outcome of the research was that the government should make Nigerian economic climate investment friendly by restoring security of lives and property, infrastructural development and improvement of local production in order to reduce the pressure on the dollar and that this would go a long way to boost the exchange rate in favour of the naira and hence improve the Gross Domestic Product.

Ebaidalla (2023) examined real exchange rate misalignment and economic performance in Sudan. The study investigates the behavior of equilibrium exchange rate and real exchange rate misalignment in Sudan over the period 1989–2019. In addition, the impact of real exchange rate misalignment on economic performance is examined. The empirical results show that the equilibrium exchange rate is significantly influenced by economic policy variables such as trade openness, government expenditure and taxes. The results also reveal that the Sudanese economy exhibited an exchange rate overvaluation over the period under consideration.

Owoeye, and Ogunmakin (2023) examined exchange rate volatility and bank performance in Nigeria. This study investigated the impact of unstable exchange rate on bank performance in Nigeria using two proxies for bank performance, namely loan loss to total advances ratio and capital deposit ratio. Government expenditure, interest rate, real gross domestic product were added to exchange rate as independent variables. The two models specified show that the impact of exchange rate on bank performance is sensitive to the type of proxy used for bank

performance. Loan loss to total advance ratio shows that fluctuating exchange rate may affect the ability of lenders to manage loans resulting into high level of bad loans while capital deposit ratio does not have significant relationship with exchange rate. A core recommendation of this study is that a stable exchange rate is needed to improve the ability of the banking sector to channel credit to the economy.

In an independent study, Nnamani and David (2022) employed the symmetric and asymmetric volatility models to study the variability in the weekly exchange rate of the Naira and that of eight other currencies. With the distribution of the residual specified as normal, volatility was found to be quite persistent in seven of the series while it is explosive in one. The asymmetrical model provided no evidence of leverage effect for all the currencies.

Bala and Asemota (2022) used monthly data on Nigeria Naira exchange rate with that of three major currencies (US dollar, European Union's Euro and the British Pounds). In their study, they specified the mean equation as a constant and a dummy variable and the variance equation as standard model with the same dummy variable. The result of the fitted models showed reduction in persistence level in majority of the models.

Augustine and Olufemi (2022) examined the effect of exchange rate fluctuation economic factors on financial performance of multinational companies in Nigeria, It specifically examined the effect of nominal exchange rate, real exchange rate, interest rate as well as exchange rate fluctuations on the financial performance of listed multinational oil and gas firms in Nigeria performance of deposit money banks in Nigeria. Secondary sources of data was employed to extract useful information from the Audited Annual Reports of the eight (8) oil and gas firms sampled were selected through purposive sampling technique for the investigation for the periods 2006-2020. The measures of exchange rate fluctuation economic factors comprise of foreign exchange rate fluctuation (FXRF), real exchange rate (REER), nominal exchange rate (NOER interest rate spread (INSR), firm's size (FSIZE), financial leverage (FLV) and business risk (BSR) with financial performance, being dependent variable measured by return on asset (ROA). Both descriptive and inferential statistics. Correlation and regression analysis were used to test the hypothesis. Findings revealed that nominal exchange rate and interest spread rate have positive and statistically significant relationships with return on asset at the level of 5% level of significant while foreign exchange rate fluctuation, real exchange rate ,firm size and financial leverage has a negative and statistically significant association with return on asset respectively at 5% level of significant. The study concluded that exchange rate fluctuation economic factors have strong statistical relationship with the financial performance of listed oil and gas companies in Nigeria.

Ishimwen and Ngalawa (2021) investigated the impact of exchange rate volatility on South Africa's manufacturing exports and financial performance of manufacturing companies in the United States of America for the period of 1994Q1 to 2018Q1. The study employed the EGARCH model to measure exchange rate volatility, and the ARDL bounds tests as developed by Pesaran, Shin, and Smith to determine the long-run and short-run effects of exchange rate volatility on the country's manufacturing exports. The study also carries out a Granger causality

test between real exchange rates and exports of manufactured products. The findings of the study showed that an increase in exchange rate volatility has a significant positive effect on manufacturing exports in the long run. However, the results are insignificant in the short run. It is also found that real exchange rates Granger cause manufacturing exports. Manufacturing exports, however, do not Granger cause real exchange rates.

3. Methodology

An *ex post facto* design was used in the study based on the fact that the data for the study was secondary which already existed and cannot be controlled. The population of the study consists of all the 14 listed deposit money banks on Nigerian Exchange Group (NGX) as at December 31, 2022, covering the period 2018-2022. Thus, the study used the entire population of the study. On this basis, a total of 14 banks made up our sample size. Out of 14 deposit money banks that formed our sample size, 2 firms have empty financial information within the period under study (*Jaiz Bank Plc and Wema Bank Plc)* which was removed. Based on this, a total of 12 firms formed our sample size with 60 observations. The data was collected from the annual accounts and annual accounts of the sampled banks. Panel least square regression model was used to examine the relationship between exchange rate risks and performance of listed deposit money banks in Nigeria.

3.1 Measurement and Operationalization of Variables

Table 1: Variable Measurements

Variable	Measurement	Source
Independent		
Transaction Risk	Percentage change in the net amount of cash flows of a firm using the reporting currency	Empirical Survey
Translation Risk	Log of difference between exposed assets and exposed liabilities	Empirical Survey
Interest Rate Risk	$\frac{\text{Original Interest rate – New Interest rate}}{\text{New Interest Rate}}$	Empirical Survey
Dependent		
Return on Equity	NPAT/Equity	Empirical Survey

Source: Empirical Survey (2023)

3.2 Model Specification and Justification

In line with the previous researches, the researcher adapted and modified the Model of Kolapo and Naheem (2020) in determining the effect of exchange rate risk on financial performance of listed deposit money banks in Nigeria. This is shown below as thus:

Kolapo and Naheem (2020): **FII = η0 + η1EXR + η2INTR + η3CPI + εt**

The functional model modified for the study is shown below as thus:

ROE = F(TRR, TR, IRR)

The explicit form of the regression modified for the study is expressed as thus:

$$ROE_t = \beta_0 + \beta_1 TRR_t + \beta_2 TR_t + \beta_3 IRR_t + \mu$$

Where:
ROE = Return on Equity
TRR = Transaction Risk
TR = Translation Risk
IRR = Interest Rate Risk
μ = Stochastic Term
$\beta_1 - \beta_3$ = Coefficient of Regression Equation
β_0 = Constant coefficient (intercept) of the model

Decision Rule: accept Ho if P-value > 5% significant level otherwise reject Ho

4. Data Analysis and Results

Table 2: Descriptive Statistics

	ROE	TRR	TR	IRR
Mean	0.18	0.91	0.22	3.12
Median	0,14	0.55	2.41	0.18
Maximum	0.77	6.27	10.84	0.91
Minimum	0.01	5.74	0.49	0.01
Std. Dev.	0.13	1.89	2.50	0.19
Skewness	2.92	0.20	1.57	1.47
Kurtosis	2.48	5.92	2.89	2.12
Jarque-Bera	310.3	21.7	33.6	28.9
Probability	0.34	0.67	0.88	0.20
Sum	10.51	54.7	186.9	13.23
Sum Sq. Dev.	1.03	211.1	370.2	2.97
Observations	**60**	**60**	**60**	**60**

Source: E-View 12 Computational Results (2023)

From Table 2 above, the mean (average), maximum values, minimum values, standard deviation and Jarque-Bera Statistics (Normality Test) were shown. The results provide some insight into the nature of the listed deposit money banks in Nigeria used in this study. First, it can be observed that on the average, in a 5-year period (2018-2022), the sampled banks were

characterized by a positive return on equity (ROE) value of 0.18. This implies that banks with ROE values of 0.18 and above are affected by exchange rate risk. The distribution is platykurtic since the kurtosis (2.48) is less than 3, implying that the outliers are few. The Jarque-Bera probability of 0.34 is greater than 0.05, which means that the distribution of return on equity comes from a normal distribution. The average transaction risk (TRR) for the sampled firms was 0.91 with a standard deviation value of 1.89. This means that transaction risk affects banks with TRR value of 0.91 and below. There is also a high variation in maximum and minimum values of TRR which stood at 6.27 and 5.74 respectively. This wide variation in TRR values among the sampled banks justifies the need for this study as we assume that banks transaction risk affect banks performance. The distribution is leptokurtic since the kurtosis (5.92) is more than 3, implying that the outliers are many. The Jarque-Bera probability of 0.67 is greater than 0.05, which means that the distribution of transaction risk comes from a normal distribution.

The average translation risk (TR) for the sampled banks was 0.22 with a standard deviation value of 2.5. This means that translation risk affects banks with TR values of 0.22 and below. There is also a high variation in maximum and minimum values of TR which stood at 10.84 and 0.49 respectively. This wide variation in TR values among the sampled banks justifies the need for this study as we assume that banks translation risk affect banks performance. The distribution is platykurtic since the kurtosis (2.89) is less than 3, implying that the outliers are few. The Jarque-Bera probability of 0.88 is greater than 0.05, which means that the distribution of translation risk does not deviate from normal distribution. The average interest rate risk (IRR) for the sampled banks was 3.12 with a standard deviation value of 0.19 This means that banks with IRR values of 3.12 and above have higher performance. There is also a high variation in maximum and minimum values of IRR which stood at 0.91 and 0.01 respectively. This wide variation in IRR values among the sampled banks justifies the need for this study as we assume that banks with higher IRR values have higher performance than those firms with low IRR values. The distribution is platykurtic since the kurtosis (2.12) is less than 3, implying that the outliers are few The Jarque-Bera probability of 0.20 is greater than 0.05, which means that the distribution of interest rate risk does not deviate from normal distribution.

In an effort to establish the nature of the correlation between the dependent and the independent variables and also to ascertain whether or not multi-collinearity exists as a result of the correlation between the variables, table 3 was incorporated which provides an insights into the nature and extent of correlation among the independent variables and how they are related to the dependent variable.

Table 3: Correlation Matrix

Variables	ROE	TRR	TR	IRR
ROE	1.0000			
TRR	-0.0380	1.0000		
TR	-0.2115	0.0632	1.0000	
IRR	0.2303	0.3176	-0.0411	1.0000

Source: E-View 12 Computational Results (2023).

Table 3 above shows the relationship between all pairs of independent variables and dependent variables used in the regression model. It reveals that all the independent variables with exception to interest rate risk have negative correlation with the dependent variable (ROE) while some of these components of exchange rate risk have negative relationship with one another. The values on the diagonal are all 1.0000 which shows that each variable is perfectly correlated with itself. In checking for multi-collinearity, we noticed that no two explanatory variables were perfectly correlated. This means that there is an absence of multi-collinearity in our model.

Table 4 Variance Inflation Factors
Date: 02/06/23 Time: 12:01
Sample: 2018-2022
Included observations: 60

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
TRR	1.12E-05	6.443135	2.586563
TR	4.99E-06	5.439210	1.661080
IRR	4.25E-05	22.69475	4.716636
C	0.032834	5.669574	NA

Source: Authors' Computation, E-Views 12.

From the table above, the centered VIF ranges from 2.59 to 4.72 which suggests non multi-collinearity feature. Multi-collinearity feature exists when centered VIF exceeds 10 i.e VIF>10

4.1: Test of Hypothesis

Table 5: Result on Effect of Exchange Rate Risk on Performance of Deposit Money Banks in Nigeria.

Dependent Variable: ROE
Method: Panel Least Squares
Date: 02/06/23 Time: 11:58
Sample: 2018 -2022
Periods included: 5
Cross-sections included: 12
Total panel (balanced) observations: 60

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TRR	-0.004983	0.007883	-0.636148	0.5273
TR	-0.008994	0.005913	-1.521040	0.1339
IRR	0.336601	0.075133	4.480092	0.0000
C	0.133516	0.03157	4.427409	0.0000

R-squared	0.757441	Mean dependent var	1.028979
Adjusted R-squared	0.729419	S.D. dependent var	3.015098
S.E. of regression	2.939653	Akaike info criterion	5.006985
Sum squared resid	2030.766	Schwarz criterion	5.050753
Log likelihood	592.8312	Hannan-Quinn criter.	5.024624
F-statistic	7.160587	Durbin-Watson stat	2.230972
Prob(F-statistic)	0.000958		

Source: Result Output from E-View 12 (2023).

4.2: Discussion of Findings.

The coefficient of determination R^2 shows 0.76 indicating that the overall model explained 76 percent of the total variations in the dependent variable. Thus shows that these variables (TRR, TR & IRR) can only explain 76 percent of change in firms' Return on Equity leaving 24 percent unexplained. This is to say that there are other factors that contribute to firms return on equity other than that of exchange rate risk. The sig. (or p-value) is .0000 which is below the .01 level; hence, we conclude that the overall model is statistically significant, or that the variables have a significant combined or joint effect on the dependent variable. With this, the researcher affirms the validity of the regression model adopted in this study.

The results of the regression are therefore slated below as follows:

H_{01}: Transaction risk has no significant effect on performance of deposit money banks in

Nigeria.

This hypothesis was tested and the result of this regression as exposited on table 4.2.1 indicates that the relationship between TRR and ROE is negative and insignificant; this can be justified with the P-value (significance) of 0.5273 which is more than the 5% level of significance adopted. Likewise the result of negative coefficient of 0.0049 is proving that, an increase in TRR while other variables remain constant decreases ROE. Thus implies that transaction risk affects the performance of deposit money banks. We therefore rejected the alternate hypothesis and accepted the null hypothesis which contends that transaction risk has no significant effect on performance of deposit money banks in Nigeria.

H_{02}: Translation risk has no significant effect on performance of deposit money banks in Nigeria.

This hypothesis was tested and the result of this regression as exposited on table 4.2.1 indicates that the relationship between TR and ROE is negative and insignificant; this can be justified with the P-value (significance) of 0.1339 which is more than the 5% level of significance adopted. Likewise the result of positive coefficient of 0.0089 is proving that, an increase in TR while other remaining variables remain constant decreases ROE. We consequently rejected alternate hypothesis and accepted the null hypotheses which contends that translation risk has no significant effect on performance of deposit money banks in Nigeria.

H_{03}: Interest rate risk has no significant effect on performance of deposit money banks in Nigeria.

This hypothesis was tested and the result of this regression as exposited on table 4.2.1 indicates that the relationship between IRR and ROE is positive and significant; this can be justified with the P-value (significance) of 0.000 which is less than the 1% level of significance adopted. Likewise the result of positive coefficient of 0.337 is proving that, an increase in IRR while other remaining variables remain constant increases ROE. Thus implies that interest rate risk ensures deposit money banks performance. We consequently rejected null hypothesis and accepted alternate hypotheses which contends that interest rate risk has significant effect on performance of deposit money banks in Nigeria.

5. Conclusion

This study examined the connection between exchange rate risk and performance of deposit money banks in Nigeria. Several empirical reviews were carried out to identify the unfilled gap. Meanwhile, the findings revealed directional connection between exchange rate risk and financial performance. However, the study concluded that the shock from exchange rate risk (transaction and translation) moves at a negative and insignificant direction to the financial performance of deposit money banks while interest rate risk moves at a positive and significant direction to the financial performance of deposit money banks.

5.1: Recommendations

1. Deposit money banks should develop a robust foreign exchange transaction risk management framework which clearly shows its currency risk assessment procedures and implementation of foreign exchange risk management strategy. Banks should make use of currency risk transfer strategies through hedging, insurance and diversification of foreign currency. Some of commonly used hedging techniques include use of currency future markets, forward markets and currency swaps. These strategies should be monitored and adjusted regularly as it reduces transaction which in turn will ensure banks performance.

2. The study also recommended that banks should explore avenues to enhance capacities for managing foreign currency risk through organizing regular trainings on currency risk management. This can be done through short term training to senior finance managers on ways of identifying, measuring, translate and handling of foreign exchange risk. The training should not only cover foreign exchange translation risk management but should also handle practical challenges facing deposit money banks with international undertakings.

3. The study recommended that the Government and the Central Bank of Nigeria should increase the stabilization measurements for exchange rate to cushion its risk and by so doing; this could improve the performance of the deposit money banks in Nigeria.

5.2: Contribution to Knowledge

From the a priori expectations, it was noted that the previous studies looked at the internal exchange risk factors on financial sector performance while some looked at the external factors. Hence, the present study seeks to look at both the internal exchange risk factors and external exchange risk factor with a view of expositing its effect on performance of deposit money banks in Nigeria.

Thus, the present study adapted and modified the Model of Kolapo and Naheem (2020) in determining the effect of exchange rate risk on financial performance of listed deposit money banks in Nigeria. This is shown below as thus:

Kolapo and Naheem (2020): $\mathbf{FII = \eta 0 + \eta 1EXR + \eta 2INTR + \eta 3CPI + \varepsilon t}$

The Modified Model for the study is shown as

$\mathbf{ROE = 0.134 - 0.0049(0.5273) - 0.0089(0.1339) + 0.337(0.0000) + \mu}$

By this implication, transaction and translation risk affects the performance of deposit money banks negatively while interest rate risk on the other hand ensures banks performance in Nigeria

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