



TRANSLATION EXPOSURE AND PERFORMANCE OF DEPOSIT MONEY BANKS: EVIDENCE FROM NIGERIA

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Abstract

The increasing dealings in foreign exchange by commercial banks with foreign subsidiaries expose their performance to the sensitivity of change in real domestic currency. However, studies on the effect of translation exposure on deposit money banks performance in Nigeria are limited. Therefore, this study examined the effect of translation exposure on performance of deposit money banks in Nigeria. This study used ex-post facto research design and utilised panel data using Nonlinear Auto Regressive Distributed Lag (NARDL) model covering a period of sixteen years (2004-2019). The study found out that translation exposure has an asymmetric impact on financial performance for deposit money banks in Nigeria and thus concluded that translation exposure has a positive and significant effect on performance of deposit banks in Nigeria. The study recommended that bank managers should encourage periodic assessment of the banks statement of financial position.

Keywords: Financial Performance, Translation exposure, Nonlinear ARDL

JEL Classification Code: Z23, F31, C22

INTRODUCTION

Since the breakdown of the Bretton woods fixed exchange rate system in 1973, the influence of exchange rate on firm value has become increasingly significant to firms with foreign subsidiaries and branches due to changes in exchange rate (Vikram & Vishwamurthy, 2019). Changes in exchange rate affects the value of domestic bank when translating it foreign assets and liabilities to its domestic account which leads to translation exposure. Translation exposure is the risk faced when translating foreign currency assets or liabilities into home currency for the purpose of finalising the account for a given period. Translation exposure is more pronounced when a country's exchange rate regime is not consistent and when its monetary hedging instrument is not effective just like what obtains in Nigeria (Central Bank of Nigeria, 2018). For instance, almost 50 per cent of deposit money banks in Nigeria have foreign subsidiaries and branches abroad. This makes it important for these banks to translate and consolidate their foreign currency denominate assets into domestic account. Hence, if the exchange rate changes, this might distort the net worth and financial statement of the domestic bank, thereby affecting its performance (Hussain & Khan, 2016). Thus, the concern of this study is to examine the effect of translation exposure on performance of deposit money banks in Nigeria.

Empirical evidence clearly shows that studies on translation exposure and performance of deposit money banks in Nigeria are limited as most studies in this regard are largely from developed (Hagelin and Pramborg, 2015; Aggarwal, 2019) and developing economies (Pradita & Geraldina,



2019; Pundir, 2020) which do not provide unified information. Hence, their conclusions cannot be generalised and objectively relied upon to inform policy for the deposit money banks in Nigeria. More so, previous studies (Aggarwal, 2019; Pradita & Geraldina, 2019; Pundir, 2020) assumed a linear effect between translation exposure and performance, but this may not be valid considering the asymmetry effect which are usually found with financial sector variables (Shin, Yu & Greenwood Nimmo, 2014). Hence, there is need to examine the effect of translation exposure on performance of deposit money banks in Nigeria.

This study contributes to the knowledge by providing empirical evidence on translation exposure and performance of deposit money banks in Nigeria. It will serve as reference for future scholars in this field of study as well as add to the literature on translation exposure and performance with reference to Nigeria. This will also draw attention of policy makers and bank management to the need to establish strategies and policies with the aim of reducing exposure in the banking industry. It will also assist in formulating positive fiscal policies which are relevant and sensitive to the forces influencing foreign exchange in Nigeria in order to prevent the collapse of banks.

LITERATURE REVIEW

Conceptual Review

Translation Exposure

Translation exposure is a risk that a company's asset or liabilities may change due to fluctuation in exchange rates. It is the effect of changes in exchange rate on the foreign asset, liabilities or income of a bank. Translation exposure affects banks which have subsidiaries or branches in different countries other than the country of the parent bank. This is so because at the point of translating and reporting foreign assets and liabilities into home account, exchange rate might change thereby altering the overall financial statement of the parent bank (Pobric, 2019). Pundir (2020) opined that discrepancy in the financial statement as a result of changes in exchange rate distorts the financial position of banks. Translation exposure is measured by dividing a bank's foreign assets by the exchange rate (Ling, 2017). The bank's foreign assets used in this study are strictly those assets of banks with foreign subsidiary while the exchange rate is the effective exchange rate as at 2019.

Deposit Money Bank Performance

Bank performance refers to the reflection in which resources of a bank are used in a form to achieve its objectives (Salim, Robin & Bloch, 2018). The objectives of banks are of two-fold: to offer a variety of services to individuals, and to collect payment including fees, interest on the products and services provided to customers for the purpose of generating profits for shareholders. However, this does not mean that commercial banks do not have other goals such as social and economic goals. By the virtue of these services rendered and roles played, banks are indebted to stakeholders by their performance. Doing this provides stakeholders with flow of information on their investment and helps to guide banks' decision making process (Yusuf & Tijani, 2019).

Return on equity is one of the most widely used performance ratio in the banking industry due to its superiority over other performance measurements (Quaadgras, Weil & Ross, 2014). Return on



equity is a profitability ratio that measures the ability of a bank to generate profits from its shareholders investment. This measure (ROE) is particularly suitable in the situation where an enterprise is involved in paying dividend or experiencing substantial profit or loss (Elhussein & Osman, 2019). The formula for calculating return on equity is net profit to total equity. Hence poor returns on equity due to macroeconomic factors such as exchange rate changes could discourage investment from shareholders and investors.

Theoretical Review

Asymmetric Exchange Rate Exposure Theory

The theory underpinning this study is the asymmetry exchange rate exposure theory. This theory was pioneered by Koutmos and Martin (2003) but first muted by Chow, Lee & Solt (1997). The basis for this theory stems from the inconsistent empirical works to detect significant exchange rate exposure from a few firms. According to Koutmos and Martin (2003), the failure to discover exchange rate exposure is due to the fact that exchange rates affect cash flows over longer periods. He argued that firms with foreign denominated asset may not experience exposure in short the run but in the long run due to information that are being suppressed in the short run. As postulated in the theory, translation exchange rates exposure stems from an accounting exposure through the consolidation of the financial statements of banks' foreign subsidiaries with that of the parent company (Prasad & Suprabha, 2015). For instance, as depreciation of foreign exchange rates increases the domestic interpretation of the value of foreign subsidiary, foreign exchange rates appreciation causes a decline in the domestic interpretation of the value of foreign subsidiary. This effect is however, postulated to be asymmetric on the bank's value, i.e. to be unequal for an increase and a decrease.

Empirical Review

One of the early studies that investigate the effect of translation exposure on the value of the firm was by Dufey (1972). He revealed that translation exposure had no impact on firm value. The following years saw a great amount of empirical studies investigating the responsiveness of translation exposure but the variation in the results are just as great as the number of studies made. Hagelin and Pramborg (2015) revealed that when translating to home currency, changes in exchange rate positively improves the value of firm. In addition, Aggarwal (2019) established that banks with advanced level of hedging instrument usually show fewer substantial levels of exposure. Tang (2018) opined that the higher the level of translation exposure, the higher the benefits of banks in terms of cost efficiency. Ling (2017) also suggested that an increase in translation exposure positively impacts the profitability of deposit money banks operating in the US. However, these studies overlooked the significance of the exposure coefficient.

In the developing economy, Ahmed (2015) and Pobric (2019) established that translation exposure does not contribute positively to bank returns. They equally found that unrealised foreign exchange gain on losses had an effect on the net income of multilateral banks as it was posted to either income statement of owners' equity reserves. The study of Vikram and Vishwamurthy (2019) equally established that among the three types of exposure, translation exposure directly affects



the shareholders of the firm since investors are more interested in the earning and financial statements of the bank. They also maintained that translation and transaction exposure both influence banks' performance. Pundir (2020), Pradita and Geraldina (2019) studies had a similar finding. From their analysis, they concluded that translation exposure has no significant impact on banking profitability. They further established that translation exposure of banks does not directly involve cash flows. Similarly, Ihsan, Rashid and Naz (2018) while examining the translation exposure and shareholder interest in the banking sector development in Pakistan concluded that the translation gains or losses tend to be unrealised and have no impact on firms' cash flows. In Nigeria Asaolu (2011) investigated the exchange rate risk exposure of listed firms and found that exchange rate instability has a significant hindrance to corporate performance in Nigeria listed firms.

From the literature reviewed only a limited number of studies (Ahmed 2015; Ling 2017; Pradita & Geraldina 2019; Pundir, 2020) tried to establish the nexus between translation exposure and bank financial performance with mixed findings. More so, the result obtained from the findings of the studies of Ahmed (2015), Pradita & Geraldina, (2019) conducted on Ghanaian and Indonesia banks may not be suitable for Nigeria's deposit money banks because of the difference in exchange rate. In addition, Pundir (2020); Pradita and Geraldina (2019); and Tang (2018) assumed that a linear effect of an increase in translation exposure on performance is the same as the effect of a decline in exchange rate exposure (symmetric effect). This may not be valid considering the asymmetries which are usually found with financial sector variables (Shin *et.al*, 2014).

Generally, the empirical review discovered that there are still limited studies conducted on the effect of translation exposure on performance of banks in Nigeria with the exception of Asaolu (2011) who focused on multinational firms without considering the banking sector. This again, poses difficult in generalising his conclusion for the banking industry in Nigeria. Additionally, in filling the methodological gaps, this study employed the panel Nonlinear ARDL technique by Shin *et.al* (2014) which is able to take care of the linearity assumption of the ARDL developed by Pearsan *et.al* (2001) and incorporating the possibility of exchange rate exposure having an asymmetric effect on bank performance.

METHODOLOGY

Model Specification

The study adopted exploratory research design using ex-post facto design. The design was adopted as a result of this study relying on secondary data and the fact that data are already established and cannot be manipulated by the researcher. The data was sourced from the annual report of the banks and the Central Bank of Nigeria CBN data book covering 2004 to 2019. The population of the study is 20 deposit money banks listed on the trading floor in the Nigerian Stock Exchange within the period 2004 -2019. A sample size of 7 deposit money banks was chosen based on purposive sampling technique. These banks are Access Bank, First Bank, United Bank for Africa, Union Bank, Zenith Bank, First City Monument Bank and Guaranty Trust Bank. These banks were chosen due to the fact that they hold international authorisation license and their distress could

disrupt the wider financial architecture of the economy (Yusuf and Tijani, 2019). Both the descriptive and inferential approaches to analysis were employed. The descriptive tools of summary statistics which include the mean, standard deviation, minimum and maximum values were used. As regards the inferential tools, multiple regression analysis was employed specifically; the Nonlinear ARDL method was used in the analysis.

The study specified its models following the panel Non-linear ARDL approach developed by Shin *et al.* (2014) which is an extension of the linear ARDL modelling. First, the linear ARDL model developed by Pesaran *et. al* (2001) can be expressed as follows:

$$\Delta y_{it} = \alpha + \delta y_{it-1} + \theta^+ x_{it-1} + \sum_{j=1}^{n-1} \varphi_i \Delta y_{it-j} + \sum_{j=1}^{m-1} \rho_j \Delta x_{it-j} + \varepsilon_{it} \quad \dots(1)$$

Going by the non-linear ARDL model, the explanatory variable of interest is decomposed as follows:

$$x_{it} = x_0 + x_{it}^+ + x_{it}^- \quad \dots(2)$$

where x_{it}^+ and x_{it}^- are partial sum processes of positive and negative changes in x_{it} , obtained as follows:

$$x_{it}^+ = \sum_{j=1}^t \Delta x_{ij}^+ = \sum_{j=1}^t \max(\Delta x_{ij}, 0) \quad \dots(3)$$

$$x_{it}^- = \sum_{j=1}^t \Delta x_{ij}^- = \sum_{j=1}^t \min(\Delta x_{ij}, 0) \quad \dots(4)$$

Therefore, the nonlinear asymmetric long-run equilibrium relationship can be expressed as:

$$y_{it} = \beta^+ x_{it}^+ + \beta^- x_{it}^- + u_t \quad \dots(5)$$

where β^+ and β^- are the asymmetric long-run parameters associated with positive and negative changes in x_{it} , respectively. To obtain the Nonlinear ARDL model, the study combined equation 3.1 and 3.5 given as:

$$\Delta y_{it} = \alpha + \delta y_{it-1} + \theta^+ x_{it-1}^+ + \theta^- x_{it-1}^- + \sum_{j=1}^{n-1} \varphi_i \Delta y_{it-j} + \sum_{j=1}^{m-1} (\rho_j^+ \Delta x_{it-j}^+ + \rho_j^- \Delta x_{it-j}^-) + \varepsilon_{it}$$

Thus, the model is specified as:

$$\begin{aligned} \Delta ROE_{it} = & \alpha + \delta ROE_{it-1} + \theta^+ TRLE_{it-1}^+ + \theta^- TRLE_{it-1}^- + \sum_{j=1}^{n-1} \varphi_i \Delta ROE_{it-j} \\ & + \sum_{j=1}^{m-1} (\rho_j^+ + \omega_j^+ \Delta TRLE_{it-j}^+ + \omega_j^- \Delta TRLE_{it-j}^-) + \varepsilon_{it} \end{aligned}$$

where



ROE is bank performance (measured by return on equity)

TRLE is translation exposure (measured by foreign assets to exchange rate)

θ^+ & θ^- , are the asymmetric distributed-lag parameters, $-\theta^+/\delta$ & $-\theta^-/\delta$, are the associated asymmetric long-run parameters.

ε_{it} is the white noise disturbance term

The a priori expectation is that $\delta < 0$ implying a negative relationship is expected between translation exposure and performance of deposit money banks in Nigeria. This is simply because, an increase in the bank exposure to changes in exchange rate will cause a decline in the reported income of the bank, and consequently cause a decline in the net worth of the parent banks.

RESULTS AND DISCUSSIONS

The descriptive statistics of the variable (both dependent and independent) were calculated for the entire sample data set of seven deposit money banks in Nigeria. The descriptive analysis shows mean, standard deviation, minimum and maximum values to provide in-depth information on the behaviour of variables.

Table 1 Descriptive Statistics of ROE and Translation

Variable	Mean	Std. Dev.	Min	Max
ROE	14.78%	9.43%	-9.86%	34.92%
TRLE	6.75bn	47.4bn	0.024bn	502bn

Source: Author’s computation, 2020.

As to the summary of the statistical results of return on equity, Table 1 shows that return on equity has a mean of 14.78%, standard deviation of 9.43%, minimum of -9.86% and maximum of 34.92%. These values indicate that on average bank earned net profit worth of 14.78% of total revenue over the period. The bank that has the lowest returns during the period made a loss of 9.86% of total revenue while the bank with the highest returns during the period recorded net profit of 34.92% of total revenue. While translation exchange rate exposure has a mean of 6.75 billion, standard deviation of 47.4 billion, minimum of 0.024 billion and maximum of 502 billion. These values indicate that on the average, these banks are exposed in terms of translation exchange rate exposure to the tune of 6.75 billion US dollars over the period. This average has a spread of 47.4 billion US dollars among the banks. The bank that is least exposed during the period in terms of translation exchange rate exposure has 24 million US dollars’ worth of exposure while the bank that is most exposed during the period in terms of translation exchange rate exposure has 502 billion US dollars’ worth of exposure.

Normality of Variables

The study employed the joint skewness and kurtosis normality test in order to examine the nature of distribution of the variables.

Table 2: Results of Normality Test of Variables

Variable	Adjusted Chi-squared (χ^2)	p-value
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ROE	1.24	0.007
TRLE	8.21*	0.012

Source: Author’s computations, 2020.

Note: * indicates p-value < 0.05 and significance at 5%; ROE is return on equity; and TRLE is translation exchange rate exposure.

The Table 2 above shows the adjusted Chi-squared value for each of the variable and their significant p-values. The result indicates that the variables are normally distributed.

Unit Root Test

Table 3 Results of Unit Root Test of Variables

Variable	z-statistic	p-value	Order of Integration	Stationarity
ROE	-2.2559	0.027	I(0)	Stationary
TRLE	-0.9040	0.488	I(1)	Not Stationary
D(TRLE)	-6.2905	0.000		

Source: Author’s computation, 2020.

Note: ROE is performance; TRLE is translation exchange rate exposure; and D() indicates first difference.

Augmented Dickey Fuller test was used to carry out the stationarity of the variables employed in this study. The result revealed that the return on equity used as the proxy for performance was stationary at level. However, translation exposure was not stationary at level, but was stationary when converted to the first difference. Hence the use of the Nonlinear ARDL.

Nonlinear ARDL

Table 4 NARDL Panel Regression Result of ROE and Translation Exposure

Variables	Coef.	p-value
Long Run Estimates (Upper Panel)		
TRLE ⁺	1.95***	0.000
TRLE ⁻	-1.422	0.251
Short Run Estimates (Lower Panel)		
ECT	-1.00***	0.000
D(TRLE ⁺)	0.818	0.731
D(TRLE ⁻)	7.66**	0.041
_cons	623.5	0.685

Source: Author’s Computation, 2020.

Note: *** significant at 1%, ** significant at 5%, * significant at 10%; TRLE is translation exchange rate exposure.

Looking at the effects of translation exchange rate exposure on return on equity of banks, the short run results presented in the lower panel of Table 4 shows that the coefficients of an increase in



translation exchange rate exposure (0.818) is not statistically significant (with p-value of 0.731) while the coefficients of a decrease in translation exchange rate exposure (7.66) is statistically significant and positive (with p-value of 0.041). This suggests that increase in translation exchange rate exposure does not have a short run effect on return on equity of systemic important banks in Nigeria but a decrease in translation exchange rate exposure has a short run positive effect on bank returns. The significant negative coefficient of a decrease in translation exchange rate exposure signifies that a per cent decrease in it will result to a short-run rise in earnings by 0.0766 per cent points (i.e. 7.66/100).

The long run results presented in the upper panel of the Table 4 show that increase in translation exchange rate exposure has statistically significant positive coefficient of 1.95. This is shown by its p-value of 0.000. On the other hand, decrease in translation exchange rate exposure has a statistically insignificant coefficient of -1.422. This is shown by its p-value of 0.251. This indicates that only an increase in translation exchange rate exposure has a long run effect on earnings of systemically important banks in Nigeria and its decrease does not. The significant positive coefficient of an increase in translation exchange rate exposure signifies that a per cent increase in it will result to a rise in long-run earning by 0.0195 per cent points (i.e. 1.95/100). This shows that as an increase in translation exchange rate exposure improves the return on equity of systemic important banks in the long-run, a reduction in translation exchange rate exposure has no effect on returns on equity.

Table 5 Diagnostics Test for ROE Model

Test	Statistic value	p-value
Model with Translation Exchange rate exposure		
Hausman Specification Test	1.50	0.683
Cointegration F-test	10.00	0.000
Long-run Asymmetry Wald Test	10.16	0.001
Short-run Asymmetry Wald Test	2.13	0.145

Source: Author’s Computation, 2020.

The post estimation diagnostics presented in Table 5 are the relevant diagnostics in order to check the validity of the Nonlinear ARDL (NARDL) regression model employed in this study. The results presented in Table 5 are those generated for the earnings model. The results presented for Hausman test for translation exposure show that the statistics value of 1.50 is low with p-value higher than 0.05 significance level. This indicates that the pooled-mean group method presented is preferred to its mean group counterpart. F-test of cointegration shows the value of 10.00 with p-values of 0.000 which revealed a long run cointegration. This suggests that there is a long run relationship between translation exposure and earning of deposit money banks. The long-run



asymmetry Wald test examine if there is long-run asymmetric effect of translation exchange rate exposures on performance. The statistics p-value of 0.00 signifies that there is evidence of long run asymmetry effect of translation exposures on earnings.

Discussion of Findings

From the result above, translation exposure has a positive and statistically significant coefficient at 5% and 1% respectively. This implies that persistent increase or decrease in translation exposure increases the net worth of parent banks. Hence, this will boost shareholders confidence in investing more in the bank thereby forecasting with certainty its future dividend level. This equally shows that deposit money banks in Nigeria have an effective balance sheet hedging tool in minimising foreign exchange exposure.

The study also established an asymmetric effect between translation exposure and performance of deposit money banks. This indicates that the magnitude increase of translation exposure on performance does not have the same magnitude on its decrease. This provides evidence to support the asymmetry theory which postulated that exposure affects firm cash flow either at the short run or long run. Even though Pundir (2020) has it that translation exposure does not have any relationship with the performance of firms since it does not affect their cash flows directly, evidence from this study suggests the opposite. The finding of the study fails to conform to the a priori expectation that translation exposure has a negative effect on bank performance of deposit money banks in Nigeria and collaborates with the empirical findings of Pradita and Geraldina (2019) and Pundir (2020) in Indonesia who established a positive effect between translation and performance. However, this is contrary to the study of Ahmed (2015) and Pobric (2019) who established that translation exposure negatively impacts performance of the firm in Ghana.

CONCLUSION AND RECOMMENDATIONS

This study examined the effect of translation exposure on performance of deposit money banks in Nigeria. Several empirical studies were reviewed to identify the unfilled gap. Meanwhile, the findings revealed that translation exposure has an asymmetric effect on performance proxy by returns on equity. However, the study concluded that translation exposure has a positive and significant effect on performance of deposit banks in Nigeria. This study therefore, recommends that bank managers should encourage periodic assessment of the banks statement of financial position.

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