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**Original Research Article** 

# **Exploring the Role of Exchange Rate in Driving Market Capitalization in Nigeria**

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# **Abstract**

The centrality of exchange rate in stock market performance cannot be over-emphasized. Thus, this study examined the dynamic effects of exchange rate on market capitalization in Nigeria. The specific objectives are to examine the effects of nominal exchange rate, real effective exchange rate, real interest rate and inflation rate on market capitalization using time series data which were obtained from the WDI and World Federation Exchanges Database between 1993 and 2020. Unit root test, cointegration test, ARDL estimation method, Granger causality tests were applied to analyze the data. The unit root test results showed that only market capitalization is stationary at levels whereas the other variables become stationary at first difference. The bounds cointegration test result revealed that market capitalization has long run relationship with the explanatory variables. The results revealed that real effective exchange rate impacted positively on the market capitalization. This implies that increase in real exchange rate (depreciation of the naira) creates opportunity for increase in the capital market size. The results further revealed that nominal exchange rate has an insignificant positive effect on market capitalization in the short run and long run. This could be linked to the inconsistency that characterizes the official exchange rate policy in Nigeria. It was also found that real interest rate has significant negative effect on market capitalization in the long run. At the same time, inflation rate negatively affected market capitalization. The Granger causality test results showed that a unidirectional causality runs from real interest rate and market capitalization. Given the findings, this study recommends that policymakers should ensure that the exchange rate management prioritizes a realistic and stable exchange rate to boost global competitiveness and improve market capitalization.

Keywords: Exchange rate, capital market, market capitalization, real interest rate and inflation.

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# 1. INTRODUCTION

As a monetary phenomenon, exchange rate is linked to the stock market performance. This has its foundation to established theoretical and empirical relationships between financial and real sector development. The seminal work of Roll (1992) offers empirical insights on how the behavior of exchange rate affects stock market returns. Similarly, Abimbola & Olusegun (2017) are of the view that changes in the stock market development are closely linked to exchange rate fluctuations in addition to other macroeconomic outcomes. Suriani, Kumar, Jamil & Muneer (2015) argue that positive relationship between exchange rate and stock market development is enabled when domestic currency depreciates and domestic firms gain some level of competitive edge due to their

increasing levels of export. Consequently, the stock prices tend to soar with the potential of increased stock market development.

According to Kim (2003), exchange rate emerged as the key determinant of stock prices and capital market development following the rising pace of foreign trade and capital mobility. This places exchange rate at the center of policy debate on stock market development. Korsah & Fosu (2016) argue that foreign exchange fluctuation influences the performance of the capital market given that the future net cash flows of a firm respond to variations in the exchange rate. They further explained that exchange rate appreciation limits the competitiveness of firms on the global market with an associated negative implication on sales revenue and

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profit which contracts the stock market development. Yau & Nich (2006) posit that domestic exporters enjoy some benefits during exchange rate depreciation given that their sales revenue and stock prices rise unlike foreign exporters. This indicates that exchange rate depreciation is beneficial to domestic firms and in turn provides pathway for improved market capitalization. Aggarwal (2003) observes that currency devaluation positively influences exporting firms and in turn boosts their revenue base and stock prices.

Apart from the perceived effects of exchange rate on international and export-based firms, it has been established that stock prices of domestic firms are equally influenced by exchange rate fluctuations. This is because they are increasingly linked to the international economy through the importation of the productive inputs and export of their outputs. Like other developing economies, Nigeria has put in place measures to promote the development of the capital market. One of these measures is guided liberalization of exchange rate which allowed for managed floating exchange rate regime in order to ensure that the market forces play dominant role in determining the rate of exchange. This is because exchange rate is perceived to play an important role in stock market development.

Abimbola & Olusegun (2017) posit that exchange rate has both short and long-term effects on the Nigerian capital market. They further explained that, in the short run, exchange rate triggers more allocation, efficient resource especially transaction costs for capital flows are removed. However, in the long run, fluctuations in the exchange rate constitute a risk for growth in emerging markets economies. Adam (2015) observes that this intensifies the tendency of financial crisis with negative implications on the values of firms since the future cash flows of the firm vary with the variation in exchange rate. In view of the dismal performance of the stock market in Nigeria, the question that continues to draw the attention of policy makers and other stakeholders in Nigeria is: to what extent and through what channels do exchange rate movements affect the value of stock traded in Nigeria? Thus, this study empirically examined how exchange rate fluctuations affected the development of the Nigerian stock market with a focus on the market capitalization.

#### 2. LITERATURE REVIEW

# 2.1. Theoretical Framework

This study is anchored on the flow-oriented model credited to Dornbusch & Fischer (1980). The theory assumes that changes in exchange rates affect the competitiveness of multinational firms and hence their earnings and stock prices. Thus, the international competitiveness of firms is influenced following changes in exchange rate. Basically, the theory explained that a positive relationship exists between exchange rates and stock prices. The direction of

causality is believed to run from exchange rate to the stock market. In other words, changes in exchange rate triggers variation in the performance of stock market, especially the prices of stock. In accordance with the flow-oriented model, a depreciation of the local currency makes exporting goods cheaper and may lead to an increase in foreign demands and sales for exporting firms. This causes stock prices to increase with an increase in the global competitiveness of the firms. The rise in stock prices is expected to increase the value of stocks traded and turnover ratio of stocks. In contrast to the exporting firms, importing firms would be at a disadvantage position when there is depreciation of local currency.

On the other hand, an appreciation of the domestic currency makes exports expensive in international market. Consequently, foreign demand for the products of exporting firms will fall. The decline in the foreign demand will lead to the shrinking of sales and profits of firms with a decline in stock prices. This will have adverse effects on the development of the capital market. Overall, the flow-oriented approach to exchange rate - stock market nexus - is based on the postulation that fluctuation in exchange rate causes fluctuations in stock prices. This approach is built on the macroeconomic view that because stock prices represent the discounted present value of a firm's expected future cash flows, then any phenomenon that affects a firm's cash flow will be reflected in that firm's stock price. Although, some previous studies (Fang, 2002; Phylaktis & Ravazzolo, 2005) found evidence to support the flow-oriented approach, the model has been criticized for its partial understanding of the relationship between exchange rate and stock market performance.

# 2.2. Empirical Literature Review

Bagh, Azad, Razzaq, Liaqat & Khan (2017) empirically analyzed the effect of exchange rate volatility on Pakistan Stock Index between 2003 and 2015. The correlational research design is used in order to demonstrate cause-and-effect relationship between the underlying variables. Augmented Dickey-Fuller test statistic is utilized to test for evidence of unit root in the series. The study results found that there is positive and statistically significant relationship between exchange rate volatility on stock index of Pakistan. Based on findings, the study particularly recommends that the public who desire to invest must utilize the information of important macroeconomic variables, especially exchange rates volatility in order to predict the behaviour of stock market index.

Barguellil, Ben-Salha & Zmami (2018) examined the impact of exchange rate volatility on economic growth. An empirical investigation based on a sample of 45 developing and emerging countries over the period of 1985-2015 was conducted using the difference and system generalized method of moments

estimators. Findings suggest that the generalized autoregressive conditional heteroscedasticity-based measure of nominal and real exchange rate has a negative impact on economic growth. The study concluded that volatility is more harmful when countries adopt flexible exchange rate regimes and financial openness.

Mikhaylov (2018) analyzed the volatility spillover effect between stock and foreign exchange markets in both directions in oil exporting countries - Russia and Brazil. The data sample consists of daily observations. The method was based on FIGARCH model of the long memory. The estimations show that long memory is present in the dynamics of volatility, when models take into account structural breaks and frictions. The study further revealed that volatility can be predicted using the FIGARCH model if the structural breaks are incorporated in the model. The study concluded that the findings are of great interest to readers in the areas of economic forecasting on the base of long memory models.

Rakhal (2018) explored the effect of selected macroeconomic factors such as remittances, money supply, exchange rate, and interest rate on stock market performance. The study demonstrates that remittance and money supply positively affect the stock market whereas interest rate and exchange rate negatively affect the stock market performance. In a related study, Rahman, Sidek & Tafri (2009) examined the interactions between selected macroeconomic variables and stock prices for the case of Malaysia. The study applied the VAR framework along with a battery of

complementary tests to trace out both short and long run dynamics. Upon testing a vector error correction model, it found that Malaysian stock market index had cointegrating relationship with changes in money supply, interest rate, exchange rate, reserves and industrial production index. Furthermore, the variance decomposition analysis showed that Malaysian stock market has stronger dynamic interaction with reserves and industrial production index as compared to money supply, interest rate, and exchange rate.

# 3. METHODOLOGY

#### 3.1. Research Design

This study adopted an ex-post facto research design in examining the nexus between foreign exchange rate and market capitalization. The choice of this research design is motivated by the nature of this study, especially its reliance on existing data which are devoid of any form of control or manipulation.

# 3.2. Model Specification

This study was be anchored on the floworiented model and it followed the work of Adebowale & Akosile (2018) with an improvement due to broader classifications of exchange rates. The functional form of the model is expressed as:

$$MKP = f (NER, RER, RIT, INF)$$
 (1)

Where: MKP = Market capitalization, NER = Nominal exchange rate, RFR = real effective exchange rate, RIT = real interest rate and INF = inflation rate.

The autoregressive distributed lad (ARDL) model for market capitalization is provided as follows:

$$MKP_{t} = \alpha_{0} + \sum_{i=1}^{K} \alpha_{1i} \Delta MKP_{t-1} + \sum_{i=1}^{K} \alpha_{2i} \Delta NER_{t-1} + \sum_{i=1}^{K} \alpha_{3i} \Delta RER_{t-1} + \sum_{i=1}^{K} \alpha_{4i} \Delta RIT_{t-1} + \sum_{i=1}^{K} \alpha_{5i} \Delta INF_{t-1} + \beta_{1i} MKP_{t-1} + \beta_{2i} NER_{t-1} + \beta_{3i} RER_{t-1} + \beta_{4i} RIT_{t-1} + \beta_{5i} INF_{t-1} + e_{t}$$
(2)

Where:

 $\alpha_0$  = intercept

 $\alpha_1$  -  $\alpha_5$  = short run dynamic coefficients of the explanatory variables

 $\beta_1$  -  $\beta_5$  = long run multipliers

 $e_t$  = White noise error process

 $\Delta$  = first difference operator

K = maximum lag order automatically selected based on AIC

i and t denote country of study and timeframe respectively

Furthermore, this study applied Granger causality test to estimate the direction of causality (interactions) among the variables. The model set up for the Granger causality test is provided as follows:

$$MKT_{t} = \alpha \sum_{i=1}^{m} \phi_{11} MKT_{t-i} + \sum_{i=1}^{m} \phi_{12} NER_{1t-i} + \sum_{i=1}^{m} \phi_{13} RER_{2t-i} + \sum_{i=1}^{m} \phi_{14} RIT_{3t-i} + \sum_{i=1}^{m} \phi_{15} INF_{4t-i} + e_{1t}$$
(3)  

$$NER_{t} = \sum_{i=1}^{m} \phi_{21} MKT_{t-i} + \sum_{i=1}^{m} \phi_{22} NER_{1t-i} + \sum_{i=1}^{m} \phi_{23} RER_{2t-i} + \sum_{i=1}^{m} \phi_{24} RIT_{3t-i} + \sum_{i=1}^{m} \phi_{25} INF_{4t-i} + e_{2t}$$
(4)  

$$RER_{t} = \sum_{i=1}^{m} \phi_{31} MKT_{t-i} + \sum_{i=1}^{m} \phi_{32} NER_{1t-i} + \sum_{i=1}^{m} \phi_{33} RER_{2t-i} + \sum_{i=1}^{m} \phi_{34} RIT_{3t-i} + \sum_{i=1}^{m} \phi_{35} INF_{4t-i} + e_{3t}$$
(5)

$$RIT_{t} = \sum_{i=1}^{m} \phi_{41} MKT_{t-i} + \sum_{i=1}^{m} \phi_{42} NER_{1t-i} + \sum_{i=1}^{m} \phi_{43} RER_{2t-i} + \sum_{i=1}^{m} \phi_{44} RIT_{3t-i} + \sum_{i=1}^{m} \phi_{45} INF_{4t-i} + e_{4t}$$
(6)  

$$INF_{t} = \sum_{i=1}^{m} \phi_{51} MKT_{t-i} + \sum_{i=1}^{m} \phi_{52} NER_{1t-i} + \sum_{i=1}^{m} \phi_{53} RER_{2t-i} + \sum_{i=1}^{m} \phi_{54} RIT_{3t-i} + \sum_{i=1}^{m} \phi_{55} INF_{4t-i} + e_{5t}$$
(7)

 $\phi_{11} - \phi_{55} =$  an (nxn) coefficient matrices  $\Delta =$  first difference operator m = notation for optimal lag order

 $e_{1t}$  -  $e_{5t}$  = vectors of error terms.

# 3.3. METHOD OF DATA ANALYSIS

The study employed the ARDL model to estimate the dynamic relationship between market capitalization and the underlying explanatory variables. The choice of this analytical technique was based on the fact the variables in the model are fractionally integrated [evidence of I(0) and I(1) series]. It is also considered useful in representing the dynamic short and long run relationships in a single equation set up (Pesaran, Shin & Smith, 2001). There has been a widespread application of the ARDL in some previous

studies including Ezekwe, Otto, Ozigbu & Morris (2022). Aside from the ARDL, this study employed descriptive statistics, unit root and bounds cointegration tests. The pairwise Granger causality test was also applied in this study to capture the interactions among the variables in the model. The statistical requirement for the Granger causality test is that the variables must depict long term equilibrium relationship. To this end, the null hypothesis of no causality was tested at 5 percent level of significance using F-statistic and its corresponding probability values.

# 4. RESULTS AND DISCUSSION

#### 4.1 Descriptive Statistics

The descriptive statistics for stock market development indicators and the underlying explanatory variables are presented in Table 1.

**Table-1: Summary statistics for the variables** 

|             | MKP      | NER      | RER      | RIT       | INF      |
|-------------|----------|----------|----------|-----------|----------|
| Mean        | 12.98608 | 141.9222 | 113.1881 | 3.418929  | 17.71563 |
| Median      | 11.98615 | 130.2450 | 100.5363 | 5.920000  | 12.38637 |
| Maximum     | 30.80067 | 358.8110 | 272.9240 | 18.18000  | 72.83550 |
| Minimum     | 2.488777 | 21.88000 | 54.39478 | -31.45000 | 5.388008 |
| Std. Dev.   | 5.983026 | 93.74344 | 50.05310 | 10.07590  | 16.61544 |
| Jarque-Bera | 8.740575 | 2.052547 | 27.33852 | 26.64719  | 44.80606 |
| Probability | 0.012648 | 0.358340 | 0.000001 | 0.000002  | 0.000000 |
| Obs         | 28       | 28       | 28       | 28        | 28       |

Source: Researcher's computation (2021) based on data sourced from the World

# **Federation Exchanges Database**

The mean distribution showed that the market capitalization averaged 12.99 percent while the average values of nominal exchange rate and real effective exchange rate stood at 141.92 and 113.188 respectively. The mean distribution of the variables further showed that real interest rate averaged 3.42 percent whereas the average value of inflation rate stood at 17.72 percent over the study period. The standard deviations showed that the observations for all the variables except real interest clustered around there respective mean values.

This is because their respective standard deviations are less than the associated mean values. The probability values of the Jarque-Bera statistics reveal that only nominal exchange rate is normally distributed at 5 percent level. This is because the probability value is greater than 0.05.

# 4.2 Multicollinearity Test

The pairwise correlation is relied upon for the multicollinearity test and the results are summarized in Table 2.

Table-2: Pairwise correlation coefficients for the variables

|     | MKP    | NER    | RER   | RIT    | INF |
|-----|--------|--------|-------|--------|-----|
| MKP | 1      |        |       |        |     |
| VST | 0.554  |        |       |        |     |
| TVR | 0.229  |        |       |        |     |
| NER | -0.342 | 1      |       |        |     |
| RER | 0.532  | -0.275 | 1     |        |     |
| RIT | -0.019 | 0.363  | 0.038 | 1      |     |
| INF | -0.045 | -0.432 | 0.018 | -0.817 | 1   |

Source: Researcher's computation (2022) based on data sourced from the World Federation Exchanges Database

As observed from the pairwise correlation coefficients, there is no perfect linear or near-perfect linear correlation between any pair of the explanatory variables. This finding is an indication that there is not enough evidence that the problem of multicollinearity exists in the model. It, therefore, follows that the explanatory variables can be regressed together in each of the models given the absence of linear interference among them. This finding corroborates with the results

of Khaled (2020) and Omodero (2020) which showed no evidence of linear interference between the predictors of capital market performance.

#### 4.3. Unit Root Test Results

The unit root test was performed using Phillips-Perron method at 5 per cent level of significance and the results are presented in Table 3.

Table-3: Summary of Phillips-Perron unit root test results

| Variable | Adj. t-Stat./p-value for levels test | Adj. t-Stat./p-value for first difference test | Order of integration |
|----------|--------------------------------------|--|----------------------|
| MKP      | -3.900                               | NA   | I(0)                 |
|          | (0.026)                              |  |                      |
| NER      | -0.819                               | -3.719   | I(1)                 |
|          | (0.951)                              | (0.039)  |                      |
| REER     | -2.899                               | -4.849   | I(1)                 |
|          | (0.178)                              | (0.003)  |                      |
| RIT      | -3.268                               | -7.775   | I(1)                 |
|          | (0.093)                              | (0.000)  |                      |
| INF      | -2.317                               | -5.354   | I(1)                 |
|          | (0.411)                              | (0.001)  |                      |

Source: Researcher's computation (2022) based on data sourced from the World Federation Exchanges Database

Note: Figures in parenthesis are the corresponding probability values of the adjusted t-stat. while NA denotes not applicable given the evidence of stationary process at levels

The Phillips-Perron unit root test results showed that only market capitalization is stationary at levels. This is because the corresponding probability value of its adjusted t-statistic is less than 0.05. Thus, market capitalization is considered to be integrated of order zero [I(0)]. On the other hand, the results of the levels test results revealed that the other variables (nominal exchange rate, real effective exchange rate, interest rate and inflation rate) for investigation are non-stationary at levels given that the associated probability values of their respective adjusted t-statistics exceed 0.05. However, these levels of non-stationary variables were found to be stationary at the first difference test.

It, therefore, follows from the first difference test results that they are integrated of order one [I (1)]. The evidence of first differencing stationarity process in these variables aligns with the findings Saidi *et al.* (2021) and Mroua & Trabelsi (2020) amongst others. From the Phillips-Perron unit root test results, the variables in the market capitalization model are fractionally integrated [I(0) and I(1)] which is consistent with conditions for the application of the ARDL method.

#### **4.4 Cointegration Test Results**

Following the evidence of fractional integration in the unit root tests for the variables in the market capitalization model, ARDL bounds test cointegration test was applied. The results of the cointegration tests are reported in Table 4.

**Table-4: Bounds cointegration result** 

| Tuble 4: Bounds confrequence result              |            |            |  |  |
|--|------------|------------|--|--|
| Series: MKP NER REER RIT INF                     |            |            |  |  |
| Null Hypothesis: No long-run relationships exist |            |            |  |  |
| Test Statistic                                   | Value      | k          |  |  |
| F-statistic                                      | 7.075      | 4          |  |  |
| Critical Value Bo                                | unds       |            |  |  |
| Significance                                     | I(0) bound | I(1) bound |  |  |
| 10 per cent                                      | 2.45       | 3.52       |  |  |
| 5 per cent                                       | 2.86       | 4.01       |  |  |
| 2.5 per cent                                     | 3.25       | 4.49       |  |  |
| 1 per cent                                       | 3.74       | 5.06       |  |  |

Source: Researcher's computation (2022) based on data sourced from the World Federation Exchanges Database

# Note: k denotes number of explanatory variables in the model

The bounds cointegration for the market capitalization model resonates from the fact that the

variables in the model are fractionally cointegrated. As observed from the results, the computed F-statistic (7.075) is greater than the upper bound critical value (4.01) at 5 per cent level of significance. This finding

provides enough empirical evidence for rejecting the null hypothesis of no cointegration. It, therefore, follows from the result that market capitalization has long run relationship with the underlying explanatory variables. This finding is in accordance with the results of Hu, Han & Zhang (2018) and Lawal *et.al.* (2018).

#### 4.5 Model Estimation

Following the evidence of the cointegration among the fractionally integrated variables, the ARDL was estimated. The results are reported in Table 5.

Table-5: ARDL short-run and long long-run coefficients

|                   | ariable: MK       |             | long run coci  |       |  |  |
|-------------------|-------------------|-------------|----------------|-------|--|--|
| Selected Mod      | lel: ARDL(1, 0    | 0, 0, 1, 1) |                |       |  |  |
| Sample: 1993 2020 |                   |             |                |       |  |  |
| Short run resu    | Short run results |             |                |       |  |  |
| Variable          | Coefficient       | Std. Error  | t-Statistic    | Prob. |  |  |
| D(NER)            | -0.014            | 0.011       | -1.236         | 0.231 |  |  |
| D(RER)            | 0.057***          | 0.021       | 2.709          | 0.014 |  |  |
| D(RIT)            | -0.124            | 0.155       | -0.799         | 0.434 |  |  |
| D(INF)            | -0.081            | 0.113       | -0.718         | 0.481 |  |  |
| CointEq(-1)       | -1.042***         | 0.178       | -5.850         | 0.000 |  |  |
| Long run results  |                   |             |                |       |  |  |
| Variable          | Coefficient       | Std. Error  | t-Statistic    | Prob. |  |  |
| NER               | -0.013            | 0.010       | -1.341         | 0.196 |  |  |
| RER               | 0.056***          | 0.019       | 2.948          | 0.008 |  |  |
| RIT               | -0.678***         | 0.244       | -2.779         | 0.012 |  |  |
| INF               | -0.358***         | 0.127       | -2.808         | 0.011 |  |  |
| С                 | 17.333***         | 3.598       | 4.818          | 0.000 |  |  |
| R-squared         | 0.666             |             | Prob.(F-stat.) | 0.002 |  |  |

**Source:** Researcher's computation (2022) based on data sourced from the World Federation Exchanges Database

Note: \*\*\* and \*\* denote significant at 1 and 5 per cent level respectively

The estimated ARDL model for market capitalization reveals that real effective exchange rate has significant positive effect on market capitalization in both the short run and long run. This is consistent with the findings of Irungu (2015). The findings are in accordance with the flow-oriented model which assumes that exchange rate is positively linked to stock prices. The results further revealed that nominal exchange rate has an insignificant positive effect on market capitalization in the short run and long run. This could be linked to the inconsistency that characterizes the official exchange rate policy in Nigeria. The result revealed that real interest rate has significant negative effect on market capitalization in the long run which agrees with the findings of Adekunle, Alalade & Okulenu (2016). These findings are impressive as they revealed that a higher interest rate ensuing from contractionary monetary policy will make investment in treasury bills and other fixed income securities more attractive as an alternative to holding stocks, thereby, affect market capitalization negatively. At the same

time, inflation rate impacts negatively on market capitalization which is consistent with the results of Adebayo (2016). This finding reveals that market capitalization responds negatively to inflationary pressures which could be linked to the contraction of the Nigerian economy. The error correction coefficient (-1.042) is negative and highly significant at 1 per cent, which satisfies the sufficient condition for error correction term as well as corroborates the fact that there is long-run relationship among the variables. Its coefficient of -1.042 indicates that for any short-run disequilibrium in the system, 100 per cent of it is corrected each year. This suggests that the convergence to long run equilibrium position is instantaneous. Additionally, the R-squared value (0.666) implies that 66.6 percent of the overall variations in market capitalization are due to changes in the explanatory variables. It is also evident from the probability value (0.002) of the F-statistic that the explanatory variables are collectively significant in influencing market capitalization in Nigeria.

Table-6: Post-estimation diagnostics test results

| Test type/Null Hypothesis (H <sub>0</sub> )          | Test-statistic           | Prob. value | Decision              |
|--|--------------------------|-------------|-----------------------|
| Breusch-Godfrey Serial Correlation test              | Chi-square stat. (1.382) | 0.5011      | Accept H <sub>0</sub> |
| H <sub>0</sub> :No serial correlation in residuals   |                          |             |                       |
| White's heteroscedasticity test                      | Chi-square stat. (4.273) | 0.748       | Accept H <sub>0</sub> |
| H <sub>0</sub> :Residuals are homoscedastic          |                          |             |                       |
| Ramsey's RESET                                       | F-stat. (2.614)          | 0.102       | Accept H <sub>0</sub> |
| H <sub>0</sub> : No functional form misspecification |                          |             | -                     |

**Source:** Researcher's computation (2022) based on the ARDL result in Table 4.9

The estimated market capitalization model was evaluated by subjecting it to relevant diagnostics tests. The results showed there is no evidence of heteroscedasticity and serial correlation. The results further showed that there is no evidence of functional form misspecification in the model. Based on the outcomes of the diagnostics tests, the estimated market

capitalization model is reliable for policy formulation and long-term predictions.

#### **4.6 Causality Test Results**

The Granger causality test was employed in this study to examine the interactions among the variables. The results are reported in Table 7.

**Table-7: Granger causality test results** 

| Null Hypothesis:                 | Obs | F-Statistic | Prob.  |
|----------------------------------|-----|-------------|--------|
| MKP does not Granger Cause NER   |     | 0.11207     | 0.7407 |
| RER does not Granger Cause MKP   | 27  | 0.01162     | 0.9151 |
| MKP does not Granger Cause RER   |     | 1.25914     | 0.2729 |
| RIT does not Granger Cause MKP   | 27  | 12.8625     | 0.0015 |
| MKP does not Granger Cause RIT   |     | 3.35932     | 0.0793 |
| INF does not Granger Cause MKP   | 27  | 2.36664     | 0.1370 |
| MKP does not Granger Cause INF   |     | 2.55227     | 0.1232 |
| RER does not Granger Cause NER   | 27  | 6.89294     | 0.0148 |
| NER does not Granger Cause RER   |     | 0.80415     | 0.3788 |
| RIT does not Granger Cause NER   | 27  | 1.93899     | 0.1765 |
| NER does not Granger Cause RIT   |     | 0.37134     | 0.5480 |
| INF does not Granger Cause NER   | 27  | 0.60140     | 0.4456 |
| NER does not Granger Cause INF   |     | 6.6E-05     | 0.9936 |
| RIT does not Granger Cause RER   | 27  | 5.65538     | 0.0257 |
| RER does not Granger Cause RIT   |     | 1.94448     | 0.1760 |
| INF does not Granger Cause RER 2 |     | 6.85344     | 0.0151 |
| RER does not Granger Cause INF   |     | 3.93591     | 0.0588 |
| INF does not Granger Cause RIT   | 27  | 12.2360     | 0.0019 |
| RIT does not Granger Cause INF   |     | 1.33926     | 0.2586 |

Source: Researcher's computation (2022) based on data sourced from the World Federation Exchanges Database

The test results in Table 4.14 showed that a unidirectional causality exists between real interest rate and market capitalization. This finding is consistent with the results of Zubair & Aladejare (2017) and Tahir Gul & Qazi (2019). The direction of the causality flows from real interest rate to market capitalization given that the associated probability value is less than 0.05. This finding suggests that real interest rate can be relied upon to forecast changes in market capitalization. There is no evidence of causality between market capitalization and the exchange rate measures. This result does not agree with the findings of Umezurike, Echekoba & Ananwude (2019). However, real effective exchange rate granger causes nominal exchange rate. This implies that the former has a forecasting power for the latter. Additionally, a unidirectional causality runs from real interest rate to real effective exchange rate. This explains the link between monetary policy and exchange rate management in Nigeria. At the same time, bidirectional causality exists between real effective exchange rate and inflation rate which explains the link between price stability and competitiveness of exports. The results further revealed that inflation rate Granger causes real interest rate. This finding is an indication that inflation rate has predictive ability for interest rate.

# 5. CONCLUDING COMMENTS

The centrality of exchange rate in capital market development cannot be over-emphasized. This

is because exchange rate determines the global competitiveness of the domestic economy in terms of foreign demand for domestic goods and services as well as investments in businesses quoted in the domestic exchange market through the purchase of shares. Following the growing recognition of the role of exchange rate in the financial architecture, this study explores the link between exchange rate and capital market development. The findings revealed that real effective exchange rate positively influenced the capital market capitalization. Real interest rate and inflation rates are equally significant in influencing market capitalization. Given the findings, this study concludes that real effective exchange rate is more effective compared to the nominal exchange rate in boosting market capitalization. Thus, it is recommended that` policymakers should ensure that the exchange rate management prioritizes a realistic and stable exchange rate to boost global competitiveness and improve the market capitalization. Again, there should be adequate foreign reserve holding to enhance sterilized interventions in the foreign exchange market and bolster the effectiveness of exchange rate in improving market capitalization.

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