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Amassoma, Ditimi[1]
Adeleke, O.[2]

TESTING FOR THE CAUSALITY BETWEEN INTEREST RATE AND STOCK MARKET PERFORMANCE IN NIGERIA

In this paper, the causal relationship between interest rate and stock market performance is investigated using a VECM-based Granger causality test on annual time series data from 1975 to 2016. The rationale for this study emanates from the unpredictable behaviour of the Nigerian stock exchange from the outset of the global financial economic crisis from 2007/8 till date couple to the increasingly high key policy rates like interest rate by the CBN that has refused to drop. The results reveal that the interest rate exerted a negative but statistically insignificant relation to stock market performance in the long run. In addition, Granger causality test result noted that there is no causality between interest rate and stock market performance. Thereby, advocating that other macroeconomic factors predict stock market activities better than the interest rate as suggested by the bi-directional causality between exchange rate and All Share index in the result. The implication is that a proper portfolio diversification should be ensued; via a fair exchange rate policy can stimulate the activities of the stock market and vice-versa. Consequently, the paper recommends that the government should do justice to her monetary policy by way of trimming down its interest rate in such a way that will encourage both local and foreign investors to borrow funds at a cheaper rate to invest in the stock market which in turn boost economic well being of the country.
JEL: C51; E52; E44; G10

1. Introduction

The stock market generally serves as a stimulus and propeller to any country's economy, be it developed or emerging as pinpointed by Charles and Adjasi (2008) and Quayes (2010). Little wonder the reason why authors like Olowe (2011) and Bassey (2013) are of the view that the Nigerian stock market has witnessed massive development since its inception. Though, it is still considered as an emerging market when compared to developed economies. This viewpoint was reaffirmed when Alile (1997) opined that the stock

[1] *Amassoma, Ditimi is from Department of Economics, Faculty of Social Sciences, Federal University Oye-Ekiti, Nigeria, e-mail: amassoma.dit@gmail.com.*
[2] *Adeleke, O. is from Department of Economics, Faculty of Social Sciences, Federal University Oye-Ekiti, Nigeria.*

exchange market worldwide is a platform in which preservation for the efficient market with the attendant benefit of economic growth is inevitably ensured. This is because; it establishes the confidence of both domestic and foreign investor in the market. Particularly, the objective of any potential investor is to invest in an efficient market due to the inherent benefits that can be obtained at the end of the day. In contrast, the inefficient market is a market that gives room for few economic agents to make excessive earnings hence causing loss of confidence of the public about the market.

Even though, the measurement of the stock market is very significant to investors, policymakers and major stakeholders, its nexus with key monetary policy variables has been contentious and has invariably not been able to influence long-term real capital in an economy as accounted in the literature. Therefore, to ensure the growth of any stock market, a healthy interest rate should be guaranteed by the monetary authorities. There is no doubt that interest rate is one of the key macroeconomic fundamentals and hence, exerts a positive relation with/to economic growth of any country. As a matter of fact, the interest rate is considered as the cost of borrowing money which otherwise can be termed as borrowing rate according to UNCTAD (2012). On the other hand, the interest rate can also be seen as the fee paid for lending money from a lender and it is otherwise known as the lending rate OECD (2015).

Theoretically speaking, it is believed that there exists an inverse relationship between interest rates and stock returns. This is because when interest rate fall, fixed income investments become less competitive because of their lower yields, and therefore, stocks become more attractive as a result. On the contrary, when interest rate rise, fixed income investments become more competitive because of their higher returns, and therefore, stocks become less attractive as a result.

Over and above, interest rates assist in the decision of where and how to invest. If the interest rate paid by banks of depositors is increased, investors will patronize the banks more and fewer investors will invest in the stock market which will lead to a decrease in capital investment in the economy. Also, the disparity in interest rate might cause investors to either go to the bank or buy government development stock like bond. Modigliani (1971) and Mishkin (1977) identify that lower interest rates increase stock prices and later lead to increased business investment. Generally, it is believed that a reduction in interest rate results to lower cost of borrowing hence, boosting capital flows into the stock market with the expectation of the higher rate of return. Expectedly, on the other hand, higher interest rate encourages people to save more in the banks which in return reduce the flow of capital into the stock market. Bosworth (1975) agrees with the above although he adds that higher stock prices reduce the yield on stock and reduce the cost of financing investment spending through equity issuance.

Sequel to the above scenario, these issues would be inferred. The issue takes its root from the spuriousness of the financial systems of most developing countries which came under pressure because of the economic upset of the 1980s and more recently, the global financial meltdown which has made a lot of investors (foreign and national) to lose confidence in the capital market. Particularly, the interest rate policy in Nigeria lacked stability during the Structural Adjustment Program (SAP) as periods of liberalization were entangled with

impositions of some credit controls (IMF, 1997). The administration of low interest rate proposed to encourage investment permitted a dynamic interest rate regime where rates were more influenced by market forces, which failed to yield the desired result of stimulating the needed investment growth. Although, several factors has been identified to be responsible for the stock market problems which include: political instability, war, terrorist threats, boycotts and strikes, economic trends and international trade to mention few. Apart from the above, there is the argument as to what causes what between the variables of interest. That is, the contention whether interest rate granger causes stock market performance/return or not. This study is very important because, previous studies have focused on the lump sum of macroeconomic variables irrespective of the fact that interest rate stands to be one of the most relevant macroeconomic fundamentals that can stimulates economic growth.

To this end, the current study seeks to examine the causality between interest rate and stock market performance in Nigeria. To achieve the goal of the study, answers would be provided to some pivot and important questions that surround it. These questions among others include: What is the relationship between interest rate and stock market performance in Nigeria? Does causality exist between interest rate and stock market performance? Notably the answer to the above-raised questions would be the focal point of this study. This study is very important at this point in time in which Nigeria has narrowly escaped from recession although still enshrouded with slow aggregate demand, high inflation rate, high interest which has affected the growth rate of the country and has equally lead to policy collapse in the country.

Notably, the remaining part of the study would be structured as follows; section B showcases the theoretical framework and empirical evidence of the study while section C depicts the methodology and data sources. This would be followed by section D which analyses the data and interprets the results. Finally, section E, concludes and recommends policy implications of the study.

2. Literature review

Over the years, many researchers, policymakers and economists has relentlessly focused on the relation between selected or aggregate macroeconomic fundamentals on stock market returns; which include: exchange rate, money supply, interest rate, industrial productivity, treasury bills etc. to mention few as suggested by Aydemir and Demirhan (2009); Bhattacharya and Mukharjee (2002) among emerging economies. Thereby, paying less attention, to the disaggregated macroeconomic factors on stock market returns particularly in developing countries which Nigeria is inclusive. Frankly speaking, of all the macroeconomic variables, interest rate and exchange rate have been identified to be topmost among the other factors. This is because the variables under study have a key implication for economic growth of any country. Yet, it has received little attention, as only a few studies had focused on the causality between interest rate, exchange rate and stock market returns in Africa especially in Nigeria. Consequently, the reason why this study

intends to cover the gap existing in the literature by particularly investigating Granger causality between interest rate and stock returns in Nigeria.

Theoretically, many scholars and researchers assume that stock prices and interest rate are negatively correlated. Though, interest rate tends to be positively related to stock market returns both in the short and long run according to Fama (1981). Not surprisingly, the reason for the aforementioned is that, increase in interest rate possibly as a result of tight monetary policy usually has a negative effect on stock returns. This is not far-fetched from the fact that higher interest has a way of shaving the value of equity as pinpointed by the dividend discount model which in turn makes fixed-income securities more attractive as an alternative stock. Consequently, this may trim down the ability of investors to borrow for the purpose of investing in stocks. On the order hand, expansionary monetary policy which is evidence of low-interest rate has the capacity to boost stock market performances. As a matter of fact, interest rate is often attributed as a major source of uncertainty for companies.

For instance on the developed stock market, Graham and Harvey (2001) see interest rate of companies as the second most risk factor that is behind market risk in the U.S. To corroborate this, the study of Lynge and Zumwalt (1980), established that interest rate sensitivity to stock market returns can be in different form depending on whether, it is a short or medium or long-term horizons. Meaning that, the relevant extra market and extra interest rate are possibly not explained. In the same vein, Flannery and James (1984) examined, the underlying factors for the reaction of stock returns to interest rates in order to understand the distinctiveness of banks which confirms the negative relationship between stock returns and interest rates both in the short and long-term. They asserted that the mix of assets and liabilities with respect to maturity was a key factor in explaining sensitivity of stock returns to unexpected interest rate changes. Furthermore, Hassan et al. (2000) examined how interest rate proxy by Treasury bill rates is related to annual return of the Sri Lankan stock market during the 1990 – 1997 periods. The results of their study revealed that short-term interest rate of Sri Lankan stock market exert a positive correlation with future returns; thereby suggesting that it is plausible to re-tract returns on a monthly, quarterly or annual return basis. Similarly, the study of Bulmash and Trivoli (1991) noted that US current stock price is positively correlated with the previous month's stock price. More so that, there is a negative relationship between stock price and the Treasury bill rate. This was corroborated by the study of Abdullah and Hayworth (1993) which observed that the US stock returns are related negatively to short and long-term interest rates.

Nonetheless, Beire et al. (2009) examined the impact of interest rate on stock return in U.S. Their results found that interest rates had a negative impact on stock market. The above was confirmed by Khan and Yousuf (2013) which found a positive long-term relationship between interest rates and stock market. Although, in contrast with the study of Amara et al., (2013) which showcased a negative long-term association between interest rates and stock market. In a similar vein, Adel (2004) confirms the existence of a long run relationship between stock prices and variables like exchange rate and interest rates.

On the contrary, the results emanating from the study of Geske and Roll (1983) and Balmash and Trivoli (1991) suggest that stock returns have a significant positive

relationship with contemporaneous and previous lagged one year Treasury bill yield and both contemporaneous and lagged yield spread. They also documented that changes in the interest rate structure set off delayed reactions from investors and, seem to indicate inefficiency in the process of dissemination of market information although, the empirical results was not consistent with the previous studies. In a more general form, the study of Campbell (1985) revealed that the structure of interest rates envisage stock returns.

On emerging markets, Mahumudal and Gazi (2009) considered the relationship between interest rate and stock price in both developing and developed countries using monthly data from January 1988 to 2003. These countries include: interest rate, money supply, gross domestic product etc. Their results showed that, for all countries under consideration, it was discovered that there exist a negative significant association between interest rate and stock price. In addition, it was discovered that, six out of these countries found that changes in interest rate has a significant negative correlation with variation in the stock price. Therefore, connoting that, if interest rate is properly regulated for these countries, there is the tendency that it will benefit their stock exchange market immensely in two dimensions. First, by demand pull avenue of more investors in the share market and secondly, by supply push way of more extensional investment of companies.

In African markets, Strike (2015) inspected the connection between stock market performance, interest rate and exchange rate in Zimbabwe using monthly time series data for the periods of December 1986 to October 2015. The results showed that the impact of interest rate on stock market performance was mixed. In addition, it was discovered that stock market converged to long-run equilibrium with bank rates. Furthermore, the study identified a uni-directional causality which moves from stock market to exchange rate, Treasury bill rates and deposit rates. Meaning that, Bank rates granger causes stock market performances.

On the contrary, Michael et al., (2016) explored on the interest rate, liquidity and stock market performance in Ghana using a monthly data from the Ghana stock exchange and Bank of Ghana for the period of December 2010 to November 2013. Their results showed gripping evidence that the performance of the Ghana stock exchange market is highly influenced by liquidity, exchange rates and inflation. Disappointingly, the effect of interest rates was found to be insignificant despite its positive relationship with the stock market index for the period under consideration. Joel (2014) investigated the relation between interest rate and stock market return in Namibia for the period 1996 to 2012. Results revealed that, there is a negative relationship between stock market returns and interest rate in Namibia. The results suggested that contractionary monetary policy through higher interest rate decreases stock market returns in Namibia. In the same vein, Ehrmann and Fratzseter (2004), investigated the effect of monetary policy on stock returns and discovered that stock market return reacts negatively to interest rates. Meaning that, stock market returns react negatively to increase in interest rate. Still in Africa, Nsama and Mwaaga (2017) looked at the relationship between interest rate and stock market index in Zambia using annual data for the period 2004 to 2016. The results indicated the existence of both short and long run between interest rate and stock market index. The policy implication of this study is that if interest rate if interest rate is considerably controlled by reducing it, it will be of great benefit to the borrowers as they will access cheaper capital.

Another study by Khan et al., (2012) also investigated the relationship between interest rate and stock market performance using monthly time series data for the period January 2000 to December 2010. The results revealed a weak relationship between interest rate and stock market performance using monthly time series data for the period 2000 to 2010. Evidently, the results revealed a weak relationship between stock market performance and interest rates. Furthermore, Goodness et al. (2015) explored on how stock prices impacts consumption and interest rate in South Africa. The results showed that, the real impact of stock price shocks on consumption is in general positive, with long run and significant effects observed at the one quarter a-head horizon. Surprisingly, the study of Strokon (2013) examined the causal relationship between stock price and interest rates in Zambia using a weekly time series for the period January 2004 to December 2013. The results show that there is no significant causal association between interest rate and share price.

In Nigeria, many studies have investigated the nexus between some selected macroeconomic variables and stock market returns. These studies among others include Mbah et al (2017), Nkechukwu et al. (2013), Chude et al. (2015), Adaramola and Olugbenga (2010), (2014), Akujuobi (2014), Okoro (2015), and Osamwonyi, et al. (2012) to mention a few, though, their outcomes were with mixed feelings.

Surprisingly, only a few studies like that of Okpara (2010) and ologunde et al., (2006) have actually investigated the relationship between interest rate and stock market returns in the country. For instance, the study of Okpara (2010) examined monetary policy and stock market returns using time series data spanning from 1980 to 2008. Findings show that monetary policy exerted a significant long-run determinant on stock market returns in Nigeria. Furthermore, he discovered that high Treasury bill rate reduces stock market returns and thus show an evidence of monetary policy efforts to slow down the economy. In the same vein, Ologunde et al., (2006) investigated on the interrelationship between stock market capitalization and interest rate in Nigeria utilizing annual data from 1980 to 2004. They found that, the prevailing interest rate exerts positive influence on stock market capitalization rate. Similarly, they found that, government development stock rate exerts negative influence in the stock market's capitalization rate and prevailing interest rate in Nigeria. More recently, (Akpan & Chukwudum, 2014) studied the impact of interest rate on stock prices in Nigeria employing an annual data spanning from 1986 to 2011. The results revealed that All share index reacts differently to hikes and cuts of the controlled variables. Sequel to the aforementioned, the study also finds that the impact of interest rate is not relevant when other variables affecting interest rate are adequately controlled.

In line with the above literature, there is evidence that the relationship between interest rate and stock market performance is inconclusive. Particularly, in Nigeria, the foregoing has shown that little attention has been given to interest rate – stock market performance nexus. Therefore, it is on this note that this current study seeks to re-establish the relationship between interest rate and stock market performance and also verifies the causality between these variables as well in Nigeria. Hence, this study test for the causality between interest rate and stock market returns in Nigeria.

3. Research Methodology

Sources of Data and Model Specification

In order to check for causality between interest rate and stock market performance in Nigeria, we employ data from Central Bank of Nigeria (CBN) Statistical Bulletin and the Nigerian stock exchange market. The data used for this study spans from 1970 – 2016. After putting into consideration the empirical model specified by both (Ehrmann & Fratzscher, 2004) and Strokon et al. (2013) respectively, we specify that stock market performance proxy by All share price index (ASI) is a function of interest rate (INT) which is proxy by monetary policy rate. Therefore, the functional form of our model is specified in equation 1 below.

$$ASI_t = f(INT)_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ (1).$$

Equation (1) is written in an econometric form as seen in equation 2.

$$ASI_t = \beta_0 + \beta_1(INT)_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

In addition, to produce the most appropriate coefficient for ASI with respect to the independent variables, we transform the model above into a log-linear form as seen in equation 3.

$$InASI_t = \beta_0 + ln\beta_1\,(INT)_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where; 'ln' represents natural logarithm. More so, the reason for log-linear transformation is that it will be helpful in the following ways; to reduce the problem of multicollinearity, heteroskedasticity, achieve a better fit which in turn ensures actualizing elasticity rather than slope hence making the variables to appear more symmetric according to Gujarati and Porter (2009).

Since, we have an interest in examining the impact of interest rate on stock market performance and their causal relation as well. We rely on the vector error correction Model (VECM), although, this is dependent on the outcome of the co-integration test. To perform the co-integration analysis we need to first satisfy the prerequisite of the presence of unit root of the variables under consideration. Routinely, it is required that the series must be integrated of the same order. The unit root test can be carried out by employing the Augmented Dickey-Fuller procedure as well as Phillips-Perron (PP) test. Similarly, after testing for the existence of long-run linear relationship between the variables, with the null hypothesis of no co-integration between them as specified in equation (3) thus: H0: $\beta1=0$ against the alternative hypothesis H1: $\beta1 \neq 0$. Furthermore, if the outcome of the above co-integration test shows that variables are co-integrated then we can proceed to the error correction mechanism and on to Granger causality test via the vector error correction model (VECM) and if otherwise, we utilize the traditional Granger causality approach as suggested by Engle and Granger (1987) and Rathinam & Raja, 2008) owing to the fact that it uses the F-test statistics vis-à-vis vector autoregressive approach (VAR) platform. More prominently, to avoid the problem of omission of important variable bias when estimating the causality between two variables, we included the exchange rate into the model since it is known theoretically as one of the variables that stimulate economic activities in an

economy. Therefore, the Granger causality test equation if the previous assertion follows is expressed as below.

$$\Delta InASI_t = \alpha_j\ \Delta In\text{ASI}_{t-j} + \beta_j\ \Delta In\text{INT}_{t-j} + \varphi_j\ \Delta InEXR_{t-j} + \chi_1 \varepsilon_1^{t-1} + \upsilon_t \ldots\ldots\ldots\ldots\ldots\ldots(4)$$

$$\Delta InINT_t = ₵_j\ \Delta InINT_{t-j} + €_j\ \Delta In\text{ASI}_{t-j} + \Omega_j\ \Delta InEXR_{t-j} + \chi_2\ \varepsilon_2^{t-1} + V_t \ldots\ldots\ldots\ldots\ldots\ldots(5)$$

$$\Delta InEXR_t = \ell_j\ \Delta InINT_{t-j} + \dot{\rho}_j\ \Delta In\text{ASI}_{t-j} + \prod_j \Delta InEXR_{t-j} + \chi_2\ \varepsilon_2^{t-1} + \mu_t \ldots\ldots\ldots\ldots\ldots\ldots(6)$$

And if otherwise, the VAR approach will be utilized. The granger causality for this study is expressed as follows.

$$ASI_t = \alpha_j\ \text{ASI}_{t-j} + \beta_j\ \text{INT}_{t-j} + \varphi_j\ EXR_{t-j} + \mu_{1t} \ldots\ldots\ldots\ldots\ldots\ldots(7)$$

$$INT_t = \Omega j\ INT_{t-j} + €_j\ \text{ASI}_{t-j} + \Omega_j\ EXR_{t-j} + V_t \ldots\ldots\ldots\ldots\ldots\ldots(8)$$

$$EXRI_t = \ell j\ INT_{t-j} + \dot{\rho}_j\ \text{ASI}_{t-j} + \prod_j EXR_{t-j} + u_t \ldots\ldots\ldots\ldots\ldots(9)$$

Where; 'In' denotes natural logarithm, P is the maximum lag length, ƲƫVt & µt are the stochastic error terms (normally distributed with zero mean and constant variance) and Ɛ1t-1, Ɛ2t-1 and Ɛ3t-1 are the lagged values of the error term for the co-integration estimation.

4. Empirical Analysis and Discussion

This section would be broadly categorized into two. First, is the preliminary analysis and second, empirical analysis which will be accompanied with the necessary discussion?

4.1 Preliminary Analysis

These are the pre-analysis that is required before undertaking the real analysis. They include descriptive statistics, unit root test and co-integration test.

4.1.1 Descriptive statistics

Table 1

Descriptive Statistics of Variables in the Study Model

	LASI	LMPR	LRER
Mean	7.510380	2.369074	2.759231
Median	8.552284	2.525529	3.085852
Maximum	10.96803	3.258097	5.717028
Minimum	3.493473	1.252763	-0.604404
Std. Dev.	2.625730	0.462505	2.255568
Skewness	-0.285866	-0.687254	-0.366868
Kurtosis	1.480190	2.837187	1.556199
Jarque-Bera	4.614224	3.352619	4.590130
Probability	0.099548	0.187063	0.100755
Sum	315.4359	99.50110	115.8877
Sum Sq. Dev.	282.6727	8.770332	208.5911
Observations	42	42	42

Source: Authors computation from E-views 9.

Descriptive statistics establishes the unique features of the data used. For instance, in Table 1, the average mean value of LASI (7.51038) i.e. All Share price index is the highest among others (i.e. LMPR= 2.36907 and LRER) respectively. Table 1, also confirms that 10.96803 is the maximum and -0.604404 the minimum. It is clear that LASI (2.62573) is highly volatile with the highest standard deviation. Similarly, the values of skewness and kurtosis were likewise computed for 42 observations. Results exhibit that all variables are negatively skewed. Evidence from the Jarque – Bera (JB) test indicates that all variables utilized in the model are normally distributed. More so, that the variables are first differenced and computed by the ratio relative to prior observation.

4.1.2 Unit root test

Table 2

Result of Unit Root Test

Variable	AT LEVEL				AT FIRST DIFFERENCED			
	ADF-t stat	PP-t stat	CV at 5%	Decision	ADF-t stat	PP-t stat	CV at 5%	Decision
LASI	-0.997368	-0.997368	- 2.935001	NS	-4.963707	-.4.754322	-2.936942	*S*
LMPR	-2.128291	-2.128291	- 2.935001	NS	-3.751465	-7.528055	-2.936942	*S*
LRER	-0.626685	-0.626685	- 2.935001	NS	-6.568737	-5.236812	-2.936942	*S*

Source: Authors computation from E-views 9

4.1.3 Co-integration test

Table 3

Result of Johansen co-integration Test

Trace Test				Maximum Eigen Value Test			
Null	Alternative	Statistics	95% Critical Values	Null	Alternative	Statistics	95% Critical Values
r = 0	r ≥ 1	46.96759	29.79707	r = 0	r = 1	26.17735	21.13162
r ≤ 1	r ≥ 2	20.79023	15. 49471	r ≤ 1	r = 2	17.20551	14.26460
r ≤ 2	r ≥ 3	3.584720	3.841466	r ≤ 2	r = 3	3.584720	3.841466

Source: Authors computation from E-views 9

From the above table, it was observed that, the null hypothesis of no co-integration for r=0 and r ≤ 1 was rejected by the trace statistics method, although the null hypothesis r ≤ 2 were accepted by the maximum Eigenvalues statistics due to the fact that their statistical value was less than their critical values. The implication is that there is a long run relationship among the variables with 2 co-integrating equations at 5% level of significance in the model.

4.2 Empirical Analysis

4.2.1 Long run estimate

Table 4

Result of Regression estimate
Dependent Variable: LASPI

Variable	Coefficient	Std Error	t-Statistic	*Prob.*
C	5.098950	0.569630	8.951340	0.0000
MA(1)	0.737601	0.133864	5.510064	0.0000
LMPR	-0.335390	0.225447	-1.487667	0.1453
LRER	1.159904	0.058955	19.67428	0.0000
R^2 =0.98, Adj. R^2=0.97 F-Stat = 469.527, Prob. <F (0.0000), DW= 1.62				

Source: Authors computation from Eviews 9.

The result of the long run estimate in the above table 4 revealed that the interest rate has a negative but insignificant relationship with stock market performance proxy by All-Share Index in the Nigerian stock exchange market. Although, the result of this study, corroborates the outcome of the study carried out by Akpan and Chukwudum (2014), which established that the interest rate does not have any significant impact on stock market performance in Nigeria.

4.2.2 Granger causality test

Table 5

Result of VEC Granger Causality/Block Exogeneity Wald Tests

Direction of causality		Chi-sq	df	Probability	Decision
LASI	LMPR	2.22715	2	0.3284	Do not reject the null
LASI	LRER	5.19825	2	0.0743	Reject the null
LMPR	LASI	1.95002	2	0.3772	Do not reject the null
LMPR	LRER	0.09134	2	0.9554	Do not reject the null
LRER	LMPR	0.95224	2	0.6212	Do not reject the null
LRER	LASI	7.23441	2	0.0269	Reject the null

The Granger causality test of variables that are co-integrated is utilized to examine the long run causality among stock market index, interest rate and exchange rate in Nigeria. From the performed Granger test, the null hypothesis that INT does not Granger causes All Share index and vice-versa is accepted. Consequently, we can deduce that there is no long-run Granger causality between interest rate and All Share Indexes. On the other hand, it was discovered that changes in the control variable introduced into the model as a result of the inherent problem of omission of important variable bias associated to two variables granger causality test was found to exhibit a bi-directional causality running from exchange rate to All Share Index without a feedback response from All Share Index to exchange rate. Surprisingly, the result of this current study was found to be consistent with the study carried out by Alam and Uddin (2009) where the South African stock prices were found to be inversely related to the interest rate, though, causality could not be established. Thereby suggesting that movement in stock market return may be ascribed to other macroeconomic fundamentals other than interest rate *per-se* according to Aron and Muelbauer (2005). Furthermore, evidence of bi-directional causality suggests that variation in the exchange rate has an implication on stock market performance in Nigeria. Thereby, signifying the presence of the relationship between exchange rate and stock market performance which in turn showcases that the market has already incorporated the impact of the changes as postulated by the efficient market hypothesis theory.

5. Conclusion and Policy Recommendation

5.1 Conclusion

Against the focus of many studies in the literature carried out in both developing and developed economies especially in Nigeria with regards the relationship between stock market performance and aggregate macroeconomic fundamentals such as interest rate, inflation, exchange rate, Treasury bill rate, industrial productivity index, domestic lending rate, gross domestic product, capital inflows, unemployment rate etc. the objective of the current study is to investigate if causality exists between interest rate and stock market performances in Nigeria. This relation between these variables is explored by Granger causality framework. The investigation is of importance because it will give a signal of how investors generally (both at international and National level) behave towards risk. The result reveals that the interest rate exhibited a negative but statistically insignificant association with All-Share Index in the long run.

The salient factors liable for the above outcome in Nigeria are attributed to the actual fact that households and firms do not take advantage of increased interest rate nor reduced savings to enjoy the benefit of improved stock market performance and lack of informational efficiency of the market at large. This in turn may be owing to the fact that a large chunk of potential investors, economic agents etc. are illiterates, low-income earners and violation of the market efficiency hypothesis via the regularly fluctuating values of interest rate with respect to stock market performance. Additionally, this can be because; the same economic agents, investors etc. are typically excluded from the financial system. Couple with the actual fact that, few large investors incorrectly manipulate demand and supply of choice stocks through share buyback thence triggering a false increase in the values of those shares; afterwards, ensuing to their crash as shortly because the increased profits are withdrawn owing to the wealth effect as opined by Paiella (2007). Thereby, suggesting that contractionary monetary policy via increase in the interest rate has the potential to shave stock market performance within the country.

Moreover, the Granger causality test outcome indicates that there is no causal relation between interest rate and stock market performance. Implying that interest rate does not Granger causes stock market performances in Nigeria? It was equally discovered that a bi-directional causality exists between exchange rate and All Share Index. The implication of the same is that the government ought to enhance portfolio diversification vis-à-vis rate of exchange policy which might be used to predict stock prices in Nigeria and at the international environment respectively and vice-versa. In the international context, the reverse is the case, due to the actual fact that they have not violated the market efficiency hypothesis. No doubt, this result is different from results of earlier studies because they have been able to show that interest rate has either exhibited positive or/and negative effect or even no effect on stock market performances in the Nigeria which is contrary to the findings of our study possibly due to asymmetric information in the stock market of Nigeria.

5.2 Policy Recommendation

Based on the above conclusion, the study recommends that the government through the appropriate authorities should ensure an exchange rate policy that will foster the activities of the Nigerian stock exchange market. Also, the CBN should look inwards into its monetary policy stance and trim its interest rate to encourage both national and foreign investors from taking advantage of the market in order to enhance financial development at large in the country.

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