IMPACT OF MACRO-ECONOMIC VARIABLES ON THE STOCK RETURNS OF LISTED INSURANCE COMPANIES IN NIGERIA

DABO, Zainab, Ph.D1; AHMAD, Bawa Abdul-Qadir, Ph.D2.
MUSA Simon Wuranjiya3
1&2Department of Business Administration, Kaduna State University, Kaduna
3Postgraduate Student, Department of Business Administration, Kaduna State University, Kaduna
1zeemuhdabo@yahoo.com; 2bawaalkali@yahoo.com; 3simonwurans@gmail.com

Abstract
Due to inconsistent in the previous studies on macroeconomic variables in explaining the movement in stock returns, hence, this study. The study examines the long-run and short-run impact of macroeconomic variables on the stock returns of listed insurance companies in Nigeria. The research design for the study is ex-post facto research design because data were extracted from a ready-made source. The population of the study comprises of 25 listed insurance companies as of January 2009 to December 2017. The sample size employed a filter and arrived at twelve (12) listed insurance companies. The study employed the use of parametric tools for data testing. The model is estimated based on Autoregressive Distributed Lag (ARDL) techniques using Eviews version 9 software. The results of the long-run and short-run coefficients of the ARDL model reveal that macroeconomic variables have an impact on the stock returns of listed insurance companies in Nigeria. The study concluded that stability in the exchange rate, inflation rate, interest rate and other macroeconomic variables are part of the determining factor of how the share of an industry may be priced. It is therefore recommended that Central Bank of Nigeria through its monetary policies and other instrument of intervention should continue to regulate and maintain the level of exchange rate that will attract investment, especially in the Nigerian stock market.

1.0 Introduction
Stock market provides an avenue for corporate organisations to raise the needed financial resource for business growth or expansion by offering stock to public who are ready to put their resources into profitable investment. The market gives investors the possibility of having a stake in companies and sharing in the financial gains of cooperation (Green, 2015). This means that stock market plays a role of financial mobilizer, by serving as a link between firms and investors for the purpose of mutual benefits. Stock market marshal both private and public financial resources and make such fund available for the creation of utility, which in turn, stimulate growth of an economy. Information on performance of stock market is a function of index of stocks for the market in general or a section of the market. Index is the means of measuring changes as it affects the overall stock market.

Stock price changes from time to time and the volatility may be attributed to factors that are internal and external to firms. Elements that are internal to firm may include earnings reports, merger and acquisitions, suspension of dividends, new innovative product and many others. For instance, favourable earnings may trigger an upward rise in the share price of a firm due to increase in demand by investors who are eager to invest in a well-to-do company. On the other hand, external factors may play a dominant role in influencing the share price of firms. External factors such as inflation rate, interest rate, exchange rate and other variables which are beyond the firm’s control may favour or affect the firm’s stock price. Therefore, macroeconomic...
variables may influence the activities of stock market either positively or negatively and may also determine the trend of stock returns (Utami, Hartayo & Maulama, 2016).

In the midst of the interplay between macroeconomic variables and stock returns, Nigerian insurance industry has witnessed consolidation in recent time, with the view to ensuring that the industry has a strong financial base and operates under high standard practice, thereby making it one of the vibrant sectors that are contributing positively to economic growth of Nigeria. The industry is performing a crucial function in economic development of Nigeria, and it is one of the critical sectors of the financial institutions in Nigeria. The smooth and effective operations of the industry would create a steady and growing economy. Therefore, to know how effective the insurance sector is performing, it will require an inquiry into the performance of the stock of insurance sector in Nigeria in the midst of macroeconomic variables and other forces.

Insurance industry in Nigeria, like any other industry, operates under the influence of macroeconomic factors such as exchange rate, inflation rate, and interest rate among other variables. Macroeconomic variables affect the pricing of insurance industry share. The consumer price index for instance, may have a negative effect on the income of insurance firms due to rise in overall costs, and slow adjustment to the costs may erode profit and cause a fall in share price. In the same direction, an increase in discount rate for short term investment such as treasury bill rate, may prompt investors to hold liquidity in the form of short term investment instead of long term investment such as stock. This usually causes a fall in the share price of insurance companies in Nigeria. This study fills the following gaps generated by other studies that attempt to establish the dynamism between macroeconomic variables and stock returns.

The existing finance literature on the relationship between macroeconomic variables and stock returns is inconclusive. Studies such as Erdogan and Ozlale, 2005; Aliyu, 2015; Pourrahnama and Daei-karimzadeh, 2014; Akonnor, 2016; Mugambi and Okech, 2016 conclude that macroeconomic variables have a significant impact on stock returns. While studies by Morosan and Zubas, 2015; Rabia and Khakan, 2015; Ali, 2014; Nisha, 2015, Okoro, 2017; Khan, Khan, Rukh, Imdadullah and Rehman, 2012; Ali and Jamil, 2013 report that macroeconomic variables are not significant in explaining the movement in stock returns. Given these mix findings, the Researcher studies further to substantiate the findings of previous studies.

The following are the objectives of the study to:

i. examine the long-run impact of exchange rate on share price of listed insurance companies in Nigeria.

ii. examine the short-run impact of exchange rate on share price of listed insurance companies in Nigeria.

iii. investigate the long-run impact of inflation rate on share price of listed insurance companies in Nigeria.

iv. investigate the short-run impact of inflation rate on share price of listed insurance companies in Nigeria.
2.0 Literature Review

Concept of stock returns
Bolten (2000) posits that stock returns are the claim that an investor has on all future benefits transferred from the corporation to the investor in the form of distribution, usually cash dividends. He also states that companies compete for the limited resources of investors, and investors, on the other hand, will always like to invest in companies that have a strong prospect in anticipation for attractive returns. In his view (Bolten, 2000), stock prices are not stable; they change frequently resulting in increasing and decreasing market quotation. Vena (2014) views stock returns to be the returns that investors make from the purchase and sales of stocks in an efficient market. These returns could be in the form of profit or dividend depending on the type of market. In the opinion of Uwubanmwen and Eghosa (2015), stock return is the combination of a firm’s dividend and an increase in stock prices.

Concept of exchange rate
Dornbush and Fisher (1980) are of the opinion that exchange rates affect the competitiveness of companies because fluctuation in exchange rate, changes the value of earnings and cost of funds. They (Dornbush and Fisher, 1980) argued that firms do borrow in foreign currencies to fund their operational activities and hence its stock price. The activities of the exchange rate affect the value of a firm’s future payables or receivables denominated in foreign currency. Viewing these activities on a macro level, exchange rate fluctuations on the stock market seems to depend on two factors, and these factors are the country’s international trade and the degree of trade imbalance (Nath & Samantha, 2003).

Concept of inflation rate
According to Dimitrova (2005) inflation is negative news that hits the stock market which tends to curb consumer spending and earnings. In another perspective, Kontonikas, Montagnais and Spagnolo (2006) view inflation as the general level at which the purchasing power of currency for goods and services tend to rise or decrease in value. Alam and Hassebullah (2013) define inflation rate as a sustained, rapid increase in prices, over a specified period usually months or years which then leads to a decrease in purchasing power of a currency. Inflation is the critical determinant of the price formation of consumer goods and services in an economy; it is one of the important networks through which monetary policy impact on economic activity (Morosan & Zubas, 2015). The rate of inflation measures the annual percentage increase in prices and the most general measure is that of retail prices (Vena, 2014).

Concept of interest rate
Interest rate is the price paid for the use of the owner’s money or material goods. According to Allsopp and Vines (2000), interest rate is the price at which a debtor pays interest for the utilisation of money or any property borrowed from a creditor. In other words, it may be money earned from deposit for a specified period. In most cases, the payment of interest is made annually depending on the agreement of the parties. Prudent investors always look forward to investing in an efficient market where few people can generate more ordinary profit (Nshom, 2007). This entails that, an increase in bank interest rate to depositors or on bonds would attract investors to switch their capital from share market to banks or bonds.
**Impact of Macro-Economic Variables on the Stock Returns of Listed Insurance**

**Inflation Rate and Stock Return**

Feldstein (1983) states that a higher steady rate of inflation, causes the share price to increase at a faster rate. To be precise, when inflation rate is steady, share price rise in proportion to the price level to retain a constant ratio of share price to real earnings. In other words, an increase in the expected future rate of inflation causes a concurrent fall in the ratio of share price to current earnings. Although the share price rises from the lower level, at the higher rate of inflation, the ratio of share price to real earnings is permanently lower. One of the ways that the price of shares heightens is when there is speculation or projection that the firm will do well in the coming years (Kontonikas, Montagnoli & Spagnolo, 2006). When there is positive speculation, the firm prospers. There will be more buyers of the firm’s stock, and this function will enable the prices of the stock to rise. It also shows that speculation of downward movement in the activities of the firm could result in the prices of the firm’s shares to take a decreasing pattern as well.

The impact of inflation on a firm’s stock returns mostly depends on the ability of the firm to anticipate the occurrence of inflation. If firms are aware of the possible inflation, then interest rate would be increased to offset the imbalance, which will make a real value of the firm’s assets and liabilities to stay unchanged and vice versa (Khan, Khan, Rukh, Imdadullah & Rehman, 2012). A firm’s net income is one of the major determinant of the price of its stocks (Vena, 2014). In other words, the prices of stock depend on how much profit a firm can generate over time. The permanent reduction in the price-earnings ratio occurs because, under prevailing tax rules, inflation raises the effective tax rate on corporate source income (Uwubanmwen & Eghosa, 2015).

**Interest Rate and Stock Return**

The interest rate is the most vital short-term control instrument of the central bank which makes it an important monetary policy instrument (Allsopp & Vines, 2000). It is believed that monetary policy can influence private-sector decision making and it is likely to impact stock prices through the interest rate channel (Benigno, 2014). According to Ali (2009), interest rates momentarily affect the plan of a firm in fulfilling its need for capital either by issuing equity securities or bonds. Low-interest rates tend to attract lower borrowing cost because the borrower is charged less to pay interest. The attraction of investment and advance in economic activities can be encouraged by the low-interest rate which may generate higher stock price in return (Alam & Haseebullah, 2013).

The relationship between stock price and interest rate has received considerable attention in the literature. Fama (1981) in Alam and Haseebullah (2013) claims that predictable inflation is negatively correlated with anticipated real activity, which in turn may positively be related to returns on the stock market. Therefore, stock market returns may be negatively correlated with expected inflation, which is often proxy by the short-term interest rate. Fama (1981) also adds that the influence of the long-term interest rate on stock prices trunks directly from the present value model via the influence of the long-term interest rate on the discount rate. Fluctuation in interest rate would affect the spending and level of saving of household and investment decisions of firms and individual investors.
Exchange Rate and Stock Return

According to Nath and Samantha (2003), a booming stock market attracts capital flows from foreign investors, and may bring about an increase in the demand for a country’s currency. The reverse may be the situation of falling stock prices. The investors may sell their stocks to avoid further losses and convert their money into foreign currency to be moved out of the country. There would be a demand for foreign currency in exchange for local currency, and this would lead to a depreciation of the local currency. As a result, rising (declining) stock prices would lead to an appreciation (depreciation) in exchange rates (Dimitrova, 2005). In other words, the shifts in demand and supply of currencies may cause capital outflows and depreciation of domestic currency. On the other hand, rise in stock price attracts foreign investors to invest in a country’s equity securities.

Njoki (2014) posits that the competitiveness of firms is affected by changes in the exchange rate which will further impact on the input and output prices. In other words, an appreciation in the exchange rate may make exporters to be negatively affected by making their goods and services to be overlooked in the international market. This may cause a decline in their exports because of the perception that the buyers in the international market may have about their product or service as being expensive.

Theoretical Reviews

Markup Theory

Gardner Ackley propounded markup theory of inflation in 1957. According to the theory, inflation cannot occur alone by demand and cost factors, but it is the cumulative effect of demand-pull and cost-push activities. Demand-pull inflation refers to the inflation that occurs due to excess aggregate demand, which further results in the increase in price level (Kunga, 2015). According to Vena (2014), the rise in prices levels stimulates production but increases the demand for factors of production. Consequently, cost and price both increases. In some cases, wages also increase without a rise in the excess demand for products. This scenario results in a fall in supply at the increased level of prices to compensate for the increase in wages with the prices of products. The shortage of products in the market may result in a further increase in prices. Therefore, Gardner provided a model of markup inflation in which both the factors, demand and cost, are determined. Increase in demand results in the rise in prices of products as the customers spend more on products. Similarly, a rise in wages increases the cost of production, which would further increase the prices of products. According to Gardner, inflation occurs due to excess demand or an increase in the rate of wages. Thus, both monetary and fiscal policies should be deployed to control inflation. Though, these two policies are not adequate to control inflation.

Portfolio Balance Theory

James Tobin propounded the portfolio balance approach in 1958. The theory determines the equilibrium exchange rate, domestic and international interest rate that would clear the domestic bond and stock market and the foreign bond and stock market. Portfolio balance approach towards determining exchange rate widens the monetary approach by including financial assets such as bonds and stocks in it (Abbas & Khan, 2015). According to Miller (1977), the portfolio balance approach acclaims that besides monetary factors; the holding of financial assets also influences the exchange rate. In other words, financial assets include local and foreign bonds and
stocks. This approach assumes that the relative supply and demand for money and bonds determine the equilibrium exchange rate between two countries. In portfolio balance theory, if a firm issues equity to extinguish debt, this disturbs the balance in investors’ portfolios (Mlambo, Maredza, & Sibanda, 2013). Exchange rate creates an equilibrium in the investor’s portfolio in a way that if there is a change in any one of these assets (money, local and foreign bonds), the investor re-establishes the desired balance in his portfolio (Hussein and Mgammal, 2012). This rebalancing process needs adjustment which influences the demand for the asset and in turn exchange rate (Sharan, 2012). Therefore, if the demand for local currency rises, it appreciates the price of the local currency. In the same vein, an increase in demand for local bonds positively affects local currency. When the demand for local bonds increases, local currency appreciates. The Portfolio adjustment approach is, therefore, another theoretical argument in the association between stock prices and exchange rates.

Review of Related Empirical Studies

Okonnor (2016) researches the effect of macroeconomic factors on stock prices. The study explores the effects that macroeconomic factors have on stock price movement in Ghana, by applying the Arbitrage Pricing Theory (APT) as a framework. Inflation rate, treasury bill rate, cocoa prices, crude oil prices, gold prices, balance of payment, GDP, and exchange rate were used as independent variables while Ghana stock exchange all share index as dependent variable. The data for the study was obtained from a secondary source from 2006 to 2014 and employed Ordinary Least Square (OLS) as the instrument for analysis. The study test for multicollinearity through Global Validation for Linear Model Assumptions, and the problem of multicollinearity was detected and overcome through the backward stepwise regression which led to the elimination of some variables: BOP, treasury bill rate, crude oil and gold prices. The study reveals that inflation rate and cocoa prices have a positive relationship with stock prices movement in Ghana, while GDP and exchange rate have a negative association with stock prices movement in Ghana. The findings are in line with other related studies.

Mugambi and Okech (2016) probe the effect of macroeconomic variables on stock returns of listed Commercial Banks in Kenya using exchange rate, interest rate, inflation rate and GDP as independent variables and share price as dependent variable. The study sources secondary data spanning the period of 2000 -2015 from the bank of Kenya, Bloomberg databases, and the Kenya Bureau of Statistics. A linear regression model using OLS under fixed effect was used to compute for the regression coefficient. Findings reveal that inflation has a positive and significant relationship with stock returns of listed commercial banks in Kenya, exchange rate, and interest rate have a negative and significant relationship with stock returns of listed commercial banks of Kenya, whereas GDP turned out to be insignificant to explain its relationship with stock returns. A more robust model may have generated a better result and findings for the study.

To establish if a relationship exists between macroeconomic variables and stock returns, Mlambo, Maredza and Sibanda (2013) assess the effects of exchange rate volatility on the stock market: A case study of South Africa. The study assesses the effects of currency volatility on the Johannesburg Stock Exchange (JSE). An evaluation of the literature on exchange rate volatility and stock markets was conducted resulting in the specification of an empirical model. The Generalized Autoregressive Conditional Heteroskedasticity model (GARCH) was applied to
establish the relationship between exchange rate volatility and stock market performance. The study employs monthly South African data for the period 2000 – 2010. The data frequency selected ensured an adequate number of observations. A weak relationship between currency volatility and the stock market was confirmed. The study recommends that, since the South African stock market is not expose to the adverse effects of currency volatility, the government can use the exchange rate as a policy tool to attract foreign portfolio investment. The weak relationship between currency volatility and the stock market suggest that the JSE can be marketed as a safe market for foreign investors. However, the data used in the study covered the period of 2000-2010, the findings of the study may have be different if conducted using data from more current years.

Qamri, Abrar Ul Haq, and Akram, (2015) on the other hand research the impact of inflation on stock prices: evidence from Pakistan. The main intent of the study was to investigate the association between stock price and inflation in Pakistan. The study utilises the use of correlational research design. The research was based on the past ten years data of Karachi stock exchange (KSE 100). Secondary data was used to obtain the result of the research, and the statistical result shows that there is a negative relationship between stock price and inflation. Furthermore, when prices of a stock are low firms avoid entering into the capital market until the central bank provide alternative for firm’s to plan to invest in the capital market. The study conclude and recommend that the impact of inflation on stock prices are not much stronger than other factors such as company performance, earning per share, GDP growth, dividend policy and other micro and macro factors that influence the stock market. The inclusion of other variables in the study may have made the findings more robust thereby giving way to a more logical conclusion.

Methodology

The research design for the study is ex-post facto research design because data were extracted from a ready-made source and the study substituted for true experimental research to test hypotheses about cause and effect relationships between dependent and independent variables. The population of the study encompasses the total number of insurance companies listed on the Nigerian Stock Exchange market as of January 2009 and December 2017. The Nigerian Stock Exchange has twenty-five (25) listed insurance companies as of December 2017, and the number formed the target population of the study out which the sample size of the study was drawn.

The sample size of the study covers all the listed insurance companies that have a complete financial statement and have been listed on the Nigerian stock exchange market on or before 1st January, 2009. In this regard, the study used a filter and arrived at twelve (12) listed insurance companies on the Nigeria Stock Exchange Market as the sample size of the study as shown on the table below. The sampled insurance companies are marked “Yes” under the sample column on the table to indicate inclusion in the sample size of the study while those marked “No” were excluded from the sample because of incomplete financial statement.
Impact of Macro-Economic Variables on the Stock Returns of Listed Insurance

Table 1: Sample Selection Criteria

<table>
<thead>
<tr>
<th>S/N</th>
<th>INSURANCE COMPANIES</th>
<th>DATE LISTED</th>
<th>DATA</th>
<th>SAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>African Alliance Insurance</td>
<td>17-9-2009</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Alico Insurance</td>
<td>1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Axamansard Insurance</td>
<td>19-11-2009</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Consolidated Hallmark Insurance</td>
<td>22-2-2008</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>Continental Reinsurance</td>
<td>30-5-2007</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>Cornerstone Insurance</td>
<td>13-8-1997</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Equity Assurance</td>
<td>18-7-2007</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>GoldLink Insurance</td>
<td>12-2-2008</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>9</td>
<td>Great Nigerian Insurance</td>
<td>11-10-2005</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>Guinea Insurance</td>
<td>1-1-1990</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>International Energy Insurance</td>
<td>13-7-2007</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>12</td>
<td>Lasaco Assurance</td>
<td>1991</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>13</td>
<td>Law Union and Rock Insurance</td>
<td>9-7-1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>14</td>
<td>Linkage Assurance</td>
<td>18-11-2003</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>15</td>
<td>Mutual Benefits Assurance</td>
<td>28-5-2002</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>16</td>
<td>Nem Insurance</td>
<td>5-9-1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>17</td>
<td>Niger Insurance</td>
<td>1-9-1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>18</td>
<td>Prestige Assurance</td>
<td>3-12-1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>19</td>
<td>Regency Assurance</td>
<td>27-5-2008</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>20</td>
<td>Sovereign Trust Insurance</td>
<td>29-11-2006</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>21</td>
<td>Staco Insurance</td>
<td>25-6-2007</td>
<td>Complete</td>
<td>Yes</td>
</tr>
<tr>
<td>22</td>
<td>Standard Alliance Insurance</td>
<td>19-12-2003</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>23</td>
<td>Universal Insurance</td>
<td>11-2-2008</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>24</td>
<td>Veritas Kapital Assurance</td>
<td>17-12-2009</td>
<td>Incomplete</td>
<td>No</td>
</tr>
<tr>
<td>25</td>
<td>Wapic Insurance</td>
<td>1-9-1990</td>
<td>Complete</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Source: NSE, 2018

Techniques for Data Analysis

The study employed the use of parametric tools for data testing. The model is estimated based on Autoregressive Distributed Lag (ARDL) techniques using Eviews version 9 software. Pre-tests analysis based on descriptive and Augmented Dickey-Fuller (ADF) tests were employed to have a feel of the characteristics of the variables and to also ensure that none of the variables of the study is stationary at the second difference (I(2)). One of the assumptions of the ARDL model is that none of the variables of the study should be stationary at I(2). To determine the direction of the impact of macroeconomic variables on stock returns, a multifactor model using the Arbitrage Pricing Theory (APT) was adopted. The APT theory states that anticipated returns on financial securities may be expressed in a model representing the linear function of macroeconomic factors.

\[ SP = f(\text{EXR, CPI, TBR}) \] ................................................................. (i)

\[
\Delta SP = \beta_0 + \sum_{i=1}^{m} \beta_i \Delta SP_{t-i} + \sum_{i=1}^{m} \beta_2 \Delta \text{EXR}_{t-i} + \sum_{i=1}^{m} \beta_3 \Delta \text{CPI}_{t-i} + \sum_{i=1}^{m} \beta_4 \Delta \text{TBR}_{t-i} + \\
\eta \text{DUMMY}_{t-i} + \alpha_1 \Delta SP_{t-1} + \alpha_2 \Delta \text{EXR}_{t-1} + \alpha_3 \Delta \text{CPI}_{t-1} + \alpha_4 \Delta \text{TBR}_{t-1} + \mu_t \] ........................................ (ii)
Note that: $\beta_0$ to $\beta_4$ and $\alpha_1$ to $\alpha_2$ represent the parameters of the variables.

$\Delta$: is the first difference operator.

$\mu$: represent the error term.

SP: the stock price of listed insurance companies as a proxy for stock return.

EXR: the exchange rate of Naira to Dollar.

CPI: the consumer price index as a proxy for the inflation rate.

TBR: the treasury bill rate as a proxy for the interest rate.

DUMMY: dummy variable to take care of structural break.

Equally, the Error Correction Model of the ARDL approach is specified as follows:

$$
\Delta SP_t = \beta_0 + \sum_{i=1}^{m} \beta_i \Delta SP_{t-i} + \sum_{i=1}^{m} \beta_i \Delta EXR_{t-i} + \sum_{i=1}^{m} \beta_i \Delta CPI_{t-i} + \sum_{i=1}^{m} \beta_i \Delta TBR_{t-i} + \mu_t
$$

### 4.0 Analysis and Presentation of Data

#### Table 1: Summary of Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th>STATISTICS</th>
<th>SP</th>
<th>EXR</th>
<th>CPI</th>
<th>TBR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.880332</td>
<td>186.3804</td>
<td>11.91102</td>
<td>9.475463</td>
</tr>
<tr>
<td>Median</td>
<td>0.793750</td>
<td>155.7500</td>
<td>11.70000</td>
<td>10.15000</td>
</tr>
<tr>
<td>Maximum</td>
<td>2.220909</td>
<td>313.0000</td>
<td>18.72000</td>
<td>15.00000</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.593333</td>
<td>144.5100</td>
<td>7.700000</td>
<td>1.040000</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.317427</td>
<td>57.25410</td>
<td>3.169432</td>
<td>3.921176</td>
</tr>
<tr>
<td>Skewness</td>
<td>2.585599</td>
<td>1.448910</td>
<td>0.445304</td>
<td>-0.523909</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>9.664869</td>
<td>3.405576</td>
<td>2.103538</td>
<td>2.139956</td>
</tr>
<tr>
<td>Jarque-Bera Probability</td>
<td>320.2280</td>
<td>38.52832</td>
<td>7.185725</td>
<td>8.269194</td>
</tr>
<tr>
<td>Sum</td>
<td>95.07583</td>
<td>20129.08</td>
<td>1286.390</td>
<td>1023.350</td>
</tr>
<tr>
<td>Sum Sq. Dev.</td>
<td>10.78131</td>
<td>350749.4</td>
<td>1074.847</td>
<td>1645.192</td>
</tr>
<tr>
<td>Observations</td>
<td>108</td>
<td>108</td>
<td>108</td>
<td>108</td>
</tr>
</tbody>
</table>

*Source: Eviews version 9*

The descriptive statistics as presented in table 1 shows that the average share price for listed insurance companies is ₦0.88K with a standard deviation of 0.32. The average EXR is ₦186.38k with a standard deviation of 57.25. The average CPI is 11.91% with a standard deviation of 3.17%, while the average for TBR is 9.47% with a standard deviation of 3.92. The statistics also revealed the maximum and minimum share prices of the Insurance sector to be ₦3.07K and ₦0.10K respectively. It further reveals that EXR is the most volatile variable among the other independent variables because it has the highest standard deviation value of 57.25.

CPI has a normal skewness (skewness = 0) meaning that distribution is symmetry around its mean. SP and EXR have a long right tail (positive skewness) indicating more higher values above their sample averages. TBR, on the other hand, has a long left tail (negative skewness).
indicating more lower values than the sample average. Kurtosis statistics which measures the peakedness or flatness of the distribution of the series projects that all the variables are Leptokurtic (peaked curve) except EXR which is Mersokurtic (normal distribution with a kurtosis of 3). A Jarque-Bera test reveals that the residuals of all the variables are not normally distributed (probability of Jarque-Bera < 0.05).

**Bound Test Result**

The study further estimated for the ARDL bounds test for cointegration to verify whether long-run relationships exist among the variables of the study or not and the result is presented in table 4. To perform the bounds test for cointegration, the conditional ARDL model hypothesis is set as:

\[
H_0: b_1i = b_2i = b_3i = b_4i = 0 \quad \text{(where } i = 1, 2, 3, 4) \\
H_1: b_1i \neq b_2i \neq b_3i \neq b_4i \neq 0
\]

**Table 2: ARDL Bounds Test Result**

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Value</th>
<th>k</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-statistic</td>
<td>5.391025</td>
<td>4</td>
</tr>
</tbody>
</table>

**Critical Value Bounds**

<table>
<thead>
<tr>
<th>Significance</th>
<th>I0 Bound</th>
<th>I1 Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>2.45</td>
<td>3.52</td>
</tr>
<tr>
<td>5%</td>
<td>2.86</td>
<td>4.01</td>
</tr>
<tr>
<td>2.5%</td>
<td>3.25</td>
<td>4.49</td>
</tr>
<tr>
<td>1%</td>
<td>3.74</td>
<td>5.06</td>
</tr>
</tbody>
</table>

*Source: Eviews 9*

**Rules of thumb:** if the value of F-statistics > I1 Bound, reject the null hypothesis of no cointegration. From Table 4 the value of F-statistic is 5.391025 greater than the values of upper and lower critical bounds for all the significance levels. This confirms the rejection of the null hypothesis of no cointegration. Since the presence of cointegration among the series is established, the study went ahead to estimate the long-run coefficient of the ARDL and the result is presented in table 2.

**Discussion of Findings**

The study employed the ARDL estimation model to establish the long-run and short-run relationship between macroeconomic variables and stock return of listed insurance companies in Nigeria. The assumption of the model is that no variable should be stationary at second difference I(2). The study, therefore, tested the series through the testing techniques of Augmented Dickey-Fuller (ADF). The results generated by the ADF reveal that the independent variable is stationary at level I(0) and the other variables are stationary at first difference I(1). The result is presented in Table 2. This therefore, justifies the application of ARDL for the modelling of the series of the study.
Consequent upon the result of the bounds test, the long-run coefficients of the ARDL were estimated. The result suggests that there are positive and significant long-run and short-run relationship between exchange rate and share price of listed insurance companies in Nigeria. A 1% increase in exchange rate translates to 0.00095 point increase in share price of listed insurance companies in Nigeria in the long-run and 0.000325 point increase in share price on the short-run. This means that when naira depreciates relative to the dollar, the share price would increase. Factors that may be responsible for this could be ascribed to the relatively secure exchange rate in the Nigerian economy, even when naira depreciate there would be increasing cash flow into the economy, increase share price and stock returns.

The result of the study contradicts many studies as reviewed in the literature such as Uwubamwuen and Eghosa (2015), Okoro (2017), Mlambo, Maredza and Sibanda (2013), Safitri and Kumar (2014), Rabin and Khakan (2015) among others. However, the study is in line with the findings of Ifionu and Ibe (2015), Qamri, Abrar Ul Haq, and Akram, (2015), Ali (2014), Pourrahnama and Daei-karimzadeh (2014), Alam and Haseebullah (2013), Okonnor (2016), and Aliyu (2015) among others. The findings also validate the Arbitrage pricing theory propounded by Stephen Ross. The theory states that macroeconomic variables have an impact on stock returns. Therefore, the null hypothesis earlier set in chapter one of this thesis for both long-run and short-run relationship is rejected and the alternative hypothesis is accepted.

5.0 Conclusion and Recommendations

The study of Macroeconomic variables is a key for sound policy decisions that can affect the entire economy, individual, government, and organisations. Equally, Stock Market is an important segment of the economy of an economy. It enables companies to raise money by offering stock shares. It provides a platform for investors to benefit in the financial earnings of companies, by making money through dividend and selling of appreciated stocks. Stability in the exchange rate, inflation rate, interest rate and other macroeconomic variables are part of the determining factor of how the share of an industry may be priced. Base on the empirical findings of the study, the study recommends that:

i. The Central Bank of Nigeria through its monetary policies and other instrument of intervention should continue to regulate and maintain the level of exchange rate that will attract investment, especially in the Nigerian stock market.

ii. Investors should diversify their investment domestically and abroad in both developed and emerging markets in order to reduce the risk that may be associated with interplay of macroeconomic variables.

References
Impact of Macro-Economic Variables on the Stock Returns of Listed Insurance


