Prudential Determinants of Stock Prices of Commercial Banks in Nigeria: an Application of Fundamentalists and Macroeconomic View. 1980 - 2014

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ABSTRACT

This study examined the prudential determinant of stock prices of commercial banks in the Nigeria: application of the fundamentalists and macroeconomic view from 1980 – 2014. Ssecondary data were sourced from the annual financial reports of the banks, Stock Exchange factbook, and Central Bank of Nigeria (CBN) statistical Bulletin. The study used Aggregate Value of end of the year stock prices of the commercial banks as dependent variable. The micro prudential variables are Ratio of Retain Earnings, Ratio of Dividend Payout, Profitability, Commercial Banks Capital to Total Assets, Lending Rate and Bank Size while the macro prudential variables are monetary policy Rate, Inflation Rate, All Share Price Index to Gross Domestic Product, Real Gross Domestic Product, Exchange Rate and Broad Money Supply. The Ordinary Least Square Method of Co-integration test, Augmented Dickey Fuller Unit Root Test, Granger Causality test and Vector Error Correction Model was used to examine the nature of relationship that exist between the dependent and the independent variables in the regression models. The study found that all the micro prudential variables have positive effects on the stock prices of the commercial banks except lending rate. The model summary shows a strong relationship between the dependent and the independent variables with an R^2 69.4% explained variation, 12.43051 overall significant and the probability of 0.000004, from the micro prudential variables while the macro prudential variables revealed an R^2 of 52.0% explained variation, 8.788310 over significant and probability of 0.000004, this proved that the micro prudential variables have positive and significant relationship while macro prudential variables exhibits positive average and significant relationship with stock prices in Nigeria. The findings validate fundamentalist and macroeconomic view. Therefore, we recommend that management of the commercial banks should strengthen its management capacity against the micro and macro prudential factors that can affect negatively the stock prices quoted stock in Nigeria.

Keywords: *Micro and Macro Prudential, Stock Prices, Commercial Banks, Fundamentalists, macroeconomic view*

INTRODUCTION

Over the years under view, policy maker, financial analysts and practitioners are yet to find solutions to factors that influence the behaviour or movement of stock prices as such this has resulted to long aged controversies or debate in the field of finance giving rise to divergent schools of thought which have emerged with different view on the behaviour of stock prices. The fundamentalists view the value of corporate stock as determined by the expectations regarding the future earnings and by the rate at which those earnings are discounted over time. This shows the present value principles of the valuation of corporate stocks using dividends earnings, assets and interest rates to establish the price of stock (Buttler and Malackech, 2002). The technical school of taught are of the view that, stock prices behaviour or movement is determined by monetary and macroeconomic variables and this is why the Random Walk hypothesis is base on the assumption that investors adjust rapidly to reflect on the effects of new information believe in the efficient capital market, hence, they argued that stock prices are essentially random and therefore, there is no chance for profitable speculations in the stock market (Gupta and Basa, 2004). The macroeconomists, blamed volatility of stock price to changes in macroeconomic variables such as changes in interest rate, money supply, inflation rate and other macroeconomic variables while the behavioural school argued that the market might fail to reflect economic fundamentals, under the assumption that, investors are irrational when they do not have correct information concerning the expectations of a company's future performance.

Like every other corporate organization, banks operate in two diverse environments which comprises internal and external environment that reflect the theoretical explanations of the five schools of thought. The financial system is dominated by the banking sector (about 90% of the assets) and about 65% of stock market capitalization (Soludo, 2009). Daily stock market reports over the years have shown that commercial banks have the highest traded equities. The theoretical assumptions underlying the schools of thought on the determinants of stock price is base on the capital market developed countries which is more efficient compared with the Nigerian emerging financial market which have resulted in institutional, structural, monetary and macroeconomic policy reforms aimed at repositioning the financial market. The establishment of Investor Protection Fund (IPF), the introduction of Automated Trading System (ATS), the deregulation of stock price in 1993, also the deregulation of the economy in the last quarter of 1986, the internationalization of the Nigerian capital market with the introduction of Central Security Clearing System (CSCS), the enactment of Nigeria Investment Promotion Commission (NIPC) decree (Onoh, 2002) and the banking sector consolidation and recapitalization of 2005 among others are some of the reforms which are expected to add positively to stock prices and enhance the financial performance of the banking industry yet there are still incidence of stock market clash as a of the 2007/2008 global financial crises. Toby (2006) noted that the banking sector consolidation was to reposition Nigerian banking sector to be an active player instead of a spectator in the global financial market. Therefore, the exact and definite impact of prudential determinants of stock prices on commercial banks in Nigeria and the direction of causality is mixed and unresolved. it is in the light of this controversy that this study attempt to contribute to the on - going debate on prudential determinants of stocks prices of commercial banks in Nigeria both at micro and at macro levels considering the global market crash and its fallout in many markets of the world including Nigeria and it will also find out the direction of causality between the variables. The rest part of this paper are as follows; section two discuses the views of

different schools of thought and empirical studies on factors that determine stock prices, section three discusses the methods adopted in the study, section four presents and analyze results while section five conclude and make recommendations from the findings.

SECTION II

LITERATURE REVIEW

Stock Price Behaviour and the Schools of Thought: The Fundamentalists View

The fundamentalist viewed the value of a corporation's stock is determined by expectations regarding future earnings and by the rate at which those earnings are discounted of time. The fundamentalists is the application of present value principles to the valuation of corporate stock, using dividends, earnings, assets and interest rate to establish the price of stock.

The Technicalist View

The technical school of taught on the other hand, opposes the fundamentalists' arguments, and claims that stock price behaviour can be predicted by the use of financial or economic data. They are of the opinion that stock prices tend to follow definite pattern and each price is influenced by preceding prices, and that successive prices depend on each other. This contrary to the view of the fundamentalists, Smith (1990) noted that technical analysts engage themselves in studying changes in market prices, the volume of trading and investors' attitude.

The Random-Walk Hypothesis

The random-walk hypothesis is based on efficient market assumption that investors adjust security rapidly to reflect the effects of new information. Believers in the efficient capital market hypothesis argue that stock prices are essentially random and therefore, there is no chance for profitable speculation in the stock market. An interesting feature of random walk is the persistence of random shocks (Gupta, and Basu, 2007). This view is contrary to that of fundamentalists and the technicalists. Empirical test of the random-walk hypothesis have been carried out by scholars such as Moore (1962) and Fama (1970). These scholars independently tested the statistical randomness of successive changes in stock prices. Their findings showed insignificant departures from randomness and were both inconclusive and insufficient.

The Behavioural School of Taught

The behavioural school of finance holds different view from the above schools of thought and opined that market might fail to reflect economic fundamentals under three conditions, which are: The first behavioural condition is irrational behaviour. It holds that investors behave irrationally when they do not correctly process all the available information while forming their expectations of a company's future performance. The second is systematic patterns of behaviour, which hold that even if individual investors decided to buy or sell without consulting economic fundamentals, the impact on share prices would be limited. The third is limits to arbitrage in financial markets ascertain that when investors assume that a company's recent strong performance alone is an indication of future performance; they may start bidding for shares and

drive up the price. Some investors might expect a company that surprises the market in one quarter to go on exceeding expectations (Inegbedion, 2009).

The Macroeconomist School of Taught

The macroeconomic view adopt the usual method of using factor analysis approach to determine the factors affecting asset returns, some scholars have measured macroeconomic factors to explain stock return and found that changes in interest rate are associated with risk . They interpreted the observation to be a reflection of changes in the rate of inflation, given the finding of Fama (1977) that changes in the rate of inflation are fully reflected in interest rates. The macroeconomic approach attempts to examine the sensitivity of stock prices to changes in macroeconomic variables. The approach posits that stock prices are influenced by changes in money supply, interest rate, inflation and other macroeconomic indicators. It employs a general equilibrium approach, stressing the interrelations between sectors as central to the understanding of the persistence and co-movement of macroeconomic time series, based on the economic logic, which suggests that everything does depend on everything else (Iqbal and Mallikarjunappa, 2007).

EMPIRICAL LITERATURES.

Akani and Lucky (2014) examined the relationship between money supply and aggregate stock prices in Nigeria using time series data from 1980 – 2012, Dickey Fuller Unit Root Test, Engle-granger and Johansen-Joselinus method of co-integration in a Vector Error Correction Model setting. Empirical results demonstrated that there exists a long-run relationship between Currency in Circulation (CR) and Demand Deposit (DD) and Aggregate Stock Price, Time Deposit (TD), Savings Deposit (SD) and Net Foreign Assets (NFA) have negative relationship with aggregate stock prices.

Akani and Uzobor(2015) studied empirically the effects of inflation on aggregate stock prices in Nigeria using time series data from 1980 – 2012, Dickey Fuller Unit Root Test, Engle-granger and Johansen-Joselius method of co-integration in a Vector Error Correction Model setting were employed. An empirical result shows that there exists a long-run equilibrium negative relationship between inflation rate and Aggregate Stock Prices. Broad money supply (M2) has a negative and significantly effects on aggregates stock prices, Narrow Money Supply (M1) shows a positive and significantly effects on aggregates stock prices while Average inflation rate show a positive and significantly relationship between aggregate stock prices. Akani(2013) examined the analysis of macroeconomic aggregates on stock prices in Nigeria: application of co-integration and causality tests.1985-2011. Dickey Fuller Unit Root Test, Engle-granger and Johansen-Joselius method of co-integration in a Vector Error Correction Model setting were employed. Empirical results show that there exists a long-run equilibrium negative relationship between macroeconomic variables and Aggregate Stock Prices.

Taulbee (2005) investigated the influences of macroeconomic indicator on the stock market in S&P 500. The result showed that the Gross Domestic Product have a significant correlation with the stock price where unemployment and inflation have no significant correlation with the stock prices. Nawazish & Mirza (2013) examined book to market (B/M) ratio as key determinant of

share prices, the study concluded that the value and size of premium given to investor will enhance the investors to invest more in the stock as a result of which the stock prices will rise. It was also found that the size of the firm also have a very important role in the value of stock. As market capitalization and B/M ratio is used in Fama and French to calculate the return. George, Tweneboah and Anokye (2008) examined factors that determined stock prices in Ghana on data from 1991 to 2006.The variables used are ; bill rates as measures of interest rates, consumer price index as measure of inflation rate, inward foreign direct investment, and exchange rate as macroeconomic factor by applying different models of correlation, regression, and integration they found that exchange rate, a macroeconomic factor, has long run relationship between the stock prices of Ghana. Jin Dehuan and Zhenhu Jin (2008) studied correlation between firm performance such as Return on Equity, earning per share, profit margin, return on asset, changes in sales, and total asset turnover and stock price of the top performing stocks listed on Shanghai Stock Exchange the study found that all the variables are significantly correlated with stock prices in the year before crisis, but no explanatory power in the crisis period toward stock price movement.

Uddin (2009) investigated the relationship between macroeconomic variables with the stock prices by using multiple regression analysis. The empirical results found a significant linear relationship among market returns and some macroeconomic variables such as net asset value per share, dividend percentage, earning per share of bank leasing and insurance companies and non-linear relationship among the variables is insignificant at 95percent level of significance. Fisher (2009) studied the relationship between British share prices and different quantitative variables. It showed the impact of dividends, reserve profits, and company size on share prices taken from five cross sectional samples of equities quoted on the London Stock Exchange between 1949 and 1957. Al- Shubiri (2010) studied the impact of macroeconomic variables and the stock prices by using Simple and Multiple regression analysis of 14 commercial banks of Amman Stock Exchange, for the period of 2005 -2008,the study found highly positive and significant relationship between market price of stock and net asset value per share; market price of stock dividend percentage, gross domestic product and negative but significant relationship on inflation and lending interest rate.

Sanjeet & Sharma (2011) investigated the empirical relationship between equity share prices and explanatory variables such as: book value per share, dividend per share, earning per share, price earnings ratio, dividend yield, dividend payout, and size proxy by sale and net worth for the period of 1993-1994 to 2008-2009. The findings revealed that earning per share, dividend per share, and book value per share has significant impact on the market price of share. Results of study also indicated that dividend per share and earnings per share being the strongest determinants of market price, it recommends liberal dividend policy and that companies should pay regular dividends. Irmala, Sanju and Ramachandran (2011) researched on identifying the determinants of share prices in the Indian market. They used panel data pertaining to three sectors which are, auto, healthcare, and public sector undertakings over the period 2000-2009 and employed the fully modified Ordinary Least Squares method. The results proved that the variables such as dividend, price-earnings ratio and leverage are significant determinants of share prices for all the sectors under consideration, profitability is found to influence share prices only in the case of auto sector. Khan and Amanullah (2012) studied the different variables that determine share prices and the relationship of these determinants with the share prices of Karachi

Stock Exchange (KSE) 100 index of Pakistan. 5 quantitative variables, namely Book to Market (B/M) ratio, Price Earning (P/E) ratio, Dividend, Gross Domestic Product (GDP), and Interest Rate were selected to find out the direction and strength of relationship. Sample of 34 companies has been randomly selected from 34 sectors of KSE. Ten years (2000-2009) data was collected for the sample companies. The tools used for analysis are Linear Multiple Regression and Correlation Model. It was found that all the variables selected have positive and significant relationship with share prices except Interest rate and B/M ratio.

Uwuigbe, Olowe, Olusegun, and Godswill (2012) investigated the determinants of share prices in the Nigerian stock exchange market. A total of 30 listed firms in the Nigerian stock exchange market were selected and analyzed for the study using the judgmental sampling technique. The paper basically modeled the effects of financial performance, dividend payout, and financial leverage on the share price of listed firms operating in the Nigerian stock exchange market using the regression analysis method. Findings revealed a significant positive relationship between firms' financial performance and the market value of share prices of the listed firms in Nigeria. It concludes that firms' financial performance, dividend payouts, and financial leverage are strong determinants of the market value of share prices in Nigeria. Raimony & El-Nader (2012) studied the sources of the ASE price index volatility, using monthly data between1991 and 2010. The volatility returns of the ASE are estimated through utilizing the ARCH /GARCH model with/without dummy variable, and to measure the shocks of each variable, the Impulse Response Function (IRFs) is applied. The results of the study revealed that the ARCH (1) performs well. It also indicated that RMS2, CPI, E1, WAIR and the dummy variable have a negative impact on the ASE returns volatility, while RGDP played a positive effect. The volatility equation shows that the mean (ω) is smaller than that of the parameter of lagged squared error term (γ). ARCH (1) (represented by γ) is positive and statistically significant at 1% level, while GARCH (1, 1), represented by δ, is negative with the dummy variable but not statistically significant. The sum of ($\gamma + \delta$) is greater than unity, demonstrating that the volatility increases over time. The dummy variable (η) has a negative influence on the ASE index returns volatility and is statistically significant at 1%. The results from the (IRFs) support the significance of dynamic association between the monthly return index and the macroeconomic variables.

Srinivasan (2012) studied the major determinants of share price in India. It employed panel data consisting of annual time series data over the period 2006-2011 and cross-section data pertaining to 6 major sectors of the Indian economy, namely, Heavy and Manufacturing, Pharmaceutical, Energy, Information Technology and ITES, Infrastructure, and Banking. The panel data techniques are; Fixed Effects model and Random Effects model were employed to investigate the objective. The empirical results revealed that the dividend per share has negative and significant effect on the share price of manufacturing, pharmaceutical, energy, and infrastructural sectors. Earnings per share and price-earnings ratio are being the major determinants of share prices of manufacturing, pharmaceutical sector, energy, infrastructure, and commercial banking sectors. Size is being significant factor in determining the share prices of all sectors under consideration except manufacturing, the book value per share positively influences the share prices of pharmaceutical, energy, IT & ITES, and Infrastructure. Malhotra & Tandon (2013) attempted to study the factors that affect stock prices in the context of National Stock Exchange (NSE) of 100 companies by adopting sample of 95 companies selected for the period 2007-2012 and linear regression model was used. The results proved that firms' book value, earning per

share, and price-earnings ratio are having a significant positive association with firm's stock price while dividend yield is having a significant negative relationship with the market price of the firm's stock. Abdullah and Hayworth (1993) observed that the US stock returns are positively related to inflation and growth in money supply, yet negatively to budget and trade deficits, and also to short and long term interest rates.

Habibullah and Baharumshah (1996) investigated whether money supply (M1 andM2) and output are important in predicting stock prices in Malaysia from January 1978 to 1992; making 177 monthly observations. Their result proved that the Malaysian stock market is informationally efficient. Thus current stock prices already incorporate all past and current information of money supply and output. Mookerjee and Yu (1997) examined the effect of macroeconomic variables on Singapore stock market. The result suggests that stock prices are co-integrated with both measures of money supply (M1 and M2) and aggregate foreign exchange reserves. Kwon and Shin (1999) studied the role of macroeconomic variables in estimating Korean stock prices. Stock indices seem to be co-integrated with the combination of four macroeconomic variables namely which are money supply, trade balance, foreign exchange rate, and industrial production. Maysami and Koh (2000) studied the relationship between money supply and the Singapore stock exchange and found that a positive relationship exist between them. Brahmasrene and Jiranyakul (2007) used annual data from 1992-2003 to prove that a positive relationship exists between money supply and the Thai stock market returns. Maskay (2007) examined the relationship between money supply and the S&P 500 Index, the direction of the relationship; and the difference in the relationship between anticipated and unanticipated changes in money supply with stock market prices by using quarterly data and a two-stage regression model, the study found a positive relationship between changes in money supply and stock prices, as the coefficient for the actual change in M2 is positive. It also proved that anticipated changes in money supply matter more than unanticipated changes as both unanticipated components are insignificant at 0.1%level whereas the anticipated change is highly significant at the 0.01% level. The results support the critics of the Efficient Market Hypothesis and signify that anticipated change in money supply matters too. Raymond (2009) studied the long-run relationship between stock prices and monetary variables on the Jamaican Stock Exchange; using the Vector Error Correction Model framework. Monetary indicators used in the analysis include 180- day Government of Jamaica (GOJ) Treasury bill yields, the value of the Jamaica Dollar vis-a-vis the US dollar, inflation rate and money supply Measured by broad money supply. The monthly lag of each series was utilized and the data employed spanned the period January 1990 to March 2009 (231 observations). Coefficients from the co-integrating vector, normalized on the stock price, proved that the JSE Main Index is positively influenced by the explanatory variables.

David (2012) investigated financial crises, firms' fundamentalists and pricing of banks stocks in Nigeria with panel data of ten (10) banks using pooled square regression analyses method. The study found that both when the banks are together into one and when studied individually dividend at previous period is statistically determinants of stock pricing. Also the size of traded stock of price of seven (7) out of the 10 banks studied exerts significant negative effect on the prices of the seven banks leaving only three (3) to be insignificant. Against the apriori expectation increase in economic growth rate of Nigeria leads to decrease in the stock prices of 9 out of the ten banks. Mohammed (2014) examines the determinants of equity share prices of the listed banks in Ammoan stock exchange over the period 2005- 2011 using dependent variables.

The empirical findings show that there is a positive correlation between the independent variables DPS, EPS, BV, PE, and size and the dependent variable market price of the share. Lucky & Nwosi (2015) found significant relationship between asset quality and the profitability of commercial banks in Nigeria. This means that asset quality can affect positively stock price via profitability. Emenike and Aru (2014) studied volatility of the banking sector stock returns in Nigeria using data from 2006 - 2012. Results obtained from GARIH models suggest that stock returns volatility persistence are high for the sample period. Mol *et al*, (2013) investigated the determinants of stock prices in financial sector, companies in Bangladesh using companies from 2005 - 2011 from Dhaka stock exchange with variable Net profit after tax, price earnings per share, net asset value, net profit after tax and price earnings ratio have strong relationship with stock prices

SECTION III

METHODOLOGY AND DATA

For the purpose of achieving the objective of this paper, we adopt the co-integration and vector error correction model (VECM) approaches in addition to the Granger causality tests. This is necessary in order to test the stationarity properties of our time series data. Non-stationarity has become common in many economic and financial time series data so much so that empirical results obtained from using such non-stationary data could lead to very high estimation errors and bias,(Brooks,2008).Therefore, to overcome the incidence of non-stationarity in the time series, we employed the Augmented Dickey-Fuller (ADF) unit root as well as the Johnansen (1990) co-integration techniques to examine whether the time series are co-integrated to establishing a long-run relationship between the variables in the model at the micro and macro operating environment on the share price of the fifteen (15) quoted commercial banks in Nigeria. The study also employed a secondary data obtained from Central Bank of Nigeria Statistical Bulletin and Annual Reports various issues.

MODEL SPECIFICATION

The following models are specified in this study, model I, captured the micro operating environment while model II contains the macro operating environment. The relationship between the dependent and the independent variables is base on the theories and assumption of the different schools of thought.

Model I

SPCB = f(RE, DPO, PF, BC/TA, LR,BS)……..… (1)

Transforming equation I into a testable form we have:

$SPCB = \beta_0 + \beta_1 RE + \beta_2 DPO + \beta_3 PF + \beta_4 BC/TA + \beta_5 LR + \beta_6 BS + \mu_1$ ……..…2

Model II

SPCB =f(MPR, INFR, ASPI/GDP, RGDP, EXR, M2) ……3

Transforming equation II into a testable form we have:

$SPCB = X_0 + X_1 MPR + X_2 INFR + X_3 ASPI/GDP + X_4 RGDP + X_5 EXR + X_6 M2 + \mu_2$ .. ……4

Where;

SPCB	=	Share price of the Commercial bank
RE	=	Retained Earnings in Ratio
DPO	=	Dividend Payout in Ratio
PF	=	Commercial banks profitability proxy by return on investment
BC/TA	=	Commercial banks capital base in ratio of total assets
LR	=	Lending Rate
BS	=	Bank Size proxy by number of bank branches
MPR	=	Monetary Policy Rate
INFR	=	Real Inflation Rate
ASPI/GDP	=	Percentage of All Share Price Index to Domestic Product measure for capital market development.
RGDP	=	Real Gross Domestic Product
EXR	=	Exchange Rate
M2	=	Broad money supply
μ	=	Error Term

STATIONARITY TEST

To determine the stationarity, the study apply the Augmented Dickey Fuller Unit Root Test with automated length selection using the Akaike Information Criterion (AK) to ascertain if the mean and the autocorrelation of the series do not depend on time. The ADF test brings into play the (agreed dependent variable as explanatory variables to approximate for autocorrelation (Omiete and Onyemachi, 2015). The ADF test stastistics is mathematically stated as:

$$\Delta y_t = c + \beta_t + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

$$\Delta y_t = c + \alpha y_{t-1} + \sum_{t-i}^{k} \gamma_j \Delta y_{t-j} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 6$$

Equation 5 is determined to test for the null hypotheses of non stationarity of unit root against trend stationarity alternative in Y_t where y refers to the examined time series. Equation 6 is determined to tests the null hypotheses of a unit root against a mean stationarity alternative.

Johansen Co-integration Test

The co-integration test determined whether a long run equilibrium relationship exist among the variables. It is generally accepted that to establish a co-integration, the likelihood ratio must be greater than the Mackinnon critical values. The model can be stated as

$$\Delta X_t = \mu + \Psi_1 \Delta X_{t-1} + \Psi_2 \Delta X_{t2} + \ldots + \Psi_{p-1} \Delta X_t - p + 1 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

Where μ is a constant term?

ΔX_t Represents the first co-integrating differences

Vector Error Correction Model

Empirically analyze the data with the Vector Error Correction (VEC) Model. Vector Error Correction (VEC) model is a restricted VAR which is designed for use with non-stationary series that are known to be co-integrated. The VECM has co-integration relations built into the specification so that it restricts the long-run behaviour of the endogenous variables to converge to their co-integrating relationships while allowing for short-run adjustment dynamics. The co-integration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

Our VEC model is:
$\Delta y1, t = \alpha 1\ (y2, t-1 - \beta y1, t-1) + \varepsilon 1, t$……8
$\Delta y2, t = \alpha 2\ (y2, t-1 - \beta y1, t-1) + \varepsilon 2, t$……9

The right-hand side variable is the error correction term; and is zero in the long run. But a deviation of y1 and y2from equilibrium makes the error correction term to be nonzero and each will have to adjust to equilibrium. The coefficient α1 measures the speed of adjustment of the i-th endogenous variable towards the equilibrium

Granger Causality Test

Granger (1969) approach to the question of whether two variables X causes Y is to see how much of the current Y can be explained by past values of Y and then to see whether adding lagged values of X can improve the explanation. Vesela (2010) noted that the Granger test assumes that all information for predicting chosen variables is included in the very past values of the variables. Y is said to be Granger-caused by X if X helps in the prediction of Y, or equivalently if the coefficients on the lagged X's are statistically significant If it found that "X Granger causes Y", this does not mean that Y is the effect or the result of X. ranger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term.

$$Y_t = \alpha_o + \sum_{i=1}^{n} \alpha_1^{y} Y_{t-1} \sum_{i=1}^{n} X_{a1} X\mu \quad \text{.....10}$$

and

$$X_t = \beta_o + \sum_{i=1}^{n} \beta_{1}^{y} Y_{t-1} \sum_{i=1}^{n} X_{\beta 1} XY_t \quad \text{.....11}$$

In case we do not find any evidence for Co-integration among the variables, the specification of the Granger causality will be a Vector Autoregression (VAR) in the first difference form. However, if will find evidence of Co-integration, there is the need to augment the Granger-type causality test model with a one period lagged error term. This is a crucial step because as noted by Engel and Granger (1987).

SECTION IV
EMPIRICAL RESULTS AND DISCUSSION
Table 1 Time Series Data of the Micro Prudential Determinants

YEAR	SPCB	DPO	RE	PF	BC/TA	LR	BS
1980	5.78	30.4	19.6	165.15	19.072	6.15	0

1981	6.15	15.4	20.45	186.81	21.147	7.75	869
1982	6.43	61.6	36.43	207.57	24.322	10.25	991
1983	6.27	30.9	21.3	223.35	28.523	10	1108
1984	7.4	23.18	21.6	242.49	28.147	12.5	1249
1985	7.64	36	20.32	267.03	28.193	9.25	1297
1986	7.5	48	20.3	253.01	28.066	10.5	1367
1987	7.65	46.1	20.95	309.75	26.935	17.5	1483
1988	8.8	49.8	20.43	329.54	25.497	16.5	1665
1989	4.95	62.7	21.6	319.73	27.523	26.8	1855
1990	3.19	37.2	21.15	360.1	31.406	25.5	1939
1991	11.53	35.9	24.2	366.34	29.658	20.01	2023
1992	8.32	85.42	22.4	375.05	28.247	29.8	2275
1993	18.09	95.75	21.33	411.52	36.848	18.32	2358
1994	39.52	81.05	28.5	421.73	24.625	21	2403
1995	46.66	73.96	55.26	428.82	24.275	20.18	2368
1996	52.01	13.56	31.24	413.9	24.314	19.74	2407
1997	44.16	52.44	38.14	440.94	28.539	13.54	2407
1998	48.8	53.29	42.3	437.11	27.83	18.29	2185
1999	82.63	54.13	52.22	469	32.727	21.32	2185
2000	96.46	55.26	57.77	469.7	25.077	17.98	2193
2001	84.11	53.72	97.94	482.76	21.503	18.29	2193
2002	97.29	44.71	127.59	518.13	18.976	24.85	3010
2003	111.77	54.91	96.62	557.92	18.524	20.71	3247
2004	138.42	53.19	208.15	532.23	20.032	19.18	3492
2005	175.63	49.5	268.8	568.07	21.518	17.95	3233
2006	344.98	46.4	255.49	532.46	23.951	17.26	**3233**
2007	95.78	48.35	378.99	735.56	8.565	16.94	**4200**
2008	69.93	45.28	176.42	662.41	6.732	15.14	**4952**
2009	70.28	45.37	119.46	641.64	5.338	18.99	**5436**
2010	641.3	44.74	80.49	718.91	5.413	17.59	**5809**
2011	74.34	46.06	81.67	759.88	6.892	16.02	**5454**
2012	88.97	46.89	71.66	758.81	6.295	16.79	**5564**
2013	85.78	43.4	119.6	845.01	6.567	17.1	**5639**
2014	87.6	51.67	127.1	890.43	7.098	18.7	**5526**

Source: Author's Computation

Table 2 Time Series Data of the Macro Prudential Determinants

YEAR	SPCB	MPR	INFR	CME/GDP	RGDP	EXR	M2
1980	5.78	5	9.9	1.02	0.3	0.54	0
1981	6.15	6	20.9	1.64	1.8	0.64	0
1982	6.43	8	7.7	2.33	0.8	0.67	0
1983	6.27	8	23.2	1.43	4.81	0.75	0

1984	7.4	10	30.8	2.14	2.82	0.81	0
1985	7.64	10	3.23	2.08	11.33	3.32	12.44
1986	7.5	10	6.25	1.37	1.89	4.19	4.23
1987	7.65	12.75	11.76	2.14	-0.69	5.35	22.92
1988	8.8	12.75	34.21	1.18	7.58	7.65	34.99
1989	4.95	18.5	49.02	2.1	7.15	9.65	3.54
1990	3.19	18.5	7.89	7.23	11.36	9	45.92
1991	11.53	14.5	12.19	9.54	0.01	9.75	27.43
1992	8.32	17.5	4.56	6.35	2.63	19.66	47.53
1993	18.09	26	57.14	5.91	1.56	22.63	53.76
1994	39.52	13.5	57.41	6.72	0.78	21.89	34.5
1995	46.66	13.5	72.72	9.81	2.15	81.02	19.41
1996	52.01	13.5	29.29	4.09	4.13	81.25	16.46
1997	44.16	13.5	10.67	2.73	2.89	81.65	16.4
1998	48.8	14.31	7.86	1.93	2.82	83.81	22.32
1999	82.63	18	6.61	2.13	1.19	92.34	33.12
2000	96.46	13.5	6.69	1.68	4.89	100.8	48.07
2001	84.11	14.31	18.86	1.15	4.72	111.7	27
2002	97.29	19	12.88	1.29	4.63	126.26	21.55
2003	111.77	15.75	14.03	1.13	9.57	134.04	24.11
2004	138.42	15	15.01	0.94	6.58	132.37	14.02
2005	175.63	13	17.85	1.1	6.51	130.61	24.35
2006	344.98	12.25	8.21	1.09	6.03	128.28	43.09
2007	95.78	8.75	5.41	1.23	6.45	125.88	44.8
2008	69.93	9.81	11.5	0.57	5.98	121.9	57.88
2009	70.28	7.44	12.54	1.03	6.96	150.01	17.07
2010	641.3	6.13	13.72	1.24	7.98	150.65	6.91
2011	74.34	9.19	10.72	1.61	7.43	156.2	15.43
2012	88.97	12	12	1.83	6.58	155.82	16.39
2013	85.78	12	13.8	0.81	7.52	158.73	18.45
2014	87.6	12	13.98	1.79	8.06	159.65	**59.8**

Source: Author's Computation

Descriptive Analysis of the Variables

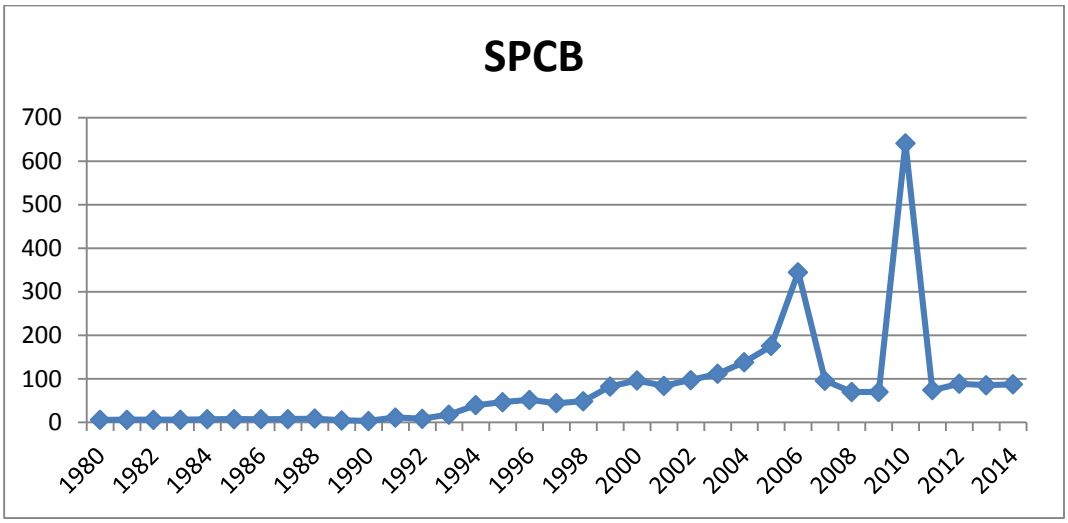

Figure1 above shows the fluctuations of stock prices of the quoted commercial banks within the period of this study. It revealed that stock price was on steady increase from 1981 to 2006 but fall in 2008/ 2009 which can be blamed on the global financial crisis that led to Nigerian capital market crash, the rise in 2010/2011 can traced to monetary policy measures such as the injection of 620 billion naira in the banking sector while the fall in within 2012 to 2014 can be traced to monetary policy shocks such as the withdrawal of all public fund from the banking sector.

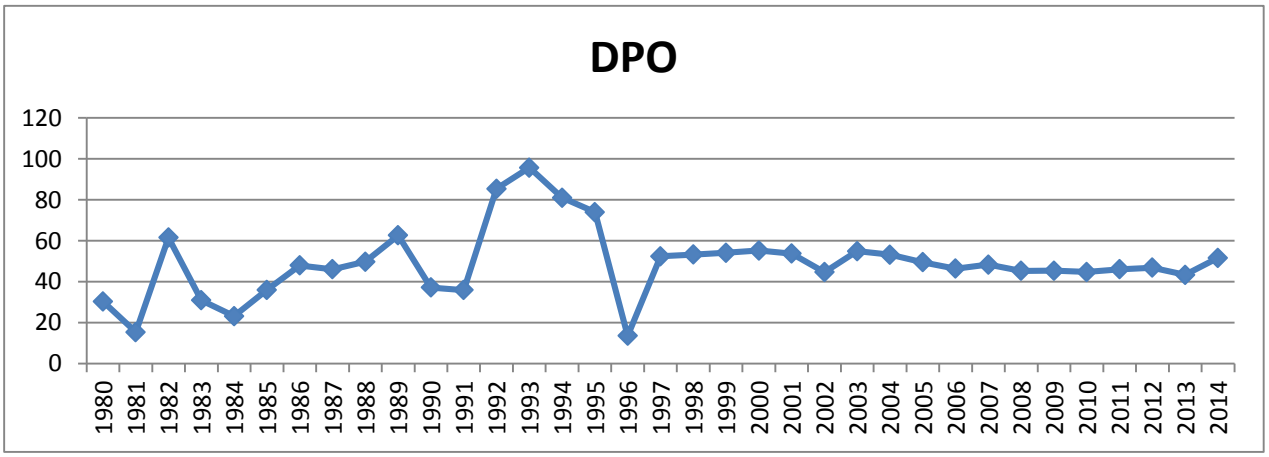

Figure 2 above shows the fluctuation of dividend payout ratio of the commercial banks within the period covered in this study. The line graph exhibits a rather irregular pattern.

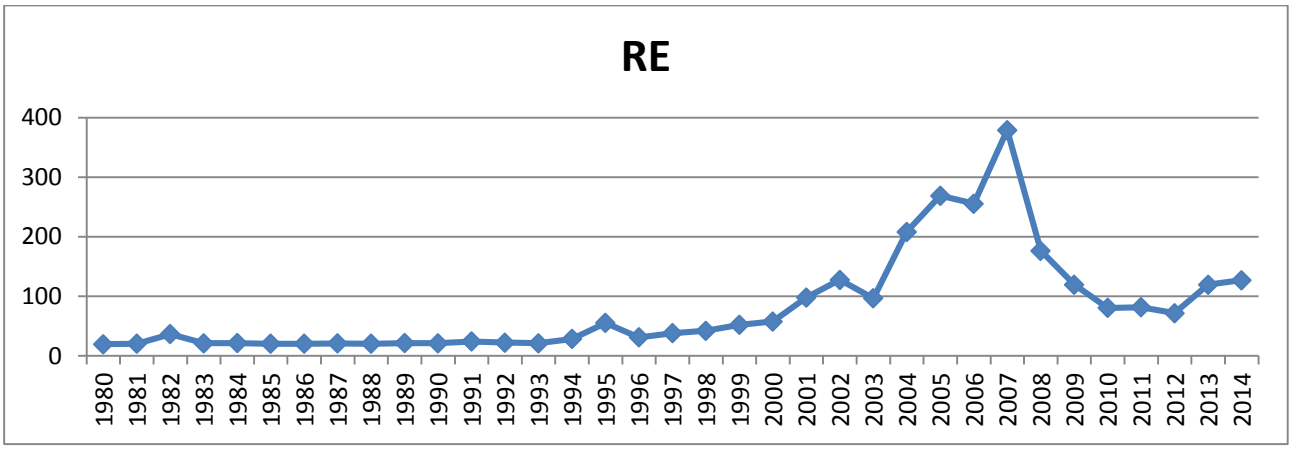

Figure 3 above shows the fluctuation of retain earnings of the commercial banks within the period during study. It exhibits a rising pattern from 1980 to 1994 and shows a rising and falling pattern and got to its peak in 2008.

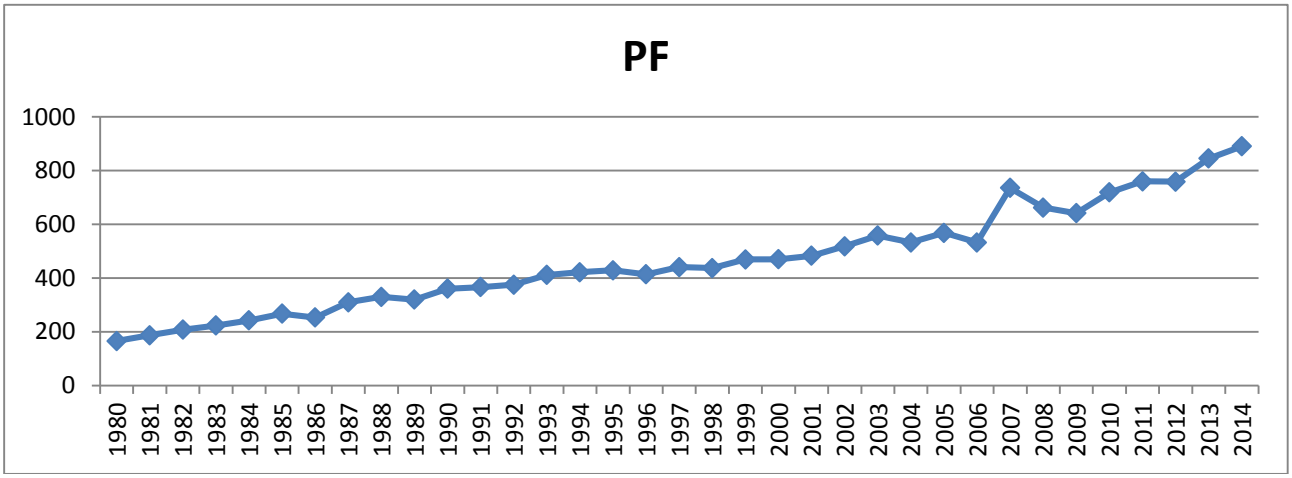

Figure 4 above shows the fluctuation of profitability of the commercial banks within the period during study. The trend shows steady increase with slight fall 1986, 1990, 2008 and 2012.

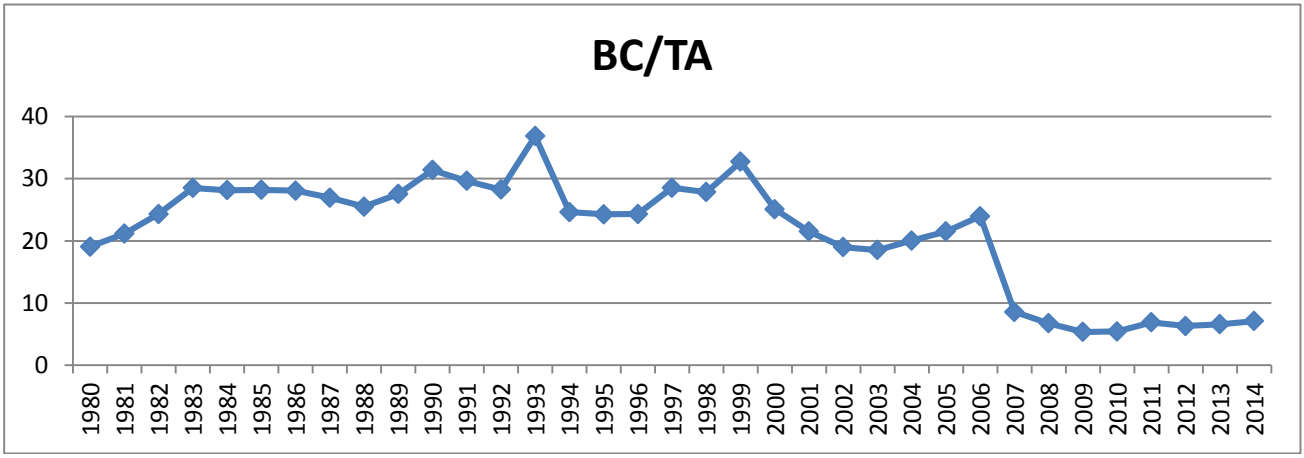

Figure 5 above shows the fluctuation of capital to total assets of the commercial banks within the period during study. The trend shows high fluctuation with fall in 2006, this can be traced to banking sector crisis after the consolidation.

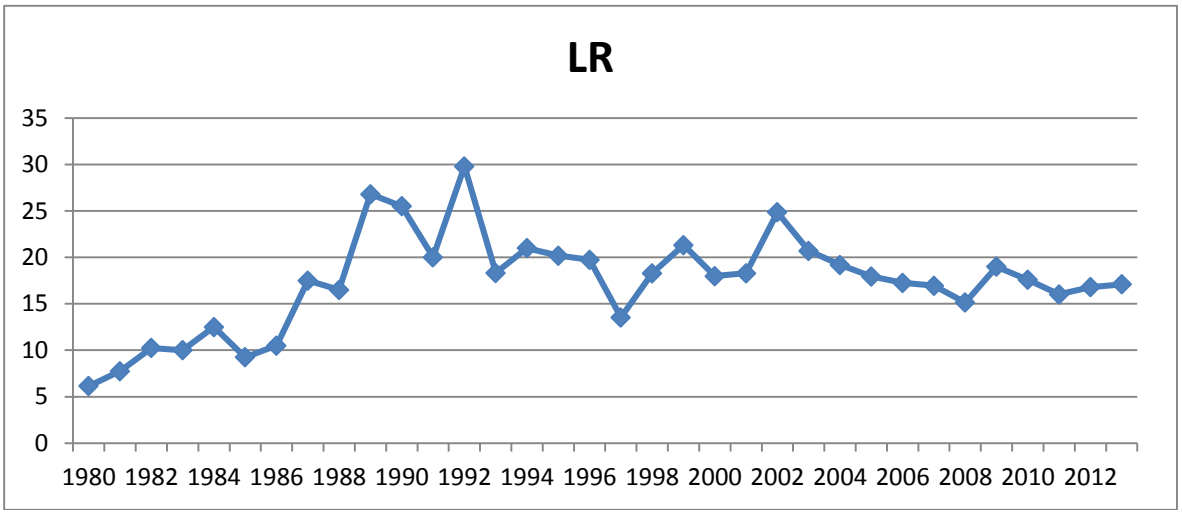

Figure 6 above shows the fluctuation of lending rate of the commercial banks within the period during study. The trend shows high fluctuation within the period.

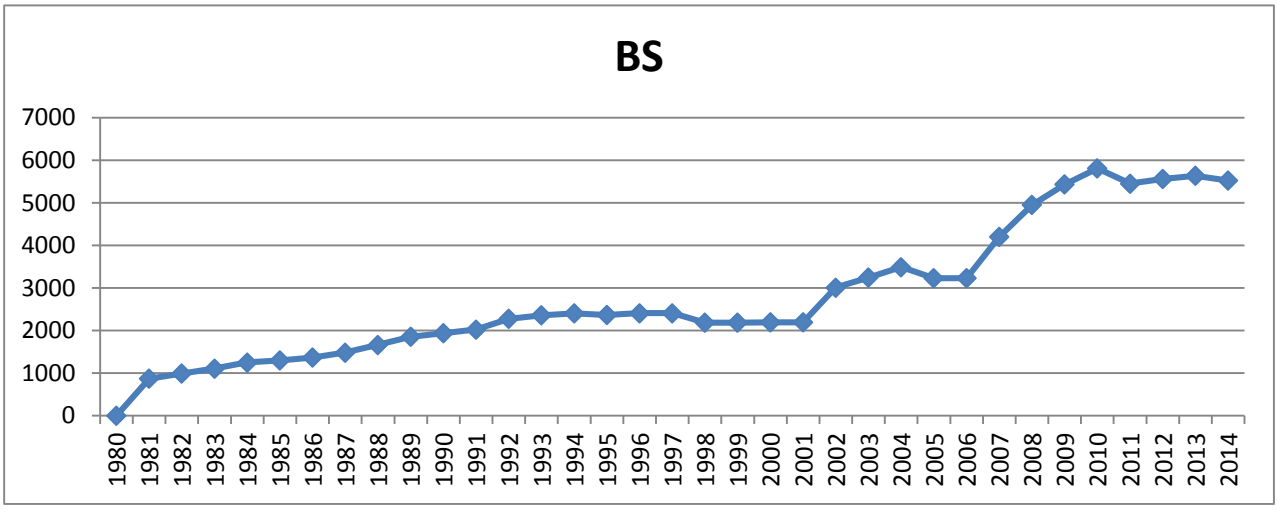

Figure 7 above shows the fluctuation of the size of the commercial banks which is proxy by number of branches within the period covered in this study. The trend show a steady increase with slight fall in 1998 to 2002 and 2006 to 2008 which can be traced to banking sector crisis within the period.

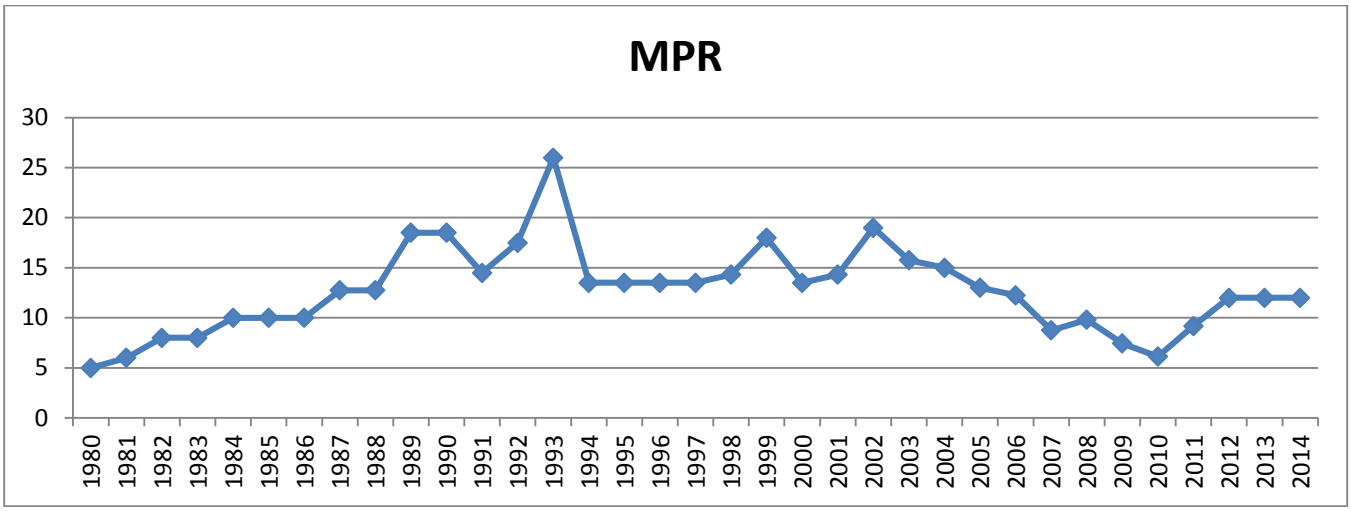

Figure 8 above depicts the fluctuation of monetary policy rate within the period during study. The trend shows high fluctuation within the period.

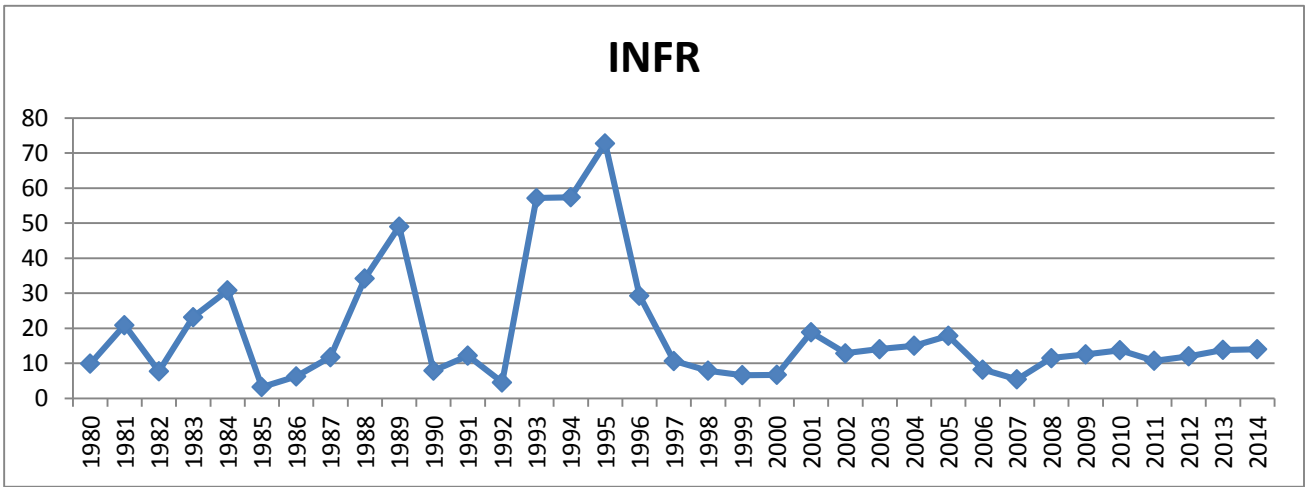

Figure 9 above shows the fluctuation of inflation rate within the period covered in this study. The trend shows high fluctuation within the period.

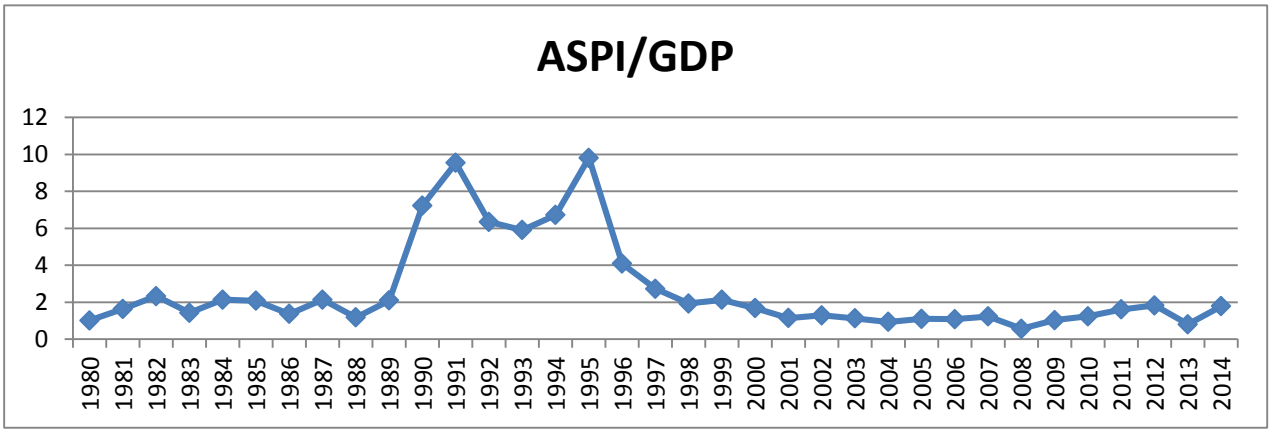

Figure 10 above shows the fluctuation of All Share Price Index to Gross Domestic Product as measure capital market development within the period during study. The trend shows high fluctuation within the period.

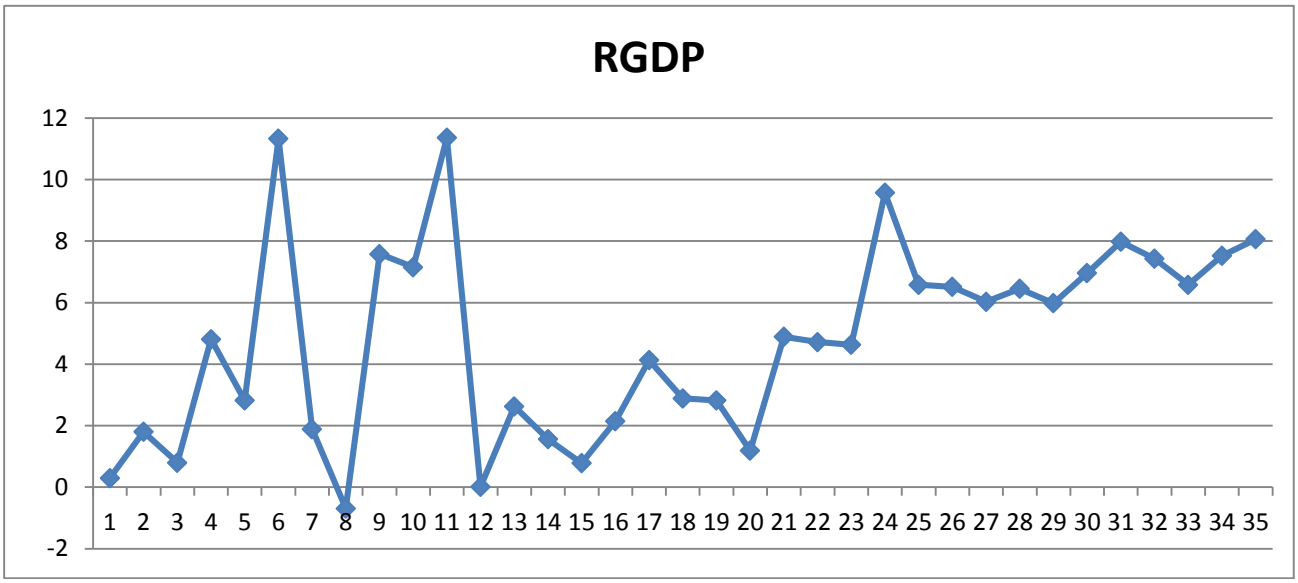

Figure 11 above shows the fluctuation of Real Gross Domestic Product within the period during study. The trend shows high fluctuation within the period.

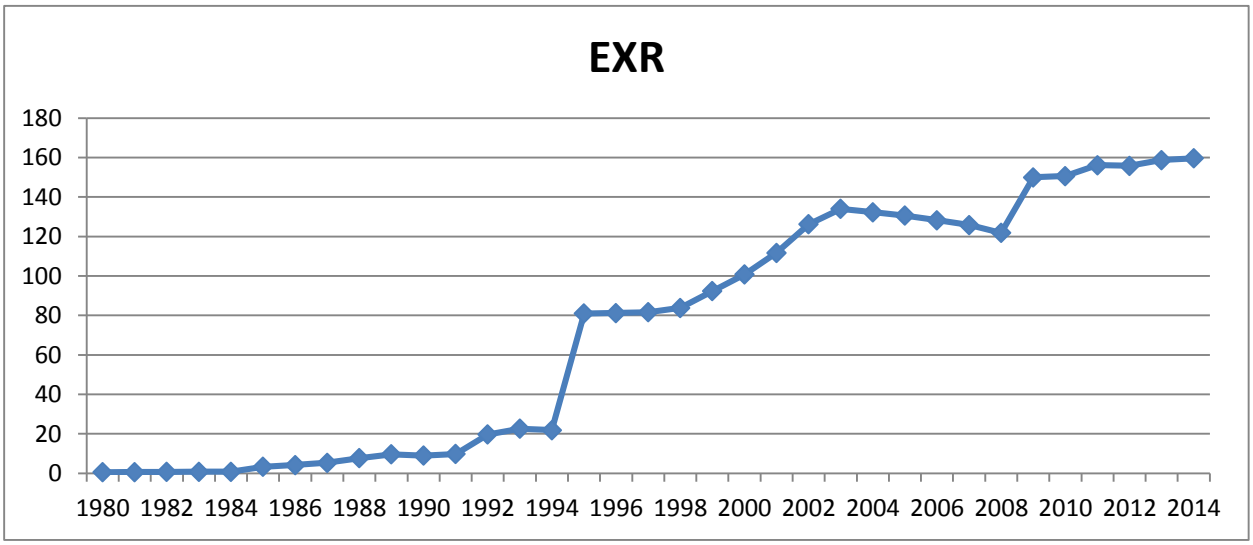

Figure 12 above shows the fluctuation of Nigeria exchange rate per US dollar within the period covered in this study. The trend shows steady depreciation of Nigeria naira high within the period.

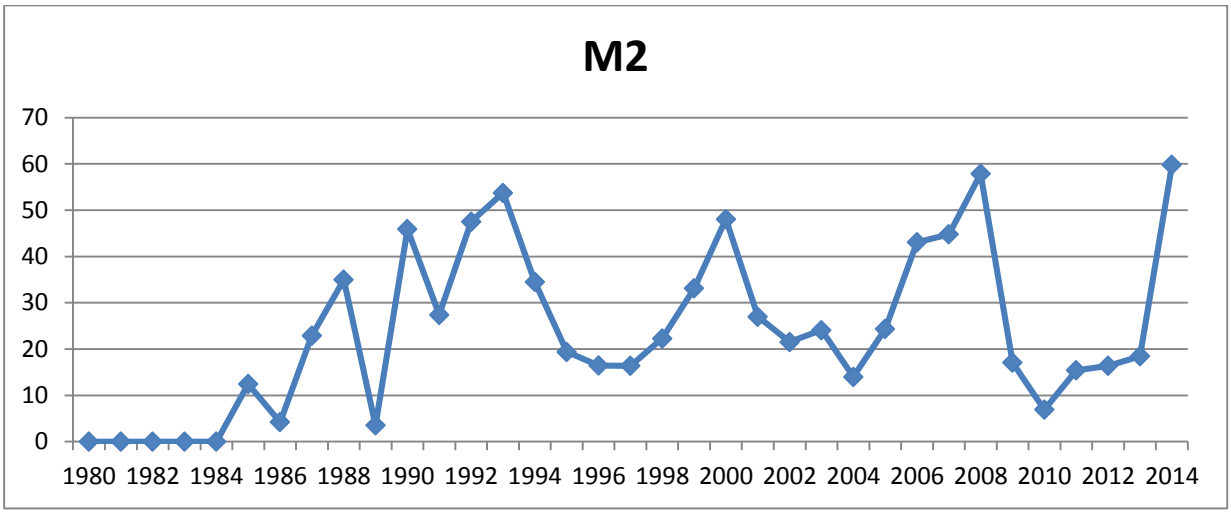

Figure 13 above shows the fluctuation of the growth rate of Nigeria broad money supply within the period during study.

The following tables reveal the short and long-run dynamic relationship between the dependent and the independent variables as specified in the regression.

Table 3 REGRESSION RESULTS

Model	**Variable**	**Co-efficient**	**Standard Erro**	**T-statistics**	**Prob.**
	Intercept	36.81523	53.17085	0.539438	0.4914
	RE	0.410183	0.182157	4.928516	0.0000
	DP	0.3426217	0.737421	2.440925	0.0026
	PF	0.188431	4.801640	1.208190	0.5921
	BC/TA	1.037045	1.874606	0.641218	0.6083
	LR	- 1.095860	1.043140	-0.501046	0.3928
	BS	0.310834	0.717869	3.385425	0.0016
	R2	0.694943	-	-	-
Model	**Intercept Var**	**Co-efficient**	**Standard Erro**	**T-statistics**	**Prob.**
	Intercept β_0	28.93465	9.482443	1.943513	0.0928
	MRR	-0.419231	3.462812	-0.186540	0.8490
	NFR	-0.382415	0.764893	-0.436748	0.7916
	ASPI/GDP	-1.272747	4.816306	-0.491656	0.6196
	RGDP	0.344628	3.441569	0.907077	0.8243
	EXR	0.698782	1.181574	4.803983	0.0008
	M^2	1.074336	4.110346	5.195476	0.0000
	R^2	0.520440			

Source: Author's Computation, E-views 7.0 output

Analyzing the regression result above, model I reveal that 69.4% variation in stock prices of the banking sector can be explained by variations in the micro prudential variables while the remained 30.6% can be traced to variables not captured in the model this finding confirm

technicalists view. The negative coefficient of the intercept shows that without the micro prudential variables stock prices of the banking sector will fall. The β coefficient shows that all the micro prudential variables have positive relationship with stock price except lending rate. The positive effects of the variables such as Retain Earnings and Dividend Payout confirm and validate the opinion of Gordons that dividend policy matter as oppose to the Miller and Modigliani dividend irrelevance theory. The findings is in line with the findings of Tweneboah & Anokiye(2008), Sanjeet & Shubiri (2011) and Irmala *et al* (2011) on the effects of micro prudential variables on stock price. However the T-Statistics and the probability value proved that RE, DP and BS are significant while PF, BC/TA and LR are statistically not significant in determining stock prices of the commercial banks.

However, Model II reveal that 52.0% variation in stock prices of the commercial banks can be explained by variation in the macro prudential variables while 48.0% can be traced variables not captured in the model. The β coefficient proved that Minimum Rediscount Rate (Monetary Policy Rate), Inflation Rate and Ratio of All Share Price Index to Gross Domestic Product have negative relationship with Stock Prices while Real Gross Domestic Product, Exchange Rate and Broad Money Supply have positive effects on the stock prices of the commercial banks. T-statistics and probability value shows that all the independent variables are statistically not significant except Exchange Rate and Broad Money Supply. This finding consolidates the macroeconomic view. The positive effects of the macro prudential variables such as money supply confirm the findings of Akani and Lucky (2014) and Akani (2013) on the effects of money supply on aggregate stock price. However, the negative effect of other variables in the model can be traced monetary and macroeconomic shocks as the global financial crisis of 2007/2008 that led to the capital market crash. From the above, we proceed to test the autocorrelation and the overall significant of the models.

Table 4 Autocorrelation and Overall Significant of the Models

Autocorrelation	**Model**	**D.W Statistics**	**Autocorrelation**	**Type**
Test	Model I	1.871325	Presence	Positive
	Model II	1.293740	Presence	Positive
Model	**Model**	**T-Statistics**	**Probability Value**	**Remark**
Significance	Model I	12.43051	0.000000	Significant
	Model II	8.788310	0.000004	Significant

Source: Author's computation from E-view 7.0 output

From the table above, the coefficient of F-statistics is positive and highly significant. This implies that the effects of the micro and macro prudential variables affect the stock prices of the commercial banks. The Durbin Watson Statistics indicates the presence of positive autocorrelation.

Table 5: Stationarity test using ADF

Model	**Variabl ADF**	**Critical Valu at 1%**	**5%**	**10%**	**ADF Statistics**	**Lag Length**	**Prob.**	**Order Integration**
	SPCB	-2.669359	-1.956406	-1.608495	-3560369	2	0.0011	1(1)
	RE	-3.653730	-2.957110	-2.617434	-8.896670	2	0.0000	1(1)
	DP	-3.661661	-2.960411	-2.619160	-5.660721	2	0.0011	1(1)

	PF	-3.699871	-2.976263	-2.627420	-6.462123	2	0.0000	1(1)
	BC/TA	-3.737853	-2.991878	-2.635542	-4.702654	2	0.0011	1(1)
	LR	-3.679322	-2.967767	2.622986	-6.062380	2	0.0000	1(1)
	BS	-3.569219	-2.902189	-2.611891	-5.993870	2	0.0000	1(1)
Model	**Variabl ADF**	**Critical Valu at 1%**	**5%**	**10%**	**ADF Statistics**	**Lag Length**	**Prob.**	**Order of Integrati**
	SPCB	-2.669359	-1.956406	-1.608495	-3.560369	2	0.0011	1(1)
	MPR	-3.661661	-2.960411		-5.960283	2	0.0000	1(1)
	INFR	-3.670170	-2.963972		-5.730629	2	0.0001	1(1)
	ASPI/G	-3.65730	-2.957110		-5.430005	2	0.0000	1(1)
	RGDP	-3.653730	-2.957110		-8.984429	2	0.0000	1(1)
	EXR	-3.70170	-2.96972		-6.742658	2	0.0000	1(1)
	M2	-3.602892	-2.95161	-2.641802	-7.082881	2	0.0000	1(1)

Source: Author's Computation, E-views 7.0 output

The Unit Root results from the table above confirm that the micro and the macro prudential variables exhibit trends of stationarity at first differencing of integrating of order 1(1). The probability values of the variables are less than the critical value of 0.05 at 5% level of significant. This indicates the rejection of null hypotheses and the acceptance of the alternate hypothesis. In order words, the Unit Root Test for the entire variables is significant at 1%, 5% and 10%.

Table 6 Johansen Co-integration Test

Model	**Hypothesize**	**Eigen Value**	**Trace Statistics**	**Critical Value**	**Prob.**	**Remark**	**Decision**
	r≤0*	0.807271	124.1126	95.75366	0.0000	Significant	Reject H_0
	r≤1*	0.632157	71.42557	69.81889	0.0370	Significant	Reject H_0
	r≤2*	0.608857	49.42241	43.85613	0.0018	Significant	Reject H_0
	r≤3*	0.551418	32.498728	29.79707	0.0004	Significant	Reject H_0
	r≤4	0.217838	9.430159	15.48471	0.3929	Not Significant	Accept H_0
	r≤5	0.147818	1.567959	3.841466	0.2105	Not Significant	Accept H_0
	r≤6	0.041162	0.431665	1.820419	0.34401	Not Significant	Accept H_0
Model	**Hypothesize**	**Eigen Value**	**Trace Statistics**	**Critical Value**	**Prob.**	**Remark**	**Decision**
	r≤0*	0.719023	93.72422	95.75306	0.0684	Significant	Reject H_0
	r≤1*	0.620740	73.10077	54.51884	0.0001	Significant	Reject H_0
	r≤2	0.342936	35.62863	47.85613	0.153	Significant	Reject H_0
	r≤3	0.36400	22.18948	29.79707	0.2881	Not Significant	Reject H_0

	r≤4	0.166085	10.06120	15.49471	0.2760	Not Significant	Accept H_0
	r≤5*	0.124350	4.249245	3.841466	0.0039	Significant	Reject H_0
	r≤6	0.102642	2.623140	3.731338	0.348	Not Significant	Accept H_0

Source: Author's Computation, E-views 7.0 output

The unrestricted Johansen test results presented in the above table proved the long run and stable relationship between the dependent and the independent variables. Model I result shows the existence of at three co-integrating equations while model II demonstrate the existence of two co-integration equations. The probability values of the variables denote the rejection and the acceptance of alternate hypothesis using 5% level of significance.

Table 7 Normalized Co-integration Equations

Model	Variables	Coefficient	Standard Erro	Relationship (Type)	Remark
	SPCB	0.010575	4.034890	Positive	Expected
	RE	-5.76067	0.40771	Negative	Not Expected
	DP	-11.44826	7.466881	Positive	Not Expected
	PF	-0.492709	0.21068	Negative	Not Expected
	BC/TA	-13.58251	3.71023	Negative	Not Expected
	LR	7.191925	4.08372	Positive	Expected
	BS	2.11628	1.463218	Positive	Expected
Model	**Variables**	**Coefficient**	**Standard Erro**	**Relationship (Type)**	**Remark**
	SPCB	11.44826	7.466881	Positive	Expected
	MRR	-390.1915	112.866	Negative	Not Expected
	INFR	-285.1661	32.1554	Negative	Not Expected
	ASPI/GDP	1460.461	262.673	Positive	Expected
	RGDP	438.5166	201.181	Positive	Expected
	EXR	-13.42910	9.08722	Negative	Not Expected
	M^2	-8.558064	3.811942	Negative	Not Expected

Source: Author's Computation, E-views 7.0 output

The Johansen Co-integration test in Table 4 did not reveal the nature of long-run relationship exists among the variables. From the above normalized equation, Model I shows that all the variables have negative long-run relationship with stock prices except lending rate and bank size while model II shows that monetary policy rate, inflation rate, exchange rate and broad money supply have negative effects while capital market development which is proxy by All Share Index to Gross Domestic Product and Real Gross Domestic Product have positive long run relationships. The positive long-run relationship is expected while the negative long-run relationship is contrary to the expectation of the result.

Table 8 Granger Causality Test `

The pair wise Granger-Causality Test is presented to determine the direction of causality of any between the variables

Model	Null Hypotheses	OBS	F-statistics	Prob.	Decision	Direction
	RE does not Granger Cause SI SPCB does not Granger Cause	32	0.20883 1.68321	0.8128 0.2047	Accept H_0	No Causation
	DP does not Granger Cause SI SPCB does not Granger Cause	32	1.18155 1.03990	0.3222 0.3672	Accept H_0	No Causation
	PF does not Granger Cause SP SPCB does not Granger Cause	32	12.9423 4.88861	0.0001 0.0154	Reject H_0	Causation
	BC/TA does not Granger SPCB SPCB does not Granger BC/TA	32	2.82731 4.45950	0.0568 0.0212	Reject H_0	Causation
	LR does not Granger Cause SI SPCB does not Granger Cause	32	0.26649 0.52568	0.7681 0.5971	Accept H_0	No Causation
	BS does not Granger Cause SI SPCB does not Granger Cause	32	0.18234 1.03452	0.4117 0.1310	Accept H_0	No Causation
Model	**Null Hypotheses**	**OBS**	**F-statistics**	**Prob.**	**Decision**	**Direction**
Model II	MRR does not Granger Cause SPCB does not Granger Cause	32	0.54434 1.31893	0.5865 0.2841	Accept H_0	No Causation
	INFR does not Granger Cause SPCB does not Granger Cause	32	0.25131 2.06584	0.7796 0.1463	Accept H_0	No Causation
	ASPI does not Granger Cause SPCB does not Granger Cause	32	0.15446 1.13811	0.8576 0.3353	Accept H_0	No Causation
	RGDP does not Granger SPCB SPCB does not Granger RGDP	32	0.31145 0.97734	0.7350 0.3892	Accept H_0	No Causation
	EXR does not Granger Cause SPCB does not Granger Cause	32	5.59331 7.30815	0.0050 0.0029	Reject H_0	Causation
	M^2 does not Granger Cause SI SPCB does not Granger Cause	32	0.44125 1.55219	0.2341 0.2536	Accept H_0	No Causation

Source: Author's Computation, E-views 7.0 output

The summary of the causality test in the above table shows that from Model I, no causality of bi or uni directional exist among the variables except BC/TA to SPCB and SPCB to BC/TA while model II reveals causality between EXR to SPCB and SPCB to EXR.

Table 9: Vector Error Correction Test Results

Model	Variables	Adjusted parameters	STD Error	T-Statistics
	PSCB	0.045367	0.31577	-0.14367

I	RE	-0.369422	0.18858	-1.95892
	DPO	-0.535547	0.28507	-0.68944
	PF	-0.698717	0.44608	-1.56634
	BC/TA	7.490509	2.99417	2.50169
	LR	3.534085	2.82200	1.25233
	BS	-0.649528	1.457816	1.90211
II	SPCB	0.00914	0.32341	-0.02828
	MRR	-0.838368	3.68228	-2.2768
	INFR	-1.843922	1.41386	-1.30418
	ASPI/GDP	4.956624	11.1908	1.03101
	RGDP	-1.880808	5.23507	-0.35927
	EXR	-1.284551	2.01584	-1.13422
	M^2	7.234021	3.081162	2.45924

Source: Author's Computation, E-views 7.0 output

ECM is use to determine the speed of adjustment in case of short and long-run distortion from equilibrium. Considering the fact that negative sign signifies distortion, the negatives signs proved distortion. From model I it takes 4.5%SPCB, 36.9%RE, 53.5% DP, 69.8% PF and 64.9% LR Speed of adjustment while model II takes 0.9% SPCB, 83.8% MRR, 184.3% INFR, 188.0% RGDP and 128% EXR. The macro prudential variables have higher speed of adjustment. This can be traced to government policies aimed at restoring equilibrium in case of unexpected shocks. For instance the fall in equity price in Nigeria capital market following the crash in 2007/ 2008 was leveraged by monetary and fiscal policies such as the injection of ₦620 billion into the banking sector in 2009.

CONCLUSION AND RECOMMENDATIONS

This study investigate the relationship between the micro and macro prudential variables on the stock prices of listed commercial banks on the floor of Nigerian stock exchange using data between 1980 – 2014. The objective is to test the fundamentalists and the macroeconomic view in order to examine the determinants of commercial banks stock price movement or behaviour. Multiple regressions were used to determine the relationship between the variables. From the micro prudential determinants, all the variables except lending rate have positive relationship with stock prices The model summary revealed 69.4% explained variation with 12.43051 and probability of 0.000000. The macro prudential factors show that 52.0% explained variations with 8.788310 and probability of 0.000004. From the above, it is evidence that the micro prudential variables affects significantly than the macro prudential determinants and the view of fundamentalist and macroeconomic hold in determining stock prices of the commercial banks, from the above, the following recommendations were drawn:

There is need for the management of the commercial banks to strengthen its effort for effective management of the micro and the macro prudential variables to avoid the negative effect on the share prices. The regulatory authorities should overhaul the capital market and the investment environment for better share prices of the banking sector of the Nigeria economy.

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