EFFECT OF BANKS' FINANCIAL PERFORMANCE ON SHARE PRICES: EVIDENCE FROM NIGERIAN BANKING INDUSTRY (2004 – 2013)

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ABSTRACT

The research examines the effects, magnitude, strength, causalities and cointegration of the relationships between banks' financial performance indicators and share prices in Nigeria banking sector. The research made use of secondary data obtained from annual report and accounts of the First Bank Plc, Access Bank Plc, Zenith Bank Plc and United Bank for Africa Plc from 2004 to 2013. The nature and magnitude of association between the dependent variable (MPS) and the independent variables Bank Age, Earnings Per Share (EPS) and Return on Assets (ROA) were determined using the multiple regression model. Granger causality procedure was applied to determine causalities while Johansen Cointegration test was administered to verify sustainability of the short run relationships. It was found that only EPS, amongst the other variables has both positive and significant relationship with MPS. About 33% of the variations in market price of ordinary shares could be explained by changes in earnings per share, returns on assets and the age of the banks and there is a fairly strong relationship between MPS and earnings per share (55%). There is a unidirectional granger causality running from market price to earnings per share and a bidirectional granger causality running from return on assets to earnings per share and from earnings per share to return on assets. The implication is that EPS is the major determinant of movement of market price of shares with regards to the explanatory variables under consideration. Hence, to grow the share price, banks should apply critical cost reduction strategies, aggressive marketing, and diversification strategies to improve on its net earnings which by extension, could lead to enhanced dividend pay-out.

Keywords: Shares, Returns, Earnings, Banks, Cointegration, Regression.

INTRODUCTION

The stock market plays an important role in economic development by promoting capital formation and raising economic growth through trading on securities in the market (Nisa and Nishat, 2011). They emphasized that trading of securities in this market facilitates savers and users of capital by fund pooling, risk sharing, and transfer of wealth. Chike and Inyiama (2014) stated that firm's financial performance and businesses are in turn influenced by general economic conditions, the performance of the financial markets, inflationary rates, money supply, interest rates, foreign currency exchange rates, changes in laws, regulations and policies of the Central Bank, capital market and other regulators as well as competitive factors on a global, federal, state and local government basis.

Stock markets promote savings and investments by providing an avenue for portfolio diversification to both individual and corporate investors and also fuel economic growth through diversification, mobilizing and pooling of savings from different parties and availing them to banks and other companies for optimal utilization (Kimani and Mutuku, 2013). They noted that investment in shares subsequently earn investment income to the investors and in

addition, the liquid nature of these markets makes it possible for the investors to exchange ownership of securities, and reap capital gains in the process.

The small size of most of our banks, especially before consolidation, each with expensive headquarters, separate investment in software and hardware, heavy fixed costs and operating expenses, and with bunching of branches in few commercial centres all led to a very high average cost for the industry. These in turn had implications for the cost of intermediation, the spread between deposit and lending rates, and all these put undue pressures on banks to engage in sharp practices as means of fund raising for survival. However, share prices are the most important indicators used by investors to decide whether to invest or not to invest on a particular share of a bank; as their main objective of investing in the stock market is to maximize the expected return at low level of risk (Zakaria, Muhammad and Zulkifli, 2012). Earnings information was considered to contain the greatest informational content of all the accounting information because it contains important discussion concerning the relationship between accounting earnings and stock prices (Chang, Chen, Su and Chang 2008).

The investors expect to earn a certain rate of return by investing in the bank and any surprises that may cause the realized return to be different from the expected return causes the investors to adjust the stock price, so to be able to earn the expected returns (Khan and Rafiq, 2013). They further stated that even the financial managers take corporate finance decisions by considering the price of the firm's stock being traded in the secondary market as investors also incorporate their perception of firm's performance and expectations about future prospects into the stock price by changing the quantity demanded and supplied, at a certain price. To adjust these share prices, investors need very sound knowledge of the determinants of share price movements.

This study, therefore, aims at examining the effects of banks' financial performance namely Bank Age, Earnings Per Share and Return on Assets on Share Prices of banks in Nigerian banking industry; considering the contribution of the sector to national economy. The remaining part of the paper is arranged into four sections. Section 2, x-rays the existing related literature, section 3 documents the methodology for data analysis, section 4 discusses the empirical results while section 5 summarizes and concludes.

REVIEW OF RELATED LITERATURE

The relationship between stock prices and firm earning per share (EPS) which appears to be contestable like any other performance measures was studied by Umar and Musa (2013). This study examined the relationship between stock prices and firm EPS from 2005 to 2009. Using a simple linear regression model on a panel of 140 Nigerian firms from a total population of 216 firms' operated in Nigerian Stock Exchange (NSE), it was discovered that firm EPS has no predictive power on stock prices and should not be relied upon for the prediction of the behavior of stock prices in Nigeria. This finding is however contrary to the findings of Ball and Brown (2001), Chang and Wang (2008) which revealed that firm's stock prices movement has a positive significant relationship with firm EPS.

In a related study carried out by Hemadivya and Devi (2013), efforts were made to find out the relationship and the impact of EPS on Market price of shares of selected companies. Employing regression and correlation analysis, it was found that market price is significantly affected by changes in EPS with reference to BHEL(manufacturing sector). The correlation between market price and EPS of BHEL is 0.759 which indicates that there is a high positive

and significant relationship between market price and EPS of BHEL. On the relationship between market price and EPS of TCS(service sector), the study indicates that the correlation between market price and EPS of TCS is 0.280 which indicates that there is a positive and insignificant relationship between market price and EPS of TCS. This is consistent with the findings of Malakar and Gupta (2002). They sought to find out whether EPS is a significant determinant of share price movement by considering share price of eight major cement companies in India for the period 1968 to 1988. The study reveals that Earnings per share are found to be significant determinant of share price.

In his study as cited by Hemadivya and Devi (2013), Tuli and Mittal (2001) conducted a cross sectional analysis by taking into account earnings ratio of 105 companies for the period 1989-93 and found that earnings per share were significant in determining the share price Wang, Fu, and Luo (2013) empirically analyzed the relationship between accounting information and stock price with a few accounting information indices. The results, based on 60 listed companies in Shanghai Stock Exchange for 2011, indicates that positive relationship exist between accounting information and stock price, but the significant degree varies; earnings per share and return on equity have the most significant correlation.

Mlonzi, Kruger and Nthoesane (2011) investigate whether there are any significant abnormal returns around the public announcement of earnings and to establish whether the efficient capital market hypothesis applies to the small ALtX market. The study focused on all the companies listed on the JSE-ALtX that announced annual earnings between 1 January and 31 December 2009 employing Capital Asset Pricing Model (CAPM). Empirical evidence demonstrates that there is substantial negative share price reaction to earnings announcements on the small ALtX stock market. The ALtX also shows the weak form of market efficiency. The study concluded that during a recessionary period, shareholders' wealth is eroded in the small ALtX market; however, the weak form of market efficiency provides an opportunity for entrepreneurs and investors to exploit the market for profits
when the market is performing well.

The relationship between earnings figures and stock returns has been a topic of international research since decades and was studied by Dimitropoulos and Asteriou (2009). The main purpose of the paper was to investigate the above relationship in the context of the Greek capital market between 1994-2004, applying four models, proposed by Kothari and Zimmerman (1995). The use of cross-sectional and time-series aggregated data results in a large increase in the explanatory power of earnings for returns yielding more significant Earnings Response Coefficients. Ebrahimi, and Chadegani (2011) examined whether the current period earning divided by stock price at the beginning of the stock market period, current period dividend divided by stock price at the beginning of the stock market period, prior dividend divided by stock price at the beginning of the stock market period and the reverse of stock price at the beginning of the stock market period are relevant to explain stock market returns in Iran. The study used cross-section, pooled data and panel data regression models for testing the effects of the above variables on stock returns and found that in some years, shareholders pay special attention to dividends and also the variable prior dividend divided by stock price at the beginning of the stock market period affects stock return. It revealed a significant relationship between current period earning divided by stock price at the beginning of the stock market period and stock return, implying the existence of relationship between earning, dividend and stock return.

Chang, Chen, Su, and Chang, (2008) used panel cointegration methods to investigate the relationship between stock prices and earnings-per-share (EPS). The empirical result indicated that the cointegration relationship existed between stock prices and EPS. The result further reveals that for the firm with a high level of growth rate, EPS has less power in explaining the stock prices; however, for the firm with a low level of growth rate, EPS has a strong impact in stock prices.

The review of related literatures reveal that studies in this area is very scanty. Most of the existing studies were done in developed countries of Europe and America. The emerging economies of Africa was not given commensurate attention, hence, this study aims at examining the effect of banks' financial performance such as Bank Age, Earnings Per Share (EPS) and Return on Assets (ROA) on share prices, with emphasis on Nigerian Banking Industry (2004 – 2013).

METHODOLOGY

The study is an ex post facto research (after the event research) which provides a systematic and empirical solution to research problems, by using data which are already in existence (Inyiama, 2014). Data on Bank Age, Earnings Per Share (EPS) and Return on Assets (ROA) of the selected banks in Nigeria banking industry were extracted from the annual report and accounts of the selected banks, namely First Bank Plc, Access Bank Plc, Zenith Bank Plc and United Bank for Africa Plc from 2004 to 2013. Historical details about the selected banks and their share price information were derived from the Nigerian Stock Exchange FactBook and stock market data, from 2004 to 2013. Model specification for this study is related to previous research efforts in the area of study and the analysis were guided by the following linear model (the base model).

The multiple regression (prediction) model is statistically written as,

$$LogMPS_{t,i} = \beta_o + \beta_1 ROA_t + \beta_2 LogBNKAGE_t + \beta_3 LogEPS_t + e_t \quad \text{.....(1)}$$

Where,

LogMPS = Market Price of Ordinary Shares in natural Log.
LogBNKAGE = Bank Age in natural Log.
LogEPS = Earnings Per Share in natural Log.
ROA = Return on Assets
β_o = coefficient (constant) to be estimated
$\beta_i – \beta_6$ = parameters of the independent variables to be estimated
t = current period
e = stochastic disturbance (error) term

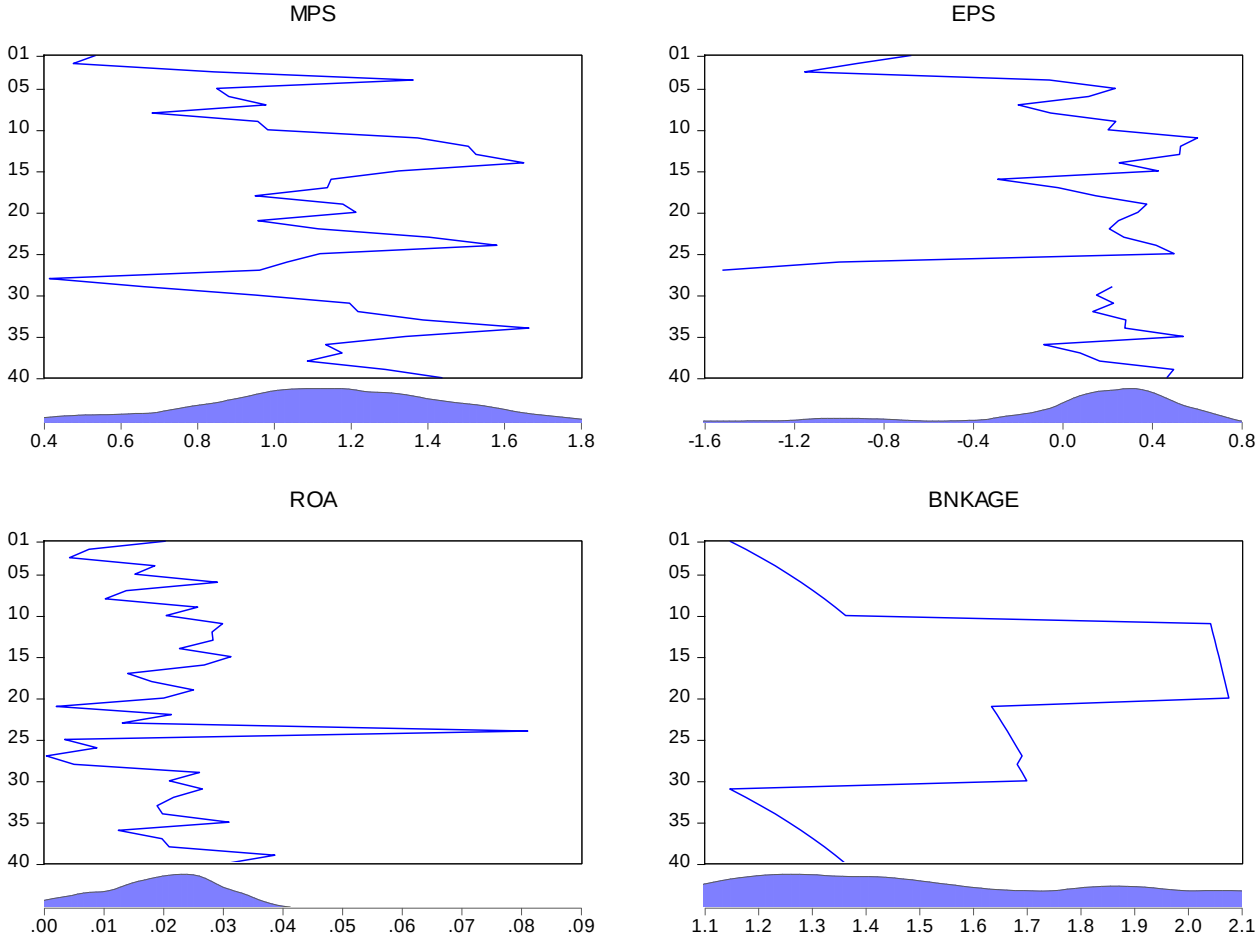
The study covered a period of ten years from 2004 to 2013. This is because Zenith Bank Plc was established in May 1990, and commenced operations in July of the same year as a commercial bank. The Bank became a public limited company on June 17, 2004 and was listed on the Nigerian Stock Exchange (NSE) on October 21, 2004 following a highly successful Initial Public Offering (IPO). Zenith Bank Plc currently has a shareholder base of about one million and is Nigeria's biggest bank by tier-1 capital (http://www.zenithbank.com/CorporateInfo.aspx). Hence, in order to accommodate Zenith Bank Plc which has a shareholder base of about one million and is Nigeria's biggest bank by tier-1 capital, the study started in 2004 and terminated in 2013 since most of the Banks are yet to hold their Annual General Meeting for the 2014 accounting year end.

Table 1: Data Description

ACRONYM	DETAILS	MATHEMATICAL EXPRESSION
MPS	Market Price of Shares	(Highest Price + Lowest Price)/2
ROA	Return on Assets	Net Income/Average Total Assets
EPS	Earnings Per Share	EPS = Net Profit After Tax – Preference Dividend/ No. of outstanding shares
BNKAGE	Bank Age	Age from date of incorporation

Source: Author's Arrangement

4.0 Discussion of Findings

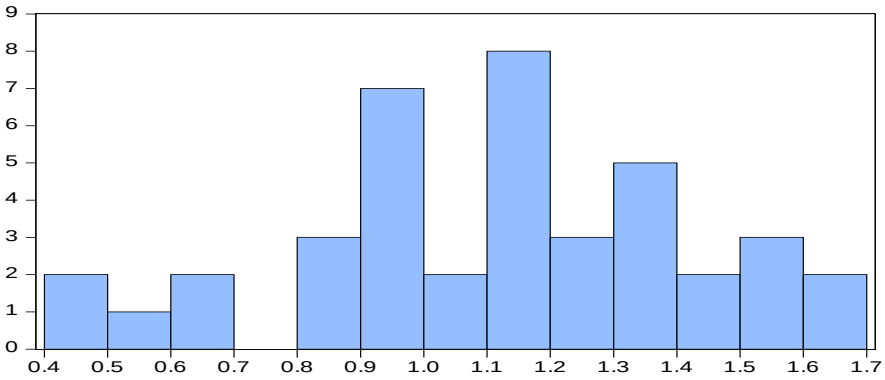


Source: EViews 8.0 Output.
Figure One: Graphical Representation of Movements in the Variables

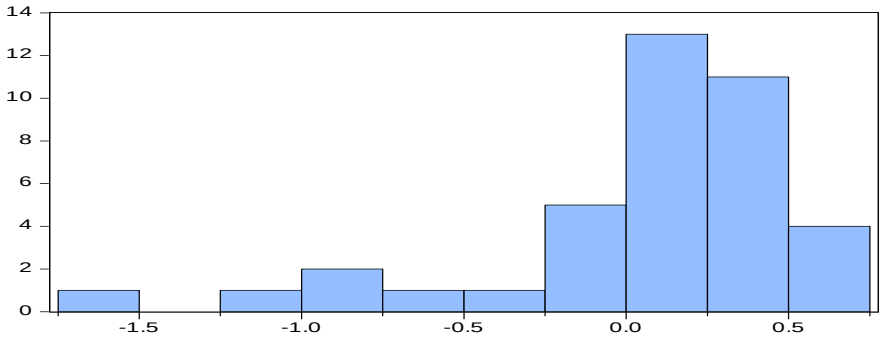
The trend of movements of the variables is very haphazard except for age which should naturally have a smooth rise. The other variables witnessed inconsistent fluctuations in a sporadic manner during the study period of the study. This might be as a result of their being

determined by many other endogenous and exogenous factors which cannot be controlled by the bank. The movement of share prices could be somewhat controlled by other market forces including macroeconomic variables both in the short run and in the long run while ROA and EPS are subject to the earnings capacity and opportunity of the banks in a particular year.

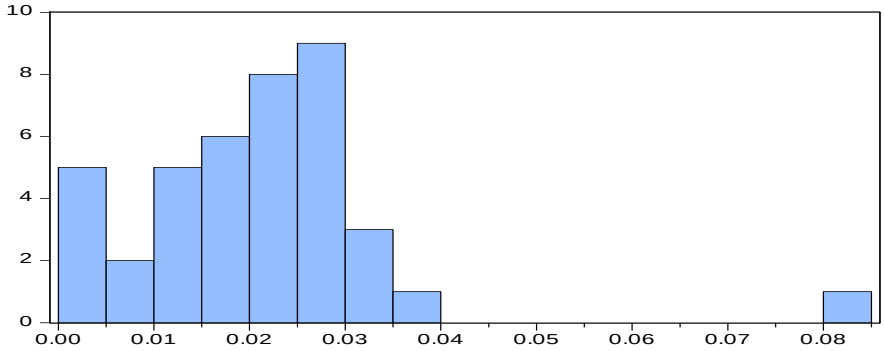
Descriptive Statistics of the Variables



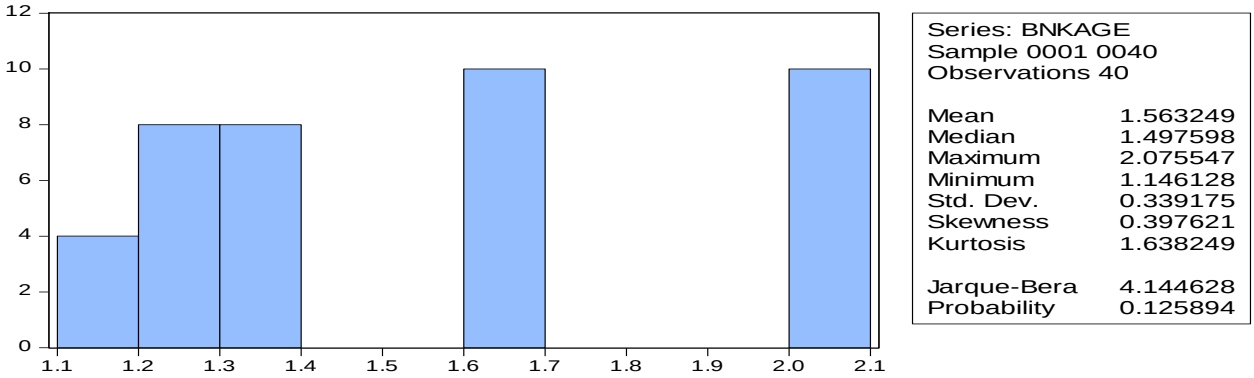
Series: MPS	
Sample 0001 0040	
Observations 40	
Mean	1.116603
Median	1.135605
Maximum	1.663607
Minimum	0.413300
Std. Dev.	0.307259
Skewness	-0.347733
Kurtosis	2.744188
Jarque-Bera	0.915189
Probability	0.632804



Series: EPS	
Sample 0001 0040	
Observations 39	
Mean	0.067462
Median	0.220108
Maximum	0.600973
Minimum	-1.522879
Std. Dev.	0.491720
Skewness	-1.716185
Kurtosis	5.348923
Jarque-Bera	28.11023
Probability	0.000001



Series: ROA	
Sample 0001 0040	
Observations 40	
Mean	0.020766
Median	0.020385
Maximum	0.081000
Minimum	0.000370
Std. Dev.	0.013357
Skewness	2.117835
Kurtosis	11.50409
Jarque-Bera	150.4342
Probability	0.000000



Source: E*V*iew 8.0 Statistical Package.

Naik and Padhi (2012) stated that if the value of skewness and kurtosis are 0 and 3 respectively, the observed distribution is said to be normally distributed but if the skewness coefficient is in excess of one (1), it is considered fairly extreme and the low (high) kurtosis value indicates extreme platykurtic (extreme leptokurtic). However, coefficient of Jarque-Bera statistics is significant when it has a significant probability value (sig. p-value at 0.05 level). Hence, the significant coefficient of Jarque-Bera statistics is an indication that the frequency distributions of the series were not normal. In addition, a measure of the dispersion or spread in the series was done through the computation of standard deviation.

Except for Return on Assets (ROA) and Earnings per Share (EPS), the skewness of other variables of the study such as market price of ordinary shares and bank age indicates a normal distribution. This is further confirmed by the coefficient of Jarque-Bera statistics which the probability value is significant with ROA and EPS signifying a state of abnormally distributed frequency of the data series. The standard deviation, which is a measure of the dispersion or spread in the series showed that the deviations were not volatile; though standard deviation of EPS (0.491720) is more volatile than other variables of the study.

Table 2: Regression Analysis Results

Dependent Variable: Market Price of Ordinary Shares (MPS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EPS	0.228748	0.092075	2.484353	0.0179
ROA	5.203403	3.343699	1.556182	0.1287
BNKAGE	0.157928	0.115039	1.372818	0.1785
C	0.762642	0.193323	3.944923	0.0004

R-squared	0.383708	Mean dependent var	1.134637
Adjusted R-squared	0.330883	S.D. dependent var	0.289037
S.E. of regression	0.236431	Akaike info criterion	0.050592
Sum squared resid	1.956483	Schwarz criterion	0.221214
Log likelihood	3.013453	Hannan-Quinn criter.	0.111810
F-statistic	7.263751	Durbin-Watson stat	0.962533
Prob(F-statistic)	0.000652		

Source: E*V*iew 8.0 Statistical Package.

Regression Equation

MPS = 0.762642 +0.228748 (EPS) + 5.203403 (ROA) + 0.157928 (BNKAGE) + et

The coefficient of determination, Adjusted R2 is the proportion of variability in a data set that is accounted for by a statistical model. In this study, Adjusted R2 measures the percentage of variations in market price of ordinary shares in Nigeria banking sector which could be explained by changes in the explanatory variables, namely ROA, EPS and Bank Age. The value of Adjusted R2 is about 33%. This implies that about 33% of the variations in market price of ordinary shares could be explained by changes in earnings per share, returns on assets and the age of the banks under study while about 67% could be accounted for by other unexplained factors, including the error term.

The result of the regression analysis in Table 2 indicates that all the explanatory variables of EPS, ROA and Bank Age have positive effects on Market Price of Shares. This finding is inconsistent with that of Umar and Musa (2013) but in tandem with that of Ball and Brown (2001), Chang and Wang (2008), Tuli and Mittal (2001). However, it was revealed that only EPS, amongst the variable has both positive and significant relationship with MPS. The implication is that EPS is the major determinant of movement of market price of shares with regards to the explanatory variables under consideration.

Table 3: Correlational Analysis Results

	MPS	EPS	ROA	BNKAGE
MPS	1.000000			
EPS	0.553627	1.000000		
ROA	0.460109	0.503695	1.000000	
BNKAGE	0.310809	0.235007	0.133464	1.000000

Source: E*V*iew 8.0 Statistical Package.

Table 3, reveals that a positive association exists between EPS, ROA, Bank Age and MPS. However, there is a fairly strong relationship between MPS and earnings per share (55%). Bank Age has the weakest association with MPS, followed by ROA.

Table 4: Pairwise Granger Causality Tests
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
EPS does not Granger Cause MPS	35	1.61076	0.2165
MPS does not Granger Cause EPS		4.05374	0.0276
ROA does not Granger Cause MPS	38	0.35685	0.7025
MPS does not Granger Cause ROA		1.50902	0.2360
BNKAGE does not Granger Cause MPS	38	0.07636	0.9266
MPS does not Granger Cause BNKAGE		0.43911	0.6483
ROA does not Granger Cause EPS	35	3.42808	0.0456
EPS does not Granger Cause ROA		3.88120	0.0317
BNKAGE does not Granger Cause EPS	35	0.00507	0.9949
EPS does not Granger Cause BNKAGE		0.05322	0.9483
BNKAGE does not Granger Cause ROA	38	0.06086	0.9411
ROA does not Granger Cause BNKAGE		0.02147	0.9788

Source: E*V*iew 8.0 Statistical Package.

Granger Causality Test as shown in Table 4 indicates that at lag 2, there is a unidirectional granger causality running from market price of ordinary shares in Nigeria banking industry to earnings per share. There is also a bidirectional granger causality running from return on assets to earnings per share and from earnings per share to return on assets. The implication of the findings is that market price of ordinary shares and return on assets granger causes earnings per share, while earnings per share in turn granger causes return on assets.

Table 5: Pairwise Granger Causality Tests
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
EPS does not Granger Cause MPS	37	0.54876	0.4639
MPS does not Granger Cause EPS		1.33672	0.2557
ROA does not Granger Cause MPS	39	0.03107	0.8611
MPS does not Granger Cause ROA		3.59552	0.0660
BNKAGE does not Granger Cause MPS	39	0.02497	0.8753
MPS does not Granger Cause BNKAGE		0.07745	0.7824
ROA does not Granger Cause EPS	37	0.54835	0.4641
EPS does not Granger Cause ROA		7.45996	0.0099
BNKAGE does not Granger Cause EPS	37	0.12792	0.7228
EPS does not Granger Cause BNKAGE		0.07481	0.7861
BNKAGE does not Granger Cause ROA	39	0.14846	0.7023
ROA does not Granger Cause BNKAGE		0.04103	0.8406

Source: E*V*iew 8.0 Statistical Package.

Table 5 indicates that at one year lag, only earnings per share granger causes return on assets in Nigeria banking sector. This implies that at the very short run, earning per share brings about returns on assets because return on assets is a function of earnings (net income).

In some situations, Trace Test tend to have more heavily distorted sizes whereas their power performance is superior to that of Maximum- Eigen-Value competitors and because of the common practice in empirical work to use either both types of tests simultaneously or use Trace Test exclusively, preference is made for the Trace Tests (Lutkepohl, Saikkonen and Trenkler, 2000). Johansen and Juselius (1990) argued that the existence of a cointegration reveals the existence of a long term relationship between some of the variables under study.

Table 6: Johansen's Cointegration Test Results
Trend assumption: Linear deterministic trend
Series: MPS EPS ROA BNKAGE
Lags interval (in first differences): 1 to 1
Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.476966	51.92139	47.85613	0.0198
At most 1	0.429760	29.23756	29.79707	0.0579
At most 2	0.168387	9.578122	15.49471	0.3146
At most 3	0.085404	3.124554	3.841466	0.0771

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.476966	22.68382	27.58434	0.1874
At most 1	0.429760	19.65944	21.13162	0.0793
At most 2	0.168387	6.453568	14.26460	0.5557
At most 3	0.085404	3.124554	3.841466	0.0771

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: E*V*iew 8.0 Statistical Package.

The Trace and Maximum- Eigen-Value tests were conducted and the results indicate one (1) cointegrating equation at the 0.05 level. This result indicates that the short run relationship which the explanatory variables (EPS, ROA and Bank Age) of the study presently share with the focal variable (MPS) is sustainable in the long-run. This is consistent with the findings of Chang, Chen, Su, and Chang, (2008).

SUMMARY AND CONCLUSION

The study aims at determining the extent to which changes in market price of shares in Nigeria banking sector is explained or influenced by earnings per share, return on assets and bank age. The study also examined the nature and magnitude of their granger causalities and cointegration. Market Price of Shares of the banking industry was found to be positively and significantly influenced by Earnings Per Share. However, return on assets and bank age exerts positive influence on market price of ordinary shares. There is also a fairly strong relationship between MPS and earnings per share. None of the explanatory variables was found to granger cause market price of ordinary share in the focal industry.

The implication of the findings is that an increase in earnings could lead to a noticeable appreciation in the market price of shares in Nigeria banking industry. Hence, to grow the share price, banks should apply critical cost reduction strategies, aggressive marketing, and diversification strategies to improve on its net earnings which by extension, could lead to enhanced dividend pay-out. When dividend is enhanced, according to the signaling theory, it gives an indication that the bank is stable.

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