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Original Research Article

## **The Inter-Play between Financial Ratios and Stock Market Prices of Deposit Money Banks in Nigeria**

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### **Abstract**

*This study examines the influence of financial ratios on stock market prices of banks in Nigeria. The study adopted the ex-post-facto research design and data covering 7-year period 2009-2015 were collated from annual reports of banks and the Nigeria Stock Exchange daily official list. Panel multiple regression was used to estimate the relationship between these financial ratios and stock prices. Stock prices were adopted as the dependent variable, while the independent variables included Return on Asset (ROA), Cash Deposit Ratio (CDR), Debts to Total Asset Ratio (DTAR), Net Assets Per Share (NAPS) and Earnings Per Share (EPS). The result emanating from this study revealed the following: (i) returns on assets had about 47% correlation with stock price, suggesting a positive but statistically insignificant association with stock prices of selected banks in Nigeria (ii) cash deposit ratio showed a negative and significant association with stock price with a beta coefficient of -0.8531 (iii) debt to assets ratio showed a negative effect on stock prices and this association fails to be statistically significant at 5%. The beta coefficient was -0.7294 (iv) The relationship between net asset per share with stock prices negative coefficient of -0.0137. The result was not statistically significant at 5% (v) Earnings per share (EPS) was found to have a significant and positive association with stock prices of money deposit banks and the statistical significance is within the acceptable bound of 5%. The beta coefficient of EPS was 0.1170. The study therefore recommends among others that financial analysts and prospective investors should rely more on earnings per share and cash deposit ratios in predicting the behaviour of stock prices banks in Nigerian. It is therefore concluded that greater reliance on earnings per share of banks in predicting share price movements will assist investors and financial analysts in determining when to invest and when not to invest and thereby avoid loss of funds occasioned by share price declines.*

### **JEL Classification Codes: M41 M48**

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**Keywords:** Financial Ratios, Cash Deposit Ratio, Stock Market Prices, Deposit Money Banks, Nigeria

## **1.0 INTRODUCTION**

Investments in the stock market require sufficient and adequate knowledge and understanding of the environments surrounding the stock market. It is needful for an investor and a potential investor to have this understanding because of the associated degree of risk involved in investment decisions. Risk is an element or probability that the unexpected may occur and adequate precaution ought to be taken to forestall it. In view of the possibility that an investor may lose his investments, it is essential to assess or evaluate investment opportunities to minimise the occurrence of this risk. One of the ways of evaluating the potentials of an investment is through the use of financial ratios. Financial ratios are simply relationships between two or more figures in the financial statements which ultimately give direction as to the performance of the firm. These relationships are established to measure the success or failure of managerial decisions in the light of the movement in stock prices. Remi (2005) advocates that, firm stock prices have direct relationship with managerial efficiency, which is one of the signals of firm performances.

Prominent among the classes of ratios used to assess the risk, health, performance and status of a firm are profitability ratios, liquidity ratios, solvency ratios, efficiency ratios, valuation ratio and investment ratios (Lui & O'Farrell, 2009). These ratios are of paramount importance to investors as they serve as a mirror to the investor. Investors are not in a position to assess the performance of the company in which they intend to invest without these ratios. Rational investors use the financial ratios and other disclosures to assess the risk and the value of the firm. This

assists in a more rational investment decisions.

Profitability ratios assess the performance of an entity in terms of how much profit it can generate from its operations. If a profitability ratio is relatively higher as compared to the competitor(s) or industry averages, or previous years' same ratios, then it is taken as indicator of better performance of the bank. Liquidity ratios emphasise an entity's financial capacity to meet its cash and collateral obligations without incurring unacceptable losses. The ability of an entity to efficiently meet both expected and unexpected cash flows and collateral needs without adversely affecting either daily operations or the financial condition of the institution is of utmost importance. Inefficient liquidity management does not only reduce profitability but may ultimately lead to financial distress in an organisation. Solvency ratios, otherwise known as gearing, debt, or financial leverage ratios measure the extent to which a firm relies on debt financing rather than equity. Equity valuation ratios are used by investors to compare a stock's per-share price (market value) to its book value (shareholders' equity).

Several studies have shown that non-accounting parameters such as speculation, gambling, and forced sales form the basis for the determination of share prices (Cheng, Shamsheer, & Annuar, 2008; Francis & Schipper, 1999). Incidentally, Oyerinde (2009), Umar and Musa, (2013) have attempted to provide empirical evidence on the relationship between stock price movements and accounting information, and these few studies are not specifically in the banking sector. This study which favours the philosophy that accounting information serves

as determinants of stock price movement in the capital market intends to empirically investigate the extent to which financial ratios influence stock prices in the Nigerian banking sector. The objective of this study is to examine the relationship between financial ratios and stock price movements in deposit money banks in Nigeria.

## 2.0 LITERATURE REVIEW

### The concept of Financial Ratios

A ratio is a mathematical relation between one quantity and another. Financial ratios are simply relationships between two or more figures in the financial statements. These relationships are established to measure the success or failure, and the efficiency of managerial decisions in the light of the movement in stock prices. Remi (2005) confirms that, the firm stock prices have direct relationship with managerial efficiency, which is one of the indicators of firm performances. These ratios simplify the process of determining the health of a listed company and make reported financial information more meaningful and useful for investors. Four ratios, each from the four major categories of financial ratios - profitability ratios, liquidity ratios, solvency ratios, and efficiency ratios were judgmentally selected and examined in relation to stock prices of deposit money banks in Nigeria. These ratios were chosen because they are commonly useful to several different users of accounting information (Lau, Lee, & McInish 2002). They don't just serve the interest of one group.

### *Financial Ratio Analysis*

According to Kheradyar and Ibrahim (2011), Financial Analysis is the selection, evaluation, and interpretation of financial data, with other pertinent information, to assist in investment and financial decision-making. It is the process of critical evaluation of the financial information contained in the financial

statements in order to understand and make decisions regarding the operations of the firm. It also refers to the process of determining financial strength and weaknesses of the firm by establishing strategic relationship between the items of the balance sheet, income statement and other operative data. Financial analysis may be used internally to evaluate issues such as employees' performance, the efficiency of operations and credit policies, and externally to evaluate potential investments and the credit-worthiness of borrowers, among other things.

Financial Analysis is the interpretation and translation of facts and data contained in the financial statements, the purpose being the drawing of relevant conclusions there from making of inferences as to business operation, financial positions, future prospects and trends. The analysis can be horizontal – comparing data of financial statements of two or more consecutive accounting periods in order to ascertain whether performance has improved or not, and vertical analysis – comparing data of two or more investment centres during the same accounting period, usually to appraise the performance of these portfolios or investment outlets. It can be internal if applied to one company alone or external if applied to more than one company.

According to D'Amato (2010), financial ratio analyses are tools to help with the interpretation of results and to allow for comparison to previous years, other companies and the industry sector. Financial ratio analysis must form the basis of all investment decisions, because without knowing the true financial position of a company you are purely speculating. It is a powerful tool that is essential for successful investing. Financial ratio analysis offers a sound, intellectual framework for making informed investment decisions. Financial ratios offer the clearest, easiest and most

logical set of indicators for a share market investor. Empirical and tested evidence suggests that financial ratio analysis is a powerful ally in the hands of an active and savvy investor.

Prominent of these ratios that form the basis of this study are returns on assets, cash deposit ratio, debts to total assets ratio, net assets per share and earnings per share. These ratios were chosen because they are very critical to several different users of accounting information. They don't just serve the interest of one group of those seeking financial information (Lau, Lee, & McInish 2002). The ratios are thus discussed as follows:

#### ***Return on Assets (ROA)***

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. It is calculated by dividing a company's annual earnings by its total assets. Sometimes this is referred to as return on investment. ROA tells you what earnings were generated from invested capital (assets). ROA for public companies can vary substantially and will be highly dependent on the industry. This is why when using ROA as a comparative measure, it is best to compare it against a company's previous ROA numbers or the ROA of a similar company. The acquisition of the assets of the company can be financed from either debt or equity capital or both. Both of these types of financing are used to fund the operations of the company. The ROA gives investors an idea of how effectively the company is converting the assets it has to generate net income. The higher the ROA number, the better, because the company is earning more money on less investment. In this study, return on assets is computed from Consolidated Income Statement and Consolidated Statement of

Financial Position of the different banks for their respective years.

#### ***Cash Deposit Ratio (CDR)***

Cash deposit ratio is a measure of a company's ability to repay short-term liabilities such as accounts payable and current debt using short-term assets such as cash. The Cash ratio is useful as it shows whether a company has adequate cash resources to repay short-term debt or if it will experience cash flow problems in the near future. It is the most famous ratio to assess the liquidity position of any company. Current ratio is not a good way to analyse the liquidity position for a company, especially banks, because of the inclusion of account receivable and inventory which will require time to be converted to cash; thus cash deposit ratio gives a better result of liquidity. It is measured as cash divided by deposits. In this study, cash deposit ratio is computed from Consolidated Statement of Financial Position of the different banks for the respective years.

#### ***Debt to Total Assets Ratio (DTAR)***

Debt to total assets ratio is a solvency ratio that measures a firm's total liabilities as a percentage of its total assets. It assesses the amount of the company total assets that are financed by creditors instead of investors. In other words, it shows what percentage of assets is funded by borrowing compared with the percentage of resources that are funded by investors. It is an important measurement because it shows the leverage of the company by looking at how much of the company capital were contributed by shareholders in the form of equity, and how much were contributed by creditors in the form of debts. Both investors and creditors use this figure to make investment decision about the firm. Higher DTAR means bank has financed most of its assets through debt as compared to the equity financing. Moreover, higher DTAR indicates that bank is involved in more risky

business. Debt to total assets ratio is computed by the researcher from Consolidated Statement of Financial Position of the different banks for the respective years.

#### ***Net Assets per Share (NAPS)***

This is an expression which indicates net asset value per share for a company. It is a yardstick for measuring the performance of companies which tries to relate the assets value to each share of the company. It is mostly used banks and investment companies to measure the relationship of their assets value in terms of each share invested in the company. An increase in net assets per share by means of a share buyback, for example, may lead to an increase in the market value of a company's shares. In this study, net assets per share are computed from Consolidated Income Statement and Statement of Financial Position of the different banks for the respective years.

#### ***Earnings Per Share (EPS)***

Earning is the summation of income (loss) from continuing operation, and from discontinued operations of a firm. It is a measure for summarising a corporation performance over a period of time. Earnings per share is a measure of how much profit is generated on a per share basis. It is calculated by dividing net profit after tax by the number of ordinary shares outstanding in the books of the company (Glautier & Underdown, 1997; Pandey, 1999). It represents the portion of a company's earnings, net of taxes, and preferred stock dividends that is allocated to each share of common stock. Earnings per share can be classified as basic, adjusted, or diluted earnings per share. Basic earnings per share (EPS) is calculated by dividing the net profit attributable to shareholders by the weighted average number of ordinary shares in issue during the period. The adjusted EPS is calculated using the number of shares in issue at the balance sheet date. Where a stock

split or bonus issue has occurred, the number of shares in issue in the prior period is adjusted to achieve comparability. Diluted earnings per share is calculated by adjusting the weighted average number of ordinary shares outstanding to assume conversion of all dilutive potential ordinary shares. In this study, earnings per share is compiled by the researcher from Consolidated Statement of Financial Position of the different banks for the respective years.

#### ***Empirical Review***

Auret and Sinclaire (2006) studied the relationship between the ratio of book value to market value (BTM) and stock return in the years 1990 to 2000 in the companies listed in the Johannesburg Stock Exchange (JSE). In this study, they used the ratio of book value to market value (BTM), price to Earnings (P/E), dividend yield (DY), cash flow to price (CF/P), price to net asset value (P/NAV) and firm size as independent and control variables. The results indicate that there is a positive and significant relationship between the ratio of book value to market value and stock return. But there is no significant relationship between the ratio of price to earnings and stock returns.

Kheradyar and Ibrahim (2011) investigated the role of financial ratios as empirical predictors of stock returns in the 100 companies listed on the Malaysian Stock Exchange during the period 2000 to 2009. In their study, they used dividend yield (DY), earnings yield (EY) and book-to-market ratio (BTM) as financial ratios to predict stock returns. Panel data and generalized least squares (GLS) methods were used to estimate the regression model used in the study. Findings from the study indicate that there is a significant and positive relationship between financial ratios and stock return of next year. Also, the results showed that the ratio of book value to market value is superior against

dividend yield and earnings yield in explaining stock return of next year.

Mirfakhr, Dehavi, Zarezadeh, Armesh, Manafi, and Zraezadehand (2011) investigated the relationship between financial variables and stock price through Fuzzy regression in Iran Khodro Company (Accepted in Tehran Stock Exchange) during the years 1998 to 2007. They used the variables of earnings per share (EPS), dividends per share (DPS) and the ratio of price to earnings as financial variables. The research findings showed that there is a significant and positive relationship between earnings per share (EPS) and stock price, but the relationship between cash dividend per share (DPS) and the ratio of price to earnings (P/E) with stock price is negative and significant.

Lau, Lee, and McInish (2002) investigated the relationship between stock returns and systematic risk with firm size, the ratio of book value to market value of equity, price to earnings ratio, the ratio of cash flow to price and sale growth in both Malaysia and Singapore. Their studied sample is 82 companies listed in the Singapore Stock Exchange and 163 companies listed in the Kuala Lumpur Stock Exchange during the period 1988-1996. Results for Singaporean companies are indicate that there is no significant relationship between the ratio of book value to market value (BTM) and earnings to price ratio (E/P) with stock returns. The results for Malaysian companies show that there is significant and positive relationship between the ratio of earnings to price (E/P) and stock returns. But the relationship between the ratio of book value to market value (BTM) and stock returns is not significant.

Zeytinoglu, Akarim, and Çelik (2012) studied the effects of market ratios on the stock return

of current and future year of insurance companies listed in the Istanbul Stock Exchange during the years 2000 to 2009. In this study, the market ratios include price to earnings ratio (P/E), ratio of market value to book value (M/B) and earnings per share (EPS). Research findings suggest that there is no significant relationship between market ratios and stock return of current and future year and only the relationship between the ratio of market value to book value (M/B) and stock return of current and future year is positive and significant.

Kothari and Shanken (1997) in their study investigated the relationship between the ratio of book value to market value and dividend yield with the expected market return. Results have shown that there is a significant and positive relationship between the ratio of book value to market value (BTM) and the dividend yield with market returns of future year. Also, the results indicate the superiority of book value to market value ratio against dividend yield in explaining future market returns.

### 3.0 METHODOLOGY

#### *Theoretical Framework*

The concept of stock prices originated from Random Walk theory in the work of Fama (1980). This study which is aimed at determining the predictive power of accounting ratios on stock prices is based on the Efficient Markets Hypothesis (EMH), popularly known as the Random Walk Theory.

#### *Random Walk Theory/Efficient Market Hypothesis*

The efficient market hypothesis is associated with the idea of a random walk, which is a term loosely used in the finance literature to characterize a price series where all subsequent price changes represent random departures from previous prices. The logic of

the random walk idea is that if the flow of information is unimpeded and information is immediately reflected in stock prices, then tomorrow's price change will reflect only tomorrow's news and will be independent of the price changes today. But news is by definition unpredictable and, thus, resulting price changes must be unpredictable and random. As a result, prices fully reflect all known information, and even uninformed investors buying a diversified portfolio at the tableau of prices given by the market will obtain a rate of return as generous as that achieved by the experts. (Malkiel, 2003).

The Efficient Markets Hypothesis (EMH), popularly known as the Random Walk Theory, is the proposition that current stock prices fully reflect available information about the value of the firm, and there is no way to earn excess profits, (more than the market overall), by using this information. It deals with one of the most fundamental and exciting issues in finance why prices change in security markets and how those changes take place. It has very important implications for investors as well as for financial managers. Fama (1980) sees an efficient market, as one that reflects full effects of new information on intrinsic values to be reflected instantaneously in actual prices. Many investors try to identify securities that are undervalued, and are expected to increase in value in the future, and particularly those that will increase more than others. Many investors, including investment managers, believe that they can select securities that will outperform the market. They use a variety of forecasting and valuation techniques to aid them in their investment decisions. Obviously, any edge that an investor possesses can be translated into substantial profits.

Fama (1980) concluded that daily changes had a very small positive correlation,

approaching zero for practical purposes. The stock market seemed to work in a way that allowed all information reflected in past prices to be incorporated into the current price. In other words, the market efficiently processed the information contained in past prices.

In the literature, three distinctive potential levels of efficiency, namely weak, semi-strong and strong each relating to a specific set of information which is increasingly more comprehensive than the previous one, are identified. The market is efficient in the weak sense if share prices fully reflect the information implied by all prior price movements. Price movements, in effect, are totally independent of earlier movements. Consequently, investors are unable to profit from studying charts of past prices. In addition, efficiency at the weak level rules out the validity of trading rules designed to produce above-average returns. The weak form of efficiency has also been designated in literature as advocated by Chaudhuri (1991) as random walk hypotheses.

In the semi-strong form, the information set comprises of publicly available information. The implication of market being efficient in the semi-strong sense is that it would be rather futile for investors to search for bargain opportunities (i.e., mispriced shares) from an analysis of published data.

The market is efficient in the strong sense if shares fully reflect not only published information, but also all relevant information including information not yet publicly available. If the market were strongly efficient, then even an insider would not be able to profit from his privileged position. Needless to say, these three levels are not independent of one another. For the market to be efficient in the strong sense it must also be efficient at the two lower levels, otherwise the

price would not capture all relevant information.

### **Model specification**

With respect to the main objective of this study, which was to assess the predictive influence of financial ratios on stock prices of deposit money banks in Nigeria, the model below was developed for the study;

$$SP_{i,t} = \alpha_0 + \alpha_1 ROA_{i,t} + \alpha_2 CDR_{i,t} + \alpha_3 DTAR_{i,t} + \alpha_4 NAPS_{i,t} + \alpha_5 EPS_{i,t} + \varepsilon_{i,t} \quad (I)$$

Where;  $i,t$  is for bank  $i$  in year  $t$ ,

SP = the stock price at fiscal year-end,

ROA = return on assets,

CDR = cash deposit ratio,

DTAR = debts to total assets ratio,

NAPS = net assets per share,

EPS = earnings per share,

$\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$  = the coefficients of the variables

$\varepsilon$  is the error term.

The apriori expectation is that share prices of banks will react positively and significantly with the explanatory (independent) variables because these are mainly the indices investors consider before making investment decisions (Zeytinoglu, Akarim, & Çelik 2012).

### **Research Design**

This study adopted the *ex-post facto* research design to assess the relationship between financial ratios and stock prices of deposit money banks in Nigeria. The choice of this research design is premised on the fact that the study involved gathering data which was already in existence and which has not been created by the researcher.

The fourteen (14) deposit money banks listed on the Nigerian Stock Exchange formed the population of this study. From the fourteen (14) deposit money banks listed on the Nigerian Stock Exchange, a sample of ten (10) banks was purposively selected based on

the availability of their annual reports and share prices as at the time of the study. The final sample, therefore, consisted of ten (10) banks for a seven year period, covering 2009 to 2015. The study made use of data from secondary sources. The Nigerian Stock Exchange (NSE), annual reports and accounts of banks were the major sources of data for the study. The technique for data analysis employed in this study is panel multiple regression. The technique was adopted because it helps to explore the long run relationship between the dependent variable (stock price) and the independent variables or predictors (Returns on Assets, Cash Deposit Ratio, Debts to Total Assets Ratio, Net Assets Per Share, and Earnings Per Share).

**Return on Assets (ROA)** – ROA measures the profitability of the assets of the firm after all expenses and taxes. It was calculated as Net Profit after Tax/Total Asset, from Consolidated Income Statement and Statement of Financial Position of selected banks for the period 2009 to 2015. This is in line with the work of (Zeytinoglu, Akarim, & Çelik 2012).

**Cash Deposit Ratio (CDR)** – CDR measures the liquidity of the bank. It was calculated as Cash/Deposit, from Consolidated Statement of Financial position of selected banks for the period 2009 to 2015. This also follows from the study of (Auret & Sinclair 2006).

**Debts to Total Assets Ratio (DTAR)** – DTAR measures the amount of total debts a bank used to finance its total assets. It was calculated as Total Debt / Total Assets, from Consolidated Statement of Financial position of select banks for the period 2009 to 2015.

**Net Assets Per Share (NAPS)** – NAPS measures the value per share for the fund of the firm. It was calculated as (total assets - total liabilities)/number of shares outstanding,

from Consolidated Income Statement and Statement of Financial position of select banks for the period 2009 to 2015.

**Earnings Per Share (EPS)** – EPS measures how much profit is generated on a per share basis. It was calculated as Earnings/number of shares outstanding, from Consolidated Income Statement and Statement of Financial position of select banks for the period 2009 to 2015. This is further in line with (Auret & Sinclair, 2006).

#### 4.0 ESTIMATION RESULTS AND DISCUSSION OF FINDINGS

##### *Descriptive Analyses*

The selected data series consisting of seventy data points were pooled in the analyses of the measures of central tendency, variability and normality. And this is expected to give a holistic idea of the entire data series of the selected companies without considering the different cross sections.

**Table 1: Results of Descriptive Statistics of the Research Variables**

	ROA	CDR	DTAR	NAPS	EPS	SP
Mean	0.013494	0.186533	0.861343	9.003596	1.053429	0.684919
Median	0.013550	0.176750	0.860550	8.297000	0.805000	0.689734
Maximum	0.079300	0.401700	1.303700	32.31240	3.510000	1.437751
Minimum	-0.044800	0.032200	0.603000	-4.496000	-0.850000	-0.283997
Std. Dev.	0.018451	0.097256	0.079454	6.209992	1.124926	0.448300
Skewness	-0.135967	0.204817	1.940659	1.052874	0.532225	-0.183523
Kurtosis	6.076748	2.040694	16.31952	5.453559	2.532181	2.003978
Jarque-Bera Probability	27.82596	3.173532	561.3834	30.49120	3.943067	3.286446
	0.000001	0.204586	0.000000	0.000000	0.139243	0.193356
Sum	0.944600	13.05730	60.29400	630.2517	73.74000	47.94431
Sum Sq. Dev.	0.023489	0.652656	0.435591	2660.916	87.31658	13.86715
Observations	70	70	70	70	70	70

The result of the descriptive analyses of the regression variables as presented in table 4.1 above shows a considerable level of variability in the behavioral pattern of the series. For return on assets (ROA), the maximum is 0.07 (7%) whereas the minimum value of -0.04 shows that among the selected banks were those who had negative returns on assets implying inefficiency in the use of total assets for the generation of revenue. The mean value of 0.013494 indicates that an average bank in the cross section generates returns of 1% per asset invested in the organization.—The Jarque-Bera value of 27.82596 is relatively large and the associated probability value of 0.000001 is significant

and suggest that the variable is consistent with the Gaussian normal distribution

Cash deposit ratio (CDR) represents the rate at which a bank lends out the funds deposited by its customers. The minimum CDR according to the descriptive statistics result is 3% while the maximum is 40%, implying a considerable level of spread in the pattern of the selected firms as it concerns the retaining of funds over the years. The standard deviation of 0.09 suggests that only minimum data points are lying far away from the mean as compared to other series in the panel whereas the mean value of 19% approximately indicates a high degree of

retention of cash deposits by the banks.; but the Jacque-Berra statistics of 3.173532 is relatively small and the associated probability value of 0.204586 is insignificant and thus the variable is not consistent with Gaussian normal distribution.

Debt to total assets ratio (DTAR) reflects the level at which assets of the banks are financed by external obligations such as creditors, liabilities and other debts. Across different cross sections, the result above showed that debts are financing up to 86% of the total assets on the average and this result is similar to what is obtainable for most of the banks in the panel given that the standard deviation is 0.07 implying that most of the observations on DTAR are close to 86% which is the mean score. The Jarque-Bera value of 561.3834 is very large and the associated probability value of 0.000000 is significant and suggest that the variable is consistent with the Gaussian normal distribution

The ratios of net assets per share (NAPS) across the banks showed a rather high degree of variability with maximum ratio of 32 and minimum of -4.49, and this was further

buttressed by the standard deviation of 6.20. This position implies that the selected banks have diverse pattern of behavior in the relationships between net assets value and outstanding shares over the years. The Jarque-Bera value of 30.49120 is relatively large and the associated probability value of 0.000000 is significant and suggest that the variable is consistent with the Gaussian normal distribution.

However, earnings per share (EPS) and stock prices (SP) series each showed a level of similarity among the selected banks judging from their standard deviations which are 1.12 and 0.45 respectively. Further, EPS which simple measures the earnings (profitability) of each unit of share has a maximum of 3.51 which is fairly high and a minimum value which is negative; but the mean value implies that an average bank earns N1.05k for each naira ordinary share invested in the banks. The Jacque Berra values of EPS and SP are respectively 3.943067 and 3.286446 with their corresponding probability values as 0.139243 and 0.193356. This suggests the EPS and SP are both not consistent with the Gaussian normal distribution.

*Panel Unit Root Test at First Differencing*  
*Table 1: Results of Panel Unit Root Tests*

<i>Variables at First Differencing</i>						
	<i>With intercept</i>	<i>LLC</i>	<i>P-value for LLC</i>	<i>for</i>	<i>PP-Fisher Chi-square</i>	<i>P-value for PP-Fisher Chi-square</i>
<i>ROA</i>	“	-45.7331	0.0000		86.3380	0.0000
<i>CDR</i>	“	-7.08313	0.0000		50.2890	0.0002
<i>DTAR</i>	“	-11.9713	0.0000		57.2662	0.0000
<i>NAPS</i>	“	-17.0144	0.0000		85.6855	0.0000
<i>EPS</i>	“	-13.7327	0.0000		77.0683	0.0000
<i>SP</i>	“	-7.84508	0.0000		48.1542	0.0004

Having described the nature of our data series and found some of them to be normal, the data were analyzed for unit root at individual intercept. The purpose for selecting individual intercept is to ensure that the data will be treated with recognition of differences in the cross sections; that is, each bank in the panel is treated as different from other banks instead of pooling them together as was obtainable in the descriptive statistics section above. The unit root test was conducted at two stages comprising the common unit root process (Adopting Levin, Lin & Chu t) and Individual unit root process (Adopting PP – Fisher Chi-square).

The result of the unit root test as is contained in table 4.2 shows that all the selected data series are stationary at first difference as all the null hypotheses of unit root both with

assumption of common unit root process and individual unit root process were rejected given that the each series' probability value consistently yield a value less than 5%. Hence, we accept that there is no unit root in the data series selected for the study based on the result in table 2.

**Panel Co-integration Analysis**

Having ascertained in Table 2 that the data series have no unit root, this section is dedicated to analyzing possibility of estimating an ordinary least square long run relationship among the variables selected in this study using Kao Residual Co-integration Test. This test is Engle Granger based cointegration test intended to prescribe possible long run equilibrium relationship among the selected variables was also conducted as shown in Table 3.

**Table 2: Panel Co-integration Test Results**

Kao Residual Cointegration Test  
 Series: ROA CDR EPS NAPS SP  
 Date: 06/04/17 Time: 20:25  
 Sample: 2009 2015  
 Included observations: 70  
 Null Hypothesis: No cointegration  
 Trend assumption: No deterministic trend  
 User-specified lag length: 1  
 Newey-West automatic bandwidth selection and Bartlett kernel

	t-Statistic	Prob.
ADF	-3.760709	0.0001
Residual variance	0.000223	
HAC variance	0.000107	

Augmented Dickey-Fuller Test Equation  
 Dependent Variable: D(RESID)  
 Method: Least Squares  
 Date: 06/04/17 Time: 20:25  
 Sample (adjusted): 2011 2015  
 Included observations: 50 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-1.065720	0.140810	-7.568504	0.0000
D(RESID(-1))	0.098781	0.075666	1.305488	0.1979
R-squared	0.689243	Mean dependent var	-0.002034	
Adjusted R-squared	0.682769	S.D. dependent var	0.010449	
S.E. of regression	0.005885	Akaike info criterion	-7.393525	
Sum squared resid	0.001663	Schwarz criterion	-7.317044	
Log likelihood	186.8381	Hannan-Quinn criter.	-7.364400	
Durbin-Watson stat	1.766161			

The result shows that the null hypothesis which proposes that there is no cointegration among ROA, CDR, DTAR, NAPS, EPS and SP should be rejected. This is because the probability value of the Augmented Dickey-Fuller t-statistics is lower than 5% hence we reject the null hypothesis and accept its alternative which holds that the variables have long run equilibrium relationship. The implication is that the selected variables have tendencies to move in an interconnected manner in the possible long run even though they may not show close relationship at the present.

Hence we conclude on the basis of the above results that the market prices of commercial banks' stock and various financial ratios are related in the long run.

### Summary of the findings

Base on the analysis of data, the following are the findings of this study:

- (1) The study portrays a positive though statistically insignificant association between returns on assets and stock prices of selected banks in Nigeria.
- (2) The analysis negative and significant association of cash deposit ratio and stock prices.
- (3) The debt to assets ratio showed a negative effect on stock prices and this association fails to be statistically significant at 5%.

(4) The result of the coefficient of NAPS is negatively associated with stock price and as it is not statistically significant at 5%, the result suggests that the association between the variables is not strong enough to warrant statistical conclusion and inference.

(5) Earnings per share (EPS) was found to have a significant and positive association with stock prices of money deposit banks and the statistical significance is within the acceptable bound of 5%.

### 5.0 CONCLUSION

This study was carried out to statistically evaluate the explanatory power of financial ratios on stock prices of deposit money banks in Nigeria. From analyses, it was found that some of the financial ratios used in this study, such as cash deposit ratio and earnings per share exhibit significant association with stock prices, while some such as returns on assets, debts to assets ratio and net assets per share do not significantly associate with stock prices of money deposit banks in Nigeria. It is therefore concluded that some financial ratios associates significantly with stock prices of money deposit banks. This result is in line with the findings of Kheradyar and Ibrahim (2011) in Malaysia and Mirfakhr et al (2011) in Iran.

## 6.0 RECOMMENDATIONS

The significant and insignificant association between some financial ratios and stock price movements of deposit money banks in Nigeria is an indicator that some set financial of ratios have predictive power on stock price movements and could be used as a basis for prediction of stock prices movements in deposit money banks in Nigeria, while some cannot. In view of this, the following recommendations are made;

- (1) In view of the positive and significant association between earnings per share and cash deposit ratios with stock prices, financial analysts and prospective investors are advised to rely on earnings per share and cash deposit ratios in predicting the behavior of stock prices in Nigerian banks.
- (2) The management of Nigerian banks should devote more attention to enhancing their performance parameters such as earnings per share and cash deposit ratios, as these parameters exert influences on their stock prices.
- (3) Government, policy makers, accounting standards setters and the monitoring authorities should require listed firms to disclose accurate, relevant and sufficient information in their financial statements, as these information affect stock price movements, and are guides to financial analysts and prospective investors in making investment decisions.
- (4) Given the volatility of stock prices, financial analysts and prospective investors should rely more on daily information in predicting the behavior of stock prices in Nigeria, and not annual information from annual financial statements.

## REFERENCES

- Auret C. J., & Sinclair R. A. (2006). Book-to-market ratio and returns on the JSE. *Investment Analysts Journal*, 63, 31-38.
- Chaudhuri, P. (1991). Non parametric estimates of regression quartiles and their local bahadur representation . *The Annals of Statistics*, 19 (2), 760 - 777l.
- Chang R. & Wang H. (2008). Relationship between Going Concept and Earning Per Share: Experience from Chinese Stock Market. *Journal of Management Research*. 1(1): 23-27.
- D'Amato, E. (2010). The top 15 financial ratios. Australian Shareholders Association [e-book].[www.Australianshareholdersassociation.org/financialratios](http://www.Australianshareholdersassociation.org/financialratios). Retrieved on 02/03/2018
- Fama, E. (1980). Agency Problems and the theory of the Firm. *Journal of Portland Economy*. 22 (43), 22-28.
- Francis, J. & K. Schipper. (1999). Have Financial Statements Lost their Value Relevance. *Journal of Accounting Research* 37 (2): 319 – 352.
- Glautier, M. W. E., & Underdown, B. (1997). *Accounting Theory and Practice*, (Sixth Edition). London: Pitman Publishing, pp. 150 – 165.
- Kheradyar, S., Ibrahim, I. & Mat-Nor. F. (2011). Stock Return Predictability with Financial Ratios. *International Journal of Trade, Economics and Finance*, 5 (2), 32–39.
- Kothari, S. P. & Shanken, J. (1997). Book-to-market, dividend yield, and expected market returns: A time series analysis. *Journal of Financial Economics*. 44(3), 169–203.
- Lau, S. T, Lee C. T, & McInish T. H. (2002). Stock returns and beta, firms size, E/P, CF/P, book-to- market, and sales growth: evidence from Singapore and Malaysia.

- Journal of Multinational Financial Management*, 12, 207-222.
- Lui, C. & O'Farrell, G. (2009). China and U.S. financial ratio comparison, *International Journal of Business, Accounting and Finance*, 3 (2), 1-12.
- Malkiel, 2003. The survey of the relationship between financial ratios and stock returns rate of companies listed in Tehran Stock Exchange. *Review of Accounting and Auditing*, 13(2): 105-127.
- Mirfakhr S. H, Dehavi H. D, Zarezadeh E, Armesh H, Manafi M, & Zraezadehand S. (2011). Fitting the Relationship between Financial Variables and Stock Price through Fuzzy Regression Case study: Iran Khodro Company. *International Journal of Business and Social Science*, 2(11), 140-146.
- Oyerinde, D.T. (2011). Value Relevance of Accounting Information in the Nigerian Stock Market. (Thesis, Covenant University) Retrieved from <http://eprints.covenantuniversity.edu.ng/685/> January, 2017.
- Pandey, I. M. (1999). *Financial Management* (Eight Edition) New Delhi: Vikas Publishing House Pvt Ltd, pp. 89 – 99.
- Remi, S.A. (2005), Stock price and Earning per share: A sectoral analysis with panel data. *Journal of Business and Economic Review*, Uludag University.
- Umar, M.S., & Musa, T. (2013). Stock Prices and Firm Earning per Share in Nigeria. *Jorind*, 11(2), 1596 – 8303.
- Zeytinoglu E, Akarim Y. D, & Çelik, S. 2012. The Impact of Market-Based Ratios on Stock Returns: The Evidence from Insurance Sector in Turkey. *International Research Journal of Finance and Economics*, 84, 41-48.