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Investment Ratios and Stock Returns of Deposit Money Banks in Nigeria

Ifeanyi O. Nnebe¹, Vincent A. Akpotor^{2*}

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ABSTRACT

Financial ratios are used to analyze financial statements, to allow for meaningful understanding by stakeholders of how the firm operated in the past accounting period. The major objective of this study was to ascertain the relationship between investment ratios and stock returns of deposit money banks in Nigeria for the period 2011-2022. The study used book value per share, dividend payout ratio and price earnings ratio as independent variables. While, stock returns of deposit money banks was used as the dependent variable. The study used secondary data obtained from the financial statement of sampled banking firms and the records of Nigeria Exchange Limited (NGX) for analysis. The orthogonal deviations option of Generalized Method of Moments (GMM) technique was employed for analysis of data. Findings from the analysis showed that, book value per share, dividend payout ratio had negative and no significant relationship with stock returns of listed deposit money banks in Nigeria. However, there is a positive and significant relationship between price earnings ratio and stock returns. Therefore, the study recommends that: Deposit Money Banks to practice timely revaluation of assets and liabilities to breach the gap between book values and market values of assets and liabilities. Managers' of firm as agents should be thorough (maintain ethics) in the report of financial statement information, while, the Nigerian Security and Exchange Commission should enforce timely disclosure with electronic/information technology platforms.

INTRODUCTION

The theory of corporate finance posit that the objective of the firm is to create viable return or wealth for shareholders, given that all residual earnings of a firm belong to the equity holders as the real owners of firms. Thus, the wealth of shareholders comprises the distributable profit and the value placed on the company's share by market players in the market. This is a manifestation of a firm's investment, financing and dividend decisions (Gitman *et al.*, 2015). The evidences of optimal decisions in these areas are expected to be seen in financial statements figures, affect distributable profit (dividend) and ultimately, be reflected in the prices of stocks, depending on the efficiency level of the capital market. The monetary values of firms' operations are summarized in financial statements; ratios computed from such statements are projected to have a relationship with stock returns and stock return is heavily swayed by stock prices. Efficient market hypothesis as put forward by Fama (1970) and the works of Ali (2011) theorized that market fundamentals as well as microeconomic and macroeconomic factors influence stock prices, thus influences investors returns. Afriyani *et al.* (2020) argued that technical factors are priced into stocks thus influences stock returns, while, Muradoglu and Harvey (2012); John *et al.* (2022) postulated that behavioral and psychological factors affects stock prices and ultimately influences stock returns, as a rise in stock price will sway stock returns upward and a fall will sway it otherwise. All these views

have continued to generate interest.

Accordingly, there are mounting evidences of stock return predictability based on ratios computed from financial statements across various stock markets. Studies like Nissin and Penan (2001); Dzikevičius and Šaranda (2011); Wijesundera *et al.* (2015); Kudakwashe *et al.* (2020) found that there is a link between stock returns and financial ratios, yet, return predictability strength may vary according to the prevailing market regime.

Conceptual, Theoretical and Literature Review

Conceptual Review

Financial ratios allow experts to blend large amounts of financial and accounting data into metrics that can be easily linked and compared (Lynch, 2000). Inspection of these ratios can help to measure the financial health of a firm. Financial ratios are brilliant tool for understanding company's performance, to ascertain whether a company is improving or declining. There are several parties that make use of financial ratios to provide insight into company performance or use them as pointers to the financial health of a firm

Investment Ratios

Investment Ratios are employed to measure a company's capacity to create a value to the public (investors) or to the shareholders. This ratio provides clues on how much more the investors can offer to firms than the shares book value. The price earnings ratio (PER) indicates the

¹ Department of Banking and Finance, Chukwuemeka Odumegwu Ojukwu University, Igbariam, Anambra State, Nigeria

² Department of Maritime Economics and Finance, Nigeria Maritime University, Okerenkoko, Delta State, Nigeria

* Corresponding author's email: akposdprof@gmail.com

amount the investor is willing to pay for each reported profit (Brigham & Houston, 2019). A higher PER indicates that the investors are eager and ready to pay a premium share price for the company.

Stock Returns

Stock Returns is the return on investment in shares. It consists of dividends and capital gains. Dividends represent the proportion of income distributed to shareholders, while, capital gains are the spread between the bidding price and the asking price of an investment instrument (Yudianto *et al.*, 2018). The average return is the rate of return that investors expect in the future, while the actual return is the rate of return that has been obtained in the past. Between the expected level of return and the actual return is a risk that must be measured in the investment process (Wilkens *et al.*, 2006).

The conception of return is divided into two viz; single return and portfolio return (Lin *et al.*, 2010). A single return is the gain received from an investment in the form of realized returns and expected returns. Realized returns are returns that are calculated based on past data and adopted as a gauge of company performance. Historical returns are also handy as a foundation for defining expected returns. Expected return is the return expected by investors in the future (Ivanisevic & Hernaus, 2019; Wilkens *et al.*, 2006). The sum of dividends and movement in stock price represented the return on stock. Stock return could be calculated by the following formula: $\text{Return on Stock} = \text{Shareholders Total Returns} = \text{Dividends} + \text{Capital Gains/Loss}$

Where;

Dividend: represent the proportion of income distributed to shareholders (per share)

Capital Gain/Loss: represent the periodic movement of stock price (the price of a single stock of a company's saleable equity shares).

The monetary value of a firm's operations are summarized and recorded in the financial statement,

Theoretical Framework

Agency Theory

The agency theory was first proposed by Michael Jensen and William Meckling in 1976 in their article "Theory of the firm: Managerial behaviour, agency cost and ownership structure." The theory stated that the relationship between a principal and an agent can be complicated by differences in goals and risk aversion. An agency relationship "is a contract by which one or more persons (the principal) engage another person (the agent) to perform some services on their behalf which involves delegating some decision-making authority to the agent". The agency theory in finance, centered on conflicts between managers and companies' shareholders as it concerns optimal resources allocation for investment, financing and dividend policy of a firm. The agency theory posits that managers as agents are engaged by the shareholders as principal to manage the corporation

profitably in the interest of the principal. While, the principal expends positive monitoring and bonding costs (monetary and non-monetary). Therefore, given good incentives and monitoring the agent is expected to manage the corporation in the interest of his principal. The report of such management is summarized in the financial statement. Thus, financial ratios computed from the statements are expected to reflect the interest of the principal as revealed by the stock returns.

Separation Theorem

Irving Fisher postulated the theory known as Separation theorem in 1930, in which he stated that in an efficient market, managers should solely focus on maximizing profits irrespective of the goals and preferences of the shareholders. Fisher's separation theorem also referred to as the portfolio separation theorem, states that the foremost thing that a corporation need to do is to grow its present value as much as possible. The theory compared management's attention on productive prospects, while shareholders' focus on stock market values. The Fisher separation theorem advanced that maximizing a firm's benefits is the most crucial responsibility for the firms' management team.

Efficient Markets Hypothesis

Fama (1970) theorized the efficient market hypothesis, which described the efficient market as a market where prices of securities fully reflect all available information. This theory adopts symmetric information where all parties possess the same knowledge about relevant events and developments. According to this model, new information is reflected in the prices of securities without any delay due to a rapid dissemination of knowledge. This is the basic meaning of efficiency in the markets. That is, a market where prices of securities become the signal for efficient resource allocation. Thus, market is informational efficient if security prices instantly and properly mirror all the available information that is germane to the future profitability of a company. In that sense, share price establishes the best possible guess of the company's intrinsic value, given the information available at that point in time. Accordingly, if security prices were separated from earnings' potential, they would send distorted signs for resource allocation, and so the resultant capital allocation would be less than optimum. Accordingly, the efficient markets hypothesis avowed that security prices adjust to three subsets of information; adjustment to historical information (weak form), adjustment to publicly available information (semi-strong form) and adjustment to insider or private information (strong form).

This study is eclectically anchored on three theories: Agency Theory as put forward by Jensen and Meckling (1976), Fisher's Separation Theorem as theorized by Irvin Fisher in 1930 (Investopedia, 2021; Lu *et al.*, 2022; Ekman, 2022) and the Efficient Market Hypothesis as advanced by Fama (1970). This is because the agency

theory emphasized the duty of managers to manage firms in the interest of their principal. But, a corporate firm has numerous stockholders who has differing utility preferences. The separation theorem provide solution to the satisfaction of the different utility preferences of stockholder (principal), by postulating that managers should separate firms from owners and choose a goal for the firm. A goal that can be transformed by the individual stockholders to meet their respective utility preferences. The chosen goal was to maximize profit. Maximized profit must be reflected in the values of traded securities for the benefit of investors via increased stock prices and ultimately, maximized stock returns. Just as minimized profit will result in the loss of values of traded security to the detriment of investors who expect benefits in form of stock returns. The efficient market hypothesis theorized that capital market must be efficient enough to reflect such profit information in the prices of traded securities. Security prices separated from earnings' potential would send distorted signs for resource allocation, and cause a sub-optimal resource allocation. Financial statement data reported by a company contains a set of important information resources for investors' decisions concerning stock prices and expected returns (Breton & Taffler, 1995).

LITERATURE REVIEW

Investment Ratios and Stock Returns

The empirical work by Kudakwashe *et al.* (2020) investigated the predictive abilities of dividend and price-earnings valuation ratios on stock return of six sector firm listed on the Johannesburg Stock Exchange and to determine, if predictive power is dependent on the ongoing market regime. The study adopted a Markov regime-switching model for the period 1996:01 - 2018:12. The findings showed that majority of the examined sectors, significant predictive ability was noticed, and its significance depends on the market regime (whether bullish or bearish). The findings of the study are important to investors and other market players, who make use of valuation ratios in the process of predicting returns and adjusting portfolios in different sectors across market regimes in South African economy.

Another empirical work done by Oyedokun *et al.* (2019), surveyed the financial variables that has effect on the share price of registered deposit money banks in Nigeria. The population of the study includes fifteen deposit money banks registered to trade securities on the Nigeria Stock Exchange (NSE). A sample of twelve deposit money banks on NSE was taken after filtering with judgmental sampling techniques. Data for the research were procured from the annual reports of sampled banks and GTI Securities Ltd. for five years period (2013-2017). Ordinary Least Square (OLS) analytical method was employed on the data. The findings of the multiple regression technique showed that, dividend payout ratio, price-earnings ratio have a significant and direct relationship with the share price. While, dividend yield has a significant and indirect

association with share price; the book value per share has no significant relationship with the share price. Thus, the study recommended that shareholders of deposit money banks in Nigeria, should consider industry financial ratios, particularly the profitability ratios of price-earnings ratio and dividend payout ratio, as critical factors in forecasting share price movement.

The research conducted by Musallam (2018) explored the linear-relationship between financial ratios and market stock returns of twenty- six registered companies in the Qatar stock exchange for the period 2009 - 2015. Adopting Weighted Least Square (WLS) for the analysis, the research revealed that dividend yield ratio, earnings per share, earnings yield ratio and dividend yield ratio have significant and positive relationship with stock returns. While, dividends earnings ratio, return on equity, market to book value ratio, return on assets, price to earnings ratio, dividends earnings ratio, and net profit margin have no significant relationship with market stock returns. The study therefore recommended that policy makers should be selective in the process of deciding company and capital market policies.

The study carried by Olotu *et al.* (2018) targeted financial sector corporations listed in the Nigerian stock exchange with the view to examine the swaying power of key accounting and macroeconomic variables on stock prices. The study selected forty-five corporation as samples, out of the fifty-eight (58) listed financial sector corporation using purposive sampling method, based on the availability of monthly data for the period 2010 to 2015. The data were analyzed using random effect-based regression model based on the suggestion of Hausman test. The findings show that all independent variables (earnings per share, price earnings ratio, market capitalization, oil price and exchange rate) are significant I swaying the movement of stock price except for liquidity. Precisely, factors such as oil price and exchange rate all have inverse influence on equity price. Thus, macroeconomic polies of the federal government is not in favor of the stock market. The study therefore posited that government must pursue a stable policy that will help stabilize the exchange rate. This will keep the performance of the market stable and in encourage of prices in the stock market.

The research carried out in Sri Lanka by Wijesundera *et al.* (2015) examined the possibility of using past financial data to build a robust value portfolio for investors by predicting stock returns in the Sri Lankan context. Given that, amongst the most vital and interesting element for investors and the analysts would be stock returns from the financial markets. The study assessed the connection between financial ratios and predictability of stock returns for companies registered to trade stocks on the Colombo Stock Exchange. The study adopted ordinary least squares (OLS) techniques to estimate the predictive regressions in form of simple and multiple models of panel data sets. A sample 60 listed corporations were selected and 10 years of data used for the analysis for the period 2004 to 2013. The results emphasized that return

on equity, earnings per share and market value to book value ratio have a significant and positive relationship with the stock return. Therefore, investors should ponder these ratios of the companies and movement in these ratios in choosing a robust portfolio to invest.

The works of Basu (1977) empirically determined the connection between investment returns of equity securities and their price earnings ratios. While the efficient market hypothesis denies the possibility of earning excess returns, the price-ratio hypothesis asserts that P/E ratios, due to exaggerated investor expectations, may be indicators of future investment performance. The results of the study posit that P/E ratio information was not “fully reflected” in security prices in as rapid a manner as suggested by the semi-strong form of the efficient market hypothesis. The movement of security prices over the period enclosed in a particular the study is, possibly, not completely described by the efficient market hypothesis. Opposing the belief that publicly available information is reflected timely in the security prices, there seem to be delays and resistances in the adjustment process. Therefore, publicly available price earnings ratios appear to have “information content” and may permit an investor’s response at the time of portfolio construction and/or revision.

However, Campbell and Yogo (2003) in their study said, that the predictability of stock returns is nowadays broadly accepted by financial experts is remarkable, given the long tradition of the “random walk” model of stock prices. They showed in their work “efficient test of stock return predictability” that financial statement ratios of dividend-price ratio, earnings-price ratio are favourable predictor variables of stock return. Obaidat (2016) assessed the relevance of financial statement information especially ratios for investment decisions. Questionnaire was drawn and distributed sampled of investors, trading in Amman Stock Exchange (ASE). The findings showed that Jordanian investors sees financial statement information to be significant to investment decisions. The further showed that investment decisions are affected by other factors, such as trading volume, key investors, and company reputation. In the works of Afriyani *et al.* (2020) done to determine the stimulus of technical analysis and fundamental variables on stock returns, the sway of technical analysis and fundamental elements of stock returns on firm value as well as the effect of technical analysis and fundamental factors on the value of the company through stock returns. The study adopted the listed manufacturing firms Indonesia Stock Exchange, using data from 2015-2017. The sampling method adopted was purposive and data were analyzed with Structure Equation Modeling (SEM) and Moment Structure Analysis (AMOS) program. The findings revealed that Fundamental factors had positive but no significant influence on stock returns. While, technical factors had significant influence on stock returns; meanwhile, both fundamentals and technical element have direct influences on the value of the firm

through stock returns.

The empirical study of Fama and French (1992) examined the role of ratios deriving from financial statements coupled with market data in explaining average stock returns for the USA market and covered the period from 1963 to 1990. They discovered that there was no significant positive relationship between stocks’ market beta values (estimates) and expected stock returns during the examined period, unlike the position assumed by the CAPM equation. Furthermore, the study showed a statistically significant relation between earnings to price ratio and equity returns. “Market leverage” was found to be positively related to returns, whereas “book leverage” was found to be negatively related to returns. Also, the study revealed that the firms’ size and the book to market ratio were the most significant variables in explaining variations in the average stock returns, with the size being negatively related with stock returns and the book to market ratio positively related.

The research by Ogello (2014) examined the link running from price earnings ratio to stock returns for companies registered to trade stock at the Nairobi Securities Exchange. The study adopted existing data procured from the annual reports and financial statements of sixty –one firms listed at the NSE for the period 2009 to 2013. Multivariate regression method was used to examine the nature of link between price earnings ratio and stock returns, variables used for the study includes price earnings ratio, market to book value ratio and size of the firms proxied by total assets. The findings of the study revealed the following (i) significant relationship between price earnings ratio and stock returns for companies registered at the Nairobi Stock Exchange. (ii) more number of the firms had low price earnings ratios that brought about in higher stock returns, (iii) that companies with lower re-investment rate also have higher price earnings ratios, (iv) that stocks with high market to book value ratios also have significantly higher returns. (v) there is a significant relationship between total assets and stock returns. It is important to note that many other factors for example interest rates and industry performance affect stock returns and investors should consider them when making investment decisions. The study recommends that due to the importance of price earnings ratios in investment decisions, care should be exercised in determining what the correct and comparable earnings per share of each company, that there is need for investors to carefully use market to book ratio to determine the differentials between net assets of the firm and the valuation that the market assigns to them as it reflects the premium (or discount) that the market gives to the firm on its net assets and, as such, reflects the efficiency with which the market views the firm as being managed which in turn affect stock returns.

Another study conducted by Mohammad (2011) studied the long-run equilibrium relationship and the direction of causality between stock prices at Dhaka Stock Exchange (DSE) and a set of four stock market related factors

that can be theoretically defined as microeconomic variables. Adopting the analytical methods which include, Unit-Root tests, Johansen and Juselius Cointegration test and the long-run Granger Causality test. The study investigated empirically, the long-run equilibrium relationship plus causal relationships between the DSE all-share price index (DSI) and the four microeconomic variables of market dividend yield, market price-earnings multiples, monthly average market capitalization and monthly average trading volume. Adopting monthly data for the period January 2000 to December 2010, the study found that there is a long-run equilibrium relationship between dependent and independent variables used in the study.

The research done by Zeytinoglu *et al.* (2012) tested the influence of market related ratios on stock returns of insurance firms operating in Turkey, employing panel data analytical method. The study used price to earnings ratio (P/E), Earning per share (EPS), and market to book ratio (M/B) to represent market-based ratios. The analysis revealed that market-based ratio can explain changes in current stock returns and one lead period stock returns. Though, the chosen explanatory variables explained only 6% of changes in current stock return and 63% of one lead period stock returns.

Borhan and Mohd (2017) empirically investigated the influence of microeconomic variables on stock return while using money supply (MS) as a moderating variable. The selected microeconomic variables in this study are quick ratio (QR), dividend per share (DPS), debt-to-equity ratio (DE), firm size and book-to-market value. The study period 2003 to 2012 and the sampled of the study is made of 300 companies registered on Kuala Lumpur Stock Exchange (KLSE). Data were collected from DataStream International, company's annual reports, and the World Bank databank. While, Generalized Least Squares (GLS) method was adopted to analyze models of panel data sets. According to the findings, Money Supply moderates the impact of debt to equity ratio and quick ratio on stock return, but does not moderate the effect of dividend per share on stock return. Besides, money supply moderates the impact of all selected explanatory variables on stock return. Furthermore, the findings of the study showed that an increase procured debt of a firm in relation to its equity could cause a nosedive in the firm's stock return. Again, the findings revealed that firms with higher quick ratio and dividend per share are likely to have a stock return increased. Generally, the findings are in tandem with capital structure theory as postulated by Modigliani and Miller's as well as Pecking Order and Bird in Hand theory.

Empirically, Ekman (2022) examined the predictive ability of ten financial ratios on yearly stock returns at a one-year horizon. Ratios and stock returns were observed for the S&P Global 100 Index for the period spanning 2000 to 2020. The index was chosen for its multi-representation, arising from the size and multi-nationality of its components. Regression analysis was adopted for

the study. The result of the findings showed that free cash flow margin, dividend yield, market capitalization, earnings per share, and total revenues have significant predictive power in relation to annual stock return at a 5% significance level. It was therefore recommended that; Investors and managers should focus on these factors.

The research conducted by Cooper *et al.* (2008) tested the effects of firm-level asset investment on returns by observing the cross-sectional relationship between firm asset growth and consequent stock returns. The research revealed that asset growth rates are strong forecasters of future returns, even on large capitalized stock markets. The study compared asset growth rates with documented elements of sampled firms' returns. The findings revealed that a firm's annual asset growth rate appeared as an economically and statistically significant explanatory variable of the cross-section of U.S. stock returns.

Mayliana *et al.* (2021) conducted a study to determine the effect of financial ratios and macroeconomics elements on stock returns. The results showed that earning per Share (EPS) and Debt to Equity Ratio (DER) negatively affect stock returns. While, Return on Equity can be positively related to stock returns. However, all variables have a collective significant effect on stock returns. Conclusively, the six variables significantly influence on stock returns in Indonesia. But, macroeconomics factors in Indonesia have no significant effect on stock returns of sampled infrastructural sector firms.

The research work by Norrasat (2015) was done to know, if financial ratios can foretell the expected stock returns of selected listed companies in the stock exchange of Thailand (SET) for the period of 2006-2014, using quarterly data from financial statements of sampled firms. Fundamental valuation ratios including earnings yield (EY), dividend yield (DY), and book-to-market ratios (BM) are selected as the predictor variables. Additionally, other accounting variables including leverage (DE), net profit margin (NPM), return on asset (ROA), and asset turnover (AT) were included as the predictor variables as well. The study employed the panel data analysis by applying the fixed-effects model. The findings of the model revealed that DY, EY, and BM have positively and significant effect on stock returns though, there was no significant after controlling for the risk differences by beta. The effect of BM more pronounced amongst other ratios. Furthermore, the study submits that only the essential valuation ratios were statistically significant and NPM turns out to be positively correlated to the expected stock returns. The predictive power increases considerably when including the two-way fixed firm and time effects models for estimations. On contrary with the CAPM, beta has no relationship with expected stock returns in all models. Furthermore, the combination of fundamental valuation ratios will enhance the return predictability. The portfolio stimulations are also constructed to check for the robustness of indicators. Book-to-market ratio and combinations of financial ratios provide the strong evidence of predictive power in Thai market.

The works of Joseph *et al.* (2012) investigated, the factors to be considered by investors when formulating expectations for stock returns and what the factors suggest within a realistic range going forward. The study used previous research in using U.S. stock returns since 1926 as foundation to assess the predictive ability of more than a dozen financial metrics that investors should be aware of beforehand. The study revealed that, commonly mentioned factors have very weak and erratic correlations with actual subsequent returns, even at long investment prospects. These commonly mentioned factors include dividend yields values and economic growth, the spread between Treasury bond yields, and stock market's earnings yield profit margins, and lagged values of stock returns. The study confirmed that valuation metrics such as price/earnings ratios, or P/Es, have had an indirect relationship with future stock market returns although, only meaningful at long prospects and moreover, P/E ratios are found to only explain about 40% of the time variation in stock returns.

The study done by Xiaoquan and Bong-Soo (2009) investigated the forecast of excess returns using financial ratios like; earnings-price ratio, dividend-price ratio, and book-to-market ratio: the research decomposed financial ratios into a recurring and stochastic drift component. The findings revealed that both components have the ability to explain excess returns. As, the study demonstrated that, recurring component can predict a rise in future stock returns, and the stochastic trend component can predict a fall in future stock returns specifically in longer periods. This helps explain previous findings that financial ratios in the absence of decomposition find weak analytical power in short prospects and some analytical power in long prospects.

Kheradyar *et al.* (2011) did a study to know if financial ratios can predict stock returns in Malaysia, using data for the period January 2000 to December 2009 in Malaysia stock exchange. The study adopted 3 financial ratios that include dividend yield (DY), earning yield (EY) and book-to-market ratio (B/M) and applied generalized least squares (GLS) techniques to ascertain the predictive ability of financial ratios on stock returns. The regressions form adopted was simple and multiple models of panel data sets. The result obtained showed that the selected financial ratios can predict stock return. But, the B/M has the higher predictive power than DY and EY respectively. The study further revealed that financial ratios have better predictive ability when the ratios are combined in the multiple predictive regression model.

The works of Ogbebor *et al.* (2020) investigated the sway of financial ratios on stock market returns of quoted companies in Nigeria. The study selected five financial ratios which include earning yield (EY), price to earnings (P/E), dividend yield (DY), earnings per share (EPS) and return on asset (ROA) were used to predict stock returns. A combination of statistical analysis (descriptive statistics, correlation matrix and the ordinary least squared (OLS) techniques) were adopted for the analysis using panel

data sets. The results of the statistical analysis showed that earnings per share (EPS) and return on asset (ROA) ratio have indirect and insignificant relationship with stock returns of current and lead year, but, earning yield (EY), price to earnings (P/E) and dividend yield (DY), had direct and insignificant relationship with stock returns of current and lead year. The study therefore recommended that Nigeria should endeavor to develop and implement comprehensive capital market master plans and transparency in monetary policy.

Ajekwe and Ibiamke (2018) examined the possibility of using accounting fundamental strategy to choose stocks to be included in a portfolio of investment that can yield significant returns after one year of portfolio formulation. By means of information from financial statement and adopting multiple logit models to predict returns one year forward. The elasticities of the models produced probability values that were used to frame investment strategies (buying stock with high probabilities and selling stock with low probabilities. The result showed that eleven accounting ratios forecast stock returns precisely in 76.6% of the cases. This strong ability to precisely forecast stock returns is proof that conducting fundamental analysis and taking investment positions on the basis of Probability values can be a rewarding strategy for investors in Nigeria. Therefore, it was recommended that investors assess their investments in stocks for 12 months before making a buy or sell decision using a Probability strategy to avoid losses or missing opportunities.

According to Fun and Basana (2012), stocks with low price-earnings ratio are seen as having lower current price and averagely generate increased return in successive period. Therefore, they examined the nature of relationship price-earnings ratio and stocks return in Indonesia, with stocks of companies that are members of Liquidity 45 as samples from 2005 to 2010. The findings of the study revealed that there is a noticeable gap between low price-earnings ratios and high price-earnings portfolio's stock return in short term (i.e. six months holding period). Nevertheless, there is no significance gap for a longer-term holding period.

The study by Syed *et al.* (2015) was done to determine which financial variable is superior to others in explaining stock returns for the studied period 2000-2009. The choice of financial variables used in the study includes; debt to equity, book to market value of equity, firm size and sale to price ratios. The study used twenty-six (26) firms from the pharmaceutical and chemical sectors in Pakistan and listed on the Karachi Stock Exchange. The regression technique was adopted to analyze the relationship between stock returns and financial variables. The study showed that book to market value is superior to other variable in explaining movement of stock returns in Pakistani stock market.

Öztürk and Karabulut (2018) investigated the relationship between financial statement ratios namely; net profit margin, current ratio and earnings to price, stock returns in İstanbul Stock Exchange from 2008 to 2016, using panel

data analysis. The study used Parks-Kmenta and Beck-Katz as estimation methods. Accordingly, the findings by Park-Kmenta model of estimation, showed that earnings to price and net profit margin are significantly related to stock returns in Istanbul Stock Exchange. While, current ratio has insignificant relationship with stock return during the period of estimation. Additionally, Beck-Katz model revealed comparable results, as earnings to price and net profit margin significant proved to be significant factors in determining the movements of stock returns in Istanbul Stock Exchange. Correspondingly, stocks with higher earning to price ratios and profit margins generate higher returns in the subsequent period.

The study of Utami and Haryono (2021) surveyed the influence of financial accounting information in determining the oscillation of share prices of companies registered to trade stock on the Jakarta Islamic Index (JII), using data for the period 2015 to 2019. Earnings per Share (EPS), Book Value (BV), Return on Equity (ROE), Net Profit Margin (NPM), and Current Ratio (CR) were employed as accounting variables of interest. Employing panel data regression analysis method, the study showed that jointly EPS, BV, ROE, NPM and CR have significant effect on stock prices. Separately, only BV and ROE have significant influence on stock prices of firms listed on the Jakarta Islamic Index (JII) during the period of Analysis. Also, the study of Madhuhansi and Sujeewa (2021) investigated the ability of accounting records to capture movement of stock prices of finance related firms listed in Colombo Stock Exchange. The Panel data regression method with aggregate stock market reaction method and a population of 71 firms for the period 2014 to 2019. The accounting variables selected for the study includes earning per share (EPS), book value per share (BVPS), dividend per share (DPS), net operating cash flow per share (NOCFPS) and return on equity (ROE). The findings of the study showed that EPS and BVPS are significant ability to determine stock price movement in Colombo stock exchange during the period of analysis. Again, the study of Oliver (2015) examined the degree and kind of relationship that exist between earnings per share and market price of ordinary shares in Nigeria banking industry from 2004 to 2013. Using the ordinary least squares method and multiple regression, the findings revealed that earnings per share has direct and significant influence on market price of ordinary shares; with a strong and positive association. Furthermore, Earnings per share also granger causes market price of ordinary shares even in the long. The implication of the findings is that a rise in earnings has the propensity to increase significantly the market price of shares and earnings per share is one of the key factors accountable for variations in market price of equities in Nigerian banking sector. Hence, it is relevant for banks to target the improvement of their equity price, to adopt workable plans aimed at attracting more deposit, increasing their lending, reducing their expenditure profile and jumpstarting other investment opportunities to improve earnings.

Bhattarai (2018) examined effect of firm specific and macroeconomic variables on Share Prices of Nepalese commercial banks and insurance companies. The study used secondary data of seven banks and six insurances companies from 2009/10 - 2014/15, obtained from annual report firm. Employing the multiple regression technique. The firm specific variables adopted for the study include; Return on assets (ROA), earnings per shares (EPS), dividend per shares (DPS), dividend payout ratio (DPR), prices earnings ratio (P/E Ratio), size. While, the macroeconomics variables are inflation rate (IR), money supply (MS), GDP growth rate (GDPR), exchange rate (ER), as well as marginal propensity to save (MPS) as dependent variable. The result showed that EPS, DPS, P-E, size GDP and ER are positive and statistically significant with market price per share. Thus, the higher the EPS and DPS the higher the market price of share. Paristan and Wasim (2017) investigated stock return's predictability with a mixture of microeconomic variables (financial ratios) and macroeconomic variables of companies indexed in PSX 100 from 2000 to 2014. The study used the ordinary least square analytical technique on the assembled data. Findings of the study showed all variables are significant determinants of stock return. However, only debt ratio, return on sales, firm size, market return and Tobin's-Q have direct impact on stock returns. While, asset turnover ratio, EPS, inflation, interest rate and GDP had indirect impact on stock return. In Iran, Jabbari and Fathi (2014) did a research to predict stock returns with financial ratios based on historical cost. Using the data from registered companies in Tehran Stock Exchange for the period 2007 to 2012. The finding showed that, financial statement ratios of net profit margin, return on assets, current ratio, asset turnover ratio and fixed assets turnover ratio, are significant predictors of predict stock return.

Also, in Greek Alexakis *et al.* (2010), examined the predictability of stock returns with accounting information using data obtained from Athens stock exchange for the period 1993-2006. Panel data analysis was adopted for the study, the study revealed that the selected set of financial ratios contain significant information for predicting the cross-section of stock returns. Although, portfolios picked on the basis of financial ratios produce higher than average returns, suggesting that the emerging Greek market does not fully reflect accounting information in stock prices and thus, not semi-strong efficient.

Agirman and Yilmaz (2018) did a study to know whether financial ratios can predict stock returns in Borsa Istanbul. In their study they used data obtained for the period 2004 -2014 focusing four financial ratios which include price to book ratio price, to earnings ratio, dividend per share, and firm sizes and applied panel regression as the analytical tool. The results of the study showed that financial ratios can predict stock return. Firm size has a higher projecting power than dividend per share and price to book ratio one-to-one. But, the relationship price to earnings ratio and for stock return is not significant. Awalaki and Achanna

(2021) investigated the relationship between financial ratios and stock returns of firms listed in National Stock Exchange. The data has collected from CMIE Prowess database for a period of ten years from 2010 to 2020. A total of 160 firms were selected, using Panel Regression Model, the study analyzed the link variables. The results revealed that all the independent variables have a positive and significant impact stock returns.

In Nigeria the study of Ekpe *et al.* (2020) examined the connection between equity prices and earnings shocks (surprises) in listed companies. This study applied panel data analytical technique the sample of sixty-four registered companies in the Nigerian Stock Exchange. Secondary data sourced from annual reports of the selected enterprises for the period 2013 to 2017. The variable used to proxy earnings shocks in the study is the residual or unexplained component of earnings persistence model also known as first-order autoregressive AR (1) regression of reported earnings. Data were analyzed with generalized least squares method. Findings showed that share prices have an indirect link with earnings shocks. This result is in-line with the return news hypothesis which proposes that positive earnings news birth's negative stock-price reaction. While, stock prices react positively to negative earnings shock, in line with the premise of return news, which specified that negative earnings news leads positive push in share prices. Thus, it is recommended by the study that there is need to police the stock market in order improve the level of market

efficiency. Also, there is a need to develop investors' confidence in the announced profits made by companies

MATERIALS AND METHODS

Research Design

Research design is a format that the researcher uses to systematically apply the scientific process in the investigation and analysis of problems, challenges and lacuna (Onwumere, 2021). For the purpose of this research, the quasi-experimental research design was adopted. This is because it can describe the statistical relationship between independent variables and the dependent variable of this study.

Population and Sample

The population of this study covers the nineteen (19) Deposit Money Banks in Nigeria with international and national license as published in the Central Bank of Nigeria website as at 30 September 2021. The full list of the population of this study is given in appendix I.

The sample was selected according to data availability criteria. Hence, twelve (12) listed Deposit Money Banks represents the sample size for this study for a twelve (12) years period: 2011-2022. The twelve (12) years period took cognizance of the need to keep the range of data within the short-term, in order to avoid cross sectional dependence associated with long-term data-above 20-year period, in panel analysis (Torres-Reyna, 2007; Maeso-Fernandez, *et al.*, 2004).

Sample of the Study	
S/N	Deposit Money Banks
1.	Access Bank Plc
2.	Fidelity Bank Plc
3.	First Bank of Nigeria Plc
4.	First City Monument Bank Plc
5.	Gurantee Trust Bank Plc
6.	Stanbic IBTC Bank Plc
7.	Sterling Bank Plc
8.	United Bank for Africa Plc
9.	Union Bank of Nigeria Plc
10.	Unity Bank Plc
11.	Wema Bank Plc
12.	Zenith Bank Plc

Sources and Nature of Data

This study employed secondary panel data, sourced from the publications of the Nigeria Exchange Limited (NGX) and the annual report and accounts of the sampled Deposit Money Banks as well as their respective notes.

Model Specification

The efficient markets hypothesis has very important inferences for investors as well as for financial managers. Sundry investors try to identify securities that are

underrated as well as those that are expected to rise in value in the future (Ogbebor *et al.*, 2020). Hence, the need to examine the connection between financial data as prepared by firm manager and investors' expectations in the capital market. Thus, to examine the relationship between financial ratios and stock returns of deposit money banks in Nigeria, the orthogonal option of the generalized methods of moments to measure the relationship between investment ratios and stock returns of Deposit Money Banks in Nigeria. The regression

models used for the study was adopted from the works of Oyedokkun *et al.* (2019). The adopted model is stated thus:

$$SP = f(BVPS, DPR, DY, PER)$$

Where; SP= Stock Price, BVPS = Book Value per Share, DPR = Dividend Payout Ratio, DY = Dividend Yield, PER = Price Earnings Ratio

The above model is modified as stated below:

$$SR = f(DPR, PER, BVPS) \dots \dots \dots \text{Model 5}$$

Where;

SR = Stock Return

DPR = Dividend Payout Ratio

PER = Price-Earnings Ratio

BVPS = Book Value per Share

$$SR_{it} = \beta_0 + \beta_1 DPR_{it} + \beta_2 PER_{it} + \beta_3 BVPS_{it} + E_{it} \dots \dots \dots \text{Equation 5}$$

Measurements of Variables

Dependent Variable

In this study, the dependent variable (in all of the five models) is stock returns. It is the return expected by an investor in stock. It is the combination of dividend and capital gain/loss.

Stock Return = Dividend + Capital gain/loss =

$$\frac{\text{Div.} + (P_1 - P_0)}{P_0} \times \frac{100}{1}$$

Where:

Div. = Dividend

P1 = Current market price of share

P0 = Previous market price of share (immediate past year)

Independent Variables

The independent variables adopted in this study are specified according to the objective and in line with the models of the study as shown below.

Investment Ratios: Measures the ability of the company to render satisfactory returns to shareholders

Method of Data Analysis

Pre-estimation Test

The study conducted a descriptive test for each model variables, to ascertain the nature of the data, correlation between the independent variables and the dependent variable was also ascertained.

Estimation Technique

This study employed the Orthogonal Deviation option of the Generalized Methods and Moment (GMM) on the panel data collected for this study, to test the significance of the relationship between the independent variables and the dependent variable and to test stated hypothesis. This option of analysis was adopted because “GMM estimator of the model transformed by the forward orthogonal deviation tends to work better than that transformed by the first difference” (Hayakkawa, 2009). Additionally, Sarafidis and Robertson (2006) concluded that orthogonal deviations are more robust to small samples sizes and can handle fewer observations more efficiently.

Post-estimation Test

J-statistics and associated probability value was used to access the validity of model specification.

Decision rule

Decision was based on the P-value of independent variables. P-values ≥ 0.05 indicate the independent variable have no significant relationship with the dependent variable. While, P-values < 0.05 is indicative of a significant relationship with the dependent variable.

Analysis of Data and Discussion of Findings

4.1 Analysis of Data

Descriptive statistics of variables is used to explain the data collated and to condense and describe variables under investigation. The descriptive statistics of variables used for the study of the relationship between investment ratios and stock returns of deposit money banks in Nigeria from 2011 to 2022 is presented in the table below. Table 4.1 showed that stock returns have a mean value

Variables	Measurement	Operationalization
DPR	Cash dividend payout in percentage	Computed as cash dividend paid divided by profit after taxes
PER	Cash dividend payout in percentage	Computed as market value per share divided earning per share
BVPS	Book value per share in percentage	Computed as book value of equity divided by number of shares

of 25.01, with a standard deviation of 54.77, while the minimum and maximum values are -55.80 and 227.00 respectively. The table also showed that dividend payout ratio has a mean value of 25.62 standard deviation of 27.280 and minimum and maximum values of -77.33 and 156.93 correspondingly. Moreover, the mean value of price earnings ratio is revealed to be 5.321 with a standard deviation of 4.25 and a minimum and maximum values of -8.93 and 27.03 correspondingly. While, book value

per share is shown to have a mean value of 11.022 with a standard deviation of 10.96 and minimum and maximum values of -23.86 and 35.59 respectively.

Table 4.2 show the correlation matrix of the dependent and independent variables. From the table it can be seen that dividend payout ratio and book value per share are negatively correlated with stock returns. While price earnings ratio is positively correlated with stock returns.

Table 4.1: Descriptive Statistics

	SR	BVPS	DPR	PER
Mean	25.01627	11.02299	25.61850	5.312708
Median	14.15000	10.14000	21.76500	4.795000
Maximum	227.0000	35.59000	156.9300	27.03000
Minimum	-55.80000	-23.86000	-77.33000	-8.930000
Std. Dev.	54.77199	10.96565	27.28075	4.250923
Skewness	1.279517	-0.533390	1.151692	1.271680
Kurtosis	4.905465	4.839428	8.010448	8.928922
Jarque-Bera	61.07674	27.12908	182.4610	249.7248
Probability	0.000000	0.000001	0.000000	0.000000
Sum	3602.343	1587.310	3689.063	765.0300
Sum Sq. Dev.	428995.9	17195.09	106426.2	2584.059
Observations	144	144	144	144

Table 4.2: Correlation Analysis

	SR	BVPS	DPR	PER
SR	1.000000	-0.020598	-0.033819	0.053130
BVPS	-0.020598	1.000000	0.234524	-0.035033
DPR	-0.033819	0.234524	1.000000	0.341728
PER	0.053130	-0.035033	0.341728	1.000000

RESULT AND DISCUSSIONS

The result of the orthogonal deviations estimation revealed that, the model is correctly specified as shown by the probability of J-statistics the value of 0.330, thus, showing that the instruments employed in the model are valid and the sample moments are close to the theoretical (population) moments. Lagged value of stock returns is negative and not significantly related to the current value of stock returns of deposit money banks with a coefficient of -0.077 showing that a dynamic unit change in previous stock returns can cause 0.077-unit significant decrease in current stock returns.

Book value per share (BVPS) is negatively and insignificantly related to stock returns of deposit money banks in Nigeria, with a p-value of 0.988 and a coefficient of -0.015767 indicating that, a unit change in BVPS can cause a -0.015 unit decrease in stock returns of deposit money bank in Nigeria. Deposit payout ratio (DPR) is equally negatively and non-significantly related to stock returns of deposit money banks in Nigeria, with a coefficient of -0.021966 , thus, a unit movement in DPR could cause a marginal decrease in stock returns of deposit money banks.

Price earnings ratio (PER) is revealed to be positive and significantly related to stock returns, with a P-value of 0.0125 and coefficient of 3.4001. Therefore, a unit movement in PER can cause a 3.4-unit upward variation in stock returns of deposit money banks in Nigeria.

Discussion of Findings

The findings of the orthogonal deviation estimation

revealed that book value per share and dividend payout ratio have negative relationship with stock returns. While, price earnings ratio has positive and significant relationship with stock returns of deposit money banks in Nigeria. This finding agrees and disagree with a number of findings. The findings of Ogello (2014) in Nairobi stock exchange and Musallam (2018) in Qatar that showed a positive and significant relationship between earnings per share, earnings yield and dividend yield. Also, in Nigeria the findings of Oyedokun *et al.* (2019) did a study that showed a positive relationship between Dividend payout ratio, price earnings ratio and share price. Just as, the study of Norrasat (2015) done in Thailand revealed a positive and significant relationship between dividend yield, earning yield, book market value and stock return. However, in USA Aliaga-Diaze and Thomas (2012) found a negative relationship between price earnings ratio and stock return. Similarly, the negative relationship between payout ratio, book value per share and stock return as revealed in this study is not peculiar to Nigeria, as the study of Kudawashe, *et al.* (2020) in Johannesburg showed that dividend per share and price earnings ratio have negative relationship with stock returns in South Africa. Although, the study posited that the influence may depends on market regime. Also, in Nigeria the study of Oyedokun *et al.* (2019) also revealed a significant negative relationship between dividend yield and stock returns. Furthermore, Oliver (2015) found a significant positive relationship between earnings per share and stock prices. Just as Madhuhansi and Sujeewa (2021) in Columbo stock exchange found a significant relationship between book

Table 4.3: Orthogonal Deviations Estimation**Variable:** SR Dependent

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SR (-1)	-0.077281	0.066546	-1.161317	0.2479
BVPS	-0.015767	1.073693	-0.014685	0.9883
DPR	-0.021966	0.495050	-0.044371	0.9647
PER	3.400896	1.340581	2.536881	0.0125
Mean dependent var	1.224065	S.D. dependent var		55.29010
S.E. of regression	54.60058	Sum squared resid		345821.9
J-statistic	9.150955	Instrument rank		12
Prob(J-statistic)	0.329722			

value, earnings per share and stock returns. Moreover, in Jakara Islamic index, Utami and Haryono (2021) found Book value of share to be a significant influencer of stock returns. Syed *et al.* (2015) showed that book value could significantly sway stock return in Pakistan. While, in Nigeria Olotu *et al.* (2018) found a significant and negative relationship between earning per share, price earnings ratio and stock returns. Meanwhile, Ogbebor *et al.* (2020) researched and revealed that earnings per share is negatively related to stock return and the influence is significant. While, price earnings ratio, dividend yield are positively related to stock returns and the relationships are significant. Additionally, in Malaysia Khradyar *et al.* (2011) found that dividend yield, earning yield and book market ratio could significantly influence stock return. In Sri Lanka, Wijesundera *et al.* (2015) found a positive and significant relationship between earnings per share, book to market value and stock returns. Also, in Turkey, Zetinoglu *et al.* (2012) revealed a significant link between earning per share, price earnings ratio, book value per share and stock returns. While, Ekman (2022) found a significant connection between dividend yield, earnings per share and stock returns of firm listed in S & P global 100 index. Mayliana *et al.* (2021) posited in their findings that earnings per share is indirectly related to stock returns. The diversity of findings may not be unconnected to the diverse nature of investors and their responses to various market regime as avowed in (Budiantara & Wiagustini 2021). As well as, the efficiency level of the various capital markets (Kudawashe *et al.*, 2020). It could also be attributable to the agency problem where managers as agents will want to prepare a fascinating financial statement to gain favour of their principal.

Summary of Findings, Conclusion and Recommendations

Summary of Findings

Findings from the analysis showed that, book value per share, dividend payout ratio had negative and no significant relationship with stock returns of listed deposit money banks in Nigeria. However, there is a positive and significant relationship between price earnings ratio and

stock returns. Thus, there is a significant relationship between investment ratios and stock returns of deposit money banks in Nigeria.

CONCLUSION

Financial ratios are practical methods of analyzing firms' ability to survive and earn profit for her shareholders. However, for financial statement data to transform to good stock returns the capital market of a nation must be efficient enough to reflect such financial statement information(s) in the prices of traded securities/stocks. The findings of this study revealed that, book value per share and dividend payout ratio have no significant relationship with stock returns, while price earnings ratio have a significant relationship with stock returns of deposit money banks in Nigeria. However, profitability ratios have no significant relationship with stock returns of deposit money banks in Nigeria. This, suggest that the Nigerian Capital Market is moderately-efficient (semi-strong) in her operations to reflect financial statements data in the prices of securities traded in the capital market. Hence, investments in the Nigerian Capital Market may not just be wholly based on intuition of market players and/or technical analytical considerations, but include company fundamentals in the determination of stock prices and ultimately stock returns.

Recommendations

Based on the findings from the analyzed data the study recommends as follow: Deposit Money Banks to practice timely revaluation of assets and liabilities to breach the gap between book values and market values of assets and liabilities; managers of firm as agents should be thorough (maintain ethics) in the report of financial statement information; the Nigerian Security and Exchange Commission should enforce timely disclosure with electronic/information technology platforms, such that new information from financial statements, that may influence stock value is received by all stakeholders at about the same time, causing almost instantaneous revaluations; and managers compensation should be structured based on stock return expectations, to enable

the synchronization of financial ratios and stock returns.

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