

STOCK MARKET PRICE AND ITS DETERMINANTS: A CASE STUDY OF NIGERIAN BANKS

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Abstract: -

Financial firms in a country make a substantial fraction of its equity market. The present study is aimed at examining the factors that influence stock prices with reference to Nigerian banks. Twelve commercial banks in Nigeria are considered for this study for 2012 and 2013. Using linear regression model and partial correlation, the results indicate that for both years considered, net asset value per share and price-book value ratio are strongly correlated with stock market price, and are having significant influence on the stock price. However, dividend per share and price-earnings ratio are significant in 2013, but insignificant in 2012.

Keywords: - *Stock Market Price, Net Asset Value per Share, Price-Earnings Ratio, Price-Book Value Ratio, Dividend per Share, Partial Correlation*



I. INTRODUCTION

Financial firms in a country make up a substantial fraction of its equity market. The capital market which includes stock market and bond market plays vital role in economic prosperity that fosters capital formation and sustains economic growth. According to Kurihara [14], stock markets are essential for economic growth as they ensure the flow of resources to the most productive investment opportunities. A stock price in an efficient market provides investors with a good measure of any firm's performance and its value.

However, given the dynamics of the stock market, investors have always been confronted with the problem of predicting stock prices so as to earn decent returns. Understanding the impact of various fundamental variables on stock price is very much helpful to investors as it will help them in taking profitable investment decision, Srinivasan [20]. It is of interest to know that many factors both intrinsic and extrinsic influence the movement of stock prices, and identifying them is of great importance to investors.

This study is aimed at identifying the factors affecting stock market prices of banks in Nigeria, and also to investigate the relationship between stock prices of these banks and the predictor variables.

II. Literature Review

A number of studies have been done to investigate the factors influencing stock prices and also to know the possibility of predicting future returns with good precision.

De Bondt and Thaler [6], Jegadeesh and Titman [13], Chopra, Lakonishok and Ritter [4], and Jegadeesh [12], show that the history of a stock is useful in predicting relative returns. Fama and French [9], Lakonishok, Shleifer and Vishny [15], and Davis [5], show that future returns can be predicted by the relative sizes of the current values of accounting numbers, such as book value or earnings per share.

Levine and Zervos [16], find that various measures of stock market activity are positively correlated with measures of real economic growth across countries, and that the association is particularly strong for developing countries. Their results also show that after controlling for initial conditions and economic and political factors, the measures of banking and stock market development are robustly correlated with current and future rates of economic growth and productivity improvement. Doking and Koch [7] discovers that there is a direct relationship between dividend announcement and equity price behavior.

Malhotra and Tandron [17], attempted to determine the factors that influence stock prices in the context of NSE of 100 companies. The results indicated that the firm's book value, earning per share, and price-earnings ratio have significant positive association with firm's stock price, while dividend yield have a significant inverse association with the market price of firm's stock.

Fisher [10], showed the impact of dividends, undistributed profits, and company size on share prices taken from five cross sectional samples of equities quoted on the London stock exchange between 1949 and 1957. Uddin [22], found a significant linear relationship between market returns and such factors as net asset value per share, dividend percentage, earnings per share of bank leasing and insurance companies.

Almumani [1], attempted to identify the quantitative factors that influence share prices for listed banks in Amma Stock Exchange over the period 2005 – 2011. The results showed the earnings per share, price – earnings ratio, book value and size to have significant impact on stock market price, while dividend per share and dividend payout ratio are insignificant.

Al-Shubiri [2], investigated the relationship between stock price and microeconomic factors in 14 commercial banks of Amman Stock Exchange, and found high positive significant relationship between price of stock and net asset value per share, dividend percentage, gross domestic product and a negative significant relationship on inflation and lending interest.

Sharma [18], examined the empirical relationship between equity share prices and book value per share, dividend per share, price-earnings ratio, dividend yield, dividend payout, size in terms of sale, and net worth. The results showed that earnings per share, dividend per share, book value per share have significant impact on market price of share.

Collins [3], identified dividend, net profit, operating earnings and book value as the factors influencing share prices for United States banks. According to Geetha and Swaaminathan [11], Book value, earnings per share and price-earnings ratio show a significant effect on market price of share, while dividend per share is insignificant.

Wilcox [24], Rappaport [21], Downs [8], Sharma and Singh [19], Sharma [18] suggest that share price changes are associated with changes in fundamental variables that are relevant for share valuation like book value per share, dividend coverage ratio, dividend per share, earnings per share, dividend payout ratio, price-earnings ratio and firm size.

III. Methodology

A. Linear regression

Consider a data with n observations of a response y_i , and a set of independent variables (predictors),

$$x_i^T = (x_{i0}, x_{i1}, \dots, x_{ip})$$

The response variable is a function of the regressors,

$$y_i = x_i^T \beta + \epsilon_i$$

This model can be expressed in matrix notation,

$$y = X\beta + \epsilon$$

where y and e are nx1 vectors, and X is the design matrix. The $\hat{\beta}$, can be obtained by solving

$$\hat{\beta} = (X^T X)^{-1} X^T y$$

B. Partial correlation

According to Younger [23], the order of the partial correlation is the number of the controlled variables. Simple bivariate unconditional correlations are referred to as zero-order correlations. Third-order partial correlation between x1 and y controlling for x2, x3 and x4 is given by

$$r_{1y.234} = \frac{r_{1y.23} - (r_{14.23})(r_{4y.23})}{\sqrt{1 - r_{14.23}^2} \sqrt{1 - r_{4y.23}^2}}$$

R^2 , which is the coefficient of determination is computed to determine the percentage of variation in the

$$R^2 = 1 - \frac{SS(E)}{SS(T)}$$

dependent variable explained by the independent variables. The F-value is computed to test the significance of R^2 with F- distribution at 5% level of significance.

The hypotheses are as follows:

H0: There is no significant relationship between the dependent variable (stock price) and the independent variables (dividend per share, net asset value per share, price-earnings ratio and price-book value ratio)

H1: There is a significant relationship between the dependent variable (stock price) and the independent variables (dividend per share, net asset value per share, price-earnings ratio and price-book value ratio)

IV. Analysis And Discussion

Twelve commercial banks in Nigeria namely, Access bank, Diamond bank, First City Monument bank, Fidelity bank, Guaranty Trust bank, Skye bank, Stanbic IBTC, Sterling bank, United Bank for Africa, Zenith bank, First Bank of Nigeria, and Wema Bank, have been analyzed with stock market price (smp) as dependent variable, and dividend per share (dps), net asset value per share (navs), price-earnings ratio (pe) and price-book value ratio (pb) as the independent variables. The results are presented below:

Table I: correlation 2012

	SMP	NAVS	PE	PB	DPS
SMP	1	0.794	0.372	0.914	0.839
NAVS		1	0.258	0.517	0.772
PE			1	0.436	-0.009
PB				1	0.661
DPS					1

Table II: Partial correlation 2012

Control variables	SMP			
	DPS	NAVS	PE	PB
PE & PB & DPS		0.820		
PE & PB & NAVS	0.469			
PE & NAVS & DPS				0.939
NAVS & DPS & PB			0.070	

Table III: Linear regression result 2012

model	Coefficients	Standard error	t	sig
constant	-5.536	1.047	-5.289	0.001
navs	0.661	0.175	3.784	0.007
pe	0.019	0.100	0.185	0.858
pb	7.973	1.106	7.212	0.000
dps	2.397	1.707	1.404	0.203
R-square = 0.983				
Standard Error of Estimate = 1.21410 F = 99.168, p-value = 0.000				

Table I shows that the stock market price has strong positive correlation with net asset value per share, price-book value ratio and dividend per share, but weak positive relationship with price-earnings ratio. Dividend per share is also correlated with net asset value per share and price-book value ratio.

In table II, with price-earnings ratio, price-book value ratio and dividend per share controlled, the partial correlation of stock market price and net asset value per share is 0.820. This implies that net asset value per share explains 67.24% of the variation in the stock market price that is left unexplained by the price-earnings ratio, price-book value ratio and dividend per share. This indicates that net asset value per share is a significant predictor of stock price. With price-earnings ratio, net asset value per share and dividend per share controlled, the partial correlation of stock price and price-book value ratio is 0.939, implying that the price-book value ratio explains 88.17% of the variation in the stock market price which is left unexplained by price-earnings ratio, net asset value per share and dividend per share. This also indicates that price-book value ratio is a significant predictor of stock market price. However, with price-earnings ratio, price-book value ratio and net asset value per share controlled, the partial correlation of stock market price and dividend per share is 0.469, implying that dividend per share explains only 22% of the variation in the stock price that is left unexplained by price-earnings ratio, price-book value ratio and net asset value per share. This indicates that dividend per share is not significant. In the same vein, price-earnings ratio explains only 0.49% of the variation in market price that is left unexplained by price-book value ratio, dividend per share and net asset value per share, indicating that price-earnings ratio is not significant. The foregoing agrees with the t-test (see table III) which judges net asset value per share and price-book value ratio significant, and dividend per share, price-earnings ratio non significant variables.

In table III, the coefficient of determination $R^2 = 0.973$, indicates that the model is good. And F-statistic which is 99.168 with p-value of 0.000 proves the validity of the estimated model.

Table IV: Correlation 2013

	SMP	NAVS	PE	PB	DPS
SMP	1	0.784	0.166	0.904	0.961
NAVS		1	-0.188	0.480	0.798
PE			1	0.243	0.087
PB				1	0.808
DPS					1

Table V: Partial correlation 2013

Control variables	SMP			
	DPS	NAVS	PE	PB
PE & PB & DPS		0.944		
PE & PB & NAVS	0.892			
PE & NAVS & DPS				0.975
NAVS & DPS & PB			0.796	

Table VI: Linear regression result 2013

model	Coefficients	Standard error	t	sig
constant	-7.657	0.934	-8.199	0.000
navs	0.719	0.095	7.563	0.000
pe	0.225	0.064	3.485	0.010
pb	6.741	0.579	11.645	0.000
dps	4.928	0.945	5.217	0.001
R-square = 0.997				
Standard Error of Estimate = 0.65477 F = 550.166, p-value = 0.000				

Table IV shows that the stock market price has strong positive correlation with net asset value per share, price-book value ratio and dividend per share, but very weak positive correlation with price-earnings ratio. Dividend per share also has strong positive correlation with net asset value per share and price-book value ratio.

In table V, the partial correlation of stock market price and net asset value per share with price-earnings ratio, price-book value ratio and dividend per share controlled is 0.944. This implies that net asset value per share explains 89.11% variation in the stock market price that is left unexplained by price-earnings ratio, price-book value ratio and dividend per share, indicating that net asset value per share is significant. With price-earnings ratio, price-book value ratio and net asset value per share controlled, the partial correlation of stock price and dividend per share is 0.892, implying that dividend per share explains 79.57% of the variation in stock price that is left unexplained by price-earnings ratio, price-book value ratio and net asset value per share. This indicates that dividend per share is significant. With price-earnings ratio, net asset value per share and dividend per share controlled, the partial correlation of stock market price and price-book value ratio is 0.975, implying that price-book value ratio explains 95.06% of the variation in the stock price that is left unexplained by price-earnings ratio, net asset value per share and dividend per share. This indicates price-book value ratio is a significant predictor of stock price. With net asset value per share, dividend per share and price-book value ratio controlled, the partial correlation of stock price and price-earnings is 0.796, implying that price-earnings ratio explains 63.36% of the variation in stock price that is left unexplained by net asset value per share, dividend per share and price-book value ratio. This indicates that price-earnings ratio is significant. These also agree with the t-test in table VI having t-values, $navs = 7.563$, $pe = 3.485$, $pb = 11.645$, $dps = 5.217$, and p-values respectively 0.000, 0.010, 0.000, 0.001.

In table VI, the coefficient of determination, $R^2 = 0.997$ indicates that the model is very good. The F-statistic which is 550.160 with p-value 0.000 also proves the validity of the model.

V. Conclusion

The current study examines the influence of net asset value per share, price-earnings ratio, price-book value ratio and dividend per share on the share price of twelve commercial banks in Nigeria for two years, 2012 and 2013. The study reveals that net asset value per share and price-book value ratio have significant influence on the stock market price in both years, while dividend per share and price-earnings ratio are significant factors in 2012, but non-significant factors in 2013. The findings of this study will help investors watch out for the significant factors while analyzing stock returns and predicting future prices.

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