STOCK PRICES AND FIRM EARNING PER SHARE IN NIGERIA

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Abstract
The relationship between stock prices and firm earning per share (EPS) appeared to be contestable like any other performance measures. This study intends to examine the relationship between stock prices and firm EPS from 2005 to 2009. A simple linear regression model was employed on a panel of 140 Nigerian firms from a total population of 216 firms’ operated in Nigerian Stock Exchange (NSE). It was discovered that an insignificant relationship exists between stock prices and firm EPS in Nigeria. In fact, firm EPS has no predictive power on stock prices. It was suggested that firm EPS should not be relied upon for the prediction of the behavior of stock prices in Nigeria.

Keywords: Earning per share, stock price, performance measures

Introduction
The primary goal or objective of a firm should be to maximize the value or price of a firms stock. The success or failure of management decision can be evaluated only in the light of the impact of firm stock prices (Remi, 2005). According to Remi (2005) the firm stock prices has direct purview in the managerial efficiency which is one of the signals of firm performances. One of the components of this firm performance is earning per share (EPS). EPS is one of the measures of managerial efficiency as well as firm performance. The debate on whether EPS has any predictive power on stock prices is not very clear in financial literature. Some analysts believe that, EPS has predictive power on stock prices. This argument holds the view that, EPS has influence on stock prices. While the other argument is that, only positive information regarding EPS cause the demand for a stock which result to increase in stock prices. When viewed over long periods the share prices are directly related to EPS of the firm. Over short periods, especially for younger or small firms, the relationship between stock prices and EPS is quite unmatched (NSEC, 2006).

The predictive power of EPS on stock prices is not very clear (NSEC Committee reports, 2007). There are two arguments regarding the predictive power of EPS on stock prices. One group argues that, stock prices go up and down. When there is good news or higher EPS reports the price of the firm goes up. But if there is ill news, the price goes down. Looking at the pattern, is the stock prices determined by EPS? This group maintains that, stock prices are not directly determined by EPS. But it is directly determined by the balance between the demand and supply of firm stock prices. This demand and supply causes the stock prices to fluctuate. In contrast, the other group argues that, EPS do not determined stock prices. Kopcke (2000) reports that, in New England since 1982 stock prices have more than tripled, while EPS of corporations has risen by less than one half. From 1997-2000 prices have increased by more than one half while EPS has fallen. In January, 2000 the price of stocks for standard and poor composite 500, stock price exceeded 23times EPS, a comparatively high multiple by historical standard.

In Nigeria, the relationship between stock prices and EPS is also ambiguous. Some firms are not even in operations, while others are at
the bridge of collapse, but their stock prices are increasing (NSEC, 2007). This study intends to find out the extent of the relationship between stock prices and EPS in Nigeria. It also attempts to examine how EPS influences stock prices in Nigeria?

This study is expected to reveal the predictive power of firm EPS on stock prices in Nigeria. If the predictive power of EPS on stock prices is established it would assist prospective investors to know the criteria to be used in channeling their investment fund to the right portfolio in their quest for investment. The study covers the period between 2005 to 2009.

Literature review

The concept of stock prices originated from Random Walk theory in the work of Fama (1980). The early studies by Fama (1965), Samuelson (1965) and Working (1960) could not reject a random walk theory. Shiller (2000) indicates that there are reasons that the random walk behavior of stock prices should hold. There is evidence suggesting that stock prices do follow a random walk.

Findings by Shiller (2000) support that stock prices are very much uncertain and this may not be true because firms fundamentals may to a great extent influence stock prices. This argument is supported by early rejection of a random walk theory by Hoffer and Osborne (1966) and Porterba and Summer (2000) who argue that there is little theoretical basis for strong attachment to the null hypothesis that stock prices follow a random walk.


The relationship between stock prices and firm EPS has received considerable attention in the literature. One of these studies is the one conducted by Lev (2001) who review several studies on the information content of firm EPS and reports that EPS changes only on weekly related to contemporaneous stock prices. Shiller (2000), Fama and French (2002) use regression of stock prices on the lagged firm EPS and find that they have explanatory power to stock prices movement. In the same vain, Ball and Brown (2001) conducted a study to investigate the annual association between annual change in stock prices and annual changes in firms EPS. The result obtained shows that annual changes in stock prices cause firm EPS to change in the following year. Chang and Wang (2008) conducted a study using Ohlson (1995) model on Taiwan firms in 2004. The result indicates that firm’s stock prices movement has a positive significant relationship with firm EPS.

Shiller (2000) argues that stock prices can be viewed as a predictions of investors earnings, therefore, it is reasonable that the variation in prices should be no greater than variation in firm EPS. Sheller’s findings have been investigated thoroughly and reach no agreement on the results. One important study of the relationship between stock prices and firm EPS is the work of Docking and Koch (2005) who assert that there is direct relationship between firm EPS announcement and stock price behavior. In the same vein, Chetty, Rosenberg and Saez (2007) explain that stock prices changes behavior when firms EPS are announced.

Zhao (2000) studies the relationship between stock prices and firm EPS using regression model. He found that firm EPS have an important impact on stock prices, especially on long horizons, but the hypothesis that move one-for-one with ex-ante is rejected. In broader perspective Lee (2002) uses three-years rolling regressions to analyze the relationship between
stock prices and firm EPS. He tries to forecast stock prices on the standard and poor 500 index with the short term firm EPS, but finds that the relationship is not stable over time. It gradually changes from a significantly negative to no relationship then to positive; although insignificant relationship. In line with Lee (2002), Spyrou (2001) also studies the relationship between firm EPS and stock prices but for the emerging economy of Greece. He finds that firm EPS are negatively related but only up to 1995 after which the relationship become insignificant.

Harasty and Roulet (2000) work on seventeen developed countries and shows that stock prices are co-integrated with firm EPS. Hsing (2004) uses structural VAR model for the simultaneous determination of firm fundamental and finds that there is an inverse relationship between stock prices and firm EPS. The finding of Hsing (2004), Harasty and Roulet (2000) indicated that even if the relationship exist is weak to some extent between stock price and EPS.

**Research methodology**

The study is a survey research because it has to do with the collection of data from a large finite population. The survey design is suitable for this study because quoted Nigerian firms have similar characteristics and behavior in the Nigerian Stock Exchange. The study covers 216 quoted firms in the Nigerian stock Exchange. These quoted firms cover thirty one sectors which include; Insurance, Banking, Food and Beverages, Petroleum, Conglomerates, Agriculture, Breweries, Industrials and Domestic Products, Building Materials, Chemical and Construction among others.

The sample size was statistically determined using Yamane (1967) formula for a finite population. Since the total population of this study is 216 firms in 31 sectors, then the sample size can be determined using the formula:

\[ n = \frac{N}{1+N(e)^2} \]

Where \( n \) is the sample size, \( N \) is the finite population, \( e \) is the level of significance and is unity (a constant).

Given the degree of confidence at 5%, the sample size is 140 firms. This sample size was divided into four strata. These include the firms with the highest EPS, the firm with the lowest EPS, the most performing Stock and the least performing stocks. Each stratum contains 35 firms.

The study collected data from secondary sources generated from Nigerian Stock Exchange (NSE), Nigerian Security and Exchange Commission (NSEC), documents from quoted firms and other members of NSE. A simple linear regression model was built:

\[ \text{Stock price} = \alpha + \beta \text{ EPS} + \varepsilon \]

Where \( \beta \) is regression parameters which is defined as coefficient of firms EPS. \( \text{EPS} \) is the EPS for the period under study which is defined as the amount of firm price in relation to its earnings. stock price is the stock prices, \( \alpha \) is the regression intercept which is constant and is the error term of the model.

The model is employed because Beaver (2002) successfully employed similar model to look at the general link between security returns and interest rate using a similar model \( gt = \alpha + \beta \text{Gt} \).

**Descriptive results**

This section intends to present data from Fact Book of NSE and individual firms from 2005 to 2009. Some of these data are in absolute term while others are in ratio form. The stock prices used for this study was the stock prices of the year end 25th December, where 25th falls not on the trading date 24th December is considered. The firm EPS used is the reported firm EPS for the selected firms. All data for the five years have under gone Shapiro Wilk test for normal data.

The result reveal \( Z = 12.56 \) and 13.44 for stock price and EPS. The probabilities of \( Z \) are 0.000 each for stock price and EPS. This made us to accept the null hypothesis \( (H_0) \) that the data are not normal. This abnormality could not invalidate the study regression test. This
normality test provides us with premise and insight to subject our data to descriptive statistic test.

The descriptive statistic results reveal that the mean value of stock price is ₦20.436 with minimum value at ₦0.1 and maximum value at ₦331.19. The mean value of EPS is –₦0.194, the EPS is minimum t is –₦551.16 and maximum at ₦108.9. These results reveal that majority of worth (stock price) for the sample firms are around ₦20.436 and most of the firms operated at loss to the tune of –₦0.194.

Regression results

Table 1 Regression Results

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Pooled OLS</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning Per share</td>
<td>0.0235796</td>
<td>-0.0040434</td>
<td>0.0235796</td>
</tr>
<tr>
<td>R²</td>
<td>0.0081</td>
<td>0.0081</td>
<td>0.0081</td>
</tr>
<tr>
<td>F- statistic</td>
<td>0.23</td>
<td>0.01</td>
<td>0.23</td>
</tr>
<tr>
<td>No of observation</td>
<td>444</td>
<td>444</td>
<td>444</td>
</tr>
<tr>
<td>LM</td>
<td>614.72***</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Extracted from regression result

In determining the extent of the relationship of Firm EPS and stock price the study employed Pooled OLS regression test at first which revealed that the model is not adequate in determining the relationship between EPS and stock price. The model revealed that at less than 1 percent EPS can explain the behavior of stock price while the coefficient is low at 0.0235796. Both the F- Statistics and the t-statistics are very low. Second, the study invokes more robust approach by the use of fixed effect regression. The result reveals that the coefficient of determination is -0.0040434, Z value is -0.08, the R square is 0.008. F statistics is 0.01 on 444 observations across 164 firms. The F statistics revealed that the model is not adequate to explain the relationship and t statistics attested to that. Random effect regression could be better when fixed effect regression misbehave.

The result of random effect regression revealed the same result with the result of pooled OLS. This necessitates the used of Breuth – Pagan Langregian multiplier (LM) to ascertain whether there is panel effect or no panel effect (i.e no variance across entities), and if no variance across then Pooled OLS is better, hence, the choice between pooled OLS and random effect regression. The null hypothesis H0 of (LM) is rejected at probability 0.000 with LM = 614.72. This revealed that there is panel effect and variance across entities which are not zero. Therefore, in this regard random effect regression is better.

Table 3 shows that random effect regression revealed that EPS has less than 1 percent (0.0081) explanation about the behavior of stock price, the coefficient of EPS is 0.0236; this implies that EPS has about 2.36 percent contribution in the determination of stock price. The contribution of EPS on stock price movement is also low with Z statistics of 0.48 which is less than the normal influence value of 2. The F statistics revealed that the overall influence of EPS on stock price with the present value of F= 0.23 is insignificant.

Hypothesis Testing

Ho1 There is no significant relationship between firm EPS and stock price in Nigeria.

If the probability of Z is less than 0.05 then we reject Ho1 the study accept Ho1 if other wise. The probability of Z statistic is 0.629 and therefore the study accepts Ho1. Thus,
there is no significant relationship between firm EPS and stock price in Nigeria. This finding contradicts Lee (2002) finding which reveals that there is a significant negative relationship between stock prices and firm EPS. However, the relationship is not stable overtime, it gradually changes from a significantly negative to no relationship. The finding of Spyrous (2001) is in line with Lee (2002) findings in emerging economy of Greece. He also finds that firm EPS are negatively related with stock prices. This in addition further negates the findings of this study. The findings of Lee (2002) and Spyrou (2001) have not indicated a precise relationship between stock prices and firm EPS.

Ho2  EPS has no predictive power on stock prices movement in Nigeria.

The study will accept Ho2 if the probability of F statistics is greater than 0.05, if otherwise the study will reject Ho2. The probability of F statistics is 0.6289 which is greater than 0.05, the study therefore accepts Ho2. This implies that EPS has no predictive power on stock prices movement in Nigeria. This indicates that EPS has no predictive power on the behavior of stock prices in Nigeria. This result contradicts shiller (2000), Fama and French (2002) findings where they regressed stock prices on the lagged firm EPS and find that they have explanatory power to stock price movements.

Conclusion
There exist insignificant relationship between stock prices and EPS in Nigeria. The relationship is insignificant throughout the period under study. Thus, EPS could not be used as a basis for prediction of stock prices movements. Both financial analysts and prospective investors require daily information in predicting the behavior of stock prices in Nigeria. EPS has no predictive power on stock prices and couple with the rate of volatility, then EPS should not be depended upon for the purpose of prediction of stock prices in Nigeria. Nigerian firms should not give much emphasis on maximizing their EPS but should concentrate on those firm performance measures which exert more influence on stock price movement. Nigerian firms should give more emphasis on expansion and growth; this would help greatly in maximizing those performance parameters that could exert influence on stock price movement. Monitoring authorities should also intensify effort to do away with all forms of irregularities that would make firms operating in Nigerian Stock Exchange to become unpredictable by analysts and researchers. This can only be achieved when Nigerian firms disclose their actual EPS.

References


