

Profitability and Stock Price Volatility of Nigerian Listed Manufacturing Companies

BAYO OLAOYE, S.* IFAYEMI OLAYINKA, M. AYODEJI AJIBADE, T.
OLUWATOSIN AKINYEMI, D.

Department of Accounting, School of management Sciences, Babcock University, Ogun State Nigeria

Abstract

The crux of this study was to examine the impact of profitability on stock price volatility using earnings yield, return on total asset, dividend yield and dividends per share as proxies for profitability. This study adopted Ex-post facto design. The population of this study consisted of manufacturing companies listed on the Nigerian Stock Exchange (NSE) from which five companies were selected. We found that overall; the profitability proxies combined have significant effect on stock price volatility of the sampled companies. Each of the models revealed that earnings yield, dividend yield and dividends per share have a significant relationship with stock price volatility. It was also observed that return on total assets has no significant relationship with stock price volatility. The study concluded that all variables put together show a positive significant impact on stock price volatility with the most impact from dividend yield and dividends per share. Hence, recommendations were made in the light that investors should invest in companies with well-defined ownership structure and managers should adopt a dividend policy beneficial to shareholders.

Keywords: Profitability, Stock Price Volatility, Earnings Yield, Return on Total Assets, Dividend Yield and Dividends per Share.

1. Introduction

Change is the only thing that is constant but the level of changes varies based on different factors. In spite of this, if such changes are not predictable then it becomes a problem and that is the case of stock price volatility. The history of stock price fluctuations has drawn increasing attention of researchers who have had different views on factors affecting stock prices. In the words of Omorukunwa & Nosakhare (2014), "Volatility is the statistical measure of the gyrations (fluctuation) of the price or returns of financial market instruments like stocks and stock markets indexes." They further explained that given two securities or indexes, the one with the higher level of volatility is said to be relatively riskier than the other. The average investor (individual or institutional) is assumed to be risk – averse, such that excessive volatility often wears away investors' confidence. Stock price volatility therefore refers to the fluctuations in stock prices. Stock prices change every day as a result of market forces. This means that stock prices change because of supply and demand. If more people want to buy a stock (demand) than sell it (supply), then the price moves up. Conversely, if more people want to sell a stock than buy it, there would be greater supply than demand, and the price would fall.

Despite number of studies carried out, there is still a contradiction about the factors affecting the volatility of stock prices. Profitability provides investors with a signal of a company's well-being. Profitability which is the ability to make profit from an investment and all business activities of an organization, company, firm or enterprise shows how efficiently management can generate profit using all resources available in the market. On the other hand, Stock price volatility refers to the fluctuations in stock prices. Also, as explained by Madura (2010) serves as a measure of risk because it may indicate the degree of uncertainty surrounding the stock's future returns such that the actual return may be less than expected.

Investors buy shares in the stock market in place of part ownership in a company and continue to trade on these shares. When companies are profitable, their share prices rise and so investors make gains. On the other hand, when companies are not doing well, their share prices go down leaving investors at a loss. Investors are concerned with the volatility of stock prices because it affects their investment decisions. Trading volumes (number of shares) in the stock market constantly fluctuate as stock prices change in stock markets on a daily basis (Malaolu, Ogbuabor & Orji 2013). This study seeks to evaluate the impact of profitability on stock price volatility of Nigerian listed manufacturing companies. The remainder of the paper is structured as follows. The second section reviews the related literature and proposes our hypothesis. The third section contains the sample description, describes the variables used in our analysis, and presents summary statistics. The results of empirical analysis are reported in the fourth section. The final section provides conclusions.

2. Theoretical Review

2.1 Efficient Market Hypothesis Theory

The efficient market hypothesis is associated with the idea of a Random Walk Theory. The logic of the random walk is that if the flow of information is not hindered 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. It proposes 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. According to the theory, share prices on the market place react fully and instantaneously to all information available (Fama, 1970) Given that there is no reason to expect new information to be non-random, period-to-period price changes are expected to be random and independent. In other words, they must be foreseeable if they are properly anticipated.

2.2 Uncertainty Bearing Theory:

According to Knight (1957) uncertainty-bearing rather than risk-taking is the special function of the entrepreneur that leads to profit. We have seen that there are certain risks which are foreseen and can be provided against. Knight divided the risks into calculable and non-calculable risks. Calculable risks are those risks whose probability of occurrence can be easily estimated with the help of given data, such as risks due to fire and theft. This theory has been criticized on the grounds that it assumes profit is the result of uncertainty bearing ability of an entrepreneur, which is not always true as profit can also be the reward of other aspects, such as strong coordination and market share.

2.3 Empirical Review

Kim (1997) conducted a cross sectional study on 5,597 firms listed at NYSE and AMEX over a period of 1958 to 1993 and the results exhibited a significant relationship between earnings yield and stock returns. The study further suggested that high earnings yield stocks exhibit high returns. Wu & Wang (2000) conducted a study to inspect the dividend yield and earnings yield through long-term returns and the outcomes of the study identified that dividend yield and earnings yield have same influence to forecast future stock returns. More importantly, Davis (1994) investigated a cross sectional study by using primary data over a period of 1940 to 1962 with a sample of 100 firms of New York Stock Exchange and study found that earnings yield have explanatory power of predicting returns.

However, Fama & French (1992) also found an insignificant relationship between earnings price ratio and returns. Based on past studies, it has been documented that there is a strong negative relationship between return on asset and stock prices (Cooper, 2009). From the basic model used by Onchiri & Onsomu (2014) which analysed the relationship between stock price volatility and dividend policy, the result showed an insignificant negative relationship on stock price. Majed, Ahmed & Dahmash (2012) they revealed that return on asset has a positive but low relationship with stock prices.

Nazir, Abdullahi and Nawaz (2011), using fixed effect regression, find significant impact of dividend yield on stock return volatility. Nishat and Irfan (2001) find that dividend yield and dividend payout ratio, the two common proxies for dividend policy, have impact on stock price volatility. Hussainey, et al (2010) examined the relationship between dividend policy and the share price volatility in the UK Stock during the period 1998 to 2007 by using Multiple Regression Analysis. The results indicated that a significant negative relationship between the payout ratio of a firm and the volatility of its stock price and a positive relationship between dividend yield and the volatility of stock price. Fawaz (2014) examined the relationship between dividend policy and share price volatility. The empirical findings suggested that there exists a significant negative relationship between the payout ratio of a firm and the volatility of its stock price and a weak positive relationship between dividend yield and the volatility of stock price.

3. Methodology

This study adopted Ex-post facto design as the study depended on secondary data collected from the annual report of the sampled companies. The sample for this study included companies listed on the Nigerian Stock Exchange focusing majorly on the manufacturing sector. Five (5) companies with similar firm characteristics of firm size, geographical location, legal status, ownership and age were selected for the purpose of this study within a period of ten years (2005-2014). Purposive sampling technique was adopted in selecting these companies. This technique was used based on the availability and adequacy of data. The panel data is used for the whole period containing 50 observations. This study analyzed the data using ordinary least square regression method by using E-Views Software. Decisions were made using the probability value for t-stats for each of the variables and probability of f-stats for combined model.

3.1 Description of Variables

The study consists of the independent variable (Profitability) and the dependent variable (Stock price volatility).

3.1a Independent variable

Profitability was measured using;

Earnings Yield calculated as; $\{EPS/MPS \times 100\}$

Return on Total Assets; $\{EBIT/TOTAL ASSETS\}$

Dividend Yield; $\{DPS/MPS \times 100\}$

Dividends per Share; $\{Gross Dividend/No\ of\ ordinary\ shares\ in\ issue\}$

3.1b Dependent Variable

Stock price volatility was measured using daily market price per share an average of the daily stock prices were used for each of the years. The formula is in line with Dewasiri & Weerakoon (2014) expressed as Standard Deviation of Daily Log Return * $\sqrt{\text{Number of Days}}$.

3.2 Model

The analysis utilized fixed effect and random effect regression model; the test involved regressing the dependent variable Stock Price Volatility (SPV) and independent variable; Earnings Yield, Return on total Assets, Dividend Yield and Dividends per share. The models considered are as follow;

$$SPV = \alpha_0 + \beta_1 DPS_{it} + \beta_2 EY_{it} + \beta_3 ROTA_{it} + \beta_4 DY_{it} + \mu_1 \dots \dots \dots \text{Model}$$

Where: α_0 is the intercept for each model

β_1 to β_4 are the coefficients of the explanatory variables. Each coefficient depicts the impact of profitability ratios on stock price volatility. μ_1 are the errors or disturbance terms that absorb the influence of omitted variables in the proxies used. Our a priori expectation was that all our explanatory variables (that Earnings Yield (EY), Return on Total Assets (ROA), Dividend Yield (DY) and Dividends per Share (DPS)) will have a positive effect on stock price volatility (SPV). i.e. (β_1 to $\beta_4 > 0$)

4. Data Presentation

4.1 Overall Descriptive Analysis

This section provided an overview of the data set while an attempt was also made to describe the main features of the data. The data was presented using descriptive analysis tools: mean, median, maximum, minimum, and standard deviation. The summary statistics of profitability and stock prices are seen below:

Table 4.1 Descriptive Statistics

	EY	ROTA	DY	DPS	SPV
Mean	5.809758	0.203761	4.081831	4.713878	131.6549
Median	5.506549	0.170281	3.820152	1.750000	41.70000
Maximum	15.20999	0.515161	11.15955	24.00000	1046.570
Minimum	0.582977	-0.061905	0.000000	0.000000	8.810000
Std. Dev.	2.907797	0.127375	2.266026	5.605331	210.4847
Skewness	0.765535	0.593204	1.025372	1.520604	3.163701
Kurtosis	3.803787	2.887964	4.374191	4.814475	13.27350
Observations	50	50	50	50	50

Source: Researcher's Study, 2016

The mean, which represent the central tendency of each variable can be seen to be EY (5.809758), ROTA (0.203761) DY (4.081831), DPS (4.713878), SPV (131.6549) and the measure of dispersion around the mean that is standard deviation stood at 2.907797 for EY, 0.127375 for ROTA, 2.266026 for DY, 5.605331 for DPS and 210.4847 for SPV respectively. The maximum and minimum values of EY (15.20999), ROTA (0.515161) DY (11.15955), DPS (24.0000), SPV (1046.570) and EY (0.582977), ROTA (-0.061905), DY (0.00000), DPS (0.00000), SPV (8.810000) correspondingly provide an indication of significant variations as shown by the difference between the two values for the variables under consideration over the period of study. There seems to be evidence of significant variations as shown by the huge difference between the minimum and maximum values for the variables under consideration. The skewness of EY (0.765535), ROTA (0.593204), DY (1.025372), DPS (1.520604) and SPV (3.163701) are positive, this indicates that all the variables under study are positively skewed, which in essence means that the right tails are extreme and also, the data series for these variables indicates a symmetric or normal data distribution as the series relatively maintains normality by being positively skewed. Also in relation to kurtosis, all the variables under study except ROTA (2.887964) are leptokurtic, indicating fat tails than normal distribution; these variables are heavy tailed (i.e. heavier than normal), which can be seen from table 4.1; EY (3.803787), DY(4.374191), DPS (4.814475) and SPV(11.91220), all of which are above the threshold of 3. The variable ROTA is platykurtic indicating thin tails than normal distribution which means that it is not heavy tailed because it is less than the threshold 3.

4.2 Empirical Analysis

Table 4.2: Regression estimate

Variable	MAIN MODEL			
	Coefficient	Std Error	t-Stat.	Prob.
C	-75.94734	69.82792	-1.087636	0.2833
DPS	97.19182	7.430553	13.08002	0.0000
DY	-69.49267	15.40736	-4.510355	0.0001
EY	21.21777	12.26399	1.730087	0.0913
ROTA	140.9361	242.4570	0.581283	0.5643
R ²	0.912840			
Adj. R ²	0.895408			
S.E of Reg	129.9036			
F-Statistic	52.36551			
Prob.(F-Stat)	0.000000			
Obs	50			
Cross-Sections	5			

Dependent Variable: SPV

*significance at 5%

Source: Computed by the authors

$$SPV = \alpha_0 + \beta_1 DPS_{it} + \beta_2 EY_{it} + \beta_3 ROTA_{it} + \beta_4 DY_{it} + \mu_1$$

Interpretation of Result

Table 2 shows the combined effect of all the independent variables i.e. DY, DPS, ROTA and EY on SPV. The result shows that when combined, Dividend per Share (DPS) and Dividend Yield (DY) have significant combined influence on Share Price Volatility (SPV), however, the influence of DPS is positive while the influence of DY is negative. EY and ROTA have insignificant positive combined influence on Share Price Volatility (SPV).

The adjusted R- square showed the magnitude of variations caused on Stock Price Volatility (SPV) by the combined effect of all the explanatory variables DPS, DY, EY and ROTA to be about 90%. This indicates that about 90% variation in SPV is attributed to the combined influence of DPS, DY, EY and ROTA while the remaining 10% is caused by other explanatory factors outside this model. The probability of F-statistic shows 0.000 which is less than the 5% level of significance. This indicates that the joint influence of DPS, DY, EY and ROTA is significant.

4.3 Discussion of Findings

The model(s) presented showed the relationship that exists between the various proxies of profitability and stock price volatility.

Earning yield has a negative significant effect on stock price volatility. This study is consistent with some other works such as; Kim (1997) conducted a cross sectional study on 5,597 firms listed at NYSE and AMEX over a period of 1958 to 1993 and the results exhibited a significant relationship between earnings yield and stock returns. The study further suggested that high earnings yield stocks exhibit high returns. Bartholdy (1998) concluded that earnings price ratio can predict future stock returns. Moreover lots of studies have proved the relationship between earning yield and stock returns not only in short but also in long run (Kumar & Sehgal, 2004; Samarakoon, 1997. Wu & Wang (2000) conducted a study to inspect the dividend yield and earnings yield through long-term returns and the outcomes of the study identified that dividend yield and earnings yield have same influence to forecast future stock returns. More importantly, Davis (1994) investigated a cross sectional study by using primary data over a period of 1940 to 1962 with a sample of 100 firms of New York Stock Exchange and study found that earnings yield have explanatory power of predicting returns. However, Fama & French (1992) also found an insignificant relationship between earnings price ratio and returns.

Results of this current study show that Return on Total Asset (ROTA) has a negative insignificant relationship to Stock Price Volatility (SPV) which implies that return on asset would not necessarily affect stock prices. This finding is consistent with Placido (2012) showing that return on asset is negatively correlated with stock price volatility. Based on past studies, it has been documented that there is a strong negative relationship between return on asset and stock prices (Cooper, 2009). From the basic model used by Onchiri & Onsomu (2014) which analysed the relationship between stock price volatility and dividend policy, the result showed an insignificant negative relationship on stock price. However the result is not consistent with Majed, Ahmed & Dahmash (2012) they revealed that return on asset has a positive but low relationship with stock prices. Their result found a contradictory relationship because their study adopted the multiple regression technique using 90% significance level.

The relationship between dividend yield and stock price volatility as presented indicates that Dividend Yield (DY) has a significant negative effect on Stock Price Volatility (SPV). Coefficient of dividend yield is -

48.94259 with a probability value of **0.0116** which is less than **5%**. This implies that the more companies pay out dividends, that is, the higher the dividend yield, the higher the stock prices. Thus dividend have significant role to play in determining stock prices.

This result is consistent with that of other researchers; Nazir, Abdullahi and Nawaz (2011), using fixed effect regression, find significant impact of dividend yield on stock return volatility. Nishat and Irfan (2001); Allen and Richim (1996); Baskin (1989) show also that dividend yield has a significant effect on stock price volatility. Chin Lee & Lee Weng Hong (2008) used dividend yield as a predictor of stock price and their results showed that dividend yield significantly affect stock price volatility. Hence as indicated, dividend yield does have an impact on stock prices. In contrast to the finding of the current study, Rashid & Rahman (2008) found that dividend yields have positive effect on stock returns. Hussainey, et al (2010) examined the relationship between dividend policy and the share price using Multiple Regression Analysis. The results indicated a positive relationship between dividend yield and the volatility of stock price which is inconsistent with the result of the present study as their study used multiple regression. The regression model was expanded by adding control variables including size, leverage, and asset growth.

Finally, dividends per share have a significant positive effect on stock price volatility. This indicates that the dividend and retention policy of the company has a role in affecting stock prices. This is in line with Nishat and Irfan (2003) who studied the role of dividend policy measures i.e. dividend yield and payout ratio on share price changes in the long run during the period 1981 to 2000. The results indicated that both the dividend policy measures (dividend yield and payout ratio) have significant impact on the share price volatility. However, Hussainey et al (2010) examined the relationship between dividend policy and share price volatility using multiple regression analysis. The results showed that dividend payout has a negative significant relationship with share price volatility. Overall findings suggest that the higher the payout ratio, the less volatile a stock price would be.

4.4 Summary of findings:

Earnings yield showed a positive insignificant influence on stock price volatility. However, the result of hypothesis one showed that earnings yield has a negative significant relationship on stock price volatility. Return on total asset showed a positive significant influence on stock price volatility and the results of hypothesis two showed a negative insignificant relationship. Dividend yield showed a negative significant relationship to stock price volatility. This is in line with the third hypothesis tested. Lastly, dividends per share showed a positive relationship to stock price volatility. This also is in line with the result obtained in hypothesis four.

4.5 Recommendations

It is recommended that managers should adopt a dividend policy that would be of benefit and create wealth for the shareholders as this would attract investors to the market. If the wealth of the company is boosted up, the company can raise additional funds to cater for its developmental projects. Also, Investors should invest in companies with well-defined ownership structure as these companies are more profitable. Researchers should enlarge the scope of their study by looking into how stock prices affect other variables rather than how the variables affect stock prices.

5. Conclusion

This study probed the impact of profitability ratios on stock price volatility of selected manufacturing companies listed on the Nigerian Stock Exchange. The study concluded that all variables put together show a positive significant impact on stock price volatility with the most impact from dividend yield and dividends per share.

5.1 Suggestions for further Study

A longer and current time period should be considered for further research since changes are taking place. This study considered the periods of (2005-2014). Secondly, other sectors besides the manufacturing sector should be considered with a larger sample size for comparison. Finally, Impact of return on total asset on stock price volatility should be considered as this study found no significant relationship between both.

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