



HAS ECONOMIC VALUE ADDED AN IMPACT ON MARKET PRICE OF SHARES?

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ABSTRACT

The goal of financial management is to maximize investors' economic welfare as reflected by the market price of shares. One recent innovation that perfectly measures the investors economic welfare is economic value added (EVA), the value created in excess of the required return of the company's investors, introduced by United State (US) based consultants Stern Stewart and Company, New York in 1990. Positive EVA illustrates good performance, causing increase in demand that leads to rising share prices in the capital market. The study, therefore, investigates the impact of EVA on market price of shares using data of Advanced Chemical Industries Limited (ACIL), one of the leading pharmaceutical companies in Bangladesh, for the periods 2006 to 2011. Using simple linear regression, correlation coefficient, coefficient of determination and testing the formulated hypotheses through student's 't' test, the study comes to the conclusion that EVA has significant positive impact on market price of shares and therefore recommends the current and prospective investors to use it in predicting future trends in market price and taking investment decision thereon.

KEYWORDS: economic value added, shareholders wealth, share price, capital market, net operating profit after tax.

1 INTRODUCTION

1.1 RATIONALE OF THE STUDY

Investors' objective of investing in shares is to obtain reasonable return either in the form of dividend or income from trading shares in the capital markets. Whatever the form, share price movement and direction is significant to the investors due to its extreme fluctuations caused by changes in some financial and non-financial variables and identifying these with their relative impact can help investors to predict the future trends and determining and selecting the right company to invest. EVA is one of this financial performance benchmark that is the difference between net operating profit after tax (NOPAT) and the required return of the financing of debt and equity. If EVA is positive, the firm has created value for the shareholders over the periods and if EVA is negative, it connotes the firm is destroying shareholders wealth. In a rational market, maximizing EVA should maximize the company's share price and the shareholders wealth (Kumar and Charles, 2009). Therefore, from the investors' point of view, it is essential to undertake a through investigation regarding the matter that whether ACIL has created value to the existing shareholders and if added then whether the market price of shares goes up and down in consistent with an increase and decrease in value addition.

1.2 LITERATURE REVIEW

For investing in shares, it is crucial for the investors to be sure of the reasonable share price in the determined date and predicting the future changes. In this regard, literatures have produced some variables like return on assets (ROA), book value per share (BVPS), cash flow per share, firm's size, payout ratio, price-earnings (P/E) ratio, earning per share (EPS), dividend per share (DPS), return of equity (ROE) etc. EVA is one of these variables affecting market price of shares that correlates better with stock price than any other measures: by 50%, compared with upto 30% for other metrics (Stern and Shiely, 2004). Biddle et al. (1997) investigated the assertion that EVA has greater association with share valuation and market value. Lehn and Makhija (1996) study EVA and market value added (MVA) as performance measures and signals for strategic change and find out that both measures correlate positively with stock returns. Uyemura et al. (1996) from Stern Stewart & Co present findings on the relationship between EVA and MVA with 100 bank holding companies. They calculate regressions to 5 performance measures including EPS, net income, ROE, ROA and EVA. According to their study the correlations between these performance measures and MVA are: EVA 40%, ROA 13%, ROE 10%, net income 8% and EPS 6%. O'Byrne (1996) finds that the level of EVA explains 31% of the variance in market value, whereas the level of NOPAT explains only 17%. He also finds that changes in EVA explain 55% of variations in changes in market value where changes in NOPAT explain only 33%. Dodd and Chen (1996) study the correlation between stock returns and different profitability measures including EVA, non-adjusted residual income, ROA, EPS and ROE. In their study ROA explained stock returns best with R squared of 24.5%. The R squared for other metrics are: EVA 20.2%, residual income 19.4% and EPS, ROE approximately 5-7%. The US researcher Peterson & Peterson (1996) are of the conclusion that EVA is a poor indicator of the market value of the firm or it has insignificant relation with stock return thus leading to the lack of contribution of EVA. All of the studies surveyed conclude that the relation between the EVA and share prices exists. Hence, the present study aims at finding the extent of impact of EVA on market price of shares on individual firm basis.

1.3 OBJECTIVES OF THE STUDY

The study has been conducted with the principal objective of finding that whether EVA has any impact on market price of shares. To accomplish this objective, the study covers the following specific objectives:

- (i) To calculate EVA for ACIL for the periods 2006 to 2011.
- (ii) To appraise whether ACIL has added value to the shareholders.

2 MATERIALS AND METHODS

The nature of the research design was exploratory. The study used EVA as the predictor of share price and only secondary data that were collected from published annual reports of ACIL. The yield of ten years Bangladesh government treasury bonds of 8.75% was taken as the risk-free rate of return (R_f) and capital asset pricing model (CAPM) was used to calculate cost of equity. The closing share prices of the selected company were collected from Dhaka stock exchange (DSE) limited. To analyze the data, statistical tools and techniques that had been used were simple linear regression, correlation coefficient (r), coefficient of determination (r^2), student's 't' test, and Durbin-Watson (DW) d statistic at 5% level of significance. Share price was taken as the dependent variable (Y) and EVA as the independent variable (X). The data used for the study were relating to ACIL for the periods of 06 years (2006 to 2011). The null hypothesis used was:

H_0 : EVA has no impact on market price of shares of ACIL.

In calculating EVA, the study used the following methodology:

- (i) $EVA = NOPAT - \text{Cost of capital employed (COCE)}$;
- (ii) $NOPAT = \text{Operating profit} \times (1 - t)$, where t = tax rate;
- (iii) $COCE = \text{Capital employed} \times \text{Weighted average cost of capital (WACC)}$;
- (iv) $\text{Capital employed} = \text{Shareholders equity} + \text{Long-term loans}$;
- (v) $WACC = k_1.K_d + k_2.K_e + \dots\dots\dots$

Where, $K_{1,2}$ = Weights of individual sources in the capital structure, K_d = Cost of debt, K_e = Cost of equity;

- (vi) $\text{Cost of debt (}K_d) = I \times (1-t)$, where I = Interest rate, t = tax rate;
- (vii) $\text{Cost of equity (}K_e) = R_f + \beta (R_m - R_f)$

For calculation of β (beta) and R_m (Expected market rate of return), annexure 1 and 2 respectively may kindly be referred;

- (viii) Interest rate for the study periods, on an average, was taken as 14% per annum;
- (ix) Tax rate was taken as 27.5% as ACIL is a publicly traded company.

3 RESULTS AND DISCUSSION

Table 1 show that ACIL has added value to the shareholders during the study periods expressed in terms of positive EVA. EVA growth rates as compared to base year 2006 are positive in the following years. Therefore, it is inferred that ACIL has been successful in productive use of investor's funds.

Table 1. Table showing the calculation of EVA

(Bangladeshi Taka in million)

Years	Shareholders equity*	Long-term loans*	Capital employed	Cost of equity (%)	Cost of debt (%)	WACC (%)	COCE	NOPAT*	EVA
2006	974.00	00.00	974.00	9.56	10.15	9.56	93.11	154.00	60.89
2007	1255.00	00.00	1255.00	9.56	10.15	9.56	119.97	308.00	188.03
2008	2340.00	00.00	2340.00	9.56	10.15	9.56	223.70	1076.00	852.30
2009	3241.00	00.00	3241.00	9.56	10.15	9.56	309.83	990.00	680.17
2010	4458.00	00.00	4458.00	9.56	10.15	9.56	426.18	592.00	165.82
2011	4767.00	00.00	4767.00	9.56	10.15	9.56	455.72	681.00	225.28

Source: *Annual reports of ACIL.

After plotting calculated EVA on horizontal axis and closing market price of ACIL's shares on vertical axis, we get the following scatter plots diagram with trend line and its equation:

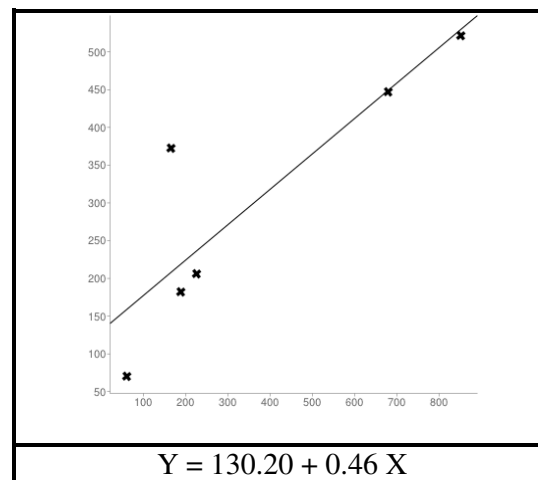


Figure 1: Figure showing the relationship between EVA and share price with trend line and its equation

The upwardly trend line of the scatter plots diagram shown in figure 1 reveals that, there was direct linear correlation between EVA and share price for ACIL during the study periods and is confirmed by the positive slope (b) of simple linear regression equation and correlation coefficient. The result of r^2 shows that 74% of the market price of shares of ACIL is explained by the linear relationship with EVA. This result is in conjunction with the result of adjusted r^2 of 67%.

Table 2. Table showing calculated r, r², adjusted r², t, p and d value

Variables	r	r ²	Adjusted r ²	t	p	d
EVA and share price	0.86	0.74	0.67	3.37	0.02	1.81

Student's 't' test result in Table 2 reveals that the calculated t value is higher than the critical t value and p value is within our predetermined level of significance that falls in the rejection region of null hypothesis.

As we are using time series data, we need to test whether there was any autocorrelation as if was then our calculated standard error is smaller than the true values and a coefficient that seems to be significant is insignificant. In this regard, we have used DW d statistic and the result points out that the hypothesis of 1st order autocorrelation should be rejected at 5% level of significance as the calculated d value is higher than d_U value of 1.40 with one explanatory variable. Hence, we can make safe infer for this study regarding the impact of EVA on share price. Therefore in accordance with the t test result, we reject the null hypothesis that EVA has no impact on market price of shares for ACIL.

4 CONCLUSION

This study investigated the impact of EVA on market price movement of shares of ACIL. After time series data analysis, the study finds that ACIL has created value to the shareholders consistently during 2006 to 2011 and this value addition expressed in terms of EVA has significant positive impact on market price of shares. EVA leaves only 26% of the variation in share price left to be explained by other variables. Therefore we strongly recommends the investors to strongly consider EVA in evaluating company's financial performance and in predicting future movements of share price in the capital market and taking investment decision thereafter and the company to disclose a statement on EVA as an additional disclosure with financial statements so that the investors would be better informed about the value addition by the company.

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ANNEXURE 1

Calculation of Beta

Years	DSE index* (Taka)	Closing share price* (Taka)	Market excess return (x)	Portfolio excess return (y)	x ²	y ²	xy
2005	1919.25	69.60	--	--	--	--	--
2006	1491.77	70.20	-22.27	0.86	496.09	0.74	-19.20
2007	1760.87	181.70	18.03	158.83	325.40	25227.58	2865.16
2008	3016.48	521.30	71.30	186.90	5084.57	34932.17	13327.24
2009	2446.92	447.10	-18.88	-14.23	356.51	202.59	268.75
2010	5582.33	372.60	128.13	-16.66	16419.09	277.65	-2135.14
2011	6352.10	206.60	13.78	-44.55	190.14	1984.86	-614.34
			190.09	271.15	22871.80	62625.59	13692.50

Source: *DSE limited.

$$\beta = \frac{n \cdot \sum xy - \sum x \sum y}{n \cdot \sum x^2 - (\sum x)^2} = 0.30$$

ANNEXURE 2

Calculation of expected market rate of return

Years	Initial share price* (Taka)	Closing share price* (Taka)	Capital appreciation (Taka)	Cash DPS** (Taka)	Total (Taka)
2006	69.00	70.20	1.20	6.00	7.20
2007	71.10	181.70	110.60	8.50	119.10
2008	181.50	521.30	339.80	12.00	351.80
2009	526.10	447.10	-79.00	10.50	-68.50
2010	446.50	372.60	-73.90	12.00	-61.90
2011	372.90	206.60	-166.30	10.00	-156.30
	1667.10				191.40

Source: *DSE limited and **annual reports of ACIL.

$$R_m = \frac{191.40}{1667.10} = 11.48\%$$