EVA as a Financial Metric: the relationship between EVA and Stock Market Performance

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Abstract
The present research study investigates the relationship between economic value added (EVA) and the stock market performance of 36 publicly traded companies in India. The study attempted to justify the claim that high EVA causes incremental gains in stock market. The daily stock prices from 2006 through 2012 were taken to study the relationship between EVA and stock market performance of 36 Nifty stocks. EVA of firms were compared with various accounting and market performance measures like ROA, ROE, ROS, CAPM Return, excess market premium and others. Results of the study find little support to the fact that high-EVA firms lead to higher stock market performance and shareholders' value creation. The author viewed that stock prices are more sensitive to growth expectation and these expectations are reflected in terms of higher stock returns as per the whim and fancies of the investors rather than the EVA information and strategy.
Keywords: EVA, EVA and Stock Market, EVA & Indian Firms, Value Based Management, Stock Market Performance.

1. Introduction
In recent times, the new financial performance measures have been given more attention as substitute of traditional accounting based methods of performance measurement. One popular measure that has received substantial importance in the economic press and academic literature is Economic Value Added (EVA). The EVA is a technique for the measurement of value creation developed by the Stern Stewart and Company consultant group (Stern, 1985;
Stern et al., 1995; Stewart, 1994). They argued that Economic Value Added is the financial performance measure that comes closer than any other to capturing the true economic profit of an enterprise.
Stern Stewart & Co. guides many client companies in the world for implementation of EVA based financial management and incentive compensation systems. This EVA based compensation system gives the managers and executives a superior information and motivation to take managerial decision which in turn creates greatest shareholder value in any publicly traded company. The firm's method of creating shareholder value is to create EVA: the difference between operating profit after taxes less the capital charges.
Many consultants and experts are touting EVA as the panacea for shareholder wealth creation and maximization. On the surface, metrics such as EVA may lead to increased share value, but there is no evidence that financial markets recognize and incorporate EVA into their share price valuation models to any larger extent than they would include measures of NPV, earnings per share, return on assets, or any other accounting measures.
The usefulness of Economic Value Added as a new financial measure has been widely debated in the academic literature. Biddle, Bowen, and Wallace (1997) emphasized that EVA is highly associated with stock returns and firm values than with accrual earnings. EVA is theoretically superior to refined economic value added (REVA) as shown by Ferguson and Leistikow (1998). There is a simple correlation between EVA or earnings and stock returns as per the study of Garvey and Milbourn (2000).They suggest that EVA is reasonably reliable tool of testing the firm value. Machuga, Preiffer, and Verma (2002) show that EVA can be used to enhance the future earnings predictions of business units. Chen and Todd (2001) examined the extent to which EVA information can explain the variation in stocks returns. They conclude that the variation appears to be attributable to non-earnings-based information. Further. Paulo (2002) argues that EVA is just another piece of accounting information, and like other accounting information. It has less relevant influence to stock returns and stock price changes. Abate, Grant and Stewart III (2004) show that EVA can be a valuable investing tool to categorize good companies with good stocks in the market.
Kramer and Peters (2001) used cross-sectional-time series data from the Stern-Stewart data base to investigate the relationship between Market Value Added (MVA), EVA and shareholder value. They concluded that there was virtually no benefit of using EVA rather than using NOPAT to explain MVA. With respect to changes in MVA to changes in EVA and NOPAT, only 22 of 53 industry groups indicated a positive and significant (5% level) relationship for the former and only 26 of 53 for the latter.
Studies in the food industry by Turvey et al. (2000), and in other industries (Bacidore, Boquist, Milboum.&Takoretal, 1997 and Chen& Dodd, 1997; Clinton & Chen 1998) found that EVA offered no superior results over accounting based measures. The relationship between EVA and shareholder return was generally no

better, and normally worse than the relationship between shareholder returns and other accounting based measures. In the similar line, deVilliers and Auret (1997) find that EPS has more explanatory power than EVA in explaining share prices for a number of South African firms. They conclude that there is no evidence of any better result using EVA instead of EPS in share price related analysis.

West and Worthington (2004) studied the information content of some accounting measures like residual income, cash flow, earnings before extraordinary items and EVA in Australian market. They established the findings that the explanatory power of EVA was superior to the other measures investigated in the study. In contrary, Tsuji (2006) found that traditional measures were better than EVA for stocks in Japanese stock markets. Kyriazis and Anastassis (2007) had the same view on the Athens Stock Market.

Zaima (2008) created portfolios using EVA and found that stock returns for firms with negative EVA exhibited higher returns than some firms with positive EVAs. This evidence of paradox about EVA and the stock return was also recognized by Fu et al. (2011). They formed 10 portfolios and ranked from the highest positive EVA firms to most negative EVA firms. They reported that returns of negative EVA firms are higher than for positive EVA firms. They argued that this situation arise because of investor's confidence in future expectations for these firms.

The results of those studies indicate that EVA is less useful than other measures in predicting shareholder returns. The Indian stocks are not exempted from this. The purpose of this article is to investigate the relationship between EVA and share price valuation of Nifty stocks (non-banking & financial stocks).

The article proceeds as follows. Next section describes the EVA metrics used in the study. Subsequent section explains the data and methodology and the last two sections enumerate the analysis of results and discussion & conclusion respectively.

2. Theory of EVA:

Economic Value Added is a measure that goes beyond the rate of return earned and considers the overall cost of capital. It measures earnings after the cost of capital and defined as net earnings (PAT) in excess of the charges for shareholders' invested capital.

Economic Value added (EVA) = PAT – Charges for Equity
$$= PAT – (Cost\ of\ Equity\ *\ Equity\ Capital)$$

The firm is said to have earned economic return (ER) if its return on equity (ROE) exceeds cost of equity (COE).

Economic Return = ROE – COE

This economic return translates into EVA, where;

EVA = Economic Return * Equity Capital

The most popular alternative method of determining EVA is the excess of net operating profit after tax (NOPAT) over cost of capital employed (COCE).

Economic Value Added (EVA) = NOPAT - COCE

Net operating profit After Tax (NOPAT) is a measure of income before noncash depreciation or amortization charges, interest on debt, and any extraordinary charges or revenues unrelated to the current year's profits. Capital employed generating these profits does not refer to the capital in terms of absolute balance sheet items, but to the opportunity cost associated with using those assets. Therefore the cost of capital or the firm's weighted average cost of capital:

WACC = ROE* (Equity/Total Capital) + Cost of debt * (Debt/ total Capital)

Return on equity (ROE) would more likely be measured by the risk-adjusted market return required by shareholders. Invoking the security market line equation from the Capital Asset Pricing Model (CAPM) suggests that:

$$ROE = R_f + β\ (R_m – R_f)$$

Where R_f is the risk-free return on 90-day t-bills, R_m is the long-run market rate of return, and $β$ is the single index measure of systematic risk.

EVA proponents claim that at all stages of production in all corporate divisions the EVA should be positive and maximized. This maximised EVA would ensure that all internal decisions will gravitate towards the goal of the business. It is not sufficient for a corporation to claim shareholder wealth maximization on earnings per share (or any other metric) alone. This is because of their direct investments in fixed assets and working capital, and the deferral of dividends to pay down debt. Since shareholders finance those assets and sacrifice, they should be rewarded for doing so.

Other argument in favour of EVA is that it tends to identify specific idle assets or, from a portfolio of assets identify those that provide the lowest economic return. Consequently, EVA can be raised by earning more economic profit without using more capital, and/or investing capital in high return projects.

3. Data & Methodology

The literatures discussed above revealed that EVA might not provide any better result than some financial ratios.

In view of this the present study investigates 36 Nifty (Index of National Stock Exchange of India) stocks. For each firm, 2009 fiscal EVA was computed and divided by the number of shares outstanding. In order to assess the superiority of EVA metric compared to other common performance measures, data were also collected for ROA, ROE and ROS for 2009 as well as the last 3 years average (2006-2009). Each company was then ranked from 1 through 36 on each measure. The objective of doing so is to see that a consistent EVA should be highly correlated in rankings with the profitability measure as well as the above efficiency measures.

In order to assess from financial market prospective that, whether EVA actually leads to improved share value and the increased share value is highly correlated with EVA than other financial performance metrics, the present study examined this with daily stock prices collected from 2006 through 2012. This period is chosen to get adequate data points for the research and putting 2009 in the mid of the data series. The data for the study were obtained from CMIE database. The banking and financial institution stocks are excluded from the list of stocks undertaken for the study along with the stocks whose market data were not available for the study period. The daily return was computed for each stock and the average daily rate was annualised to a 251 day yearly rate. The diversified S&P CNX Nifty index is taken as the market for comparison.

The daily returns of stock "i" and the diversified market index Nifty "m" is computed using the following equation (1). The single index measure of systematic risk (β) can be computed from the least square regression mentioned in equation (2) below.

$$r_{it} = (P_t - P_{t-1})/P_{t-1} \quad ....(1)$$
$$r_{it} = \alpha_t + \beta * r_{mt} + e_i ....(2)$$

The systematic risk (β) measures the systematic relationship between individual stock returns and the market, and "e_i" is an error term representing non-systematic variation in stock prices. Using this characteristic equation, the total variance in stock returns can be decomposed into its systematic (non-diversifiable risk) and non-systematic (diversifiable risk) components as:

$$\sigma_i^2 = \beta_i^2 \sigma_m^2 + \sigma_e^2 ....(3)$$

Both these sources of risk are relevant to the assessment of EVA. It is argued that the high-EVA company should have lower systematic risk and significantly reduced non-systematic risk as well. Hence, it is hypothesized within the framework of CAPM that high-EVA firms have less systematic and non-systematic risk compared with low-EVA firms. Furthermore, the expected market cost of equity computed by security market line (SML) equation (4) should be lower for high- EVA firms if high-EVA firms have lower systematic (β) risk. This is because; a lower risk adjusted cost of capital will lead to increase the present value of stock price.

Within the CAPM model, differential returns are well defined. But for the present analysis, the returns are segregated both for systematic and non-systematic risk. Defining "r_{it}" as the random return of the stock and "$r^\wedge$" as the long-term equilibrium rate of return through SML equation. The difference, "$r_{it} - r^\wedge$" would represent a short run excess return, if it is positive and short run deficiency if negative. The total risk assigned to r_{it} is σ_i^2 and the total risk assigned to "$r^\wedge$" is $\beta_i^2 \sigma_m^2$. The short run deviations measured by "$r_{it} - r^\wedge$" must then be measured by the residual risk of "$\sigma_i^2 - \beta_i^2 \sigma_m^2$", which is the non-systematic risk. Therefore this excess returns is attributable to the non-systematic risk of the company.

$$\sigma_i^2 - \beta_i^2 \sigma_m^2 = \sigma_e^2 = \text{Non-Systematic risk} \quad ....(4)$$

The above return and risk parameters would help in determining the coefficient of variation (CV). The CV from market return can be

$$CV_m = r^\wedge / \beta_i \sigma_m ....(5)$$

The above coefficient of variation measures per unit market return, $r^\wedge$ caused by SML to the systematic risk. The excess return CV can also be computed as

$$CV_i = r_{it} - r^\wedge / (\sigma_i - \beta_i \sigma_m) ....(6)$$

It is expected that the high-EVA firms receive more attention from investors and represented efficient stocks in the market. Therefore, the coefficient of variation based on market model should be greater than the CV on excess return. This is tested across companies taken for the study. To measure this relationship, the following ratio "X" is created.

$$X = [r^\wedge / (r_{it} - r^\wedge)] * [\sigma_e / \beta_i \sigma_m] ....(7)$$

As there is greater risk efficiency in high-EVA firms compared with low-EVA firms, accordingly, "X" should be higher for high-EVA firms.

4. Result Analysis

The research objective of the present paper focuses on two major support of EVA. The first support is that EVA gives a better performance metric relative to conventional measures like ROA, ROE and ROS. The second support in favour of EVA is that high-EVA firms show superior strength in the market place in compared to low-EVA firms. To examine these, EVA per share is compared to accounting and stock market parameters in the following paragraphs.

Table 1 represents the accounting measures of companies along with EVA per share and total EVA amount. The firms are listed in the order of highest to lowest EVA per share. The highest EVA Company is Grasim Industries Limited with EVA/ Share of Rs258.14 and Rs 23664.6 million EVA; while the lowest is Ranbaxy Laboratories Limited with negative EVA/Share of -Rs35.24 and -Rs14812.3 million EVA. Table 1 reveals that ONGC has highest EVA of Rs251035.8 million, but it is ranked fourth in EVA/Share because of the distribution of ownership.

All the accounting measures taken for analysis are ranked in Table 2. This shows that, there is no correlation between the EVA measures of performance with other accounting metrics. It is generally believed that the high-EVA per share firms should have high ROA and ROE, while low-EVA per share firms have lower profitability measures. But this is proved wrong as per the results presented. There is only one exception in the list is Ranbaxy Laboratories, which reported the lowest ranking in all measures including EVA per share.

The significance of EVA/Share to other accounting measures presented in Table 1 is tested through a simple regression. The objective of regression is to test the null hypothesis that there is no relationship between EVA/Share and financial performance measures. The regression results are presented in Table 3. This indicates that the coefficients are positive between EVA/share and the financial performance metrics except ROE. A Rs1.00 increase in EVA/share implies an increase of 0.0180 in ROA and .072 in ROS. However there is a negative relation between ROE and EVA/Share, where a Rs1.00 increase in EVA/share implies an decrease of .0002 in ROE. The t-statistics and the p-values presented in the table confirm that the estimated relationships are not statistically significant at the 95% level. Therefore, we fail to reject the null hypothesis that there is no significant difference between EVA/share and the financial performance measures.

The results interpreted so far do not provide a definitive answer to the claim that EVA is a superior metric. The estimated regression coefficients also suggest inversely that an increase in the accounting performance measures can lead to higher EVA.

The main focus of the study is to investigate how EVA influences stock market performance. Table 4 represents the comparison of EVA/Share to the stock market performance metrics of 36 stocks. Daily stock prices for each of the firms were collected from April 2006 to March 2012, allowing three years before and after the EVA evaluation in 2009. Subsequently, daily returns were calculated for each company's stocks and annualized. It is reported that the mean annual return across the 36 stocks is 10.47%, with a cross-sectional standard deviation of 10.62%. The mean of the annual standard deviation (risk) in stock prices is 4.49%. In contrast, the mean return of Nifty was only 10.39% with a standard deviation of 4.75%. There are 15 companies had returns more that the market return and rest had lower return than the market. The average coefficient of variation (return/risk), which finds the relationship between risk and return, is equal to 0.0261 for the group of stocks against the market coefficient of variation of 0.0219.

Table 4 also presents EVA multiple a parameter similar to P/E multiple used in conventional analysis. The EVA multiple or P/(EVA/share) measures the firm's stock price against the EVA/share. This ranges from a high of 188.74 for HCL Technologies to a low of 2.35 for Tata Power. The average P/EVA is 16.78, where, only one company i.e. Ranbaxy Lab. has negative multiples.

This group of stocks are fairly correlated with market portfolio. The CAPM beta coefficient results range from a high of only 1.63 for Jaiprakash Associates and a low of 0.45 for Sun Pharmaceutical with a mean of 0.94. There are 15 companies have beta value more than the market beta i.e. 1. Hence all in terms of the market model, the equilibrium long-term returns of these stocks are more than the market. These range from a high of 12.4% for Jaiprakash Associates and a low of 8.63 % for Sun Pharmaceutical. A consequence of a high market correlation is that the systematic risk of each stock is higher relative to non-systematic risk. For Jaiprakash Associates, systematic risk is 7.73%, and for Sun Pharmaceutical it is less than 2.14 % with average systematic risk of 4.49%. In contrast, there is low non-systematic (diversifiable) risk. The non-systematic risk for Jaiprakash Associates is the higher with only 2.9% and as a group the average non-systematic risk is about 2.2%. The return and risk analysis is further extended through excess premium for these stocks over the market return. This excess return ranges from a high 10.27 *%* for Sun Pharmaceutical to a low of – 34% for Reliance Communication. Majority of companies are showing an excess return. Dividing excess return by non-systematic risk (equation 6) provides a relative coefficient variation measure. Overall this measure indicates that excess returns are only 15% of available risk. This reveals that if any investor accepts the non-systematic risk, he would only expect a return of 15% to that risk.

In order to relate the EVA to stock market performance, there are two testable hypotheses need to be conducted to justify the metric. The hypotheses are:
   a) High-EVA/Share firms would realize higher returns and lower risk than low-EVA/Share firms.
   b) High-EVA/Share firms would have lower systematic and non-systematic risk, and hence require a lower cost of equity capital than low-EVA firms.

The ranking of market measures along with EVA/Share is depicted in Table-5. Like the rankings of accounting metrics (Table 2), there are no visible patterns that would indicate any reasonable correlation whatsoever

between the EVA/Share and other market performance metrics. Grasim Industries, which was ranked first in EVA/Share is ranked 32 in returns, 14th in systematic risk, 17th in non-systematic risk and 19th in excess return. Ranbaxy Lab, which was ranked 36th in EVA/share is ranked 9th in systematic and total risk and 10th in excess return. Bharti Airtel, is ranked first in excess return and Z value where as it was 15th in EVA/Share.

To decide if any relationship does exist, simple regressions were run with EVA/share being the independent variable. These regression results are summarized in Table-6. The regression results are consistent with ranking results, and under none of the regressions was a statistically significant relationship between EVA/share and stock market performance found. In other words, claims by proponents of EVA that higher EVA leads to higher stock market returns and a hence higher share value does not appear to be found, at least for this group of firms included in NIFTY.

5. Discussion and Conclusion:

The results analysed above indicates that there is no sufficient confirmation about high-EVA firms will consistently lead to higher book ROA, ROE and ROS and therefore no guarantee that higher EVA gets translated into higher accounting returns. It is also tested that there is no significant difference between EVA/share and the financial performance measures. The stock market performance and EVA relationships are also showing the similar trend as of accounting metrics. The findings illustrate that there is absolutely no relationship between EVA and stock market performance. This is in contrast to the EVA proponents' view that the share price of high EVA companies have led to higher share returns.

In conclusion, it can be stated that there are several reasons why EVA may not cause improved market performance. Normally, EVA is based upon book value and asset worth, whereas stock prices are determined by cash flow and growth expectations of the firm. Therefore, EVA does not provide full cash flow information on which the stock market can act upon. Further the stock prices are more sensitive to growth expectation and these expectations are reflected in terms of higher stock returns as per the whim and fancies of the investors rather than the EVA information.

It is really difficult academically to dismiss EVA based on the findings of this study results. This study's aim was to measure the claims of the EVA proponents for a small group of Nifty companies. It cannot be concluded that EVA provides a superior performance metric, or provides increased share values. Any management tool that recovers all costs, fully utilize the assets of the firm and focuses on value, must eventually provide adequate return to the shareholders. However, the findings of this study do not support that. Therefore it is pointless to expect that the value shown and created by EVA should reflect immediately in the stock market, which are volatile in nature and affected by firm specific risks.

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TABLE-1: EVA and Financial Performance Metrics

Rank	Company Name	CNX NIFTY SYMBOL	EVA/Share (Rs) 2009	EVA(In Millions Rs) 2009	ROA (%) 2009	ROA (%) 3-Year	ROE (%) 2009	ROE (%) 3-Year	ROS (%) 2009	ROS (%) 3-Year
1	Grasim Industries	GRASIM	258.14	23664.6	15.92	21.71	18.71	25.74	21.13	24.17
2	Reliance Industries	RELIANCE	144.85	227964.2	10.20	14.38	15.69	21.87	16.12	16.37
3	Jindal Steel & Power	JINDALSTEL	138.33	21393.4	18.41	18.23	33.53	35.19	28.99	32.11
4	Oil & Natural Gas Corpn	ONGC	117.37	251035.8	17.59	18.62	21.79	24.81	41.62	44.25
5	Infosys	INFY	111.55	63899.5	35.56	36.60	37.18	38.44	32.27	32.03
6	Bharat Petroleum	BPCL	92.09	33296.1	6.52	8.44	6.18	13.06	1.74	2.45
7	Tata Steel	TATASTEEL	86.32	63067.8	14.18	19.29	22.48	28.31	34.02	34.53
8	A C C	ACC	83.65	15699.1	23.09	28.34	26.71	37.63	21.48	23.85
9	Hero Motocorp	HEROMOTOCO	74.39	14854.8	31.97	31.00	37.77	37.18	11.60	10.74
10	Reliance Infrastructure	RELINFRA	69.73	15760.2	6.91	7.24	10.19	10.46	4.32	6.73
11	Larsen & Toubro	LT	67.57	39574.4	15.75	14.76	31.71	29.13	10.52	10.23
12	Maruti Suzuki India	MARUTI	67.38	19465.3	10.17	18.00	13.72	20.59	6.73	10.07
13	Sun Pharmaceutical	SUNPHARMA	63.88	13231.4	22.09	20.28	27.04	29.89	2.72	2.56
14	Bharat Heavy Electricals	BHEL	61.08	29900.2	11.85	13.70	26.47	28.57	12.00	14.00
15	Bharti Airtel	BHARTIARTL	54.71	103861.9	17.89	19.59	32.35	38.25	32.83	37.50
16	Tata Power	TATAPOWER	54.10	11978.5	9.84	9.48	10.99	11.79	15.15	14.86
17	Tata Consultancy Services	TCS	48.60	47557.5	31.59	40.01	38.73	47.09	23.55	26.16
18	Dr. Reddy'S Lab	DRREDDY	43.95	7403.9	10.45	16.31	11.14	18.99	18.08	21.78
19	Mahindra & Mahindra	M&M	43.68	12177.6	9.51	15.48	17.59	26.37	7.14	8.85
20	Tata Motors	TATAMOTORS	41.78	18792.3	5.72	11.77	10.08	22.94	2.57	5.17
21	Reliance Communications	RCOM	33.85	69869.9	7.79	7.98	12.55	12.45	18.78	28.71
22	Siemens	SIEMENS	32.86	11077.4	16.21	15.39	41.94	39.66	11.01	8.19
23	G A I L	GAIL	25.97	32937.1	18.02	17.92	20.19	21.29	16.83	18.65
24	Sesa Goa	SSLT	25.20	19835.4	46.46	56.90	53.15	56.47	47.61	49.96
25	Wipro	WIPRO	25.12	36793.4	16.76	22.08	24.65	30.00	17.31	20.49
26	Sterlite Industries (India)	STER	21.62	15320.1	8.22	9.99	9.09	12.74	5.48	5.76
27	Hindalco Industries	HINDALCO	16.80	28570.3	9.28	13.12	10.83	17.77	14.89	16.70
28	Steel Authority Of India	SAIL	16.66	68797.2	19.91	26.62	24.13	34.53	17.34	21.99
29	Hindustan Unilever	HINDUNILVR	12.54	27345.9	40.50	34.83	142.68	103.01	12.90	13.15
30	Cipla	CIPLA	12.02	9343.9	14.05	17.17	19.21	21.67	19.25	20.28
31	Jaiprakash Associates	JPASSOCIAT	11.65	13791.6	8.26	8.41	16.95	17.45	28.42	27.10
32	N T P C	NTPC	11.04	91069.7	11.39	11.81	14.40	14.42	22.55	26.46
33	I T C	ITC	10.96	41371.5	26.04	27.34	25.45	27.06	20.94	20.55
34	Ambuja Cements	AMBUJACEM	10.96	16680.4	27.78	36.14	27.17	37.93	24.38	28.79
35	H C L Technologies	HCLTECH	1.85	12390.5	18.95	20.98	29.75	29.99	25.74	23.61
36	Ranbaxy Laboratories	RANBAXY	-35.24	-14812.3	-14.71	2.36	-33.41	2.86	-40.70	-5.70
	Average		54.36	42082.2	16.67	19.79	24.69	28.49	16.87	19.53
	Standard Deviation		52.90	54563.6	11.26	11.04	24.73	17.01	14.62	12.16

TABLE-2: Ranking of EVA/Share and Financial Measures

EVA/Share Rank	Company Name	EVA Rank	ROA (%) 2009	ROA (%) 3-Year	ROE (%) 2009	ROE (%) 3-Year	ROS (%) 2009	ROS (%) 3-Year
1	Grasim Industries	18	18	21	26	17	6	25
2	Reliance Industries	2	25	10	15	29	35	27
3	Jindal Steel & Power	19	12	18	2	18	22	4
4	Oil & Natural Gas Corpn	1	15	14	3	2	7	26
5	Infosys	7	3	17	6	6	34	28
6	Bharat Petroleum Corpn.	13	34	4	8	22	24	14
7	Tata Steel	8	20	29	25	24	26	22
8	A C C	25	8	7	33	16	11	1
9	Hero Motocorp	27	4	16	31	13	10	19
10	Reliance Infrastructure	24	33	8	13	7	15	2
11	Larsen & Toubro	11	19	22	4	4	1	5
12	Maruti Suzuki India	21	26	30	28	15	29	13
13	Sun Pharmaceutical	29	9	6	11	3	14	34
14	Bharat Heavy Electricals	15	22	23	12	33	33	8
15	Bharti Airtel	3	14	26	24	19	2	35
16	Tata Power	32	27	27	1	30	13	17
17	Tata Consultancy Services	9	5	3	27	10	9	11
18	Dr. Reddy'S Lab	35	24	1	29	34	31	24
19	Mahindra & Mahindra	31	28	9	19	21	18	32
20	Tata Motors	22	35	12	34	25	32	16
21	Reliance Communications	5	32	28	32	11	27	6
22	Siemens	33	17	2	16	1	3	23
23	G A I L	14	13	13	5	5	4	9
24	Sesa Goa	20	1	11	23	9	8	10
25	Wipro	12	16	31	21	35	19	15
26	Sterlite Industries (India)	26	31	33	18	27	21	30
27	Hindalco Industries	16	29	5	7	23	5	33
28	Steel Authority Of India	6	10	35	9	28	23	3
29	Hindustan Unilever	17	2	25	30	31	12	29
30	Cipla	34	21	34	35	20	20	31
31	Jaiprakash Associates	28	30	20	10	8	25	18
32	N T P C	4	23	19	17	26	17	7
33	I T C	10	7	15	14	14	16	12
34	Ambuja Cements	23	6	32	20	32	30	20
35	H C L Technologies	30	11	24	22	12	28	21
36	Ranbaxy Laboratories	36	36	36	36	36	36	36

TABLE-3: OLS Regression of Y = a + b* EVA/Share for Financial Performance Metrics

Dependant Variable	Intercept (t-stat) ((P-Value))	Coefficient (t-stat) ((P-Value))	R-Squared
2009 ROA	15.6901 (5.7249) ((0.0000))	0.0180 (0.4955) ((0.6234))	0.0072
3-Year ROA	19.3569 (7.1816) ((0.0000))	0.0079 (0.2201) ((0.8271))	0.0014
2009 ROE	24.6974 (4.0895) ((0.0003))	-0.0002 (-0.0021) ((0.9983))	0.0000
3 YRS-ROE	28.7244 (6.9136) ((0.0000))	-0.0043 (-0.0786) ((0.9378))	0.0002
2009 ROS	12.9557 (3.7568) ((0.0006))	0.0720 (1.5729) ((0.1250))	0.0678
3 YRS-ROS	17.1912 (5.8938) ((0.0000))	0.0430 (1.1113) ((0.2742))	0.0350

TABLE-4: EVA/Share and Stock Market Performances

RANK EVA/SHARE	Company Name	CV	P/EVA	STOCK RETURN (%)	STANDARD DEVIATION (%)	STANDARD DEVIATION (%)	CAPM ß	CAPM ROE	EXCESS MKT PREMIUM	SYSTEMATIC RISK	NON-SYSTEMATIC RISK	EXCESS RETURN/ NON-SYSTE. RISK	CAPM RETURN/ SYSTEMATIC RISK	Z-VALUE
1	Grasim Industries	1.09178	9.07724	0.02766	0.02534	6.35966	0.80514	0.09767	-0.07001	0.01572	0.01987	-3.52259	6.21406	-1.76406
2	Reliance Industries	7.02321	7.06614	0.18640	0.02654	6.66180	1.13912	0.10836	0.07805	0.02224	0.01449	5.38633	4.87286	0.90467
3	Jindal Steel & Power	12.82084	4.43160	0.47810	0.03729	9.36003	1.28449	0.11301	0.36509	0.02507	0.02760	13.22696	4.50691	0.34074
4	Oil & Natural Gas Corpn.	2.33357	2.47876	0.05729	0.02455	6.16197	0.90172	0.10076	-0.04347	0.01760	0.01711	-2.54029	5.72410	-2.25333
5	Infosys Ltd.	6.69835	22.93874	0.14830	0.02214	5.55697	0.70873	0.09458	0.05371	0.01384	0.01728	3.10776	6.83635	2.21997
6	Bharat Petroleum Corpn.	2.42469	6.25852	0.06709	0.02767	6.94510	0.57712	0.09037	-0.02328	0.01127	0.02527	-0.92116	8.02147	-8.70799
7	Tata Steel	1.41453	6.23493	0.04989	0.03527	8.85258	1.36273	0.11551	-0.06562	0.02660	0.02316	-2.83385	4.34228	-1.53229
8	A C C	2.35012	10.55471	0.05990	0.02549	6.39795	0.79083	0.09721	-0.03731	0.01544	0.02028	-1.83926	6.29686	-3.42358
9	Hero Motocorp	5.30481	22.72556	0.12070	0.02275	5.71086	0.51030	0.08823	0.03247	0.00996	0.02046	1.58711	8.85720	5.58073
10	Reliance Infrastructure	0.53576	14.61259	0.02112	0.03943	9.89640	1.52242	0.12062	-0.09950	0.02972	0.02591	-3.84026	4.05877	-1.05690
11	Larsen & Toubro	6.99183	24.28367	0.19490	0.02788	6.99667	1.11947	0.10773	0.08717	0.02185	0.01730	5.03733	4.92959	0.97861
12	Maruti Suzuki India	2.75253	19.69177	0.06843	0.02486	6.23971	0.78679	0.09708	-0.02865	0.01536	0.01955	-1.46593	6.32075	-4.31178
13	Sun Pharmaceutical Inds.	8.36614	5.24737	0.18898	0.02259	5.66981	0.44969	0.08629	0.10269	0.00878	0.02081	4.93384	9.83006	1.99238
14	Bharat Heavy Electricals	4.48854	7.45742	0.11793	0.02627	6.59491	1.00660	0.10412	0.01382	0.01965	0.01744	0.79226	5.29852	6.68786
15	Bharti Airtel	3.92361	6.16496	0.10486	0.02672	6.70776	0.88938	0.10036	0.00449	0.01736	0.02032	0.22106	5.78079	26.150 15
16	Tata Power Co.	5.82424	2.35416	0.16539	0.02840	7.12751	0.93677	0.10188	0.06351	0.01829	0.02172	2.92330	5.57128	1.90582
17	Tata Consultancy Services	7.14586	15.71672	0.18038	0.02524	6.33585	0.84716	0.09901	0.08137	0.01654	0.01907	4.26654	5.98719	1.40329
18	Dr. Reddy'S Laboratories	7.69203	27.68877	0.16714	0.02173	5.45407	0.46645	0.08683	0.08031	0.00911	0.01973	4.07079	9.53565	2.34246
19	Mahindra & Mahindra	5.32109	12.59272	0.15774	0.02964	7.44085	1.00164	0.10396	0.05379	0.01955	0.02228	2.41386	5.31665	2.20255
20	Tata Motors	1.70747	3.76638	0.05481	0.03210	8.05687	1.11142	0.10747	-0.05266	0.02170	0.02366	-2.22612	4.95342	-2.22514
21	Reliance Communications	-6.15431	5.61111	-0.22364	0.03634	9.12096	1.34923	0.11508	-0.33872	0.02634	0.02504	-13.52955	4.36933	-0.32295
22	Siemens	2.45580	19.77704	0.07413	0.03019	7.57675	1.01134	0.10427	-0.03014	0.01974	0.02284	-1.31971	5.28139	-4.00193
23	G A I L	6.14128	15.80860	0.15815	0.02575	6.46358	0.78740	0.09710	0.06105	0.01537	0.02066	2.95469	6.31714	2.13806
24	Sesa Goa	8.61892	12.41894	0.30655	0.03557	8.92739	1.02805	0.10480	0.20175	0.02007	0.02936	6.87049	5.22219	0.76009
25	Wipro	2.80091	15.05784	0.07347	0.02623	6.58393	0.90510	0.10087	-0.02740	0.01767	0.01939	-1.41313	5.70885	-4.03987
26	Sterlite Industries (India)	3.56575	8.10053	0.13420	0.03764	9.44688	1.39363	0.11650	0.01770	0.02721	0.02601	0.68063	4.28236	6.29180
27	Hindalco Industries	1.27160	9.28479	0.04320	0.03398	8.52789	1.25033	0.11192	-0.06871	0.02441	0.02363	-2.90726	4.58525	-1.57717
28	Steel Authority Of India	4.05785	11.22848	0.14223	0.03505	8.79790	1.35240	0.11518	0.02705	0.02640	0.02306	1.17321	4.36293	3.71879
29	Hindustan Unilever	0.22065	21.18134	0.00463	0.02098	5.26705	0.55690	0.08972	-0.08509	0.01087	0.01795	-4.74091	8.25324	-1.74086
30	Cipla	1.56257	25.67348	0.03382	0.02164	5.43209	0.55951	0.08981	-0.05599	0.01092	0.01868	-2.99677	8.22237	-2.74374
31	Jaiprakash Associates	1.72190	10.95151	0.07423	0.04311	10.81979	1.62686	0.12397	-0.04974	0.03176	0.02915	-1.70648	3.90347	-2.28743
32	N T P C	3.11457	18.27364	0.07164	0.02300	5.77348	0.81671	0.09804	-0.02640	0.01594	0.01658	-1.59208	6.14927	-3.86241
33	I T C	5.59068	12.57945	0.12048	0.02155	5.40929	0.65485	0.09286	0.02763	0.01278	0.01735	1.59228	7.26394	4.56196
34	Ambuja Cements	2.47085	10.27055	0.06448	0.02610	6.55005	0.76243	0.09630	-0.03182	0.01488	0.02144	-1.48457	6.47033	-4.35837
35	H C L Technologies	2.36680	188.74764	0.07367	0.03113	7.81268	0.98580	0.10345	-0.02978	0.01924	0.02446	-1.21729	5.37571	-4.41611
36	Ranbaxy Laboratories	0.05574	-12.27079	0.00162	0.02909	7.30097	0.73950	0.09557	-0.09395	0.01444	0.02525	-3.72026	6.62013	-1.77948
	AVERAGE	3.77979	16.77880	0.10472	0.02859	7.17606	0.94439	0.10212	0.00259	0.01844	0.02150	0.15058	5.99007	0.38206
	STANDARD DEVIATION	3.30696	30.56250	0.10625	0.00579		0.30552	0.00978	0.10685	0.00596	0.00367	4.40072	1.53531	5.58199
	NIFTY	0.02121		0.10390		4.89979	1.00000	0.10390	0.00000	4.89979	0.00000	0.00000	-	-

TABLE-5: Ranking EVA/Share and Stock Market Performance Measures

EVA/SHARE RANK	Company Name	RETURN RANK	P/EVA RANK	SYSTEMATIC RISK RANK	NON-SYSTE RISK RANK	TOTAL RISK	CAPM-ROE RANK	CAPM-BETA RANK	CV RANK	EXCESS RETURN RANK	EXCESS.RET/NON-SYSTE.RISK RANK	Z-VALUE RANK
1	Grasim Industries	32	23	14	17	14	19	19	32	19	6	23
2	Reliance Industries	5	26	28	29	28	31	31	12	5	1	15
3	Jindal Steel & Power	1	32	30	8	30	26	26	2	16	4	17
4	ONGC	27	34	18	7	18	4	4	26	4	11	26
5	Infosys	11	5	8	27	8	8	8	7	7	3	9
6	BPCL	24	27	6	25	6	2	2	16	23	33	36
7	Tata Steel	29	28	33	32	33	33	33	30	35	26	20
8	A C C	26	20	13	36	13	24	24	23	8	22	29
9	Hero Motocorp	14	6	3	26	3	7	7	5	30	20	4
10	Reliance Infra.	33	14	35	5	35	11	11	33	13	14	19
11	Larsen & Toubro	3	4	27	1	27	6	6	11	34	5	14
12	Maruti Suzuki India	23	9	11	2	11	32	32	20	12	23	33
13	Sun Pharma.	4	31	1	30	1	9	9	1	27	7	11
14	BHEL	16	25	23	16	23	21	21	15	9	35	2
15	Bharti Airtel	17	29	17	20	17	12	12	14	1	29	1
16	Tata Power	8	35	20	9	20	25	25	10	6	36	12
17	TCS	6	12	16	3	16	23	23	6	26	16	13
18	Dr. Reddy'S Lab.	7	2	2	13	2	28	28	3	33	25	7
19	Mahindra & Mahindra	10	15	22	12	22	17	17	13	22	28	8
20	Tata Motors	28	33	26	24	26	34	34	28	18	2	25
21	Reliance Com.	36	30	31	4	31	15	15	36	20	18	18
22	Siemens	19	8	24	35	24	36	36	25	3	19	31
23	G A I L	9	11	12	23	12	5	5	8	25	8	10
24	Sesa Goa	2	17	25	28	25	18	18	4	2	17	16
25	Wipro	21	13	19	18	19	29	29	22	29	10	32
26	Sterlite Industries	13	24	34	19	34	22	22	18	11	12	3
27	Hindalco Industries	30	22	29	10	29	1	1	31	31	24	21
28	SAIL	12	18	32	33	32	10	10	17	32	31	6
29	Hindustan Unilever	34	7	4	21	4	30	30	34	28	9	22
30	Cipla	31	3	5	34	5	20	20	27	15	13	28
31	Jaiprakash Associates	18	19	36	15	36	16	16	29	17	34	27
32	N T P C	22	10	15	14	15	14	14	19	21	30	30
33	I T C.	15	16	7	6	7	13	13	9	36	27	5
34	Ambuja Cements	25	21	10	22	10	35	35	21	14	32	34
35	H C L Technologies	20	1	21	11	21	3	3	24	24	21	35
36	Ranbaxy Laboratories	35	36	9	31	9	27	27	35	10	15	24

TABLE-6: OLS Regression of Y = a + b*EVA/share for Market Performance Metrics

DEPENDENT VARIABLE	Intercept (t-stat) ((p-value))	coefficient (t-stat) ((p-value))	R-squared
Return	0.0823 (3.2411) ((0.0027))	0.0004 (1.2222) ((0.2301))	0.0421
Total risk	0.0293 (20.8229) ((0.0000))	0.0000 (-0.6669) ((0.5093))	0.0129
CV	3.0537 (3.8700) ((0.0005))	0.0134 (1.2753) ((0.2108))	0.0457
Beta	0.9483 (12.7086) ((0.0000))	-0.0001 (-0.0723) ((0.9428))	0.0002
CAPM Return (ROE)	0.1022 (42.8165) ((0.0000))	0.0000 (-0.0723) ((0.9428))	0.0002
Systematic Risk	0.0185 (12.7086) ((0.0000))	0.0000 (-0.0723) ((0.9428))	0.0002
Non-systematic Risk	0.0224 (25.6645) ((0.0000))	0.0000 (-1.3843) ((0.1753))	0.0534
CAPM Return/SYSTE. RISK	6.0175 (16.0493) ((0.0000))	-0.0005 (-0.1015) ((0.9198))	0.0003
Excess Market Return	-0.0199 (-0.7802) ((0.4407))	0.0004 (1.2220) ((0.2301))	0.0421
Excess Market Return/Non-Sys.Risk	-0.7880 (-0.7495) ((0.4587))	0.0173 (1.2371) ((0.2245))	0.0431
Z-Value	0.3646 (0.2674) ((0.7908))	0.0003 (0.0178) ((0.9859))	0.0000

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