Value Creation In Indian Paper Industry: An Analysis

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INTRODUCTION

Maximizing the shareholder value is considered as one of the fundamental goals of all businesses. In United States, top management is expected to maximize shareholder value. There are a number of value based management (VBM) frameworks. Shareholder value analysis (SVA) Rapport (1986) and Economic Value Analysis (EVA) developed by Stern Stewart (1990) are the two well-known ones. Maximizing shareholders value is becoming the new corporate standard in India. The corporates, which gave the lowest preference to the shareholders' inquisitiveness, are now bestowing the utmost inclination to it. Shareholders' wealth is measured in terms of the returns they receive on their investment. The returns can either be in the form of dividends or in the form of capital appreciation or both. Capital appreciation in turn depends on the subsequent changes in the market value of shares. This market value of shares is influenced by a number of factors, which can be company specific, industry specific and macro-economic in nature.

To help corporates to generate value for shareholders, value based management systems have been developed. Indeed, value based management, which seeks to integrate finance hypothesis with strategic economic philosophy is considered as one of the most significant contribution to corporate financial planning in the last two decades or so. For measuring the corporate financial performance, there are accounting profitability measures and shareholders' value based measures. Accounting profitability measures include ROI, ROE, EPS, ROCE and DPS etc.Shareholders valued based measures include EVA and MVA. This study is an attempt to analyze the trend and growth of EVA and MVA and the relationship between EVA and MVA in the Indian paper industry from 1997-98 to 2006-07.

ECONOMIC VALUE ADDED (EVA)

The concept of Economic Value Added was introduced by a New York based consulting firm M/s Stern Stewart & Co in the early eighties. The corporate sector in India is gradually recognizing the importance of EVA as a result of which some Indian companies' viz., Ranbaxy Laboratories, Samtel India Ltd.etc. have started calculating EVA. Infosys Technologies Ltd. is the first Indian company to report its EVA in the annual report. EVA attempts to measure the true economic profit as it compares actual rate of return as against the required rate of return.

EVA is an excess profit of a firm after charging cost of capital. EVA essentially seeks to measure a company's actual rate of return as against the required rate of return. To put it simply, EVA is the difference between Net Operating Profit after Tax (NOPAT) and the capital charge for both debt and equity (WACC- Weighted Average Cost of Capital). If NOPAT exceeds the capital charge (WACC), EVA is positive and if NOPAT is less than capital charge, EVA is negative.

COMPUTATION OF EVA

While computing EVA, capital employed represents capital invested at the beginning of the year. The logic behind taking beginning capital for computing EVA is that a company would take at least one year time to earn a return on investment. It may be mentioned here that calculation of EVA involves some tricky issues. Each element of EVA, therefore, has been discussed individually. EVA requires three different inputs for its computation. They are given below: (A) NOPAT (Net Operating Profit after Tax) (B) Invested Capital (C) Weighted Average Cost of Capital (WACC).

EVA = NOPAT - (WACC x Invested Capital)

NET OPERATING PROFIT AFTER TAX (NOPAT)

Stewart (1991) defined NOPAT as the "Profits derived from company's operations after taxes but before financing

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costs and non-cash book keeping entries". Such non-cash book keeping entries do not include depreciation since depreciation is considered as a true economic expense. In other words, NOPAT is equal to the income available to shareholders plus interest expenses (after tax).

INVESTED CAPITAL / CAPITAL EMPLOYED

Invested capital or capital employed refers to the total assets net of non-interest bearing liabilities. From an operating perspective, invested capital can be defined as Net Fixed Assets plus Investments plus Net current assets. Net current assets denote current assets net of non-interest bearing current liabilities. From a financing perspective, the same can be defined as Net Worth plus total borrowings. Total borrowings denote all interest bearing debts.

WEIGHTED AVERAGE COST OF CAPITAL (WACC)

For calculating WACC, cost of each source of capital is calculated separately, then weights are assigned to each source on the basis of proportion of a particular source in the total capital employed. Weights can be assigned on market value basis or book value basis. Stewart suggested market value basis. WACC can be calculated as below:

$$WACC = E/CE \times Ke + LTB/CE \times Kd$$

Where E = Equity Capital, CE = Capital Employed, LTB = Long Term Borrowings,
Ke = Cost of Equity Capital, Kd = Cost of Debt Capital

WACC includes two specific costs viz., (i) cost of equity (Ke), (ii) cost of debt (Kd).

CALCULATION OF COST OF DEBT (KD)

Cost of debt is calculated by multiplying the pre-tax debt cost by (1-t), Where't' refers the effective tax rate. This will furnish the post tax cost of debt. The post tax cost of debt is calculated because debt cost enjoys tax shield. In other words, tax reduces the effective cost of debt. Cost of debt can be calculated by applying the following formula:

Cost of Debt = (Total Interest Expense / Beginning Total Borrowings) x (1-t) x 100

$$Kd = (TIE / BTB) \times (1-t) \times 100$$

CALCULATION OF COST OF EQUITY (KE)

The cost of equity can be calculated by the Capital Asset Pricing Model (CAPM). The CAPM is normally used to determine minimum required rates of return from investment in risky assets. Stewart also used CAPM consistently as a measure for cost of equity in his methodology for computing EVA. The expected return on equity can be calculated under CAPM by applying the formula given below:

$$Rj = Rf + b\,(Rm - Rf)$$

Where **Rj** = Expected Return on Scrip j, **Rf** = Risk free rate of return, β = Beta representing the volatility of scrip j against market volatility. **Rm** = Expected stock market return.

MARKET VALUE ADDED (MVA)

With a view to measure shareholders' value, Stewart invented the term Market Value Added (MVA). Market Value Added (MVA) is defined as, "the difference between market value of invested capital and book value of invested capital of a company at a given period of time". Market value of invested capital refers to the market value of equity capital and debt capital, but the market value of debt is not easily available as debts are not generally traded. Thus, the definition of MVA can be stated as market capitalization less net worth. Market capitalization is the product of closing share price and number of outstanding shares as on that date (i.e., date of balance sheet). Whereas, net worth is the sum of equity capital, reserves and surplus net of revaluation reserve, less accumulated losses and miscellaneous expenditure.

MVA = Market Capitalization - Net Worth

Market Capitalization = Closing Share Price x Number of Outstanding Shares.

Net Worth:

1.Equity Share Capital	xxxx
2.Reserve and Surplus (net of revaluation reserve)	xxxx
Total	xxxxx

Less:	
1.Accumulated Losses	xxx
2.Miscellaneous Expenditure	xxx
Net Worth	**xxxx**

MVA is considered as a measure of shareholders' wealth. MVA denotes the extent to which the market has added value to the net worth of a company. An increase in MVA infers maximization of shareholders' wealth. This is because shareholders want to see appreciation in stock price. MVA can improve if market capitalization increases for the same level of net worth or if net worth of a company decreases. MVA provides the stock market's assessment of how efficient a company is in using capital. A positive MVA indicates that a company is building value for its shareholders and a negative MVA indicates that a company is destroying shareholders' value.

IMPORTANCE OF THE PAPER INDUSTRY

Paper industry in India is the 15th largest paper industry in the world. It provides employment to nearly 1.5 million people and contributes Rs 25 billion to the government's fund. The government regards the paper industry as one of the 35 high priority industries of the country. Paper industry is primarily dependent upon forest-based raw materials. The first paper mill in India was set up at Sreerampur, West Bengal, in the year 1812. It was based on grasses and jute as raw material. Large scale mechanized technology of papermaking was introduced in India in early 1905. Since then, the raw material for the paper industry underwent a number of changes and over a period of time, besides wood and bamboo, other non-conventional raw materials have been developed for use in the papermaking. The Indian pulp and paper industry at present is very well developed and established. Now, the paper industry is categorized as forest-based, agro-based and others (waste paper, secondary fibre, bast fibers and market pulp).

In 1951, there were 17 paper mills and today, there are about 515 units engaged in the manufacture of paper and paperboards and newsprint in India. The pulp & paper industries in India have been categorized into large-scale and small-scale. Those paper industries which have capacity above 24,000 tonnes per annum are designated as large-scale paper industries. India is self-sufficient in manufacture of most varieties of paper and paperboards. Import is confined only to certain specialty papers. To meet part of its raw material needs, the industry has to rely on imported wood pulp and waste paper. Indian paper industry has been de-licensed under the Industries (Development & Regulation) Act, 1951 with effect from 17th July, 1997. The interested entrepreneurs are now required to file an Industrial Entrepreneurs' Memorandum (IEM) with the Secretariat for Industrial Assistance (SIA) for setting up a new paper unit or substantial expansion of the existing unit in permissible locations.

Growth of paper industry in India has been constrained due to high cost of production caused by inadequate availability and high cost of raw materials, power cost and concentration of mills in one particular area. The government has taken several policy measures to remove the bottlenecks of availability of raw materials and infrastructure development. For example, to overcome short supply of raw materials, duty on pulp and waste paper and wood logs/chips has been reduced. Paper industry in India looks extremely positive as the demand for upstream market of paper products, like tissue paper, tea bags, filter paper, light weight online coated paper, medical grade coated paper, etc. is growing up.

LITERATURE REVIEW

Kramer and Pushner (1997)[1] tested the hypothesis that EVA is highly correlated with MVA. The study concluded that no clear evidence to support the contention that EVA is the best internal measure of corporate success in adding value to shareholder investments. On the contrary, the market seems more focused on 'Profit' than EVA. The study found that there is no clear advantage to shareholders in looking at EVA, as the accounting return on their investment is NOPAT.

Banerjee (1997)[2] has conducted an empirical research to find the superiority of EVA over other traditional financial performance measures. Ten industries have been chosen and each industry is represented by four/five

[1] Kramer, K. Jonathan and Pushner, George (1997), "An Empirical Analysis of Economic Value Added as a Proxy for Market Value Added", Financial Practice and Education, Spring / Summer 1997, pp. 41-49.

[2] Banerjee, Ashok (1997), "Economic Value Added (EVA): a better performance measure", The Management Accountant, December 1997, pp. 886 – 888.

companies. ROI and EVA have been calculated for sample companies and a comparison of both has been undertaken, showing the superiority of EVA over ROI. Indian companies are gradually recognizing the importance of EVA. Some of such companies are Ranbaxy Laboratories, Samtel India Ltd. and Infosys Technologies Ltd.

KPMG-BS Study (1998)[3] assessed top companies on EVA, sales, PAT (Profit after Tax), and MVA criteria. The survey has used the BS 1000 list of companies using a composite index comprising sales, profitability and compounded annual growth rate of those companies covering the period 1996-97. Sixty companies have been found able to create positive shareholder value whereas 38 companies have been found to destroy it. Accounting numbers have failed to capture shareholder value creation or destruction as per the findings of the study. 24 companies have destroyed shareholder value by reporting negative MVA.

Pattanayak and Mukherjee (1998)[4] discussed that there are traditional methods to measure corporate income known as accounting concept and there is also a modern method to measure corporate income known as economic concept. EVA, which is based on an economic concept, is professed to be a superior technique to identify whether the organization's NOPAT (Net Operating Profit after Tax) during a period is covering its WACC (Weighted Average Cost of Capital), thus generating value for its owners. But it is very tricky to calculate EVA. Companies trying to implement EVA are asked to incorporate 164 amendments to their financial accounts.

Anand, et.al. (1999)[5] revealed that EVA, REVA (Refined Economic Value Added) and MVA are better measures of business performance than NOPAT and EPS in terms of shareholders' value creation and competitive advantage of a firm, since conventional management compensation systems emphasize sales / asset growth at expense of profitability and shareholders' value. Thus, EVA is a measure that shifts focus on an organizational culture of concern for value.

Madhu Malik (2004)[6] examined the relationship between shareholder wealth and certain financial variables like EPS, RNOW and ROCE. By using correlation analysis, it was found that there was positive and high correlation between EVA and RONW, ROCE. There was a positive but low correlation between EVA and EPS. By using co – efficient of determination (r^2), EVA was compared with traditional performance measures and it was found that not even a single traditional performance measure is able to offer a complete explanation of variation in shareholder wealth.

Karam Pal Singh and Mahesh Garg (2004)[7] examined the disclosure of EVA in Indian corporates. The study revealed that out of 50 companies, only 32 companies have generated positive EVA and 18 companies have destroyed their shareholders' wealth in 1998. In 2000, only 29 companies have generated positive EVA. In 2001, only 34 companies have generated positive EVA. And the same trend continued in 2002. The study also found that one – third of the total companies are reporting negative EVA throughout the period and another one – third companies are generating positive EVA. It is also revealed that only two – three industries are reporting negative EVA and the rest are generating positive EVA.

Singh (2005)[8] examined an appropriate way of evaluating bank's performance and also found out which Indian banks have been able to create (or destroy) shareholders' wealth since 1998-1999 to 2002-2003. This study is based on 28 Indian private and public sector banks that are listed on the Bombay Stock Exchange (BSE). The study suggested that the relationship between EVA and MVA is statistically significant. The study showed impressive performance in terms of EVA by banks such as State Bank of Bikaner and Jaipur, Jammu and Kashmir Bank, Global Trust Bank and Indusind Bank.

Ghanbari and Sarlak (2006)[9] studied economic value added in Indian automobile industry. The objectives of the study are: to compute and analyze Economic Value Added (EVA) of firms in the automobile industry and to

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[3] KPMG-BS, (1998), "Corporate India: An Economic Value Scoreboard", The Strategy, January-March 1998, pp. 22-25.

[4] Pattanayak, J.K., Mukherjee, K. (1998), "Adding Value to Money", The Chartered Accountant, February 1998, pp. 8-12.

[5] Anand, Manoj, Garg, Ajay, and Arora, Asha (1999), "Economic Value Added: Business performance measure of shareholders' value", The Management Accountant, May 1999, pp. 351-356.

[6] Malik, Madhu, (2004), "EVA and Traditional Performance Measures: Some Empirical Evidence", The Indian Journal of Commerce, Vol. 57, No. 2, April-June 2004, pp. 32-37.

[7] Pal Singh, Karam and Garg.C. Mahesh, (2004), "Disclosure of EVA in Indian Coporates", The Indian Journal of Commerce, Vol. 57, No. 2, April-June 2004, pp. 39-49.

[8] Singh, Prakash (2005), "EVA in Indian Banking: Better Information content, More Shareholder Value", ABHIGYAN, Vol. XXIII, No. 3, October-December 2005, pp. 40-49.

[9] Ghanbari, M. Ali and Sarlak, Narges (2006), "Economic Value Added: An Appropriate Performance Measure in the Indian Automobile Industry", The Icfain Journal of Management Research, Vol. V, No. 8, March 2006, pp. 45-57.

identify the EVA trend of the industry during the period of the study. The study found that the Economic Value Added (EVA) of only 30 % of the selected companies is positive and 70 % of the selected companies have destroyed their shareholders' wealth by negative EVA. The study concluded that there has been a significant increasing trend in EVA of the Automobile Industry firms which means that companies have a positive trend to improve their firms' values.

Ramachandra Reddy and Yuvaraja Reddy (2007)[10] examined the effect of selected variables on MVA. This study was conducted with 10 cement companies in India and the objective of this study was to examine the effect of select variables on MVA. For this purpose, Multiple Regression Technique has been used to test the effect of select variables on MVA. The study found that none of the factors is found to have an impact on MVA and EPS is found to have a negative and significant impact on MVA. The study concluded that the performance of select cement companies in terms of profitability cannot be increased unless the improved problems like modernization, cost reduction, control taxes etc. are solved.

OBJECTIVES OF THE STUDY

- To analyze the trend and growth of value creation in the Indian Paper Industry in terms of EVA (Economic Value Added) and MVA (Market Value Added) .
- To study the relationship between EVA and MVA in the Indian Paper Industry

RESEARCH METHODOLOGY

Sources of Data

This study is based on secondary data. To analyze the trend and growth of value creation in terms of EVA and MVA in the Indian Paper Industry and to analyze the relationship between EVA and MVA, required financial data of sample companies were collected from ***"Capitaline Plus"*** Database of Capital Market Publishers India (Pvt) Ltd.

Sample Design

The sample size of the present study is '11' paper companies from the Indian Paper industry. These companies were selected as sample companies by considering the availability of financial data for computing EVA, components of EVA (NOPAT, WACC) and MVA, components of MVA (Market Capitalization, Net Worth) for the study period from 1996-97 to 2006-07.

Data Analysis

For analyzing the trend and growth of value addition in terms of EVA and MVA in the Indian Paper Industry, the present study used statistical tools like mean, standard deviation, CV, LGR (Linear Growth Rate) and't' statistic for analyzing the financial data of sample paper companies. To study the relationship between EVA and MVA, one way ANOVA and simple regression were applied.

ECONOMIC VALUE ADDED: TREND & GROWTH

Economic value added (EVA) is a value based financial performance measure, an investment decision tool and a performance measure reflecting the absolute amount of shareholder value created. It is computed as the product of the "excess return" made on an investment or investments and the capital invested in that investment or investments. EVA is the net operating profit minus an appropriate charge for the opportunity cost of all capital invested in an enterprise or project. It is an estimate of true economic profit, or the amount by which earnings exceed or fall short of the required minimum rate of return investors could get by investing in other securities of comparable risk (Stewart, 1990).

Table 1 presents the results of trend and growth analysis of Economic value added (EVA) along with its components such as Net operating profit after tax (NOPAT), Invested Capital (IC) and Weighted Average Cost of Capital (WACC) for the paper industry.

[10] Ramachandra Reddy, B. and Yuvaraja Reddy, B, (2007), "Financial Performance through Market Value Added (MVA) Approach", The Management Accountant, January 2007, pp. 56-59.

Table 1: Trend and Growth In Economic Value Added (EVA) For Paper industry

(Rupees in Crores)

Year	Net Operating Profit After Tax (NOPAT)	Invested Capital	Weighted Average Cost of Capital (WACC)	Economic (EVA) Value Added
	Crores	Crores	%	Crores
1997-98	285.74	2100.85	68.17	159.67
1998-99	206.04	2431.27	81.28	48.83
1999-00	175.76	2454.05	79.06	-36.79
2000-01	143.00	2396.56	68.36	4.02
2001-02	221.38	2629.26	70.00	26.53
2002-03	309.35	2915.06	54.56	112.65
2003-04	297.32	2103.51	72.23	166.49
2004-05	333.25	2857.16	40.46	166.12
2005-06	342.69	3546.39	48.86	148.22
2006-07	309.08	3463.44	37.73	135.34
Mean	262.36	2689.76	62.07	93.11
SD	70.11	507.03	15.60	75.68
CV	26.72	18.85	25.14	81.29
LGR	15.18**	130.25***	-4.23***	12.51
t Value	(2.46)	(3.50)	-(4.06)	(1.64)

**Significant at 5% level. ***Significant at 1% level.

It can be observed from the table that there has been positive significant growth in NOPAT (LGR = 15.18, t = 2.46, $p < 0.05$) and invested capital (LGR = 130.25, t = 3.50, $p < 0.05$). However, from CV value of 26.72 and 18.85 for NOPAT and Invested Capital, it is understood that the trend in NOPAT is less consistent than the trend in invested capital. WACC for paper industry, at the same time, has significantly declined with constant rate of 4.23 per cent every year to stay at 37.73 per cent in 2006-07 from 68.17 per cent in 1997-98. The decline in WACC has indicated that the companies under the paper industry might have reduced the cost of capital by changing the financing mix in order to create more value for investors.

From positive EVA values in all years except in 1999-00 as well as EVA values in between 112.65 and 166.49 during 2002-03 to 2006-07 along with positive but insignificant LGR of 12.51, it is apparent that the companies in the paper industry have succeeded in creating more values to their shareholders by taking relevant steps like reducing cost of capital by changing the financing mix between equity and debt from 2002-03.

MARKET VALUED ADDED: TREND & GROWTH

Market value added (MVA) is the excess of market value of capital (both debt and equity) over the book value of capital. If the MVA is positive, the company has created wealth for its shareholders. If the market value of capital is greater than its book value, the company has created wealth. In the following section, MVA data is analyzed along with its primary components -Market Capitalization and Net worth for the selected industries during the study period from 1996-97 to 2006-07. The result of the trend and growth analysis of MVA for paper industry is exhibited by Table 2.

Table 2: Trend and Growth In Market Value Added (MVA) For Paper Industry

(Rupees in Crores)

Year	Market Capitalization	Net Worth	Market Value Added (MVA)
1997-98	3568.05	1415.97	2152.08
1998-99	1323.17	1542.07	-218.90
1999-00	850.12	1628.39	-778.27
2000-01	1006.38	1598.34	-591.96
2001-02	1593.91	1751.73	-157.82
2002-03	986.65	1911.90	-925.25

2003-04	1052.40	1709.75	-657.35
2004-05	1389.28	2198.67	-809.39
2005-06	1842.91	2484.54	-641.63
2006-07	2706.53	2609.82	96.71
Mean	1631.94	1885.12	-253.18
SD	872.94	410.69	905.77
CV	53.49	21.79	-357.76
LGR	-11.45	125.38***	-136.83
t Value	-(0.11)	(6.85)	-(1.45)

***Significant at 1% level.

Table 2 shows that the market capitalization has been at its maximum in 1997-98 (Rs.3568.05 crores) but dropped to its minimum level in 1999-2000 (Rs.850.12 crores) after a sudden decline in 1998-99 from its level in 1997-98. After showing crisscross trend during the study period, the market capitalization ended with Rs.2706.53 crores in 2006-07, which is less than its level in the beginning year. Though insignificant, linear growth rate (LGR), which is negative, provides evidence that market capitalization for this industry has failed to show an upward trend. However, net worth of the selected companies of the Paper industry has increased significantly at the rate of Rs.125.38 crores every year on an average to reach at Rs.2609.82 crores in 2006-07 from Rs.1415.97 crores in 1997-98. Also, from CV values, it is evident that net worth (CV = 21.79) has been highly consistent as compared to that of market capitalization (CV = 53.49).Due to the declining trend and heterogeneity in market capitalization, the value creation tends to prevail in the negative zone in 8 out of 10 years. Furthermore, negative LGR value, though insignificant, exposes the fact that market has failed to expose the real value of the paper industry.

RELATIONSHIP BETWEEN EVA AND MVA IN THE PAPER INDUSTRY

The concepts of Economic Value Added (EVA) and Market Value Added (MVA) or shareholder value creation or simply called value creation were developed in order to reflect corporate performance more accurately. Many researchers have supported EVA as the best internal determinant of MVA. The most important benefit of the implementation of an EVA system is given and in conclusion, there is a discussion of some criticisms offered by different researchers and practitioners on EVA as a measure of shareholder value creation. According to Stewart, a company's EVA is the fuel that fires up its MVA.

Fatemi et al categorized companies according to their ability to generate EVA and MVA. Companies with high EVA and MVA are called "winners", companies with a high EVA and low MVA are "problem children", companies with a low EVA and a high MVA are "holders of real options" and companies with a low EVA and MVA are typified as "losers". In this scenario, an attempt is made to identify the relationship between EVA and MVA (value creation) in the Indian paper industry.

The relationship between value creation (MVA) and EVA is analysed in two ways.First, time series data of companies under each sector for 10 years are pooled together and categorised into three groups based on 30^{th} and 70^{th} percentiles of EVA. That is, EVA below its 30^{th} percentile is formed into one group, between 30^{th} and 70^{th} percentile as another group and EVA above its 70^{th} percentile is categorized as the third group. The first one is identified as low EVA group, second one as moderate and the third group as high EVA group. The mean MVA across these three groups are compared using one way ANOVA in order to find out whether MVA differs significantly with difference in the level of EVA.

The relationship between MVA and EVA is identified by using simple regression technique. This regression technique is adopted to evaluate the strength of relationship of EVA on MVA on yearly basis for each sector as well as for all selected sectors. Further, Durbin Watson (DW) statistic is considered for identifying the existence of serial correlation between MVA and EVA. As a rule of thumb, DW stat value less than 1 indicates positive serial correlation while a value above three 3 reveals negative serial correlation between two variables.

Table 3 provides the results of one way ANOVA comparing mean MVA across low, moderate and high EVA company groups belonging to the paper industry in India.

Table 3: Results of ANOVA Showing Difference in Value Added Among Company Groups With Low, Moderate and High EVA Under PAPER Industry

Level of Economic	N	Market Value Added (MVA)		F Value	p Value
Value Added (EVA)		Mean	SD		
Low	30	-54.85	120.88		
Moderate	38	-22.77	127.59	0.81^{NS}	0.4468
High	32	4.89	270.94		
All	100	-23.54	184.15		

SD – Standard Deviation; NS - Not Significant.

It is shown in table that MVA, on an average, is negative for low and moderate EVA groups but positive for high EVA group. At the same time, the EVA, which stood at -54.85 for low group has increased to -22.77 for moderate group and then to 4.89 for high EVA group. This clearly reveals the existence of positive relationship between the two. However, F value obtained from the analysis is very low and insignificant statistically, in turn indicating that difference in MVA is independent of the level of EVA for companies under Paper industry. The Table 4 exhibits the results of year-wise regression of MVA on EVA for the Paper industry.

From the Table 4, it is apparent that there has been significant influence of EVA on MVA in 7 out of 10 years. The fit of the regression models for 1997-98 (F value = 9.08, $p < 0.05$), 1999-00 (F value = 11.99, $p < 0.01$), 2002-03 (F value = 15.77, $p < 0.01$), 2003-04 (F value = 4.73, $p < 0.10$), 2004-05 (F value = 15.90, $p < 0.01$), 2005-06 (F value = 6.41, $p < 0.05$) and 2006-04 (F value = 12.70, $p < 0.01$) is found to be significant at the required hypothetical level. This in turn provides evidence of significant association between MVA and EVA of companies under the paper sector in most of the years. But when time series data for all ten years are pooled together, the fit of the regression model becomes insignificant (F Value = 1.33, NS). From DW test values, it is understood that there exists no serial correlation is most of the years between the two variables. Therefore, overall from the above inferences, it is found that value creation based on the EVA happened on a year to year basis in respect of companies of the Paper Industry.

Table 4: Results of Simple Regression Showing the Relationship between EVA and MVA for PAPER Industry from 1997-98 to 2006-07.

Year	Intercept		EVA		R	R^2	Adjusted	SE	F Value	DW
	Value		't' Value		Beta	't' Value	R^2	Estimate		Stat
1997-98	-71.515	-0.56	17.957**	3.01	0.729	0.532	0.473	266.91	9.08**	0.69
1998-99	-11.564	-0.15	-1.315	-0.15	0.052	0.003	-0.122	188.63	0.02^{NS}	2.54
1999-00	-36.039	-0.89	12.712***	3.46	0.775	0.600	0.550	126.12	11.99***	1.46
2000-01	-62.176*	-2.01	6.509	1.44	0.453	0.205	0.106	97.62	2.06^{NS}	1.41
2001-02	-36.940	-0.74	7.975	1.37	0.437	0.191	0.090	150.69	1.89^{NS}	0.87
2002-03	-33.184	-1.29	-5.268***	-3.97	0.815	0.663	0.621	66.27	15.77***	1.53
2003-04	-38.828	-1.75	-1.616*	-2.17	0.609	0.371	0.293	58.29	4.73*	1.48
2004-05	-19.034	-0.76	-3.727***	-3.99	0.816	0.665	0.624	62.01	15.90***	2.10
2005-06	6.044	0.15	-4.737**	-2.53	0.667	0.445	0.376	96.99	6.41**	1.48
2006-07	-50.476	-1.74	4.444***	3.56	0.783	0.614	0.565	74.87	12.70***	1.26
All Years	-35.471*	-1.68	1.250	1.15	0.116	0.013	0.003	183.84	1.33^{NS}	1.28

*Significant at 10% level. **Significant at 5% level. ***Significant at 5% level.

FINDINGS OF THE STUDY

- It is found from positive EVA values in all years except in 1999-00 as well as EVA values in between 112.65 and 166.49 during 2002-03 to 2006-07 along with positive but insignificant LGR of 12.51, it is apparent that the companies under the Paper industry have succeeded in creating more values for their shareholders by taking relevant steps like reducing cost of capital by changing the financing mix between equity and debt from 2002-03.
- It is found that there has been positive significant growth in NOPAT (LGR = 15.18, $t = 2.46$, $p < 0.05$) and Invested capital (LGR = 130.25, $t = 3.50$, $p < 0.05$). However, from CV value of 26.72 and 18.85 for NOPAT and Invested Capital, it is understood that the trend in NOPAT is less consistent than the trend in invested

capital.WACC for paper industry, at the same time, has significantly declined with constant rate of 4.23 per cent every year to stay at 37.73 per cent in 2006-07 from 68.17 per cent in 1997-98.

- It is found that the market capitalization has been at its maximum in 1997-98 (Rs.3568.05 crores) but dropped to its minimum level in 1999-2000 (Rs.850.12 crores) after a sudden decline in 1998-99 from its level in 1997-98.
- It is found that the market capitalization ended with Rs.2706.53 crores in 2006-07, which is less than its level in the beginning year. Though insignificant, linear growth rate (LGR), which is negative, provides evidence that market capitalization for this industry has failed to show an upward trend.
- It is found that the net worth of the selected companies of the Paper industry has increased significantly at the rate of Rs.125.38 crores every year on an average to reach at Rs.2609.82 crores in 2006-07 from Rs.1415.97 crores in 1997-98.
- It is found from CV values that net worth (CV = 21.79) has been highly consistent as compared to that of market capitalization (CV = 53.49).Due to declining trend and heterogeneity in market capitalization, the value creation tends to prevail in the negative zone in 8 out of 10 years. Furthermore, negative LGR value, though insignificant, exposes the fact that market has failed to expose the real value of the Paper industry.
- It is found that MVA, on an average, is negative for low and moderate EVA groups but positive for high EVA groups. At the same time, the EVA, which stood at -54.85 for low group has increased to -22.77 for moderate group and then to 4.89 for high EVA group. This clearly reveals the existence of a positive relationship between the two. However, F value obtained from the analysis is very low and insignificant statistically, in turn indicating that difference in MVA is independent of the level of EVA for companies of the paper industry.
- It is found that there has been significant influence of EVA on MVA in 7 out of 10 years. The fit of the regression models for 1997-98 (F value = 9.08, $p < 0.05$), 1999-00 (F value = 11.99, $p < 0.01$), 2002-03 (F value = 15.77, $p < 0.01$), 2003-04 (F value = 4.73, $p < 0.10$), 2004-05 (F value = 15.90, $p < 0.01$), 2005-06 (F value = 6.41, $p < 0.05$) and 2006-04 (F value = 12.70, $p < 0.01$) is found to be significant at the required hypothetical level. This in turn provides evidence of significant association between MVA and EVA of companies under the paper sector in most of the years. But when time series data for all ten years are pooled together, the fit of the regression model becomes insignificant (F Value = 1.33, NS). From DW test values, it is understood that there exists no serial correlation in most of the years between the two variables. Therefore, overall from the above inferences, it is found that value creation based on the EVA happened on a year to year basis in respect of companies under the Paper Industry.

CONCLUSION

This study clearly revealed that there is positive relationship between EVA and MVA in the paper industry. It is concluded that the value creation based on the EVA happened on a year to year basis in respect of companies of the Paper Industry.

BIBLIOGRAPHY

(1) Kramer, K. Jonathan and Pushner, George (1997), "An Empirical Analysis of Economic Value Added as a Proxy for Market Value Added", Financial Practice and Education, Spring / Summer 1997, pp. 41-49.
(2) Banerjee, Ashok (1997), "Economic Value Added (EVA): a better performance measure", The Management Accountant, December 1997, pp. 886 – 888.
(3) KPMG-BS, (1998), "Corporate India: An Economic Value Scoreboard", The Strategy, January-March 1998, pp. 22-25.
(4) Pattanayak, J.K., Mukherjee, K. (1998), "Adding Value to Money", The Chartered Accountant, February 1998, pp. 8-12.
(5) Anand, Manoj, Garg, Ajay, and Arora, Asha (1999), "Economic Value Added: Business performance measure of shareholders' value", The Management Accountant, May 1999, pp. 351-356.
(6) Malik, Madhu, (2004), "EVA and Traditional Performance Measures: Some Empirical Evidence", The Indian Journal of Commerce, Vol. 57, No. 2, April-June 2004, pp. 32-37.
(7) Pal Singh, Karam and Garg.C. Mahesh, (2004), "Disclosure of EVA in Indian Coporates", The Indian Journal of Commerce, Vol. 57, No. 2, April-June 2004, pp. 39-49.
(8) Singh, Prakash (2005), "EVA in Indian Banking: Better Information content, More Shareholder Value", ABHIGYAN, Vol. XXIII, No. 3, October-December 2005, pp. 40-49.
(9) Ghanbari, M. Ali and Sarlak, Narges (2006), "Economic Value Added: An Appropriate Performance Measure in the Indian Automobile Industry", The Icfain Journal of Management Research, Vol. V, No. 8, 2006, pp. 45-57.
(10) Ramachandra Reddy, B. and Yuvaraja Reddy, B, (2007), "Financial Performance through Market Value Added (MVA) Approach", The Management Accountant, January 2007, pp. 56-59.
(11) Singh K.P and Garg M.C, "Economic Value Added (EVA) in Indian Corporates", Deep & Deep Publications Pvt Ltd, New Delhi, 2004.

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2. Harrison J.M and Pliska S.R, A Stochastic Calculus Model of Continuous Trading: Complete Markets, Stochastic process and their applications 15, 313-316, 1983.
3. Harrison J.M and Pliska S.R, Martingales and Stochastic Integrals in the theory of Continuous Trading, Stochastic process and their applications 11, 215-260,1981.
4. Karlin S and Taylor H.M, A First Course in Stochastic Processes, 2nd ed. Academic Press, New York, 1975.
5. Modigliani and Miller,The cost of capital corporation finanace and the theory of investment, The American Economic Review, 261-297, 1958.