CHAPTER II
REVIEW OF LITERATURE

In the emerging capital market, lots of discussion among corporate managers, investors and financial analysts are going on to find out the ways to create shareholders’ value and to measure it in a precise manner. In the financial market, so many tools have been used to measure the shareholders’ value. Traditionally, the corporate use Return on Investment, Net Present Value, Earnings and so on. But with the gaining importance of stock market, the value based measures have come into picture. Among the value based measures, Economic Value Added (EVA)” is considered a significant measure for calculating the share holder value. However financial analysts do not unanimously accept the measure EVA as a performance evaluation measure. Therefore many research works have been carried out to find out the reliability of the EVA in estimating the firms’ value. The result of the Stern Stewart’s research revealed that there is a positive relationship between EVA and historical stock price performance. In contrast an academic study by Biddle et al. (1997) concludes that, EVA explains shareholder returns not better than earnings. Corporate strategy Guru Gary Hamel\textsuperscript{1} argued that “EVA”, isn’t an adequate way to measure wealth creation. Al Ehrbar, a senior Vice President of Stern and Stewart, the consulting firm that coined the term “EVA’, strongly disagrees with Hamels’ opinion. Like-wise discussions are circling round the term EVA. With this challenge, the researcher is intended to analyze the ability of EVA in the valuation process of Indian corporate. For this purpose, the researcher would like to review the earlier research works

\textsuperscript{1} Gary Hamel and Al Ehrbar, “Debate: Ducking it out over EVA”, Fortune, August 4,1997, pp.186.
to know the views of the experts and findings from the research works on EVA. The summarized forms of the earlier works are presented in this chapter so as to know the importance of the present study in the present day context.

**Easton P., Harris T and Ohlson, J. (1992)**² stated that EVA is an increasingly popular corporate performance measure – one that is often used by companies not only for evaluating performance but also as a basis for determining incentive pay. They also stated that like other performance measures, EVA attempts to cope with the basic tension that exists between the need to come up with a performance measure that is highly correlated with shareholders’ wealth but at the same time somewhat less subject to the random fluctuations in stock prices. This is a difficult tension to resolve and it explains the relatively low correlations of all accounting based performance measures with stock returns, at least on a year-to-year basis.

**Stewart III G Bennett (1994)**³ has attempted a descriptive study on the concept of EVA. He argued that if a company’s prime financial objective is to maximize the wealth of the shareholder, then EVA should be measured. EVA is an estimate of a business’s true economic profit and it is defined as the residual income remaining after subtracting the cost of capital that has been employed to produce the operating profit. He has given the following equations to explain relationship between the shareholders’ wealth and EVA.

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\text{Shareholders’ wealth} = \text{Market Value Added (MVA)}
\]

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MVA = Total firm value – Total Capital
Total firm value – Total capital = Net Present Value
Net present value = the present value of future EVA

From the above equations, it can be inferred that, the wealth of the shareholders is equivalent to the present value of future EVA. He stated that EVA is a powerful new management tool that has gained worldwide recognition as the standard tool of corporate governance. In the paper he concluded that at its best, EVA serves as the centerpiece of a completely integrated framework of financial management and incentive compensation.

Stern M Joel et al (1995) argued that, if EVA is fully implemented it is the centre piece of integrated financial management system that encompasses the full range of corporate financial decision-making. It represents a way to institutionalize the running of a business in accordance with the basic micro economic and corporate finance principles. It can result in a self-regulated and self-motivated system of internal governance. The anchor of the EVA financial management system has been considered as powerful incentive compensation plan that consists of two parts such as cash bonus plan and Leveraged Stock Option plan. Both plans induce the managers to act as owners of the company and also help to reward managers for continuous improvement in the value of company. The authors concluded that by increasing accountability, strengthening incentives, facilitating decentralized decision making, establishing a common language and integrated framework and fostering a culture that prizes building value; above all else, EVA significantly improves the chances of winning.

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Grant L. James (1996) conducted a survey that examined the relations between EVA and the corporate value. In the analysis it was found that a significant relationship exists between the two measures. The result also revealed that 31.6% (R square) of the movement in the MVA-to-capital ratios for the US large capitalization firms at year-end 1993 was explained by the variations in the EVA-to-capital ratio. The study concluded with a statement that EVA significantly bangs the Market Value Added of a firm and that this wealth effect stems from the company’s residual return on capital.

Jackson Alfred (1996) has taken the measure of EVA and tested whether EVA has the ability to transform the DCF approach. For that he analyzed, the merits of EVA and the drawbacks of other measures such as EPS and cash flow. He applied the EVA concept in equity research at CS First Boston. The analysis helped to develop a better understanding of corporate value drivers not only of key Profit & Loss variables such as sales growth and operating margins, but also of balance sheet factors like capital efficiency and cost of capital. It was based on operating cash flow rather than just earnings per share, which could be manipulated in a variety of ways by managers and accountants. The main advantage of EVA was, it has begun with companies’ after tax net operating earnings by considering cost of capital charge, which cannot be done in other measures. The study finally concluded that the concept of EVA helps the management to achieve better understanding of their companies, business strategies and tactics. It also

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helps the investors in assessing the important issues of capital efficiency and competitive advantage over a longer time horizon.

Lehn K and Makhija A.K (1996) affirmed that EVA and MVA are increasingly being eyed as alternative measures of business performance and strategic development. To provide clarifications on the subject, a study which examined the effectiveness of EVA and MVA as measures of performance, as signals of strategic change in these metrics of strategic development was conducted. Their study used data from 241 firms for the time slab 1987-96, showed that EVA and MVA effectively measured the quality of strategic decisions and served as signals of strategic change and they were found to be significantly correlated with stock price performance and inversely related to turnover. It was concluded that firms having greater focus in their business activities had higher MVA than less focused counterparts.

Luber R B(1996) showed that MVA has been in compliance with the direction of the market. He stated that studies have shown that a company which shows a positive EVA over a period of time will also have an increasing MVA while negative EVA will bring down MVA as the market loses confidence in the competence of a company to ensure a good return on the invested capital. The five topmost companies as the wealth creators as per his analysis were -Coke, GE, Microsoft, Merck and Philip Morris- have strong EVAs and are expected to remain in the top niche in the upcoming years.

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Hanlon John O’ and Peasnell Ken (1996)\(^9\) provided some insights into Earnings Price(EP)/EVA from the accounting perspective. The traditional measure called EPS creates a myopic picture to the shareholders regarding the valuation of the companies. Companies can generate impressive EPS by ploughing back retained profits in poorly-performing ventures, destroying shareholder wealth in the process. This is so happened that EPS does not charge equivalent deduction for the opportunity cost of shareholder funds. This problem is handled in the EP/EVA system by subtracting the capital charge based on the book value of assets employed from profit. To be more specific, it has been concluded that the profit is to be computed on the true value of assets and then only, the EP/EVA would give a theoretical framework for making economic sense of accounting perspective.

Milunovich Steven and Tsuei Albert (1996)\(^10\) believed that EVA would be a superior measure to that of earnings and other financial measures because it has taken into account the capital used to create profits. Using the EVA they analysed the performance of the computer industry. In the analysis also EVA has a higher correlation with Market Value Added (MVA) than the popular measures such as EPS, ROE and free cash flow. In the study it has been stated that the EVA has been intimately connected to MVA, since MVA is nothing but the present value of future EVA and the relationship between these measures helps investors in determining stock prices. This undermines the usefulness of EVA as a predictive tool. But EVA analysis could not account for sudden

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expectation changes associated with paradigm shifts. They also stated that EVA is not only an external measure but can provide internal guidelines for running business. From their observation in the study they recognized that EVA played a significant role at some companies during the study period.

O’Byrne F Stephen., Stern Stewart & Co. (1996)\(^{11}\) tested the explanatory power of EVA in predicting the company’s market value with that of other measures such as earnings (NOPAT) and Free Cash Flow (FCF). For that, they have formed a number of regression models. The result of the regression model revealed that FCF explains the market value of the company less than one per cent, earnings and EVA have explained each around one third of the variation in market/capital ratios that is 33% and 31% respectively. Their study revealed that both earnings and EVA have about the same level of success in explaining market value. For testing the superiority of EVA over earnings, two additional variables were taken by the researchers in the regression model. One that reflects whether the company is earning positive or negative EVA and another one designed to capture any differences in the way, the market values companies of different size. After considering these variables, EVA with positive and negative aspects explains 38%, EVA in capital term explains 42% and EVA with industrial coefficient explains 56% whereas NOPAT explains only 33% of the market value. In sum, after making a number of adjustments, the results revealed that levels of EVA are significantly better predictor of current market value than levels of NOPAT and FCF. In their study they also found out that five-year changes in EVA explain 55% of five-year changes in market value and ten year changes in EVA explain 74% of the variation in ten-year changes in

the market value of the companies. By contrast, the NOPAT model explains only 24% of
the five-year changes and 64% of the ten-year changes, in the market value. Thus they
concluded that EVA as a powerful tool for understanding the investor expectations that
are built into a company’s current stock price.

**Uyemura G Dennis et al (1996)**\(^\text{12}\) discussed the concept of shareholder wealth by
taking 100 largest bank holding companies. In their research work it has been stated that
maximizing shareholders’ wealth is not the same as that of maximizing the total market
value of a company since the market value can be increased either by increasing the
market value of shares or by increasing the investment. The second case is not good for
the investors. Hence, there should be some value addition in the shareholders’
investment. Therefore in their research, Market Value Added (MVA) has been
considered for analysis. While MVA has been the measure of shareholders’ wealth
creation, it does have the limitation that it depends on market volatility that may be
unrelated to the operating decisions of management. Therefore, measure EVA has been
selected by the authors for analyzing the operating performance of banks. in the result of
their analysis they have stated that EVA is the only measure which has provided the
strongest correlation with MVA.

**Bacidore et. al. (1997)**\(^\text{13}\) observed that Economic Value Added performs quite
well in the context of shareholder value creation. They have observed that change in
shareholder value can be fittingly depicted by applying market derived cost of capital to

\(^\text{12}\) Dennis G. Uyemura, Charles C. Kantor and Justin M. Pettit, “EVA® for banks Value creation, Risk
Management, and Profitability Measurement”, Journal of Applied Corporate Finance, Vol.9 No.2 (Summer

market value of company assets/organization value. Based on the asset value a refinement of Economic Value Added called Refined Economic Value Added (REVA) was proposed by them. This new concept has been defined as:

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REVA_t = NOPAT_t - Kw (MV_{t-1})
\]

where,

\[
MV_{t-1} = \text{Total market value of the company’s assets at the end of the period } t-1.
\]
\[
Kw = \text{Weighted average cost of capital.}
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It was stated in their paper that the new measure is theoretically superior in measuring a firm’s operating performance. A comprehensive statistical analysis of both REVA and EVA was used to estimate their correlation with and their ability to predict shareholder value creation. In this empirical analysis also, it has been demonstrated that REVA statistically outperformed EVA.

**Bacidore M Jeffrey et al. (1997)** in their article specified that increasing shareholder value is considered as the pressure of firms. It has to be related with two key issues. One has to do with improving productivity within the firm and as well as relationships with customers and other things concerned with the measurement of the firm’s progress in meeting its shareholders’ value goals. The first issue was related with Total Quality Management (TQM) and the next was associated with measuring the financial performance by motivating the managers to do what is the best for shareholders. Interlinking these concepts should ultimately lead to shareholders’ wealth. TQM could

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help EVA by ensuring that companies make proper investment in human capital and more generally, in their non-investor stakeholders. At the same time, EVA system could be used to discipline a TQM program by discouraging management from overinvesting in such stakeholders. In short, the paper stated that the goals of both the system are mutually consistent and could be used effectively to reinforce each other.

**Biddle C Gracy et al., (1997)** in their paper titled “Does EVA beat earnings” provided empirical evidence on whether current period realizations of Residual Income (RI) and EVA are more closely associated with stock returns than other traditional accounting measures such as earnings and cash flow from operations (CFO). They stated EVA includes the components of earnings, NOPAT and Residual Income and hence EVA is a modified version of all those popular measures. In their study the analysis was carried out by applying two tests, relative information content test and incremental information content test. In the first test, Earnings Before Extraordinary Items (EBEI) has the highest correlation with market adjusted returns. In the incremental test, they ended with the findings that while EVA components offer some incremental information content beyond earnings components, their contribution to the information content of EVA were not sufficient for EVA to provide greater relative information content than earnings. Further, the sensitivity analysis carried out by the researchers found that there is no evidence to support the Stern Stewart that EVA or RI outperforms EBEI. They concluded that, EVA might be an effective tool for internal decision making, if all the Stern Stewart adjustments are carried out; otherwise it will not dominate earnings.

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Burkette D Gary and Hedley P Timothy (1997)\textsuperscript{16} examined whether the economic profit gives a true picture of company performance or not. To properly calculate economic profit, adjustments must be made to after-tax operating income and then the total capital investment in the company computed. The calculation operating income in the economic profit requires other changes to GAAP-Based net income. Certain adjustments, such as research & development and employee training costs are capitalized and amortized over time rather than expensed in the year incurred as required by GAAP. Regarding capital investment, net assets employed is to be added with the items classified as current operating expenses that would provide the company benefits in future periods. These would include R&D costs and employee training and the like. Then the difference between the capital charge and adjusted net operating income is considered as the economic profit. Employing the economic profit would be useful for the company in several ways. It serves as a measure of corporate and divisional performance, as a compensation base for the managers, to increase managers’ awareness in the stock holders’ interest, to emphasize long-term importance and benefits of R&D and employee training. The above actions would lead to increase in the firm value. This was due to increased managerial awareness of stockholder interest and a longer term thinking perspective brought about as result of implementation of economic profit.

Chen Shimin and Dodd James (1997)\textsuperscript{17}, in his Article, they asked three research questions such as (1) Is the correlation between Company’s EVA and stock return as perfect as claimed by EVA advocates? (2) How does EVA compare to accounting profit

\textsuperscript{16} Gary D Burkette and Timothy P Hedley, “The truth about economic value added”, The CPA Journal; (July 1997); 67, 7; ABI/INFORM Global pp. 46-49.
\textsuperscript{17} Shimin Chen and James Dodd, “Economic Value Added an empirical examination of new corporate performance measure”, Journal of Managerial Issue, 9; 3 (Fall 1997), pp.318-333.
in terms of association with stock returns? (3) Does EVA provide more information than residual income in explaining the variation of stock returns? They found a correlation of 449 between stock returns and EVA per share and that 20% of the variation in stock return can be explained by EVA. Regression was performed with four EVA variables and stock returns and produced an R squared value of .415. They drew three concluding results from their examination. (1) Although improving EVA is associated with a higher stock return, the association is not as perfect as claimed by EVA advocates. (2) EVA is more powerful than traditional measures of accounting profit in explaining stock return; however, accounting earnings are still of significant incremental information value in addition to EVA. (3) Not only EVA is similar to residual income in concept, the two metrics are empirically comparable. However it is necessary to mention that the study is based on cross-sectional models with an implicit assumption that the coefficients are constant for all firms. While this is a common approach, some finer models such as industry-specific and time-series models would produce additional insights given a larger data-set.

Glassman M.D(1997)\(^{18}\) discussed EVA which drive management decisions, measures communication and incentives. But the use of this rigorous measure became more difficult to apply farther down in the company, often because functional structures were unfriendly towards useful financial measures. To create meaningful EVA Centers, he insisted that the company should calculate and monitor EVA for marketing and manufacturing. The article also stated that the EVA framework strengthens other initiatives that recognized the need to convert from managing functions to focusing on

processes and it could also stimulate the functional managers to take more holistic view of their responsibilities. By including the cost of capital, it forces managers to define costs more carefully.

**Johann de Villiers (1997)** in their paper recommended that managers should aim to maximize EVA instead of maximizing profit because while maximizing EVA, getting a return less than the cost of capital were discontinued even though this decreases the overall profits. On the other hand, they also stated that, the main disadvantage was that it is based on accounting profit. He stated that the accounting profit is often a poor proxy for economic profit. This discrepancy between accounting earnings and economic earnings has been exacerbated by inflation. Hence, the author developed an adjusted EVA (AEVA) which would be providing a better estimate of actual profitability under inflation. AEVA is the difference between the NOPAT and the required accounting rate of return of the current asset employed in the firm after making necessary adjustment for the level of inflation during that period. Here, the current value of assets was determined by calculating what the present value of the remaining cash flows of the projects would have been if the projects had shown a marginal return, say 15% or 20%. Hence, AEVA would be provided an alternative to inflation accounting and could be used under inflation to estimate actual profitability from conventional accounts. Finally, the author suggested that further research is essential to test whether AEVA is appropriate to use in all application instead EVA.

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Kramer K Jonathan and Pushner George (1997)\textsuperscript{20} empirically tested the strength of the relationship between EVA and Market Value Added (MVA). For the purpose of testing the relationship, EVA was defined as the difference between a firm’s net operating profit tax (NOPAT) and its cost of capital and MVA was calculated by subtracting the capital invested in a firm from the sum of the total market value of the firm’s equity and the book value of its debt. The test was carried out using the Stern Stewart 1000 database over 10 years. The study revealed that MVA is positively related to both the EVA and NOPAT. However, in all cases, NOPAT explains more of the total variation in MVA than the EVA. In another analysis, it was found that NOPAT explained more of the total variation in MVA than EVA did. Based on the findings they suggested that it would be better to compare, the performance of companies that have implemented an EVA system to those that have not implemented it.

Lehn Kenneth et al (1997)\textsuperscript{21} debated by asking which performance measure has done the best job of predicting the turnover of chief executive officers (CEOs). For analyzing the performance of companies, 452 large U.S. Companies have been taken. The analysis was carried out with the help of six performance measures. They include three accounting profit rates such as ROA, ROE and ROS, two Stern & Stewart measures such as EVA and MVA and one stock performance measure called RET. The outcome of the analysis revealed that EVA and MVA were more highly correlated with the stock returns than the three accounting profit rates. In the examination of predictor of CEO

turnover, they found that traditional accounting profit rates were less important determinants of CEO change than EVA, MVA and stock returns. Further, an important thing which should be known was that an inverse relation existed between performance in terms of EVA and MVA and CEO turnover. They concluded that the relation between CEO turnover and conventional accounting measures of performance was much less clear.

O’Byrne F. Stephen (1997)\(^{22}\) analyzed the relationship between EVA and market value for the companies in Stern Stewart performance 1000 database and compared with the performance measures such as NOPAT, FCF and EVA. In the paper, the author identified the important conceptual and methodological weakness in several studies that find little relationship between EVA and shareholder return. The study found that, EVA explains the differences in market value much better than NOPAT or FCF and EVA changes explain market value changes much better than changes in NOPAT.

Shimin Chen and James Dodd (1997a)\(^{23}\) posed a question: “Does EVA capture the market’s valuation of a company better than more traditional metrics such as accounting earnings, residual income?” He probed for an answer to the above question by using 10 years data between 1983 and 1992, obtained from Stern Stewart’s 1992 performance 1000. They used a formal valuation model to link both earnings level and change in earnings to raw stock returns and fitted the model using three different measures of profitability such as operating income, residual income and EVA. Then they


ran the model using both the pooled cross sectional and inter temporal analysis. The result revealed that EVA was significantly associated with the stock returns with a low explanatory power. Statistical analysis also found that there was no significant difference between any of the measures taken in the analysis in their association with stock returns. They concluded the study with a statement that the empirical evidence showed that accounting based measures (including EVA) are significantly associated with stock returns, but they are not meaningful in explaining them.

**Tully Shawn (1997)**24 in a comprehensive study, explained how to manage EVA system. For managing EVA, it was suggested to spread the concept of shareholder value throughout, implement an incentive system for all employees, educate and train employees for better results and to bring strategy within the ambit of the EVA programme. It has been stated in the study that the implementation of EVA makes the managers act like shareholders. The paper also presented the method for calculating EVA and also showed EVAs of several companies like Bajaj Auto, Asian paints, Procter and Gamble Ltd., Siemens India and so on and concluded that EVA could be a better financial performance evaluation measure than other traditional measures.

**Young David (1997)**25 addressed the popularity of EVA. He criticised that why managers are turning to EVA as a performance metric and how EVA is used by companies and the problems that typically arise in implementing it. He stated that a company may use Earning per Share, NPV and Return on Net Assets for the evaluation of its performance in the market, for capital budgeting and to measure managers’

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performance respectively. But it could use EVA as a performance measure for all the three. Regarding the problems in implementing EVA he stated that estimating cost of equity under CAPM is considered as a great exercise. This is because, it could not be possible to observe the future and it was just based on the inference of investors’ demand by reference to historical data. Hence, the model is easy enough to grasp conceptually, but its implementation requires estimates of the market risk premium and companies’ beta. Finally, the author stated EVA is not a panacea and should never be viewed as a substitute for good management practice. What EVA can do, is to help senior managers put the proper incentives and monitoring systems in place to increase the chances that all managers will run the firm in a manner consistent with the creation of shareholder value. In that sense, EVA is an improvement over the performance metrics that came before it.

Zimmerman J.L (1997)\textsuperscript{26} tested whether EVA has the ability to capture the synergy effect in the divisional firms by analyzing the divisional performance. From the observation of the author, there was no divisional performance measure, to capture synergies among divisions. From his words it was found that it would not be fair to analyze the stock return with the given single performance measure. Because stock prices are forward looking, even the most precise measure of annual corporate income is likely to have a fairly low statistical correlation with year-to-year changes in a company’s stock price. A better method of evaluating divisional performance measure should have the capability to weigh the behavioral or incentive benefits of a given measure against all direct and indirect costs associated with its implementation. The authors have stated that in case of EVA, though it has the potential significant incentive benefits, it has the

potential cost also in the form of increased auditing requirements and the possibility of litigation.

**Bao Ben-Hsien and Bao, Da-Hsien (1998)**\(^{27}\) empirically examined the usefulness of Value Added and Abnormal Economic Earnings. To test the usefulness of earnings, three types of analyses such as firm valuation analysis, levels analysis and changes analysis had been carried out by considering 166 firms as samples. In the study the firm value was defined as the market value of equity. The result of the firm valuation analysis indicated that, abnormal economic earnings were not a useful variable in explaining firm value. Value added was a better variable in explaining the firm value; its explaining power was even higher than that of earnings and abnormal economic earnings in the level and changes analysis. Taking the valuation, levels and changes analysis as a whole, it was found that value added is the most statistically significant explanatory variable and it is even more significant than earnings, with higher explanatory power than that of earnings. Finally, it was concluded that Abnormal Economic Earnings, were not useful and a better surrogate should be developed.

**Chen Shimin and Dodd L James (1998)**\(^{28}\) examined the value relevance of three profitability measures such as Operating Income, Residual Income and EVA. They found that all three profitability measures have information content in terms of value-relevance. They conducted two types of analysis, viz., three pooled time regression and paired t-test.


In both the analysis, their results did not support the claim that EVA® is a better measure than either residual income or operating income. Similarly, they did not have convincing evidence to support the prediction that residual income provides more information than operating income in explaining security returns. This study followed the cross-sectional returns study paradigm with an implicit assumption that the coefficients are constant for all firms. While this is a common approach in the literature, some finer models such as industry-specific or time-series models may provide additional insights.

Esa Makelainen(1998)\(^{29}\) in his working paper, discussed about the general theory of EVA, how EVA could be defined in controlling and reporting, how it could be used in bonus systems and what were the problems faced in implementing EVA. It was explained that EVA is not a new discovery. It is one of the variations of an accounting performance measure called residual income, which has been defined as operating profit subtracted with capital charge.

Ferguson Robert and Leistikow Dean (1998)\(^{30}\) made an attempt to find out the best financial performance measure among the Refined Economic Value Added (REVA) and EVA. They found that REVA was inconsistent with finance theory. So it is inappropriate for measuring operating performance and for compensating management and they hence concluded that EVA dominates REVA with finance theory and appropriate for measuring operating performance.


Lahiri Arjun (1998)\textsuperscript{31} made a descriptive study about Economic Value Added. In the study it has been stated that some Indian Companies such as HLL, NIIT, Infosys, Marico industries and Reliance Industries are disclosing the EVA in their annual records. It shows that these companies create value for its shareholders. These companies earned higher return than the cost of obtaining their capital, that is, there is profitable growth in such companies. On the other hand, the companies like TISCO and SAIL, criticized EVA that “EVA is an over-exaggerated and glamorous term, which is currently in vogue.” It has been criticized that the most of these companies destroy their value and hence they would never disclose this in their annual accounts. In the paper another problem had been stated that while computing EVA, there might be an error in estimating weighted average cost of capital. A percentage error brings about more than a percentage error in EVA. The paper had been concluded saying that in spite of all these contentious issues, EVA has made a niche for itself in valuations, mergers and acquisitions and capital budgeting, though its best use is in corporate strategy making and management compensation setting.

McCormack L John and Vytheeswaran Jawanth (1998)\textsuperscript{32} suggested that every company needs an integrated management system for setting goals and measuring performance for planning and decision making and for compensating managers and communicating with shareholders. Their paper stated that based upon nearly 300 Stern Stewart EVA installations in place throughout the world, it is highly confident that

adoption of such an integrated management system would lead to better decisions, higher morale, and motivation and superior stock market performance.

Mouritsen Jan (1998)\textsuperscript{33} compared and contrasted Economic Value Added and Intellectual Capital as two technologies of managing, oriented towards encouraging growth. The analysis suggested that Economic Value Added and Intellectual Capital contrasted greatly. In the paper it has been stated that EVA is a financial management system based on radical delegation and empowerment and which therefore directs attention to the results created by managers. Based on financial micro theory, EVA accounts to measure that attempts to account more properly for the cost of capital, but more than that, it is also a management control system which seeks to create radically independent business units and minimize corporate staff. Intellectual Capital is a different control system concerned to encourage endogenous growth implemented through loosely coupled sets of non-financial measurements that become very strong. The author finally stated that, while EVA looks to managers as the movers of change, Intellectual Capital seems to promote the creativity possessed by employees more systematically.

O’ Hanlon J. and Peasnell. K (1998)\textsuperscript{34} reviewed the EVA system in the light of promoting value-maximizing behaviour in corporate managers. They highlighted the potential problems faced by the residual income as a single period performance indicator. The major problems were charging interest on sunk cost and criticism of reward systems based on the residual income which induces Stern Stewart to go for EVA. The study also

considered the adjustments to GAAP-based accounting, advocated by Stern Stewart in order to produce a more economically meaningful version of residual income (EVA) which might serve as an effective indicator of single-period measure. The author examined the Stern Stewart approach to the setting of EVA benchmarks and reviewed the logic behind the use of the bonus bank to separate the award of EVA-based bonuses from the payment of such bonuses. Finally they stated that EVA has passed the initial market test of attracting the interest of the business community.

**Roztocki Narcyz and Needy Kim La Scola (1998)**35 presented a cost and performance measurement system that integrates activity-based costing (ABC) with the Economic Value Added. This proposed ABC-EVA system is a management support tool for managing cost and capital. The integrated ABC-EVA system included the rate of resource consumption and also included the capital demand. In the study a traditional ABC system was compared with the ABC-and-EVA system by examining the cost for each activity at the first stage. A firm’s capital information is then transformed into transparent capital charges using a newly developed method called Activity- Capital Dependence (ACD) Analysis. Although, the ABC method provides accurate operating product costs, it does not identify which products are economic value added creators and contribute to stockholders’ wealth. Thus in the result, it is revealed that the proposed integrated ABC-and-EVA system by itself will not make improvements in the business process, but rather will provide management with information that can direct improvement efforts.

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Banerjee Ashok (1999)\textsuperscript{36} conducted a study to explore the supremacy of EVA over other variables in explaining the stock price performance. For that, five independent financial variables such as EPS, Adjusted Return on Net Worth (ARONW), Capital Productivity (KP), Labour Productivity (LP) and EVA, had been chosen to establish the relationship between shareholders’ wealth and the selected financial variables. MVA, a measure of shareholder’s wealth was considered as the dependent variable. He tested the above relationship by taking a sample of nine industries over a period of six years from 1992-93 to 1997-98, using an intra-industry time series analysis. The result revealed that, the correlation coefficient between EVA and MVA was the highest for seven industries out of nine industries for minimum three years during the study period. Later a multiple linear regression model had been used for testing the hypothesis that, ‘EVA is the single most significant explanatory variable’. The hypothesis was rejected for most of the industries. This poor result might be due to small size of sample from each industry. To improve the result, he has conducted a cross sectional analysis for each year. This is done to test whether the larger sample would improve the regression result. Here also, there was no significant relationship with change in EVA and change in MVA. He failed to explore the supremacy of EVA over other variables. However, in both the analysis, EVA has the highest correlation coefficient with MVA.

Biddle C Gary et. al., (1999)\textsuperscript{37} in his paper titled “Evidence on EVA” examined the betterment of EVA in explaining the stock returns and firm values than the traditional


accounting earnings. In this paper the authors reviewed their earlier paper “Does EVA beat earnings’ and derived a logical explanation for the result. Two claims were framed by them in the research. The first claim was that whether EVA was more closely associated with stock returns and firm value than net income. The result exposed that the EVA does not dominate traditional accounting earnings in associations with stock returns and firm values. One possible explanation would be that Stern Stewart’s proprietary adjustments to GAAP earnings “undo” informative accounting accruals contained in earnings. Another possibility is that EVA and residual income contain little news beyond that already in earnings. Regarding the second claim that EVA and residual income motivate managers better to increase shareholder wealth. Independent evidence suggested that firms that adopt residual income-based incentives tend to (1) improve operating efficiency by increasing asset turnover (2) dispose of selected assets and reduce new investment (3) repurchase more shares. Thus it has been possible for a metric to be quite useful for internal incentive purposes even though it conveys little if any news to market participants regarding the firm’s future prospects. Therefore, EVA and residual income could prove effective in motivating shareholder wealth creation without conveying new information to investors and claims linking the two should be interpreted with care.

Ehrbar Al and G. Bennett Stewart III (1999)\textsuperscript{38} descriptively explained the concept of EVA. He supported the quote of \textit{FORTUNE} magazine that, “EVA is the real key to creating wealth”. In the article it has been stated that the real magic in EVA comes from changing behavior throughout an organization and that depends crucially on using it as the basis for incentive compensation. They stated that EVA represents a genuine

revolution in management as EVA is a new and fundamentally better answer to the age-old problem of how to align the interests of agents with principals, of how to bind managers and employees to the will of the shareholders. They also asserted that it works because it is an elegant and understandable way to create a web of overlapping ownership interests so that the wealth created by a company can be shared with all of the people that have helped to bring that wealth about.

Kleiman T Robert (1999)\textsuperscript{39} made a comparison between Economic Value Added (EVA) with that of stock market performance of the companies in the same industries for two, three, and four-year time horizons from the time it began to adopt EVA. In their study the relative stock market performance was taken for two groups of peers such as the closest peer and the median peer. The closest matched peer firm represented the company in the same four-digit SIC code that was closest in sales to the EVA Company in the year prior to adoption. The median peer, is the median of all publicly traded U.S. Companies in the same four-digit SIC code (excluding EVA companies). In the time period prior to implementation of EVA, there was no distinguishable difference between the stock market performance of EVA companies and that of their industry competitors. But, in the three-year period after adoption of EVA, the study proved that the EVA companies outperform both their closest-matched competitors and their median competitors by considerable margin. In the study it was also stated that the overall EVA companies created $124 billion more in the market value than their median competitors. In sum, the results of the study provided strong evidence that the stock market

performance of EVA companies was significantly better than that of their industry competitors. This study also showed that companies that adopted EVA as the basis for a total management and incentive compensation system benefit from an improvement in operating performance as measured by traditional financial ratios.

Lefkowitz Devin Scott (1999)\(^{40}\) examined the correlation between the variables EVA and changes in market value added of fortune 1,000 firms, individually and grouped by industry. In the company wise analysis, the regression results revealed that EVA explained 16.4% to the total variation of changes in MVA. When the companies were grouped into 56 industries and applied the above test, the results revealed that, EVA explained 35.2% to the total variation of changes in MVA. In both the cases, the P-value was very small and it could reject the hypothesis, that there is no relationship between those variables. From that it has been concluded that there was a correlation between EVA and changes in the market value of companies and that changes in EVA explained a greater amount of the changes in market value when companies were grouped by their industry. However, in this study, he has taken one year’s data base (1996) and only simple linear regression was applied. The result might be accurate, if any one goes for multiple regression by considering other independent factors for a longer period. Another limitation was that the companies were all from different industries that have different characteristics. If the same test was performed on companies within the same industry, then the result would be more reliable than the results from the test performed.

\(^{40}\) Scott Devin Lefkowitz, “The correlation between Economic Value Added and Market value of companies” MBA thesis submitted to California State University, (May 1999).
O’ Byrne Stephen F. (1999)\textsuperscript{41} reviewed the Article, “Does EVA beat Earnings?” written by Gary Biddle, Robert Bowen and James Wallace (BBW). The result of the study found out that earnings explain more of the variation in shareholder returns and market value levels than EVA. The author identified some problems in the BBW’s Article. The problems stated were (1) BBW’s regression analysis showed that investors put great weight on the cost of debt and ignores the cost of equity. Their earnings variable was not a pure earnings measure but that excluded all financing costs and included interest costs only (2) The explanatory power they attributed was really attributable to NOPAT and capital –and thus their earnings model was really an EVA model in disguise. (3) The ability of EVA to explain shareholders’ returns depends upon the accuracy of their model of expected EVA performance and they made no attempt to drive a model of expected EVA improvement from the EVA valuation equation. An appropriate model may be constructed, by considering the above points. They finally concluded that, developing an accurate model of future and growth value and expected EVA improvement is not an easy task, but it is essential to evaluate the explanatory power of EVA in a fair way.

Manoj Anand et. al. (1999)\textsuperscript{42} analyzed the business performance by using various measures such as EVA, REVA, MVA and other traditional measures such as NOPAT, EPS and the like. A case study was undertaken by analyzing Infosys Technologies Ltd., taking the data for a period of five years from 1994 to 1998. The result of the analysis revealed that Economic Value Added (EVA), Refined Economic

Value Added (REVA) and MVA are better measures of business performance than NOPAT and EPS in terms of shareholders’ value creation and competitive advantage of a firm.

Thenmozhi M (1999) explained the concept of EVA and compared it with some other traditional measures of corporate performance namely ROI, EPS, RONW, ROE, ROCE etc. In order to compare EVA with traditional measures, data of three financial years between 1996 and 1999 were chosen from 28 companies. He used the coefficient of determination to demonstrate that the traditional measures do not reflect the real value of the shareholders and thus EVA has been taken into account to measure the value of the shareholders’ wealth. In the analysis only 6 out of 28 companies had positive EVA while the others had negative. Comparing EVA with other traditional performance measures the study indicated that all the companies depict a rosy picture in terms of EPS, RONA and ROCE for all the three years but these traditional measures do not reflect the real value of the shareholders and EVA has to be measured to have an idea about the shareholders value. The author also referred to some of the shortcomings of the concept of EVA but maintained that EVA is a better measure of corporate performance as compared to the traditional measures.

Banerjee Ashok (2000) made an attempt to find out the relevance of Stewart’s claim, that market value of the firm is largely driven by its EVA generating capacity in

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the Indian context. In this study, the relationship between EVA and market value was tested with the sample size of 200 over a period of five years. The result of the regression analysis exposed that the independent variables, Current Operation Value (COV) and Future Growth Value (FGV), significantly explain the variation in market value. This revealed that the market value estimated on the basis of current operational value and future growth value is highly correlated with actual market value. To confirm the above result, t-statistics test was used in the analysis. The t-statistics of COV and FGV is significant at 1% level. This implied that COV and FGV significantly explain the market value of the sample. In the result of the analysis the coefficient of FGV is lower than the coefficient of COV. The reason for FGV’s poor predictive power could be that FGVs were calculated on the basis of actual operating results of the firms during the period 1994-95 to 1997-98. Computing FGV only on the basis of four year data might have led to underestimation of future growth potential in the study. They concluded that an analysis with a longer time horizon and calculation of FGV based on expected future EVA might produce a better relationship between FGV and market value.

Battacharyya K Asish and Phani B.V. (2000) examined whether EVA is a superior performance measure, both for corporate performance evaluation and for internal governance. They examined whether EVA conveys any additional information to investors over other conventional measures such as ROI, ROE and ROA. They found that even though EVA had been correlated with stock returns, it had not been much greater than the correlation between accounting profit and stock returns and therefore though EVA might be incrementally better over other measures, it did not really provide any

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significant informational advantage due to the complication in its implementation. In contrast, it has been given that EVA can be very useful in improving productivity of a firm, if it is adopted as a corporate philosophy and the advantage of EVA over other similar tools is that it improves business literacy because of easy understandability and conceptual clarity. The one component that sets it apart over conventional measures is its consideration of the cost of capital and this is the one component, which should be understood by everyone involved in operations. The study concluded that EVA will gain popularity more as a management planning and control tool than as a measure of corporate performance.

**Gregory V. Milano(2000)** has discussed the benefit of EVA. This study showed that, in a typical ten-year DCF analysis of a new economy company, 80-99% of the value was in the terminal value. When EVA was applied with the same forecast, only 20-50% of the value was in the terminal value. The study stated that the key investments in a new economy company were in R&D, marketing and advertising and most of these companies did not even have accounting profits. The study also viewed that the future of EVA looks quite bright as the new economy unfolds and the need to recognize a broader range of investments intensify. New economy companies have demonstrated EVA margins and growth rates that have never been seen in the traditional economy companies, a lure for every company to jump in. Therefore, it has been concluded that, it is the tool that successful companies would use to transform their culture into one that encourages decentralized decision-making, rapid innovation and the feeling of ownership.

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Marc Hodak (2000) observed that large companies are generally split into various divisions to improve managerial decision making by allowing for specification and decentralization. Each divisional manager is given considerable rights to make some decisions, which may affect the plan of corporate manager. It causes bleeding of companies. The bleeding is defined as the difference between the value of the right decision made from a company perspective and the value of the wrong decision made by a divisional manager. In this context ‘right’ and ‘wrong’ refer to the probable effect, positive or negative, of such decisions on the value of the whole company. Taking the case of Boston region of Jellica Company, the causes for bleeding of that company and methodology to be adopted to reduce such bleeding are discussed in this study. In the study it has been said that the business unit should be closer to individuals at the bottom of the organization and should get the benefit through specialization, motivation and accountability. This is true only if the business unit is a viable EVA center. EVA center is any business unit whose financial results are tracked in terms of economic value added. In this context, EVA is a measure of performance that accounts for the full cost of capital. For an EVA center, two characteristics need to be possessed. They are ‘activities’ components and ‘results’ components. The managers’ decisions are taken as the activity components and the operating profit from their activities is considered as the result component. Based on activities and result components, EVA centre could be identified. Finally in the study it has been stated that to make a centre a viable EVA centre, alignment is essential, that alignment has to be improved to reduce the bleeding. And to achieve this, basic remedies needed are prescribed such as the perspective frame work of

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Marc Hodak, Stern Stewart & Co, “The Viable EVA Center (or, How to Slice a company so it doesn’t bleed)”, Journal of Applied Corporate Finance, Vol.13, No. 3 (Fall 2000) pp.71-79.
intra-company charges, re-organization or aggregation of any organization to determine the viability of both existing and potential EVA centres.

Parasuraman N R (2000)\textsuperscript{48} made an attempt to study the use and relevance of EVA in the Banking Sector by taking 14 major public sector banks, 7 new private sector banks, 5 old private sector banks and 2 foreign banks. For the judgment of performance of the selected banks parameters like Deposits, Return on Assets (ROA) Interest income as a percentage of total assets, Interest yield spread as percentage of total assets and EVA have been considered. In the analysis the result revealed a high degree of correlation of EVA with ROA, but not with any other measures. The high degree of relationship between ROA and EVA would imply that banks realized the importance of measuring EVA separately so that even if they do well on other fields. In the light of intense competition in the coming years, the study expects that EVA will soon displace other measures of bank performance and ultimately a bank will get to be judged by the extent of shareholder value creation.

Shrievs E Ronald and Wachowicz M John (2000)\textsuperscript{49} assisted the users of Discounted Cash Flow (DCF) method by clearly setting forth the relationship of Free Cash Flow (FCF) and EVA concepts to each other and to the more traditional applications of DCF thinking. The authors have stated that Cash Flow under FCF approach is logically equivalent to the discounting of economic profit under EVA\textsuperscript{TM}

\textsuperscript{49} Ronald E. Shrievs and John M. Wachowicz, “Free Cash Flow (FCF), Economic Value Added(EVA\textsuperscript{TM}) and Net present Value (NPV) - A Reconciliation of Variations of Discounted Cash Flow(DCF) Valuation”, Working paper of University of Tennessee (June 2000).
approach. The concept of NOPAT is central to both the approaches but there the computational similarities at the end and the FCF approach focus on the periodic cash flows obtained by deducting total net investment and adding net debt issuance to net operating cash flow, whereas the EVA approach requires the periodic total investment in the firm.

**Turvey G Calum et. al (2000)**\(^{50}\) examined the relationship between economic value added (EVA) and the stock market performance of 17 publicly traded companies in the Canadian food processing sector. Using 1996 annual reports to compute EVA, and daily stock prices for 1994 through 1998, an attempt was made to correlate EVA with a variety of measures including accounting return on assets (ROA), return on equity (ROE), share price, the Capital Asset Pricing Model (CAPM) returns and risk, and others. The empirical part of this paper focused on two claims made in supporting EVA. The first claim was that EVA provides a superior metric of firm performance relative to conventional measures such as ROA, ROE, and ROS. The second claim was that high-EVA firms show superior strength in the market place. The claims were investigated and the results found little support for the conjecture that high-EVA firms lead to higher shareholder value.

**Garvey G.T and Milbourn T Todd (2001)**\(^{51}\) observed that an appropriate performance measure of the corporate should be highly correlated with stock returns. Hence, the analysis was carried out whether EVA has the higher correlation with stock returns.

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\(^{50}\) Calum G Turvey, Linda Lake, Erna van Duren, David Sparling, “Agribusiness. Hoboken: (Autumn 2000) Vol.16, Iss. 4; pg. 399

\(^{51}\) Gerald T. Garvey and Todd T. Milbourn, “EVA versus Earnings: Does it matter which is more highly correlated with stock returns?”, No.52, 2001 at http://econ.claremontmckenna.edu/papers/.
returns than do traditional accounting earnings. In the analysis, it was found that the simple correlation between EVA or earnings and stock returns was a reasonable guide to their value as an incentive contracting tool. Then the authors calibrated the theoretical improvement in incentive contracts from optimally using EVA in addition to accounting earnings at the firm and industry level. They empirically estimated the value-added of EVA by firm and industry. These estimates were positive and significant in predicting firms which have actually adopted EVA as an internal performance measure.

**Gup E. Benton and Nam Doowoo (2001)**\(^{52}\) in their work provided explanations for, why the companies engage in stock buybacks and they empirically analyzed the significance of differences in the companies with and without stock buyback activities in terms of EVA and other measures of corporate performance. The main theories behind the stock buybacks were information signaling hypothesis, the tax efficiency hypothesis, the leverage hypothesis and the free cash flow hypothesis. In their study the EVA was calculated as the difference between the Return on Invested Capital (ROIC) and the Weighted Average Cost of Capital (WACC), multiplied by the invested capital. In this study, ROIC, operating margin, capital turnover, EVA and value spread of the sample companies were calculated for the period before and after buyback years. The sample companies were classified into non buy back; full buy-back and partly buy-back companies. Later in the study the comparison was made among those companies using parametric and non parametric tests. The results of the both tests revealed that the operating performance of the buyback companies was better than the performance of the

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non-buyback companies and that it improved significantly in the year after the initiation of buyback activities. These improvements were more impressive in EVA and value spread than ROIC.

McCormack John and Drummond Ian Gow (2001)\textsuperscript{53} analyzed the performance of Nuevo Energy of Exploration and Production (E&P) industry by using the Economic Value Added. They observed that a proper EVA measure for an E&P company has taken the annual change in the net present value (NPV) of reserves net of capitalized costs into that year’s net operating profit after tax. The historical costs of the reserves were not relevant going forward and the authors have taken the capitalized cost. The authors in their paper have stated that for developing the internal measure of value creation, some steps such as incentive compensation plan, internal hedging and corporate risk management were taken by the Nuevo management. Based on the experience of Nuevo, the management realized the importance of creating the right incentive compensation plan. This plan was considered as the essential one for the wealth creation in the oil industry like Nuevo. The hedging decision taken out of capital structure resulted in the dilution of current shareholders’ interest. Nuevo concluded that the case for hedging externally had nothing to do with management or investor views on commodity prices. Nuevo’s identification and valuation of its portfolio of real option continued after its initial implementation of EVA. The authors finally concluded that Nuevo continued to work on improving its EVA system and it is still a work in progress with respect to the coordination of risk management and target capital structure.

Meenakshi Malhotra (2001)\textsuperscript{54} evaluated the performance of stock in the context using the EVA. She compared the EVA with other traditional performance measures such as Return on Investment (ROI), Return on Capital Employed (ROCE), and Return on Sales (ROS) for estimating their impact on share price. This was done with the help of step wise regression analysis by taking twenty companies as a sample. The regression results revealed that, the rankings based on the performance indicators were not similar. The rankings were varied with the change of various measures. Eleven out of twenty companies earned Return on Investment (ROI) and Return on Sales (ROS) ranging between 10 to 20%. Eight companies earned Return on Capital Employed (ROCE) ranging between 30 to 45%. All the companies in the sample unit earned positive value of ROI, ROS and ROCE. The measure EVA was negative for seven companies. In the study the correlation between Performance indicators and market price of the shares was high in the case ROCE and it was followed by EVA, ROI and ROS. But none of the coefficients in the estimated regression equation found to be statistically significant. Finally the author concluded that there is no indication whatsoever that EVA is conveying any statistically significant signals different from the traditional performance indicators.

Ray Russ (2001)\textsuperscript{55} in his article stated that EVA could be a powerful tool, when it is applied properly. It has been stated that EVA allows a firm to ascertain where it is creating value and where it is not and more specifically, it allows a firm to identify where the return on its capital is outstripping the cost of that capital. For those areas of the firm

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where the former is indeed greater than the latter, EVA analysis then allows the firm to concentrate on the firm’s productivity in order to maximize the value created by the firm. Finally it was concluded saying that from the firm’s perspective, EVA is an internal financial tool which holds every manager in the firm accountable for every dollar allotted to them and from the market’s perspective, EVA is a very useful tool which the firm could maximize the value by increasing its productivity.

Stires David (2001)\textsuperscript{56} observed that some companies created value and some destroyed its value from the selected best 100 companies based on market capitalization, in the Stern Stewart Performance 1000. He ranked them according to MVA and these companies EVA values were calculated. He observed that, the growing EVA is a good sign that a stock will soar in the future. In the research study Based on MVA and EVA, Future Growth Value (FGV) and Current Market Value (CMV) have been predicted and the study ended with the conclusion that to forecast the market and to predict the wealth, the two wealth measures such as EVA and MVA can be used.

Thamby A and Beheli R (2001)\textsuperscript{57} measured the Economic Value Addition (EVA) by Indian Commercial Banks in the public and private sectors during the 1990s. The study had been restricted to 12 commercial banks consisting of 4 public and 8 private sector banks. The period covered under the study was three years starting from 1995-96 to 1997-98. The study showed that the performance of the Indian Banks as measured by EVA was not satisfactory and the commercial banks under consideration had not created any positive EVA. The authors indicated two possible reasons for the creation of

\textsuperscript{56}David Stires, “America’s best and worst wealth creators”, FORTUNE (December 10, 2001) pp.75-78.

inadequate positive EVA such as those banks could have been overcapitalized and returns were very poor from banking business. They also suggested that banks should improve and strengthen their credit assessment technique and monitoring mechanism to bring down the non-performing assets so as to improve the earning capacity.

TimomSalmi and Virtanen Ilkka (2001)\(^{58}\) observed that the value based management performance measure EVA\(^{®}\) introduced by Stern Stewart & Co. is an incarnation of the underlying residual income (RI) concept. In their work the concept is evaluated and compared with traditional profitability measures within a controlled simulation framework. In the analysis it was confirmed that EVA and its variability were strongly affected by the firm’s growth policy choices. It was also observed that even under regular economic condition the relative EVA was much more unstable than the traditional return on investment measure. Furthermore, the study also revealed that there was one-to-one correspondence between EVA and the traditional return on equity.

Bardia S.C. (2002)\(^{59}\) explained the concept of EVA and compared it with that of accounting measures by taking the case of Infosys Technologies Ltd (ITL) for a period of five years from 1996-97 to 2000-01. In his study, EVA as a percentage of average capital employed (EVACE) was calculated for four years and found that there was an upward trend except in the year 1999-2000 in EVACE. Similarly the trend in the traditional performance measure such as ROCE, ROE and EPS were also analyzed and found that like EVACE, the traditional measures also indicate quite a healthy picture of the selected


company during the study period. In this paper, the relationship between ROCE and EVACE was also analyzed using correlation and regression analyses. The calculated Karl Pearson’s coefficient of correlation between ROCE and EVACE was 0.75, which indicates that both ROCE and EVACE have a high degree of positive relationship. The estimated value of EVACE has been calculated through regression equation, taking ROCE as an independent variable. These estimated values are compared with actual values by applying chi-square test. In the result it was found that there was no significant difference between observed and expected values of EVACE and therefore it was suggested that the companies must compute and publish EVA statistics in their annual reports, because it emphasizes on quality of earnings and not just the quantity as it takes into account the overall cost of capital employed in the business including the cost of equity.

Costigan M.H and Linda Lovata (2002)⁶⁰ observed that the EVA is a new measure of performance that is purported to better align managers’ incentives to that of the shareholders and accordingly, firms that experience higher agency conflicts should be more included to use this performance evaluation system. Additionally, the organizational strategy of the firm should influence the likelihood of employing EVA. Prospector firms are defined as firms that apply a differentiation strategy while defender firms focus on being cost-leaders. Firms identified as prospectors should be less likely to use EVA. In their study, one hundred and fifteen firms were identified as being adopters of EVA. Logistic regression was performed to contrast these firms to a control group of

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1,271 non-adopters. The results of the analysis indicated that firms as defined by a higher ratio of research and development to sales tend to use EVA less than defender firms.

David Crowther (2002)\textsuperscript{61} in his article, explained the importance of Value Based Management (VBM) in the organizational management. One among the VBM techniques is EVA and it is claimed to have a number of advantages over traditional accounting measures, the chief one being that economic performance is only determined after the making of a risk adjusted charge for the capital employed in the business. Associated with EVA is the measure of Market Value Added (MVA) which is defined as the difference between market value of the company and economic book value of the capital employed. MVA should reflect the present value of expected future value added and thereby provides a measure of the expectation of shareholder value created, he stated. In practice this relationship is not as simple as this because of the factors affecting the operation of the market. It is therefore argued by proponents of this kind of shareholder value analysis technique that both measures need to be considered together in order to evaluate the value of the techniques of shareholder value analysis in assessing company performance. Finally the author concluded that, the use of above VBM techniques by an organization will inevitably lead to better performance of that organization but these techniques are not simple to implement in any organization despite that there is a growing interest in these techniques and a growing body of evidence concerning their effectiveness.

Francis G and Minchington (2002)\textsuperscript{62} studied the implementation of Value-based performance Measures in a Water Company of UK regional water company by means of a longitudinal case study. The paper presented phenomenological evidence of the experience of one organization trying to implement Value based Management systems. The questionnaire survey conducted by the authors indicated that at the divisional level, traditional measures were dominant in practice. In the organizations, Profit and ROCE were widely used where as the Value based Management measures such as EVA, Share Value Added (SVA) and balanced scored cards were much less prevalent. EVA was used by only 10\% of the companies and balanced score card was used by 24\% of the sample companies. The awareness of new performance measures was fairly low, with 26\% of respondents being unaware of EVA and balanced score card. This is considered as the major problem for implementing the VBM. In the study they have also stated that there were also some political, technical and cultural difficulties in implementing the VBM. Finally they concluded that despite these difficulties in developing and internalizing appropriate value-based measures, business units should adopt measures that were consistent with the organization’s overall objectives in order to achieve goal congruence.

Lovata M Linda and Costigan L Michael (2002)\textsuperscript{63} provided evidence as to the systematic differences between firms using EVA as a performance measure and those that do not. In their study they identified 115 firms as being adopters of EVA. They found that the firms with less insider ownership and more institutional investors tend to employ EVA. Also, firms using a defender strategy, defined by a lower ratio of R&D to sales,

were more likely to use EVA. In the study the relationship between the selected variables such as beta and market/book ratio was also tested. It revealed that there was no significant relationship between EVA and these measures. The result suggested that, given the broad array of performance measures available, focusing on adjusted accounting information might not provide the best incentives for all type of organization. In their study it is also suggested that, the EVA is a concept that requires much additional research to support or contest the claims of its developers and hence, further analysis is required to determine if the perceived benefits are actually realized.

Machuga M Susan et al (2002)\textsuperscript{64} examined the relative effectiveness of EVA and EPS as measures of performance of stock evaluation in predicting future earnings and their role in enhancing the accuracy of analysts’ forecasts. They found that EVA conveys additional information about future earnings beyond what is reflected in current earnings, cash flows and security returns. They also investigated that whether the above incremental predictive content is reflected in analysts’ forecasts of earnings. The result revealed that analysts’ do not use the information in reported EVA appropriately but appear rather to overweigh it. One explanation for these results might be that EVA was relatively new for the sample period (1989-1996) used in the analysis of this study. In this study they have restricted their analysis to one contextual factor, prior-year earnings performance. Hence the study stated that future research is essential by including other contextual factors, which may cause EVA adjustments appear to be useful by systematically testing the specific adjustments, EVA make to GAAP-earnings.

Mangala and Simpy(2002)\textsuperscript{65} stated that the shareholder’s wealth maximization has been recognized by managers and researchers is the ultimate corporate goal, the maxim has gained a new dimension only in the recent years, due to the introduction of the concept of EVA. They stated that, as per the belief that the EVA is the most important driver influencing the market value of a share, if the company improves EVA by increasing its return on capital employed and lowering its cost of capital, its market value will increase. The paper attempted to study the relationship between EVA and market value among various companies in India. For this purpose the EVA values of 15 companies among five industries such as Fast Moving Consumer Goods, Information Technology, Pharmaceutical, Automobile and Textile, have been computed. The result of the analysis confirmed Stern’s hypothesis and concluded the EVAs significance in contributing to a change in market value of shares in the Indian Context.

Niranjan Swain et. al. (2002)\textsuperscript{66} examined how the Market Value Added (MVA) is correlated with the firm’s performance in terms of financial measures and in terms of economic factors of the company. The financial measures taken for the analysis were EVA, Return on Capital Employed (ROCE), Return on Net Worth (RONW) and Earning Per Share (EPS). The economic factors such as Total Factor Productivity (TFPCH) and its components, Technological Change (TCHCH) and Efficiency Change (EFFCH) were considered. During the study period from 1992-93 to 2000-01, there were wide variations in the financial measures across the companies, the largest being in the case of MVA. In


the economic factors, out of a sample unit of 36 companies, 20 companies experienced fall in productivity in the long run, mainly as a result of loss in technical efficiency. The relationship among MVA and other selected variables was tested using the time-series correlation. From that result, it could be observed that, out of 36 companies, 27 companies have shown positive correlation between MVA and EVA. Other selected financial measures have shown positive correlation with MVA but the strength as well as number of significant correlation coefficients is higher in the case of EVA. This study did not find any significant correlation between MVA and economic measures. The analysis was extended to find out the relationship between Research & Development and Sales with MVA and EVA. Though there was no conclusive proof of strong and positive association of EVA and MVA with R&D expenditure, in case of drugs and medicine product companies group, EVA and MVA were positively and significantly correlated with two-year lag in R&D. However, as these findings are related to the Chemical industry only they could not be generalized for the entire manufacturing sector of India. Hence a further extensive study is required to establish the relationship between wealth creation (MVA) and other financial variables.

Swain Niranjan et al., (2002) made an attempt to find the relationship between MVA with selected financial measures such as EVA, Net Operating Profit After Tax (NOPAT), Return on Capital Employed (ROCE), Return on Net Worth (RONW), Earning Per Share (EPS) on one hand and economic factors of the company such as labour productivity, total factor productivity, sales and R&D expenditure on the other

hand. A sample of 28 companies has been taken from Indian pharmaceutical industry during the period spanning 1992-93 to 2000-01. Linear regression analysis has been used to find out the relationship between MVA and different financial and economic measures. The time-series regression has been performed company-wise to explain the variations in MVA. It was observed from the regression result that, in many cases, NOPAT and EVA were significantly associated with MVA. In case of economic measures, Sales outperformed other measures in explaining MVA. Thus in the study it has been revealed that EVA, NOPAT and Sales explain MVA better than any other financial measures and economic measures in the Indian pharmaceutical industry. The result of the regression analysis carried out for the sample in the long run ended with the result that none of the financial or economic variables explained the MVA in the long run. One of the possible reasons for this kind of result in the study may be the small size of sample. Thus their research work the study failed to give strong evidence for the superiority of EVA over other measures.

Keef P Stephen and Roush L Melvin (2003) examined the implied relation by invoking a set of perfect market assumptions. In the study a comparison was made between the series of abnormal returns and the series of economic profit which is called as EVA. In the analysis it was found that the relationship existed between those variables is idiosyncratic to the choice of depreciation method used to estimate the economic profits. There was a perfect correlation when market values were used as the input to economic profit. However, the strength of the relation decreased to the degree that accounting depreciation deviates from economic depreciation.

Mitali Sen and J K Pattanayak(2003)\(^6\) presented an integration of ABC and EVA system that can be utilized to create shareholder value through cost structure improvement. In the integrated system presented by them the cost of activities not only included the rate of consumption of resources but also capital demand. In the study a comparison was made between traditional ABC system and integrated ABC and EVA system. They finally concluded saying that the proposed integrated ABC and EVA system would help managers in companies; understand that the capital invested in their company is a precious resource that has to be used effectively and hence it helps to solve distortion in the financial reporting of a company’s economics but the proposed framework itself will not make improvements in the business process, but rather it will provide management with information that can direct improvements.

Samal. B (2003)\(^7\) observed that Economic Value Added is a measure of financial performance that comes closer than any other measures to capture the true economic profit of an enterprise. In the EVA model, the cost of equity also charged whereas, the traditional measures do not include the cost of equity. In this paper, it was empirically analyzed by taking a sample of 19 nationalized banks. In the paper the EVA has been defined as,

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\text{EVA} = \text{Net operating profit less adjusted taxes} - \text{capital charges}
\]

(or)

\[
\text{EVA} = (\text{Return on Invested Capital} - \text{Weighted Average Cost of Capital}) \times \frac{\text{Invested capital}}{} \]


According to this value, he stated that EVA is a measure of incremental return or the ability of a company to generate returns in excess of its cost of capital and if a company has positive EVA, then the Return on Invested Capital (ROIC) would be higher than the cost of capital. In the analysis, out of 19 banks, 15 banks had shown positive EVA, pointing out towards an effective management in the low interest rate regime. Ranks were also given to the banking companies based on EVA. In another segment, traditional measures such as Net Interest Margin, Return on Assets, Return on Equity and Earning Per Share were calculated and combined ranks were assigned by him. Finally it was found that, there was no linearity between the ranks obtained in traditional measures and EVA. However, this paper suffers from the limitation that, the WACC is calculated based on the assumed value of cost of equity at 10.5% and 10% during the study. That assumption was based on the present interest rate as well as market scenario. The explanation for taking the market scenario and interest rate have not been given properly. Hence, this cost of equity attributed to the banking concerns may not be reliable.

Sparling David and Turvey G Calum (2003) have investigated the relationship between EVA and shareholder return and reexamined the evidence and issues surrounding the use of EVA as a tool for valuing investment. Using the Stern Stewart Fortune 1000 data, they examined two potential relationships for 33 food companies listed in the database. The first was between the absolute level of EVA in the year 2000 and 3, 5 and 10 year shareholder returns. The second was between 3, 5 and 10 year mean percentage changes in EVA and shareholder returns over the same period. In

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71 David Sparling and Calum G Turvey, “Further Relationship Between Economic Value Added and Stock market Performance”, Agribusiness (Spring 2003), Vol.19, Iss.2, Pg. 255
the analysis the correlations found were extremely weak in all instances tested. For three year horizon there was weakly negative correlation and for 10 year period there was a weakly positive correlation. They suggested that the discrepancy between EVA and shareholder value might be due to pernicious markets. The inconsistency may be due to a failure of the present value model but could also be due to the market's inability to accurately assess the present value of the firm at any point in time or a tendency by managers to be overly optimistic in forecasting and announcing future cash flows.

James A. Abate et al., (2004)\textsuperscript{72} explained that the EVA style of investing emphasised the fundamentals of wealth creation in the profiling of a company and its stock. In the study top 50 U.S companies and bottom 50 U.S companies were chosen to test the relationship between EVA to capital ratio and MVA to capital ratio. The test revealed that out of top fifty companies, forty companies had a positive relationship between EVA-to-capital ratio and MVA-to capital ratio. For the 50 largest U.S. wealth destroyers, only four companies had positive EVA-to-capital ratios in the presence of their negative MVA-to -capital ratios. MVA and EVA-to-capital ratios occurred at negative points for the remaining 46 companies. Therefore the analysis concluded that the performance of companies can be identified by the measures called EVA and MVA.

Malik Madhu (2004)\textsuperscript{73} has conducted an empirical research to find the superiority of EVA over other traditional financial performance measures such as Return on Capital Employed (ROCE), Return on Net Worth (RONW) and Return on Investment

\textsuperscript{72} Abate, A. James, James L. Grant and Bennet G. Stewart III, “The EVA style of Investing”, The Journal of Portfolio Management, (Summer 2004).

For the purpose of the study, the researcher selected a sample of 50 companies over a time span of five years (1998-99 to 2002-03). In the analysis the correlation results revealed that the relationship of shareholders’ wealth was positive but low with EPS and highly positive with RONW and ROCE. The coefficient of determination (R²) indicated that EPS explained the total variation in shareholders’ wealth only up to the extent of 14%, RONW up to the extent of 61% and ROCE up to the extent of 69%. It shows that these traditional performance measures do not reflect the real value of shareholders’ wealth and thus it should be measured through EVA. From this, the study stated that as compared with traditional performance measures, EVA is the real key to create shareholders’ wealth and the true indicator of the financial performance of the company. The study also found that ROCE must be greater than the COCE to have a positive EVA and the difference between the ROCE and COCE is called as the spread that has a direct impact on shareholders’ wealth.

**Pal Singh Karam (2004)**⁷⁴ supported the Stern Stewart’s claim, that EVA is an emerging model for corporate financial disclosure in India. In his study EVA has been computed and ranks were assigned to the sample companies on the basis of EVA and found that about two thirds of the sample companies have been able to govern affirmative EVA whereas one-third of them could not make it feasible to append a little to the value of shareholders. In the industry-wise analysis, he grouped the sample companies into fifteen key industries in the economy except banks and financial institution because the organism of banking and financial institution is somewhat different from that of the business corporates. The result of this analysis enumerated that only two or three.

industries were reported negative EVA and the rest of the industries were generated positive EVA. It showed that some of the companies in each industry have presented excellent financial performance that resulted in positive EVA in the particular industry. In the paired test of industry-wise EVA of sample companies, there has been no significant difference between the EVA of respective years. With respect to sectoral analysis in his study, it has been found that public sector has not been able to come up to the expectation of public at a large, since it aggregated negative EVA for four years of the study period. In this paper, the relationship between EVA, Weighted Average Cost of Capital (WACC) and NOPAT was also examined and found that there was an inverse relationship between NOPAT and WACC and positive relationship between NOPAT and EVA. Hence his study concluded that EVA has a linkage with business earnings and stakeholders value of the companies.

West Tracey and Worthington Andrew (2004)\textsuperscript{75} examined whether the trademarked variant of residual income known as Economic Value Added (EVA) has been more highly associated with stock returns than conventional accounting based measures, using pooled time-series, cross-sectional data on 110 Australian companies over the period 1992-98. The accounting based measures of internal and external performance include earnings such as Net Cash Flow (NCF) and Residual Income (RI). In this analysis, two tests were conducted to investigate the explanatory power of EVA, NCF and RI to explain the Market Adjusted Return (MAR). The result of the former test indicated that earnings explain MAR in a better manner than EVA, NCF and RI alone. It also found that, EVA was having the least explanatory power among the above

accounting based measures. In the latter test, the result explained that the components of EVA such as capital charge and GAAP related adjustments were most closely associated with EVA which was significant at the margin in explaining market returns.

**Anderson Anne M et al. (2005)**\(^{76}\) evaluated the impact of accounting adjustments in the application of EVA. According to them, if the accounting adjustments are not significant, then EVA converge into residual income and the argument of Stern Stewart, that EVA is a superior metric in explaining corporate wealth to residual income does not hold good. In a sample of 317 firms over a ten-year period, three different EVAs, Stern Stewart’s EVA, EVA based on the five accounting adjustments and a simple EVA that does not make any of the five noted adjustments, were compared with one another. In the result of the analysis they observed that accounting adjustments for EVA are much to do about nothing and there is little justification for corporation to move from GAAP based accounting metrics to non-GAAP based metric.

**Ferguson Robert et. al (2005)**\(^{77}\) investigated whether adopting EVA leads to better stock performance (ie., greater profitability). They conducted a study with 65 firms. In the analysis, the date when a firm becomes a Stern Stewart client was defined as its “EVA date” and the EVA date has been treated as the event day, its corresponding month and year was called the event month and year respectively. In the study, to analyze each firm’s stock performance, the monthly total returns were obtained for the period of 60 months before EVA month and 60 months after EVA month. These returns and Fama-

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French three factors model were used to compute monthly abnormal returns for each EVA-firm for 121 months surrounding EVA date. This event study analysis revealed that there was insufficient evidence to conclude that poor stock performance leads firms to adopt EVA or that adopting EVA improves stock performance. Firms that adopt EVA appear to have above average profitability relative to their peers both before and after the adoption of EVA and further, there has been some evidence that EVA adopters experience increased profitability relative to their peers.

Warr S Richard (2005)\(^{78}\) highlighted the words of proponents of EVA, that changes in the metric accurately measure changes in the performance of a firm or business unit through time and therefore can represent a reliable measure of managerial effectiveness. However, inflation distorts EVA through the operating profit, the cost of capital and the capital base and these distortions have the potential to result in inefficient investment and compensation outcomes. In this case of ‘nominal EVA’, the required rate of return is based on the nominal rates, which are very sensitive to inflation as well as book equity capital, which fails to take account of the true replacement cost of the firm’s assets. To reduce the distortion of EVA and building upon the works of De Villiers, the author proposed an alternative model called “real EVA”. It explicitly adjusted the distortion of EVA due to inflation. It was proved by empirical test. Empirical tests on a large sample of US firms indicated that inflation has positive effect on real EVA and negative effect on nominal EVA. Hence, it is essential for analysts, managers and investors who attempt to gauge firm performance using EVA to be aware of the distortions that inflation causes.

Balachandran .V and Sriram .M (2006)\textsuperscript{79} took the case of M/s Lakshmi Machine Works (LMW) Ltd., Coimbatore for evaluating whether the company has added value to the shareholders or not. To measure the value addition to the shareholders, Economic Value Added has been calculate for the financial years 1997-98 to 2003-04. For all the years of the study period, the EVA was at an encouraging level for the company. In the paper the effectiveness of EVA was also tested by comparing the EVA as a percentage of capital employed with the traditional measures of performance evaluation like Return on Capital Employed. From that analysis, it was inferred that LMW Ltd., showed a good performance in terms of ROCE. On an average the ROCE during the period of study was 21.71% whereas average EVA as a percentage of capital employed was 13.70%. The reason for this divergence, mentioned by the researchers, was that the traditional measures do not reflect the real value addition to shareholders’ wealth and thus EVA has to be measured to have an idea about the shareholders’ value addition. They also analyzed the relationship between dividend paid and EVA using a linear regression model and concluded that a company adding value to the shareholders will be disproportion to the total dividend paid of that company. Finally, they suggested that the company could furnish the EVA values in their financial statements as an additional disclosure. This will help interested parties in evaluating the company’s performance.

Manickavasagam . V and Ramesh G (2006)\textsuperscript{80} described that EVA is a measure of surplus value created for an investment and it attempts to capture the true economic profit of an enterprise. In this paper, it has also been stated that shareholders can use it to


evaluate the wealth created for their capital and to compare companies’ performance. They stated that EVA is a better tool than the traditional performance measures, since it considers the capital charge, which is not considered in the traditional measures. They enumerated the benefits of EVA and problems in measuring EVA. In their article they noted that the major advantage of EVA, was that maximization of EVA will enhance the market share of firm at the expense of competition. Enhancement of market share should enhance the value to the company. And they concluded that due to growing number of companies, the immense utility of EVA has been realized in recent the years.

Mohanty Pitabas (2006)\textsuperscript{81} recommended a modified measure of corporate performance namely Modified True Value Added (Mod-TVA) which addressed the limitations of the traditional EVA-based performance measurement system and ESOP-based management system. He argued that, the management can report a high or low EVA for a temporary period by over-or under-investment. If there is over or under-investment, then the MVA and the market capitalization will fall. Hence it is required to look at both EVA and MVA while developing the compensation system for the management of a company. For the performance evaluation, three Indian Companies, such as, Tata Steel Ltd., Godrej Consumer Products Ltd., and NIIT Ltd have been taken for case analysis. He concluded that in all the cases the return on investment got reflected in Mod_TVA when compared to EVA but the Mod_TVA would be helpful only if it is provided the adjusted rate correctly.

Pradeep Tibrewal (2006)\textsuperscript{82} observed that, in the changing global scenario, shareholders are concerned about the realizable value and return. For that a new measure, apart from accounting measures, are needed to predict that realizable value of shares. In his paper, he selected Economic Value Added (EVA) which translates the accounting profits into economic reality. In the paper he has also stated that, necessary adjustments should be carried out to bring the EVA into economic reality. These adjustments eliminate anomalies and bring them closer to true economic results. Stern Stewart identified more than 160 adjustments in GAAP earnings and balance sheets in areas such as inventory costing, depreciation, bad debts reserves, restructuring charges and amortization of goodwill. In most real life situations, five to six adjustments are being used and even without all adjustments, EVA can be and also has been applied successfully in many companies. Finally he stated that to identify important adjustments, it is vital that countries move toward a uniform international accounting standards.

Ralph Palliam (2006)\textsuperscript{83} tested the assertion that EVA is more strongly associated with stock returns and firm value than accrual earnings and evaluated which components of EVA contribute to this association. For the purpose of evaluation, thirty three non-EVA users and 75 EVA users were selected their data have been used in the analysis. The study found that there was little or no relationship between shareholder returns and a firm’s EVA. Furthermore, the study found minimal evidence of a difference between the market returns of firms that use EVA compared to firms that do not use EVA. The study also revealed that the variance of the Return on Equity of EVA users was greater than the


variance of the Return on Equity of non-EVA users. The study concluded that there is nothing in these results that supports the contention that accounting earnings are irrelevant.

Reddy B Ramachandra and Reddy Yuvaraja (2007) analyzed the financial performance of the cement industry through Market Value Added (MVA) approach. In the study MVA was taken as dependent variable and eight internal measures, such as, EVA, Capital Productivity, Labour Productivity, Earnings per Share, Return on sales, Return on Net Worth, Return on total Assets and cash profit were taken as the independent variables. The analysis was carried out for one year, 2003-04, by taking a sample of ten companies in the cement industry. Among the ten companies, three companies were excluded, due to losses incurred in the study period. The analysis revealed that four companies added their value to the shareholders’ wealth by generating positive MVA and three companies destroyed their value by creating negative MVA. To examine the effect of eight independent variables on MVA, regression was carried out. The result found that none of the independent variables had significant impact on EVA except EPS, which was also having negative relationship with MVA. This implied that the MVA of cement companies is not only affected by selected independent variables but also influenced by other factors. However this study suffered from various limitations. The analysis for one year might not produce a reliable result. Hence a longer period would produce a better result. The size of the sample was not enough to make out this type of analysis. Moreover, among the sample companies the loss incurred companies

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were excluded. The reason for this exclusion was not properly given. With these limitations only the results of the study have to be accepted.

**Gupta Shaveta (2007)** stated that the basic objective of every organization is to create value for its owners and a distinct evaluation methodology is to be applied to the different operations of a company. A few of such innovative evaluation measures are Economic Value Added, Market Value Added, and Value Scorecard. A large number of companies are adopting these tools to measure the performance despite the fact other measures such as ROI, EPS are also been adopted. However, EVA is considered as a significant measure for performance evaluation of a company. since it reflects the amount of wealth in financial terms acquired by a company in a given reporting period. It has also been stated in the study that, the higher the EVA, the better the utilization of resources. Some pitfalls have also been stated in the measurement of EVA which led to the emergence of MVA. MVA is considered as an extended form of EVA which is defined as the difference between Market Value of Capital and Capital Employed. Another tool in the article stated for measuring the value creation been integrated EVA Scorecard. However, the article concluded saying that all the above stated measures are having some discrepancies and if these can be removed, then definitely the company can be taken to new mounting scales of success. Hence, organizations can combine the value-based management along with balanced scorecard and gain the benefits of synergy to reach new heights of success.

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