CHAPTER-3
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3.1 Introduction

This chapter attempts a review of the existing studies on the topic under study**.** This chapter attempted to review some of relevant theoretical and empirical literature on Economic Value Added (EVA) and all research variables used in the present study**.**

The review covers both the methodologies used in the studies. In fact, literature of review improves a theoretical background for the study through a review of relevant theories. Literature review in this study mainly reviewing Economic Value Added (EVA), Market Value Added (MVA) and financial ratios. Some studies have reported EVA, MVA and financial ratios as follow:

3.2 Literature review

Modanlo Joibary and Nagaraja (2012) examined the relationships between Economic Value Added (EVA) and Traditional Accounting Measures of Companies listed in Bangalore Stock Exchange (BgSE). The dependent variable of this study was EVA and independent variables were ROE, ROA, ROI and EPS.

The result of research hypotheses analysis showed that there are significant relationship between EVA and dividend (DPS); EVA and Net Operating Profits After Taxes (NOPAT); and EVA and Share Price (P). The results indicated 5 % changing in share price (P), 81.6 % changing in Net Operating Profits After Taxes (NOPAT), and 20.9 % changing in dividend (DPS) can predict Economic Value Added (EVA). This study shows that Net Operating Profits After Taxes (NOPAT) with regression co-efficient 0.904 have stronger relationship with EVA then P and DPS.

Sakthivel (2011) analyzed the value creation in Indian Pharmaceutical Industry from 1997-98 to 2006-07 by using regression analysis .It was found that the Companies with high level of EVA were very highly valued and differ from valuation of Companies with low and moderate EVA groups.

So, it was clear that there is significant correlation between MVA and EVA for Companies under pharmaceutical industry. It was strongly concluded that there is

significant difference in mean of value creation across low, moderate and high total productivity for pharmaceutical Companies.

In regression analysis, it was found that total productivity did not have explanatory power on value creation in short-term, but it had some influence on value creation in the long-run in respect of pharmaceutical Companies. It was found that EVA was only variable which has unique influence on MVA of Pharmaceutical Companies. Hence, it was concluded that Economic Value Added had positive significant impact on Value Creation for Pharmaceutical Companies.

Pantea, Ioan, V Munteanu, Gligor, and Sopoian (2011) represented that Economic Value Added (EVA) the performances of the firm were dependent on the strategies, which are applied by managers.

The goal of this study was to provide a pertinent measure of managerial performances, starting from the idea that those were real only when they assured the satisfaction of all groups, which were interested in the good evolution of the firm.

The performances of a firm came from the operating activities, which has to generate big enough cash flow to accomplish the satisfactory remuneration of the creditors, to overcome all the taxes imposed by the state and to lead to the growth of the shareholders' wealth.

Modanlo Joibary and Nagaraja (2010) introduced Economic Value Added (EVA) as ideal characteristics of Performance Evaluation in cooperative Companies. In this study authors discussed potential disadvantage of Economic Value Added (EVA) application in cooperative Companies

Huang and Liu (2010) represented that the traditional accounting performance measures (Return of Equity, Earnings Per Share) only reflected short-term performance, and were unable to express an enterprise's long-term value. The sample of their study included a list of high-technology firms in Taiwan and China from 1998 - 2008.

They used the ordinary least squares method to test their hypothesis. Empirical results of their study showed that the account (notes) receivables and account (notes) payables from related-party transactions of high-technology firms in Taiwan exhibited a significant (positive) relationship with performance.

However, the sales or purchases of goods from related party transactions of high-technology firms in China had a significant (negative) relationship with performance. They used Market value added (MVA), which was a powerful method for explaining market value.

Economic value added (EVA) is also a high-power tool for explaining the relationships between related-party transactions and firm value, more so than other proxy variables of firm performance and reflected the true economic value of a firm. EVA and Market value added were used as alternative performance measure.

The thesis of **Bin (2010)** aimed at the malpractice existing in traditional accounting method (putting emphasis on net profit and return on investment) and used Economic Value Added (EVA) Evaluation Method to evaluate thermal power enterprises' performance. This article established EVA index system for thermal power enterprise, and made a contrast analysis by applying these two methods into some financial data of certain thermal power listed Company.

It showed EVA can reflect more effectively how power plant operated than traditional way. It encouraged managers to control the production and operation costs more strictly, make reasonable investment, thereby EVA method could enhance thermal power enterprise operating Efficiency and improve capital returns.

Ding (2010) investigated profitability of Shanghai Stock Exchange (SSE) 50 Sample Companies from the View of EVA. The empirically analytical results on the SSE 50 sample Companies showed that 86% of these Companies had no profitability in 2008 from the view of EVA comparing to 2% from the view of accounting profits.

The potential reason may be (1) the leading shareholder of most of the SSE 50 samples was the state; (2) the owner's equity often be considered to be "self-owned" by the samples while not by the stockholder; (3) most stockholders speculated but not to invest on the intrinsic value of stock; so their ignore Companies' profits, nevertheless EVA; (4)the concept of EVA was based on the opportunity cost of capital, but in China the average investors lack of opportunity to invest their money rather than stock market.

Tong, Yan, and Xiaotong (2010) researched on Performance Evaluation of Logistics Enterprises Based on Economic Value Added (EVA) and Balanced Scorecard. This study appeared EVA gets significantly positive Kendall's correlation with strategic objective whose proxy is corporate value. In linear regression whose

dependent was EVA, operation cost, the first five customers' revenue ratio, audited internal control report and staff educational ratio were used to represent the four perspectives respectively.

Iva Hovězáková (2010) in his thesis provided the basic literature review about the EVA concept, its implementation and emphasized EVA advantages, consequently, to measure the Company performance according to the traditional performance measurements and modern performance measurements, and compare them. On the basis of the literature review, they carried out analyses and the comparison of EVA and the traditional metrics used by the Company, the thesis aimed to decide about the EVA implementation, elaborate the proposal of its implementation and describe its contribution to the Company.

This thesis was divided into two parts, the theoretical and practical part. In the first part the value based management and shareholder value was introduced. Later on the overview of the traditional and modern performance measures with their virtues and limitations was provided.

The EVA concept was introduced and described in details; the means of its utilization and virtues was highlighted. On the basis of the literature review the implementation of the economic value added was suggested.

The second part consisted of the analytical and the project part. In the analytical part the different types of analysis such as macro and microeconomic analysis, internal analysis and financial analysis were carried out. The EVA for the five years 2005-2009 was calculated and consequently compared with traditional measures, which was used by the Company.

The EVA trend indicated a significant drop in EVA in 2009, in order to determine the reason for this increase and demonstrate EVA broke down and its application the pyramidal analysis was carried out. In the project part the proposal of EVA implementation was elaborated. It deals with topics such as EVA measurement centers, EVA calculation, the compensation plan, training program, mindset creation.

Kryzanowskia and Mohsni (2010) found the economic value added of publicly traded non-financial Canadian firms over the period, 1961–2003, was not material based on the Fama–French (1999) methodology.

Consistent with integrated capital markets and segmented product markets, returns on investments at cost (i.e., the return delivered by the corporate sec- tor), unlike returns on value (i.e., the returns required by investors) and EVA, were significantly higher for domestic-only-listed versus cross-listed Canadian firms. Cost of equity estimates range from 9.09% (Utilities) to 11.05% (all) to 12.39% (Consumer Stapes). Both the return delivered by the IT sector and the returns required by investors embody a significantly negative abnormal component that strongly suggested that their cost of capital estimates are significantly downwardly biased for the IT sector.

Two GICS sectors (IT and Health Care) exhibit significant negative EVA after adjusting for replacement costs or risk. Even before making adjustments for replacement costs/values that reduce the on-cost returns, they couldn't conclude that the Canadian nonfinancial corporate sector creates economic value.

While cross-listed and domestic-only-listed firms had similar costs of capital, the latter had significantly higher returns on firm investment and EVA only when the latter is not adjusted for risk. While the IT and Health Care sectors were significant destroyers of value, the other seven Canadian GICS sectors did not create or destroy significant EVA for their suppliers of capital.

Likun and Shuqi (2010) in his thesis about the study of human capital accounting of venture capital project based on EVA concluded that human capital accounting model most built through the economic value added (EVA) model. The study of Tong and co (2010) about Performance Evaluation of Logistics Enterprises Based on Economic Value Added (EVA) and Balanced Scorecard supported the consistancy between EVA and strategic objective whose proxy is corporate value, and the domination of EVA to other traditional measures.

Lee and Kim (2009) compared incremental explanatory power of six firm performance measures: three EVA-related performance measures (i.e., EVA, REVA, and MVA) and three traditional accounting performance measures (i.e., CFO, ROA, and ROE) on the market adjusted return, controlled for firm size.

The study made contributions, not only by introducing a modified EVA version (i.e., REVA), but also by investigating, separately, the three hospitality sub-sectors (i.e., hotel, restaurant, and casino).According to the findings, REVA and MVA were, apparently, valuable performance measures for evaluating hospitality firms.

REVA with more negative values than EVA can be explained by REVA having greater cost of capital due to a use of market value, which was normally larger than book value which was used in EVA calculation to compute cost of capital. Also, according to the three EVA-related measures, the restaurant sector showed the best firm performance during the sample period compared to the hotel and casino sectors.

EVA showed a significant relationship with all other variables except with market adjusted returns (MAR). The relationships for the hospitality industry in terms of EVA seem to derive mainly from the restaurant sector where similar relationships of EVA with other variables appear.

The only difference in findings between the restaurant sector and the hospitality industry was that EVA positively correlates with REVA in the restaurant sector. This positive relationship between EVA and REVA persisted in the hotel and casino sectors. In addition to a relationship with EVA, REVA showed a negative relationship with MVA in the hospitality, restaurant   and casino samples. REVA positively correlates with MAR in the hospitality and casino samples.

Maditinos, Sevic, and Theriou (2009) investigated the explanatory power of two value-based performance measurement models, i.e. EVA and SVA, compared with three traditional accounting performance measures, i.e. earnings per share (EPS), return on investment (ROI), and return on equity (ROE), in explaining stock market returns in the Athens Stock Exchange (ASE).

The results of relative information content tests exhibit that stock market returns are more closely associated with EPS than with EVA or other performance measures. However, incremental information content tests indicate that the pair wise combination of EVA with EPS significantly increases the explanatory power in explaining stock market returns, thereby concluding mixed evidence about superiority of EVA over traditional measures.

Gabriela (2009) illustrated that EVA can be an important tool that bankers in Romania can use to measure and improve the financial performance of their bank. They represented that Since EVA takes the interest of the bank's shareholders into consideration; the use of EVA by bank management may lead to different decisions than if management relied solely on other measures.

57

Cachanosky (2009) Suggested that an Economic Value Added (EVA) approach would be more accurate and appropriate to measure macroeconomic performance. The main difference was that EVA takes into consideration the invested capital cost of opportunity, while GDP is focused on quantity of production; an EVA approach will be focused on the   economic result of production activities. A final comment this study was made on the characteristics and limits of a GDP calculated using the EVA.

Lin and Zhilin (2009) indicated that EVA is associated with corporate value; it is not as remarkable as EVA advocators proposed. The result of incremental information test revealed that EVA and FGV all have significant incremental information content. It also suggested that EVA and future growth value (FGV) have significant incremental explanatory ability to corporate value.

And FGY has more incremental explanation than EVA. The result of relative information test showed that FGV's relative information content is largest. It was more highly associated with corporate value than EVA, return on equity (ROE), earnings per share (EPS) and cash flow from operation per share (CFOPS).

Cachanosky (2009) discussed the limits and characteristics of GDP as economic indicator and suggested that an Economic Value Added (EVA) approach would be more accurate and appropriate to measure macroeconomic performance. The main difference was that EVA takes into consideration the invested capital cost of opportunity, while GDP was focused on quantity of production; an EVA approach will be focused on the economic result of production activities. A final comment was made on the characteristics and limits of a GDP calculated using the EVA.

Leong, Pagani , and Zaima (2009) compare portfolio making strategy by using three ratios of EVA to market value (EVAM), earnings to price (PE), and book to market value (BM) in American Companies for the period of time of 1994 to 2003 and conclude that there are no significant differences between three methods.

Hamidah (2009) analyzed the implementation of corporate strategy (Financial Restructuring, Assets Rehabilitation, Risk Management System and Operational Efficiency) to maximize share holder's wealth. The research had been done in 1998, when the starting point of banking recapitalization in Indonesia. The increase of share holder's wealth were reflected in Economic value added (EVA) and return on equity (ROE).

The study investigated twenty banks whith the highest asset and which had been operated in Indonesia. Analysis model used for this research was descriptive statistics and hypothesist test using regression models. The result highlighted that ROE had increased after recapitalizationon and positive EVA.

In 2005, EVA was negative due to bad performance of NPL by Mandiri and BNI. Negative EVA is also caused by low quality of asset management that could see in high NPL and low LDR. The investigation of results highlighted : negative relationship between independent variable (Financial restructuring, asset rehabilitation and operational efficiency) with dependent variable (shareholder wealth EVA),and also asset rehabilitation(LDR),risk management(CAR) had positive correlation to EVA .

Gandawati, Toto Sugiharto S. (2008) introduced that the economic value added (EVA), Earnings Per Shares (EPS), Operating Cash Flow (OCF) and simultaneously the stock price does not affect the Rate of Return (ROR). However, stock prices were partially affecting the rate of return (ROR).

Bacidore, Boquist, Milbourn, and Thakor (2008) investigated comprehensive statistical analysis of both REVA and EVA to estimate their correlation with and their ability to predict shareholder value creation. REVA statistically outperformed EVA in this regard. Moreover, the realized returns for the 1988-92 periods for the top 25 REVA firms were higher than the realized returns for the top 25 EVA firms.

Muliawan (2008) in his thesis investigated the amount of EVA for 3 Companies in Indonesia. The result indicated that Companies create positive EVA in 2004. This result indicated that the EVA result was increasing in 2003.

It means that the Company in 2004 had succeeded in making value creation and could increase the wealth of the stockholders, investors, and indirectly the wealth of the Company itself where the positive EVA will directly increase the rate of return of the Company. The result of the analysis showed that these Companies in years 2005 and 2006 had negative EVA.

The negative EVA results showed decreasing amount from year 2004 to 2006. It means that the wealth of the Companies were also decreasing, and this indirectly decreased the wealth of its stockholders and investors because the negative EVA results directly decrease the rate of return of the Company.

Chmelíková (2008) analyzed the relationship between Economic Value Added, traditional performance measures (Return on Assets 'ROA' and Return on Equity 'ROE') and their ability to measure the creation of shareholder wealth in food-processing firms in the Czech Republic. The results of this study showed:

- A strong positive linear relationship existed between EVA and the traditional performance measures of ROA and ROE and

- The EVA measure reflected changes in shareholder wealth more consistently than the traditional performance measures of ROA and ROE.

The regression analysis results indicated in all cases a positive correspondence between EVA and financial performance metrics and showed higher quality information content of EVA indicator as regards the ability to create shareholder wealth than the traditional performance measures.

Chen and Zhilin (2008) represented that Economic Value Added (EVA) is a good method to measure the Company's true value. They discussed how to improve traditional performance measurement using EVA with neural network. It presented the Integrated EVA Performance Measurement (IEPM) model and analyzed its superiority empirically with BP neural network.

All the data relate to China's listed Companies. The final results showed that both the measurement ability and prediction ability of IEPM model were superior to those of traditional performance measurement. It suggests that introducing EVA to performance measurement well reflects the Company's real economic profit and neural network model will be well applied to economic area, especially to the Company's performance measurement.

Lin and Zhilin (2008) examined what would influence economic value added of the Companies listed in China's securities market. The methods of Factor analysis and multivariable linear regression model were used here.

It drew the conclusion that the Company's capital structure, profit ability, size, growth ability, management ability, and industry's Return on Equity have positive influence on EVA, indicating that these factors had an active influence on EVA. The intangible asset had poor negative relationship with EVA and the inventory management ability had no influence on EVA.

Issham, Samad, Hwa, Kamil, and Ayub (2008) employed EVA in an attempt to compare the Companies' performances of GLCs (government-linked Companies) and non-GLCs. Based on a 4-year pooled panel data of 37 GLCs and 208 non-GLCs, the results showed that Companies with government as their stake holders tend to exhibit lower EVA scores than the Companies with out government stake holders in Malaysia. Larger size Companies were found to have lower EVA values.

Companies which had both the characteristics - which were simultaneously large in size and government-owned, tend to be most adversely affected. Thus, any increment in the size of Company for GLCs would decrease or destroy the value of the Company, and to a greater degree, than Companies without government holding.

Hermanu (2007) in his thesis examined relationship between EVA, MVA and Sizes of a Company and its share price performance in Indonesia.

The result of the analysis showed there is no relationship between EVA, MVA and Sizes of a Company and the share price performance of a Company between the year 1995 and 2006.

Grant and Trahan (2007) employed an EVA style classification, in order to examine whether active investors (such as hedge funds and other long-short investors) can develop an alpha-generating strategy by classifying acquisitions based on the pre-acquisition EVA style quadrant of the acquirers. They obtained data from the 2001 Stern Stewart Performance 1000 ranking of the 1,000 largest U.S. industrial firms by Market Value Added (MVA) for the year ended 2000.

The final sample consisted of 484 U.S. industrial firms that acquired other firms over the period 1990-1999. Over a recent ten-year period, the announcement evidence suggests that acquisitions across all style quadrants generate negative risk-adjusted returns: wherein the magnitude of economic gains from shorting acquirers is determined by EVA style characteristics; namely wealth creators or wealth destroyers. Moreover, they found that the potential for longing gains on targets of acquiring firms is also captured by EVA style.

Prinsloo (2007) in his thesis introduced that Economic Value Added (EVA), as a measure of Company performance, has been widely adopted by Companies and securities analysts globally but its use in South African platinum mining Companies has been limited to date. In order to address this gap through this research, EVA was

calculated for the three primary South African platinum mining Companies, Anglo Platinum, Implats, and Lonmin. EVA for the respective Companies was then compared to Company growth rates, share price performance, and alternative, conventional performance metrics.

Through analysis it was found that, although the respective platinum mining Companies experienced similar production and turnover growth rates during the review period, 2000 to 2006, Anglo Platinum was able to generate higher EVA than Implats and Lonmin respectively. Share price has been found to correlate well with EVA for both Anglo Platinum and Implats respectively, but this relationship was not statistically significant for Lonmin, and EPS was the only metric among the alternative performance metrics, EPS, P/E, ROA, and EBITDA, found to have a correlation with EVA for Anglo Platinum and Implats respectively. The correlation between the other metrics and EVA was found not to be statistically significant.

Irala (2007) examined whether EVA has got better predictive power relative to the traditional accounting measures such as EPS, ROCE, RONW, Capital Productivity and Labour Productivity. Using the dataset for six years across 1,000 Companies, the results supported the claim that EVA is the better predictor of market value compared to the other accounting measures.

Kyriazis and Anastassis (2007), investigated the relative explanatory power of the Economic Value Added (EVA) model with respect to stock returns and firms' market value, compared to established accounting variables (e.g. net income, operating income), in the context of a small European developing market, namely the Athens Stock Exchange. Relative information content tests revealed that net and operating income appear to be more value relevant than EVA.

Additionally, incremental information tests suggest that EVA unique components add only marginally to the information content of accounting profit. Moreover, EVA does not appear to have a stronger correlation with firms' Market Value Added (MVA) than the other variables, suggesting that EVA, even though useful as a performance evaluation tool, need not necessarily be more correlated with shareholder's value than established accounting variables.

They conclude that net and operating income (NOPAT and OP) appear to be more value relevant than EVA in explaining the market value of firms listed on the Athens Stock Exchange (ASE).

Artikis (2007), evaluated the relationship between economic spread and market value for all firms, except financials, listed in the Athens Stock Exchange over the period 2000-2004. Specifically, this relationship was examined both on a whole market and on an industry basis.

The sample firms were classified into six industries, namely consumer cyclical, basic materials, consumer non-cyclical, industrial, technology, and communications. In doing so a regression analysis was performed having economic spread as the independent variable and the ratio of market value over the invested capital as the dependent variable.

Economic spread is defined as the difference between the return on invested capital and the weighted average cost of capital and indicates the net return of a firm achieves for the capital it uses in its operations. Market value of a firm is defined as the sum of the market value of equity plus the market value of debt.

The results for the whole market showed that there is a statistically significant positive relationship between economic spread and market value in 66.67% of the cases. On the industry basis the results showed a positive relationship between the two variables in all sectors except the technology.

Artikis and Sorros (2007), in their research paper compared the secondary and service sector firms, except financials, listed in the Athens Stock Exchange on the basis of the effect that Economic Value Added (EVA) had on their market values. Specifically, the relationship between economic spread and market value is examined, for all sample firms over the periods 2000–2005, both on a sector and on an industry basis. The sample firms were classified into six industries, namely consumer cyclical, consumer non-cyclical, technology, communication, basic materials and industrial.

A single index regression analysis model was employed having economic spread as the independent variable and the ratio of market value over the invested capital as the dependent variable. The results unveiled a statistical significant positive relationship between the ratio of value over invested capital and economic spread for both the service and secondary sector.

On an industry basis the statistical significant positive relationship between the variables of the regression model exists only in the consumer cyclical, consumer non-cyclical and the basic materials industry.

Wet and Du Toit (2007) analyzed the impact of popular financial performance measured on shareholders' wealth. It tested the strength of the linear relationships between these performance measures and shareholders' returns, which consist of dividends and changes in the share price.

The Return on Equity (ROE) was weighed up against the present favorite, Economic Value Added (EVA) and the merits and flaws of each approach are discussed. Other approaches, such as a combination of performance measures and the expectations theory are also discussed briefly.

The statistical tests performed found Spreads (a standardized EVA) to be slightly superior to ROE in explaining changes in shareholders' returns. However, the use of same year data resulted in very weak linear relationships between all the performance measures tested, relative to shareholders' returns.

Artikis(Panayiotis), George Artikis, and Kelepouris (2006) in their work evaluated the value creation capacity of the firms, listed in the Athens Stock Exchange over the periods 2000 – 2004, using the Economic Value Added Model developed by Stern Stewart & Co. The picture in the area of value creation for the sample firms was not encouraging; the majority of the firms in four out of five years had a negative Economic Value Added.

Despite the fact that the majority of the firms experienced positive return on the capital invested, they were unable to cover their weighted average cost of capital. Nine industries out of ten had positive average Economic Value Added in 2000 and 2001, six in 2002 and 2003, and only five in 2004. With the exception of the technology industry in 2004, the remaining industries in all five years have positive but declining average return on invested capital, and proportionately high weighted average cost of capital.

Palliam (2006) tried to show that EVA is more related to the capital return and Company value than current profit, and the information content of EVA can prove this. 33 Companies without EVA and 75 Companies using EVA were randomly selected and their relation to variables including income, profit, capital, return on equity, Company's

market value, EPS, Return on Assets and cost decrease percentage in a given period of time was studied in several matrixes.

However, in the course of study, measuring profit return and Return on Assets posed some problems. The results showed that, compared to other criteria, EVA was not solely effective in improving growth rate and profit of Return on Equity and EVA was more unstable than Return on Assets but it has a direct relation with Return on Equity rate.

Furthermore, the findings indicated a weak relation between EVA and prediction of shares' performance and increasing Return on Equity. And finally, a huge difference was recognized between the Companies using EVA and Companies lacking it.

Fraker (2006) had illustrated, EVA can be an important tool that bankers can use to measure and improve the financial performance of their bank. Since EVA took the interest of the bank's shareholders into consideration, the use of EVA by bank management may lead to different decisions than if management relied solely on other measures.

Kim (2006) found no evidence that increase in the change in EVA is attributable to increases in the market-adjusted returns (MAR) regardless of the stage of the business cycle. However, strong positive correlation between EVA and MVR from both parametric and nonparametric tests were more evident during the contraction period finally, they also found that the market response to accounting earning, not EVA, was more prone to volatile swings in the manufacturing sector than nonmanufacturing industries.

The studies of **Dimitrios, Zeljjko, and Theriou (2005)** focused on whether EVA is more highly associated with stock returns than other performance measures provided mixed and controversial results. This study employs pooled time-series, cross sectional data of 163 listed Companies in the Athens Stock Exchange (ASE) over the periods 1992 – 2001 to examine whether EVA or the traditional accounting-based measures are associated more strongly with stock returns.

Relative information content tests reveal that stock returns are more closely associated with Earnings Per Share than with EVA. However, incremental information

content tests suggested that EVA added considerable explanatory power to Earnings Per Share (EPS) in explaining stock returns.

Paula and Elena (2005) compared EVA versus traditional accounting of performance as drivers of shareholder value. This study endeavoured to analyze the results of Companies listed on the Securities Exchange, using Market Value Added (MVA) as a proxy for shareholder value.

The results suggested stronger relationships between MVA and cash flow from operations. The study also found very little correlation between MVA and EPS, or between MVA and DPS, concluding that the credibility of share valuations based on earnings or dividends must be questioned. The findings suggest that some caution is merited when focusing only on EVA as the measure of choice for internal Company performance.

Performance indicators chosen in the study of **wet (2005)** indicated that the changes in the standardized cash flow from operations explained the biggest percentage of changes in standardized MVA (38%), ROA came second best (15%) and standardized EVA (8%) third. This study attempted to analyze the results of Companies listed on the JSE Securities Exchange South Africa, using Market Value Added (MVA) as a proxy for shareholder value.

The findings did not support the purported superiority of EVA. The results suggested stronger relationships between MVA and cash flow from operations. The study also found very little correlation between MVA and EPS, or between MVA and DPS, concluding that the credibility of share valuations based on earnings or dividends must be questioned.

Dimitrios, Zeljjko, and Theriou (2005) surveyed that is Economic Value Added (EVA) really the best performance measure? This study employs pooled time-series, cross sectional data of 163 listed Companies in the Athens Stock Exchange (ASE) over the period 1992 – 2001 to examine whether EVA or the traditional accounting-based measures are associated more strongly with stock returns. Relative information content tests revealed that stock returns were more closely associated with earnings per share than with EVA.

However, incremental information content tests suggested that EVA added considerable explanatory power to Earnings Per Share (EPS) in explaining stock returns.

Warr (2005) argued that Proponents of Economic Value Added (EVA) changes the metric accurately measure 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 had the potential to result in inefficient investment and compensation outcomes.

Using an inflation-corrected EVA metric, he measured the sensitivity of EVA to the level of, and changes in, inflation for a large sample of US stocks and found evidence of significant inflation induced distortions.

Ferguson, Rentzler, and Yu (2005) in their work used event study methodology to investigate whether firms adopt EVA due to poor stock performance and whether adopting EVA leads to better stock performance. The sample of the study consisted of 65 firms between July 1983 and March 1998, which had become a client of Stern Stewart and applied the EVA methodology. The date when a firm becomes a client of Stern Stewart was used as the event day in the study.

Each firm's annual operating performance was evaluated by their operating profit after depreciation and tax divided by assets, i.e. the return on assets and the net profit divided by equity, i.e. the Return on Equity. The stock performance of each sample firm was measured by monthly total returns for the 121 months surrounding the event date.

The results of the study showed that firms do not adopt EVA due to poor stock performance or that any particular stock performance pattern leads to EVA adoption. Furthermore, firms that adopt EVA appear to have above average profitability relative to their peers both before and after the adoption of EVA and there is some evidence that EVA user experience increase profitability relative to their peers following adoption.

De Wet and hall (2004) found very low correlation between EVA and MVA on a year-on-year basis (R^2 of 4.5%) of Companies listed on the Johannesburg Securities Exchange South Africa.

Kim, Ahn, and Yun (2004) found no evidence that increase in the change in EVA is attributable to increases in the market-adjusted return (MAR) regardless of the stage of the business cycle. However, strong positive correlations between EVA and MVA from both parametric and non-parametric tests were more evident during the contraction period. Finally, they found that the market response to accounting earning, not EVA, is more prone to volatile swings in the manufacturing sector than nonmanufacturing industries.

Abate, Grant and Stewart (2004) showed that EVA can be a valuable investing tool to identify good Companies with good stocks. Furthermore, they argued that a shift in equity management would define the style of a Company in terms of its fundamental ability to create wealth. From an economic value added perspective, a growth Company invests for rapid economic profit change, while a value Company looks to create wealth through downsizing or restructuring a low-to-negative economic profit spread business.

In other case, EVA growth or value, these Company types represent good stocks when actual expectations of economic profit growth exceed expectations already imbedded in share price. This economic profit style of investing emphasizes the fundamentals of wealth creation and reconciliation of share price with the level realistically achievable.

Worthington and West (2004) using Pooled time-series, cross-sectional data on 110 Australian Companies over the period 1992-1998 examined whether the trademarked variant of residual income known as Economic Value Added (EVA) was more highly associated with stock returns than more conventional accounting-based measures. The other measures of internal and external performance included were earnings, net cash flow and residual income.

Relative information content tests revealed returns to be more closely associated with earnings than net cash flow, residual income and EVA respectively. Consistent with the construction of EVA, incremental information content tests suggested that EVA added more explanatory power to earnings than either net cash flow or residual income. An analysis of the components of EVA confirmed that the capital charges and GAAP-related adjustments most closely associated with EVA were significant at the margin in explaining market returns.

Geyser and Liebenberg (2003) considered EVA as a value enhancement measure for agricultural cooperatives. EVA measured the excess return on existing assets. By improving the value of the cooperative, the Net Present Value (NPV) is increased that leads to higher value in shares. Cooperatives can therefore utilize EVA in increasing their shareholder value.

Horngren, Sundem, and Stratton (2003) indicated that determining EVA is very similar to assessing residual income. They compared EVA and residual income and considered growth in EVA superior to residual income

Surya (2003) observed the EVA calculation towards some Companies in the year 2003 which used EVA method in measuring their performances. The fact recorded that there were decreasing numbers for several Companies which booked positive EVA. In the year 2003 there were only 24 public Companies that could make positive EVA. This condition was very interesting, because when the interest rate of SBI (Sertifikat Bank Indonesia) or Indonesian Bank of Certificate decreased from interest rate 24% in the year 2003 compared to the interest rate 41% in the year 2001, there were not so many public Companies in Indonesia booked positive EVA.

Actually the decreasing numbers of the interest rate of SBI could be used as the indicator of the less of cost of capital used by the Company, and NOPAT (Net Operating after Taxes) of the Companies were not really increasing, even in some industries the NOPAT value of the Companies tends to decrease.

Fatemi, Desai and Katz (2003) examined relationships between managerial pay and firm performance among domestic and global firms using economic value added (EVA) and Market Value Added (MVA) to assess wealth creation. Their work suggested that top managers in domestic- and globally focused firms are not only improved to increase EVA, but also rewarded for past additions to MVA. The results of their research suggested that managers of highly globalized firms tend to be paid at higher levels, reflecting the increased complexity of managing global firms.

Poeradisastra (2003) indicated that EVA method could reveal capital inefficiency at Quaker Oats Company. Observed from ROA (Return on Assets), ROI (Return on Investment) approaches, Quaker Oats always earned profits. After implementing EVA method in the year 1991, the result was negative EVA. Quaker Oats Company did not efficiently use its capital for any activities of the Company. Quaker

Oats could buy as much raw materials as they wanted for the Company, but as the consequence, the stocks of the Company became too much and it blocked the money circulation.

Meanwhile, Quaker Oats Company made big sales to make its products sold well, so, the condition of the Company at the time was really terrible. But, after doing some improvement in years, Quaker Oats could make positive EVA.

Based on SWA Magazine, from 100 best public Companies in Indonesia, if their performances were calculated using EVA method there were 50 Companies with the assets above Rp 1 quintillion, and 50 Companies with the assets below Rp 1 quintillion, but only 47 Companies recorded positive EVA. Actually from those 100 Companies, there were about 87 Companies' booked high net incomes in 2000 but only few of them booked positive EVA. This condition was because most of the public Companies listed in Jakarta Stock Exchange were still unable to make value added or unable to made higher return than the cost of capital.

Poeradisastra (2003) also stated that in developed countries, especially in United States and some European countries, the affectivity of EVA method has increased the performance of some Companies. The first Company succeeded in implementing and became good promotion of EVA method was the Coca-Cola Company in 1983 and then 200 Companies in the United States.

From the previous researches above, implementing EVA (Economic Value Added) method makes some Companies become more relevant in measuring its performances because EVA makes value creation for Companies. EVA method has the concept that the management successfulness is based on its Economic Value Added created in one year period of the Company. By using EVA method, the management of the Company can see how much the cost will be paid by the Company related to the use of the Company's capital.

Adsera (2003) has suggested an adjustment to the EVA to value start-up Companies that typically destroy value before they create it. He points out that these Companies may be very valuable and that an appropriate valuation model should take into account changes in financial structure and a drop in the cost of debt once financial risk diminishes and the Company matures.

Berry (2003) discussed the application of EVA in the IT environment where investments with an initial negative EVA, combined with strong expectations of a positive future EVA are typical. He points out the difficulty of quantifying and justifying the returns from IT investments in such a way that they are _intellectually honest.

The use of the formula Value = COV + FGV provides new insights regarding market expectations, because the market value of listed Companies is available and their COV can be determined after calculating the current EVA.

Adsera and Vinolas (2003) emphasized the principal of one value and suggested that the Financial and Economic Value Added (FEVA) approach, which integrates the EVA, discounted cash flow, and Modigliani and Miller models, and is preferable to EVA alone. They argue that traditional valuation methods (Economic Value Added, discounted cash flow, and Modigliani and Miller models) are mathematically equivalent and thus should provide the same result when the same inputs are used.

However they do not, because these methods focus on different value drivers. They suggest an alternative valuation method that provides the adjustment necessary to produce consistent results.

Paulo (2002) argued that EVA is based on the capital asset pricing model, which relies on the efficient market hypothesis. In an efficient market the real return equals the internal rate of return resulting in a zero EVA. He stated that arbitrage and competitive forces ensure that abnormal returns cannot occur consistently. On average, a negative EVA offsets a positive EVA and the occurrence of EVA would be random and statistically non-significant. Thus, EVA is regarded as a fiction. He concludes that the validity of EVA should be questionable because it relies on an inappropriate input, namely the weighted average cost of capital.

Adnan Abdeen and Timothy Haight (2002) compared the performance of EVA user Companies with non-user Fortune 500 Companies for the years 1997 and 1998. It showed that users performance averages profits as percentage of revenues, assets, and stockholders' equity were higher than the averages of non-users.

However, the means for 1998 Earnings Per Share (EPS), EPS change from 1997 and EPS growth for the years 1988-1998 were lower for the EVA user Companies. EVA will become less popular in its use as an instrument of control and performance evaluation. Therefore, the conclusion of this research is not in support of EVA use as a measure of value creation to stockholders.

M Geyser & I Liebenberg (2002) in his paper examined introducing Economic Value Added (EVA) as a performance measure for agribusinesses and co-ops in South Africa. EVA is an effective measure of the quality of managerial decisions as well as a reliable indicator of an enterprise's value growth in future.

Pablo Fernández (2002) analyzed 582 American Companies using EVA, MVA, NOPAT and WACC data provided by Stern Stewart. For each of the 582 Companies, he had calculated the 10- year correlation between the increase in the MVA (Market Value Added) each year and each year's EVA, NOPAT and WACC. For 296 (of the 582) Companies, the correlation between the increase in the MVA each year and the NOPAT was greater than the correlation between the increase in the MVA each year and the EVA.

There are 210 Companies for which the correlation with the EVA has been negative. The average correlation between the increase in the MVA and EVA, NOPAT and WACC was 16%, 21%, and 21.4%. The average correlation between the increase in the MVA and the increases of EVA, NOPAT and WACC was 18%, 22.5% and 4.1%.

He also found that the correlation between the shareholder return in 1994-1998 and the increase in the CVA (according to the Boston Consulting Group) of the world's 100 most profitable Companies was 1.7%. He had also analyzed the relationship between shareholder value creation and various other parameters, including Economic Profit and EVA, during the period 1991-1997.

In this case, the sample consisted of the 28 largest Spanish Companies. Economic Profit had the highest correlation with shareholder value creation in only 4 Companies (EVA in only 2), while in 18 Companies the highest correlation was found for the interest rate.

Copeland (2002) stated that research by 'Monitor Corporate Finance' indicated that financial metrics such as earnings, Earnings Per Share (EPS) growth and EVA do

not correlate with the total return to shareholders. He believed that market expectations are a better measure of shareholder value. Expectation-based management uses the difference between actual and expected performance as a measure linked to the total return to shareholders.

He did a survey on data from the S&P 500 Companies from 1992 to 1998 and found little correlation between their short-term total return to shareholders and their short-term EPS, growth in earnings, EVA, and their percentage change in EVA. However, he found a highly significant correlation between the total return to shareholders and analysts' expectations of earnings. This expectations-based measure (expected earnings) showed an R^2 of 42% relative to the total shareholders' return.

He argued that a business unit that earns more than its cost of capital and thus has a positive EVA only creates value (market value) if it earns more than expected. So, for example, if a Company has a WACC of 15% and it is expected to earn 30% but actually earns 25%, it under-performs in terms of the expectations and therefore destroys value. The reason for this is that the expectation of a 30% return has already been discounted into the current share price.

Machuga et.al (2002) studied American Companies for the period of 1981 to 1996 for a sample of 4382 U.S. Companies. Surveying the information content of EVA in predicting EPS (Earnings Per Share) indicated that EVA in comparison with operational cash flow and returns has more information content in earnings prediction.

Machuga et al. (2002) adopted a new approach in evaluating the relative performance of earnings and EVA as measures of firm performance. In doing so, they examined the relationship between EVA accounting adjustments and future EPS changes. Furthermore, they examined if this incremental predictive content is reflected in analysts' forecasts of earnings.

The rationale for this is that if analysts' do not fully incorporate the information in prior-year EVA changes or levels, then their forecast errors will be correlated with these EVA variables. The sample was drawn from the commercial database of Stern Stewart and consisted of 4,382 firms from 1981 to 1996, ranging from 232 to 362 firms per year.

The results showed that analysts' forecasts appear not to fully reflect information in reported EVA for firms with prior-year earnings increases. This could be due to the fact that EVA was a new measure for the time of the study and analysts, especially in the earlier years, may not have been fully familiar with it.

Furthermore, the results showed that EVA contains information that is incremental to EPS in predicting future earnings. In addition, they found that despite this potential for EVA to add incremental value to analysts' forecasts of future earnings, analysts do not use the information in reported EVA appropriately, but appear rather to overweigh it.

Hatfield (2002) argued that EVA changes the accounting landscape fundamentally by treating R&D as a strategic capital cost rather than as an expense. He stated that the real value of EVA to R&D lies in the fact that one system can be utilized to manage a diverse set of issues confronting technology management, from financial metrics to portfolio decisions and people issues.

Verma(2002) studied Indian bank's profile to demonstrate a direct correlation between the investment in stakeholder relationships and corporate performance. Many Indian banking seem to have destroyed shareholder's wealth over a period of time and only a few have positively contributed to their wealth. With the help of EVA (Economic Value Added) and MVA (Market Value Added) which tell what the institution is doing with investor's hard earned money, this examined an appropriate way of evaluating bank's performance and also found out which Indian banks have been able to create (or destroy) shareholders wealth since 1996-1997 to 2000-2001.

The overriding message of this study was that banks must always strive to maximize shareholders value without which their stocks can never be fancied by the market.

Worthington and West (2001) In this study, pooled time-series, cross-sectional data on 110 Australian Companies over the period 1992-1998 was employed to examine whether EVA is more highly associated with stock returns than conventional accounting-based measures: namely, earnings before extraordinary items, net cash flow from operations and residual income.

A related empirical question concerned those components unique to EVA that help explain these stock returns beyond that explained by other accounting-based

measures. The five components of EVA examined were net cash flows, operating accruals, after-tax interest, and cost of capital and accounting adjustments. Relative information content tests revealed returns to be more closely associated with earnings than residual income, net cash flow and EVA respectively.

However, consistent with the construction of EVA, incremental information content tests suggested that EVA adds more explanatory power to earnings than either net cash flow or residual income.

An analysis of the components of EVA confirms that the capital charges and GAAP related accounting adjustments most closely associated with EVA add more explanatory power to net cash flow than accruals or after-tax interest, though these measures are relatively more significant alone in explaining market returns.

Fernandez (2001) examined the correlation between EVA and MVA of 582 American Companies for the periods 1983-97. It was shown that for 296 firms in the sample the changes in the NOPAT had higher correlation with changes in MVA than the EVA, while for 210 sample firms the correlation between EVA and MVA was negative. Fernandez, using a representative sample of American and European firms based on data provided by Stern Stewart and Company analyzes the correlation between the MVA (Market Value Added) and the EVA, NOPAT, and WACC.

Fernandez observes a low (and sometimes negative) correlation between EVA and MVA, and concludes that NOPAT and WACC present higher levels of correlation with the increase in the MVA.2 The results are in the line with those obtained by Biddle et al. (1997), and Rice

A case study on the relative statistical significance of market capitalization and EVA as an effective valuation tool conducted by **Chattopadhyay and Gupta (2001)** found that EVA did not prove to be a better tool than the traditional measure like market capitalization. The study used correlation analysis, Runs test and simple regression on EVA and market capitalization of Hindustan Lever Limited over a nine-year period from 1991 to 1999.

Ray (2001) observed that the missing link between EVA and improved financials is actually productivity. EVA can be a powerful tool when properly applied. It allows a firm to ascertain where it's creating value and where it's not. 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 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 of the firm.

Finally, as investors buy more shares in the firm in order to have more claims on its increased value, they automatically bid up and eventually maximize the firms share price.

Eedes (2001) pointed out that if the market value is higher than the COV, this indicates that the FGV is positive and that the market has a positive expectation about future EVA growth.

Kramer and Peters' (2001) found that, as a proxy for MVA, EVA did not suffer from any industry-specific bias. However, they also concluded that EVA is consistently outperformed by the ''net operating profit after tax' measure. Their result indicated weak correlation between EVA and MVA.

Pfeiffer (2000) considers mathematically EVA vs. discounted cash flow methods for resolving internal agency problems in decentralized decision making. Besides the theoretical discussion understanding is needed about the numerical behavior of the EVA under different conditions and about EVA's numerical relationship to the accounting measures like Return on Investments (ROI), Return on Equity (ROE) and to economic profitability measures like the Internal Rate of Return (IRR).

Copeland, Koller and Murrin (1990, 1994, and 2000) defined the Economic Profit as an after-tax operating profit less a charge for the capital used by the Company. They mainly applied their value creation framework for valuation of Companies and acquisitions. The McKinsey consulting Company has embraced the Economic Profit as the main measure for its framework of value creation.

Garvey and Milbourn (2000) developed a model where they regressed the adopters and not adopters of EVA and the relevant variables. They emphasized the positive contribution of EVA to the value added and they also showed that the simple correlation between EVA and stock returns is a relevant factor in the choice of performance measures and it is a reliable guide as an incentive tool and measure for compensation.

Farsio et al. (2000) studied the relationship between EVA and stock returns. The main objective of their study was to verify if a correlation existed between EVA and stocks returns. Their sample consisted of Companies that are found in well known stock indices such as Standard & Poor's 500 (S&P 500) and the Dow Jones Industrial Average (DJIA). The S&P 500 Index was chosen because the constituent Companies represent a large, diversified sample of Companies for which EVA is available. The time period spanned from 1994 to 1998 and 367 Companies from the S&P 500 and 30 from the DJIA were chosen.

Regression analysis was employed for testing the relationships between the variables. Total return was designated as the dependent variable in all tests. Numerous regression tests were conducted including multiple and simple regression.

They found that the relationship between EVA and total return to be weaker for new economy Companies than for old economy Companies. Furthermore, they showed that EVA is not a good indicator of stock performance and represents just one of many available measures. In fact, it may be one of the poorest measures available, explaining only a fraction of the variability in stock return fluctuation.

Garvey and Milbourn (2000) stressed the fact that it is not so important if EVA beats Earnings Per Share (EPS), but under which circumstances does EVA beat earnings and why. EVA should be adopted by a Company depending on the EVA and earnings current correlation to the stock returns and the ability to explain them at the same time. They described non adopters firms with high correlation between EVA and stock returns, and with negative correlation between earnings and stock returns.

They considered that the adoption of EVA is positively related to the firm's cumulative distribution function of the proportion of firms with a percentage value added from adopting EVA, leverage and tangible assets, and negatively related to the size (total assets) and Tobin's Q. There are some industry patterns for the adoption of EVA, and the explanatory power of the regressions are modest ($R^2 = 7.2\%$ and 12.8%).

Günther, Landrock and Muche (2000) in examining the Germany stock market, could not prove that value-based measures (EVA, CVA, DCF and Tobin's Q) outperform traditional accounting-based measures (ROS, ROI, and ROE).

Turvey et al. (2000) studied the relationship between EVA and stock market returns for a sample of 17 publicly traded food Companies in Canada. The key finding was that no relationship could be found between the two.

Jensen and Meckling (1999) claimed that, even though many Companies use ROE, it is susceptible to manipulation when managers have rights to make decisions over the level of investment. They recognize the use of EVA, but clearly indicate that it is also not the best measure. This is because projects with negative EVA in early years will not be chosen if managers are evaluated on current EVA figures, even though the future annual EVA is enough to justify the investment.

Goetzmann and Garstka (1999) found that long-term survival of Companies may be related to accounting earnings, and more, simple EPS does as well or better than EVA at explaining differences across Companies and at predicting future performance.

The study of **Kleiman (1999)** set out to determine whether Companies that adopt EVA as a performance measure add more value for their shareholders than their industry competitors do. His sample consisted of 71 Companies that had adopted EVA during the period from 1987 to 1996.

The results of the study showed that EVA Companies earned an extra total return of 28.8% over four years versus the median industry competitor. Companies that had adopted EVA showed greater improvement in operating profit margins. These improvements were attributable more to a decrease in assets rather than extensive cost cutting.

Bottger (1999) found that the basic corporate finance and microeconomic theory indicate that the primary financial directive of any firm ought to be to maximize the wealth of the shareholders. The EVA concept is considered from a financial management perspective. It was found that one of the major challenges facing EVA implementation is changing traditional methods of financial reporting.

Thenmozhi (1999) made a comparative study of how the traditional performance measures are comparable to EVA. Working on a sample of 28 Companies for a period of three financial years he found that only 6 out of the 28 Companies have positive EVA while the others have negative.

The EVA as a percentage of Capital Employed (EVA/CE) has been found to indicate the true Return on Capital Employed (ROCE). Comparing EVA with other traditional performance measures the study indicates that all the Companies depict a rosy picture in terms of EPS, RONA and ROCE for all the three years. The study shows that the traditional measures do not reflect the real value of shareholders and EVA has to be measured to have an idea about the shareholders value.

De Villiers and Auret (1998) found that EPS had more explanatory power than EVA in explaining stock prices in South Africa over the period 1977-1995.

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

Herzberg (1998) concluded that the residual income valuation model (including EVA) "appears to have been very effective in uncovering firms whose stock is underpriced when considered in conjunction with expectations for strong earnings and growth". Nevertheless, the bulk of empirical evidence indicated that the superiority of EVA vis-à-vis earnings (as variously defined) has not been forthcoming.

McClenahen (1998) observed that "traditional corporate performance measures are being relegated to second-class status as metrics such as EVA become management's primary tools".

Clinton and Chen (1998) selected a sample of 325 firms for the years 1991-1995. Three new performance measures EVA, Cash Flow Return of Investment (CFROI) of BCG and Residual Cash Flow (RCF) are analyzed and evaluated to examine any association of them to Stock Returns. EVA and CFROI produced insignificant or inconsistent correlation with Stock Returns and therefore indistinguishable in their relative lack of contribution to assessing firm value.

Nichols (1998) gave his analysis of the new measures in his work .He states that there is no magic formula which always captures the long- term impact of a business

strategy on shareholder wealth. To ask weather EVA is better than CFROI is hard to answer. CFROI is very accurate but complex.

Pearson (1998) did a study that compares the explanatory power of EVA to that of Refined Economic Value Added (REVA) for share returns on the mining sector of the JSE. It was found that EVA partially explains share returns, while REVA does not appear to explain share returns at all.

Manipulating the EVA information to obtain the annual change in EVA leads to the finding that the annual change in EVA explains a significant portion of share returns in the mining sector. This suggests that positive changes in EVA, from one year to the next, could be a reliable measure of management performance.

Kramer and Pushner (1997) evaluated EVA and NOPAT as explanatory determinants of MVA and found that market value was better explained by NOPAT than EVA under several scenarios (NOPAT explains more of the variations of MVA than EVA.).

De Villiers (1997) examined inflation distortions to EVA in a modeling framework. His analysis principally focused on the distortions to EVA caused by inflation's effect on the firm's asset base.

Biddle, Bowen and Wallace (1997) provided a test that Earnings (R^2=12.8%) is significantly more highly associated with market-adjusted annual stock returns than are Residual Income (R^2=7.3%), EVA (R2=6.5%), and Operating cash flow (R^2=2.8%). They additionally tested if the EVA and/or Residual Income components were contributing significantly to the market stock returns. They concluded that, while cash flow and accrual components were consistently significant, the EVA components such as capital charge and accounting adjustments were typically not significant.

In summary, neither EVA nor Residual Income appeared to dominate earnings in its association with stock market returns, and they recognize that EVA may be an effective tool for internal decision making, performance measurement and incentive compensation.

Tero Telaranta (1997) has conducted a study about the correlation of EVA and share prices and concluded that EVA is not any better than traditional performance measures.

Wallace (1997) found that those Companies using EVA or other residual income-based measures as the basis for incentive compensation had higher levels of residual income than the control firms.

Zimmerman (1997) studied the divisional performance of EVA and came to the conclusion that the firm EVA can closely track changes in stock price. However, the divisional EVA measures may be highly misleading indicators of value creation and may be leading to the wrong incentives.

Bacidore ,Boquist, Millbourn , and Thakor (1997) proposed the use of a Refined EVA (REVA) in which market value of the firm's assets should be used in EVA calculations, rather than book value of assets because the capital charge for the firm is based on its market-based Weighted Average Cost of Capital (WACC). They compared REVA to EVA in terms of explanatory power for abnormal returns and found REVA to have better explanatory power than EVA.

Kramer and Pushner (1997) compare EVA's effectiveness as proxy for MVA and changes in MVA to the traditional accounting measure and Net Operating Profits after Taxes (NOPAT) over 8,855 Companies. They did not find clear evidence that EVA is the best proxy for MVA and that the market seems to more focus on 'Profits than EVA.

Lehn and Makhija (1996) conducted a study to find out how well EVA and MVA relate to share price performance and also to see whether Chief Executive Officer (CEO) turnover (the number of new CEOs during a given period) is related to EVA and MVA. They selected 241 large US Companies and gathered information about them for the four years 1987, 1988, 1992 and 1993.

About two thirds of the Companies were operating in the manufacturing industry. Six performance measures were computed per Company for each of the four years, namely three accounting rates of return; ROA, ROE and Return on Sales (ROS), share returns (dividends and changes in share price) and EVA and MVA. Both EVA and MVA were expressed as ROE values. All six measures showed a positive correlation with share returns. EVA showed a slightly better correlation with share returns than the other measures.

In their study, relationship between EVA, MVA and corporate focused, Lehn and Makhija differentiated between Companies that focus on their core business and

ones that diversify and become conglomerates in the hope of exploiting economies of scale. Their research showed that Companies with an above median focus earn an average share return of 31.2 %. Firms with a below median focus earn 25 %.

These findings prove that a greater focus on business activities leads to higher levels of EVA and MVA. Lehn and Makhija concluded that EVA and MVA are effective performance measure that contain information about the quality of strategic decisions and serve as signals of strategic change. In this study, the correlation of EVA with stock returns (0.59) was slightly higher than the correlation of MVA (0.58), ROE (0.46), ROA (0.46), or ROS (0.39).

Milunovich and Tsuei (1996) reviewed the correlation between MVA and several conventional performance measures in the computer industry for the period from 1990 to 1995. They found EVA to correlate some what better with MVA than the other measures. They argue that the relatively weak correlation between MVA and free cash flow can be a misleading indicator.

They point-out that a fast growing technology startup Company with positive EVA investment opportunities and a loss-making Company on the verge of bankruptcy can have similar negative cash flows.

They concluded that growth in earnings is not enough to create value, unless returns are above the cost of capital. They suggest that EVA works best as a supplement to other measures when one is evaluating shares and that EVA sometimes works when other measures fail. Totally they found that MVA is more highly correlated with EVA than with EPS, EPS growth, ROE, FCF or FCF growth.

O'Byrne (1996) compared the information content by regressing firm value on EVA and earnings, which are measured by NOPAT. The sample consisted of 6,551 firm-year observations, for the period between 1985 and 1993. The author estimated two regressions where market value divided by capital is the dependent variable.

In the first regression the independent variable is EVA standardized by the weighted average cost of capital and in the second regression NOPAT. All variables were standardized by capital at the beginning of the period. The author reported an adjusted R^2 of 31% for the EVA regression and 33% for the NOPAT regression.

After a series of adjustments to the EVA regression were made, namely the allowance of separate coefficients for positive and negative values of EVA, the consideration of the natural log of capital in an attempt to capture differences in the way the market values firms of different sizes and the inclusion of 57 industry dummy variables in order to capture potential industry effects, the author obtained a larger adjusted R^2 for the enhanced EVA regression (56%), than for NOPAT (33%). The author concluded that EVA outperforms earnings in explaining firm values.

Grant (1996) studied the relationship between MVA/CAPITAL and EVA/CAPITAL for 983 Companies selected from the Stern Stewart Performance 1000 database from 1993 to 1994. The results showed an overall R^2 of 32% for all the Companies. For the 50 largest wealth creators the R^2 was 83%. For the 50 largest wealth destroyers the R^2 was only 3%.

In another study of **Grant (1997)** the cross-sectional regression statistics for 1994 reveal that 74% of the movement in the MVA/CAPITAL ratios for top-performing large firms is explained by variations in the EVA/CAPITAL factor. Grant (1996) found that the real corporate profits should be measured relatively to the amount of capital needed to generate that level of profitability.

Then he used standardized values for EVA and market value instead of absolute values. He concluded that his empirical results indicated that EVA has a significant impact on a Company's MVA. The value of a Company responds to variations in both the near-term EVA outlook and movements in the long-term growth rate.

Uyemura, Kantor and Petit (1996) used a sample of the 100 largest USA banks for the period between the years 1985 to 1996.

They calculated the MVA and tested the correlation with EVA as well as four other accounting measures, namely Net Income (NI), Earnings Per Share (EPS), Return on Equity (ROE), and Return on Assets (ROA). The results of their research indicated that there is a strong relation between EVA and MVA. The correlations between these performance measures and MVA are: EVA 40%, ROA 13%, ROE 10%, NI 8% and EPS 6%.

Dodd and Chen (1996) studied the correlation between stock returns and EVA, Residual Income (RI), ROA, ROE and EPS. The data is from the ten year period 1983

through 1992, and the sample consists of 566 US Companies. In their study ROA explained best with an R² of 24.5%.

The R² for the other performance measures are: EVA 20.2%, RI 19.4% and between 5% to 7% for ROE and EPS. It appears that EVA does not relate well to share returns. The results obtained imply that 80% of changes in share returns could not be accounted for by changes in EVA. Finally, the authors concluded that adjusted EVA offers few advantages over unadjusted EVA or Residual Income (RI).

You Lee (1995) did a study on the usage of EVA as a corporate performance measurement tool. The main research finding was that within the context of the JSE, EVA is at best marginally better than ROA and ROE.

Stern (1993) argued that the key operating measure of corporate performance is not popular accounting measures such as earnings, earnings growth, dividends, dividend growth, ROE, or even cash flow, but in fact EVA. The changes in the market value of a selected group of Companies (specifically their MVAs) were shown to have a relatively low correlation with the above accounting measures.

His research showed that the R^2 for the relationship between MVA and different independent variables ranged from 9% for turnover growth to 25% for ROE rates. In comparison, the R^2 for EVA relative to MVA was 50%.

Finegan (1991) extended the initial analysis discussed above to include other measures. He focused on the middle 450 Companies (actually 467 Companies out of the original 613) where the MVA's were tightly clustered and compared the exploratory power of EVA to that of more conventional measures such as EPS, growth in capital, return on capital and even growth in cash flow.

The results of the regression of MVA against EVA and other common performance measures showed that EVA outperformed the other measures quite considerably with an R^2 of 61% compared to the second best other measure, which was return on capital with an R^2 of 47%. The exploratory power of EVA was found to be six times better than that of growth in EPS.

Finegan then repeated the analysis on changes in MVA and again found EVA to be superior to the other measures. The R^2 of changes in EVA was 44% compared to an R^2 of 35% for changes in return on capital, which was the measure that came closest

to EVA in terms of its explanatory power. In this analysis, the R^2 of EVA was about three times better than that of changes in EPS growth.

Stewart (1991) found strong correlation between EVA and MVA. Using a sample of 613 US Companies over the periods 1987-1988 and examining both levels and changes in EVA and MVA; He provided evidence of a striking relationship between both levels of EVA and MVA and between changes in these levels.

Since the correlation between changes in EVA and MVA was high; He suggested that adopting the goal of maximizing EVA and EVA growth would in fact build a premium into the market value of the Company.

From the above literature review it is proved that the financial performance of Companies directly depends on its' economic performance, market performance and industry performance. Financial performance tools such as EVA, MVA and financial ratios definitely play a pivotal role in determining the significant relationship between various attributes such as ROA, ROE, ROS, ROI, ROCE, EPS, P/E, etc. Above reviews clearly gave room for applying similar tests for Companies listed in Tehran Stock Exchange (TSE) , hence the present study.