

INCLUSION OF HUMAN CAPITAL IN THE CALCULATION OF WACC

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Abstract

Economic Value Added (EVA) is very weak in the Indian business organization. The acceptance level is very low rather popularity of its theoretical aspects. The researcher has found that there is a gap in the study of acceptance level of human capital relations to contemporary financial analysis EVA in the Indian context. The study has attempted to focus on the performance of the organization through human capital which contributes as well enhance Economic Value Addition of the organization. EVA is a financial performance metric that measures value based on adjusted accounting data to assess financial performance and help a company grow. (Stewart, p.3; Makelainen and Rozticki, 1998, p.7) Economic Value Added measures the profitability of a company after taking into account the cost of all capital including equity. It is the post-tax return on capital employed (adjusted for the tax shield on debt) minus the cost of capital employed.

The dichotomy in accounting between human and non-human capital is fundamental. The latter is recognized as an asset and is therefore recorded in the books and reported in the financial statements, whereas the former is ignored by accountants. The definition of wealth as a source of income inevitably leads to the recognition of human capital as one of the several forms of wealth such as money, securities and financial capital. The study found that it is very difficult to measure human capital in Indian organization due to different HR practices in different organization depending upon the size and nature of the business.

It is difficult to calculate the cost of capital including human capital, so the organizations face limitation to keep the record in measuring human capital and return on human capital in value-added financial statement (EVA) in quantitative terms. Although the organizations in European countries, USA and China have quantified the Return on Investment (ROI) through human capital and thereby found out the true economic profit of the organizations

assumed as performance measurement and reflects in value –added financial statements; Economic Value Addition.

However, in Indian context, there are organizations that have used Lev and Schwartz model to validate human capital. But, majority of manufacturing and service industries have not yet perceived that the assessment of economic value addition is possible through measurement of human capital.

After an exhaustive literature survey, the paper will discuss the intertwined concepts of EVA and human capital. The paper first has explored the definitions of human capital cited by different researchers and also has attempted to find out the impact of EVA of the organization after incorporating cost of human capital in the Weighted Average Cost of Capital (WACC).

Keywords: Economic Value Added, Human Capital Management, Human Capital, Residual Income, Weighted Average Cost of Capital

Introduction:

1. Introduction to Economic Value Added (EVA)^{®95}

EVA is based on the work of Professors Franco Modigliani and Merton H. Miller. In October, 1961, these two finance professors published “Dividend Policy, Growth and Valuation of Shares” in the Journal of Business. The ideas of free cash flow and the valuation of business on a cash basis were developed in this article. These ideas were extended into the concept of Economic Value AdditionTM (hereafter referred to as EVA, a registered trademark) was introduced by Bennett Stewart and Joel Stern of Stern Stewart & Co., a New York- based consulting firm, in the late 1982 as a tool to assist corporations to pursue their prime financial directive by aiding in maximizing the wealth of their shareholders (Stewart, 1994). Basically, the technique provides a way to compute the economic value created by the firm over a period of time, the key variable which should guide managerial decision making (Bromwich and Walker, 1998; Chen and Dodd, 1997).

The Economic Value Added of a firm can be defined as the change in the NOPAT (Net Operating Profit after Taxes) minus the change in the Cost of the Capital used to generate this NOPAT (Rappaport, 1986, 1998). Thus, EVA[®] depends basically on the firm operating profit, taxes, debt level, and the cost of capital. This management technique appears in the 80s, but it is in the 90s when it spreads widely among firms. The EVA[®] technique has been adopted by important firms such as Coca Cola, DuPont, Eli Lilly, Polaroid, Pharmacia(former Monsanto), and Whirlpool. If we analyze the EVA[®]

⁹⁵ EVA[®] is a registered trademark of Stern Stewart & Company

citations in both academic and practitioner publications (Biddle, Bowen and Wallace, 1997; Brickley, Smith and Zimmerman, 1997), we can observe that EVA® is nowadays one of the most important and relevant management techniques.

The interaction of two important facts can explain the development and diffusion of EVA®. First, in the 80s an interesting debate develops about the firm performance measures provided by the accounting procedures (Kaplan, 1983, 1984). The debate arises from the fact that traditional accounting methods are highly tied to the subjective opinion of the accountant (i.e., FIFO vs. LIFO, depreciation methodology), and this appears to be especially important in the analysis of profitability. As a consequence, managers can easily manipulate accounting performance measures (Dyl, 1989; Gomez- Mejia and Balkin, 1992; Hunt, 1985; Jensen & Murphy, 1990; Verrecchia, 1986). These facts imply that accounting measures used for years by shareholders to control and guide their investment decisions are quite inefficient. Second, in the 80s important economic and social aspects affect American firms. In the first part of the decade American firms experience tough competition from Japanese firms (Kaplan, 1983). At the same time, financial markets internationalize and experience a huge expansion.

These facts increased the need for shareholders and investors of new firm performance measures, objective and not manipulable. In this context, and in order to satisfy this need, Stern Stewart & Company developed the EVA® technique. The EVA® technique assumes that firm economic value added is the best indicator of creation of shareholder value, and thus, must be the variable used by managers to take any decision. Furthermore, it is necessary to provide incentives for managers to use EVA® as their key variable in the decision making process. Rappoport (1986) suggested seven value drivers; sales growth, operating profit margin, tax rate, working capital investment, fixed asset investment, weighted average cost of capital and the competitive advantage period. The theory is that improvement in these value drivers leads directly to an increase in shareholder value. Stern & Stewart who developed EVA® described EVA® as revealing the;

“four ways wealth can be created in business: by cutting costs, by investing in value-added endeavors, by realizing capital imprisoned in underperforming activities and by reducing the cost of capital”.⁹⁶

(Source: Kermally, 1997)

The concept is certainly not an outright revolution. Alfred Sloan, the General Motors patriarch, knew EVA®- though not by that name as early as the 1920s. In fact, accountants have long known a closely related acronym:

⁹⁶ http://www7.open.ac.uk/oubs/research/pdf/WP98_15.pdf

RI-Residual Income (McConville, 1994). Residual Income is the value remaining after a company's stockholders and all other providers of capital have been compensated. The difference is that EVA® has been taken a lot more seriously and developed a lot more by practitioners, consultants and researchers alike.

The objective of EVA® is to develop a performance measure that properly accounts for all ways in which corporate value could be added or lost. EVA® has gained popularity in the financial community and increased the legitimacy of a company in the eyes of the financial markets, as a valuable measure of corporate value-creation or destruction over a given period (CS First Boston, 1996).

1.1 Introduction to Human Capital Management and Human Capital

Human Capital Management is the manifestation of the philosophy stating that *people is the most important asset* of the organization. However, differs from other physical assets, such as machine and money, the value of people grows through its productive life by its own initiatives and through proper maintenance and development processes.⁹⁷

Economists Theodore Schultz invented the term in the 1960s to reflect the value of human capacities.

Broadly, the concept of human capital is semantically the mixture of human and capital. In the economic perspective, the capital refers to 'factors of production used to create goods or services that are not themselves significantly consumed in the production process' (Boldizzoni, 2008). Along with the meaning of capital in the economic perspective, the human is the subject to take charge of all economic activities such as production, consumption, and transaction. On the establishment of these concepts, it can be recognized that human capital means one of production elements which can generate added-values through inputting it.⁹⁸

The method to create the human capital can be categorized into two types. The first is to utilize 'human as labor force' in the classical economic perspective. This meaning depicts that economic added-value is generated by the input of labor force as other production factors such as financial capital, land, machinery, and labor hours. Until the monumental economic growth of the 1950's, most of economists had supported the importance of such quantitative labor force to create products. The human capital expansively includes the meaning of 'human as creator' who frames knowledge, skills, competency, and experience originated by continuously connecting between

⁹⁷ Anton S. Wahjosoedibjo (2009), "The Role of Senior Leadership in Human Capital and Talent Management", Presented at 36th ARTDO International Conference, Penang, Malaysia, Pg.3. Accessed on 17-11-2011.

⁹⁸ <http://www.oecd.org/site/progresskorea/44109779.pdf> Accessed on 11-07-2013.

‘self’ and ‘environment’.⁹⁹ Considering the production-oriented perspective, the human capital is ‘the stock of skills and knowledge embodied in the ability to perform labor so as to produce economic value’ (Sheffin, 2003).

1.1.1 The definitions of human capital

Human capital is the profit lever for the knowledge economy (Bontis and Fitz-enz, 2002). It is the core resource and competence for obtaining competitive advantage in organizations (Lepak and Snell, 1999; Pfeffer, 1994). Most scholars agree that human capital represents the knowledge, competence, technical skill and experiences of the human resources who yield economic value for the organization (Hitt et al., 2001). Ulrich (1998) expanded the scope of skills, experience and knowledge and argued that human capital is composed of employee competence and commitment, highlighting the employee willingness to contribute. The Google website on human capital offers a number of definitions on human capital.

The fruitful human capital definitions proposed by scholars are in Table 1.

Table 1. The summary of definitions for human capital

Researcher	Human Capital Definitions
Baptiste (2001)	Employee knowledge and skills that produce economic potential for organizations.
Becker (1964)	The economic value of education.
Bontis and Fitz-enz (2002)	Employee knowledge, competence and experience.
Bontis (1999)	Employee implicit knowledge; employee intellect in terms of work.
Booth (1998)	Employee skill, training and attitudes.
Brooking and Motta (1996)	Human assets are employee experience, knowledge, competence and creativity.
Brooking (1997)	Leadership abilities, management skills, professional skills, problem solving skills and creative abilities.
Davis and Noland (2002)	Improvement/ accumulation of employee competence through education.
Dzinkowski (2000)	Employee know-how, competence, skills and professional knowledge.
Edvinsson and Malone (1997)	Competence, knowledge, skills and executive experience
Grantham et al. (1997)	A firm’s capacity to solve problems by utilising employee knowledge
Hitt and Ireland (2002)	The pool of knowledge and skills with the value of a company.
Horibe (1999)	Knowledge and experience of the people related to work.
Hudson (1993)	Genes, education, experience and attitudes towards life and work.
Johnson (1999)	Knowledge base of the workforce, employee competence and attitude and the characteristics of leaders and managers.
Leliaert et al. (2003)	The skills, competence, reputation and potential of an individual.
Luthans et al. (2004)	Personal experience, level of education, professional skills, knowledge and creative ideas.
Lynn (1998)	The stock of knowledge, skills and unique abilities possessed by employees.
Molyneux (1998)	Group knowledge, skills, professional technique and employee interpersonal networks.
Nelson and Winter (1982)	Tacit knowledge of individuals owned by organization members.
Roos et al. (1997)	Human Capital is composed of three dimensions as follows: <ol style="list-style-type: none"> 1. The ability to compete: employee skills and knowledge 2. Work attitude: affected by motive, behaviour and personal ethics 3. Quickness in response: ability to innovate, imitate, adapt and integrate.

⁹⁹ <http://www.oecd.org/site/progresskorea/44109779.pdf>

Researcher	Human Capital Definitions
Saint- Onge (1996)	Employee attitudes, including assumptions toward matter, values and beliefs.
Sandberg (2000)	Human competence at work does not refer to all knowledge and skills, but the ones that people use when working.
Stewart (1997)	The ability of employees to solve customer problems; the source of the innovative capacity of an organizations: includes employees attitude, organizational tenure, employee turnover rate, experience and learning.
Sveiby (1997)	The ability of employees to create tangible and intangibles assets.
Tomer (1999)	Certain soft characteristics, such as spirit, leadership style, vision, morals and ethics.
Roos et al. (1998)	Work competence, attitude and quickness in response.
Ulrich (1998)	Competence multiplied by commitment.
Van Buren (1999)	Knowledge, skills and competence owned by people in an organization.

1.2 Literature Review on Economic Value Added

Stern (1990) observed that EVA as a performance measure captures the true economic profit of an organization. EVA-based financial management and incentive compensation scheme gives managers better-quality information and superior motivation to make decisions that will create the maximum shareholder wealth in an organization. **Stewart (1994)** has expanded that adoption of the EVA system by more and more companies throughout the world clearly depicts that it provides an integrated decision - making framework, can reform energies and redirect resources to create sustainable value for companies, customers, employees, shareholders and for management. **Grant (1996)** found that EVA concept might have everlastingly changed the way real profitability is measured. EVA is a financial tool that focuses on the difference between company's after tax operating profit and its total cost of capital. **Luber (1996)** confirmed that 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 handsome return on the invested capital.

Banerjee (1997) has conducted an empirical research to find the superiority of EVA over other traditional financial performance measures. ROI and EVA have been calculated for sample companies and a comparison of both showing the superiority of EVA over ROI. **Bao and Bao (1999)** revealed that the EVA is positively and significantly correlated with the firm value. **Thenmozhi (1999)** compared EVA with some other traditional measure of corporate performance viz. ROI, EPS, RONW, ROE, and ROCE etc. She has referred to some of the shortcomings of the concept of EVA but maintain that EVA is a better measure of corporate performance. **Riceman, et al (2002)** argued that EVA is a performance measure that is being used by an increasing number of companies, but academic research on EVA is limited. **Mangala and Simpy (2002)** discussed the relationship between

EVA and Market Value among various companies in India. The results of the analysis confirm stern's hypothesis and concluded that the company's current operational value was more significant in contributing to change in market value of share in Indian context. **Bardia (2002)** revealed that in a dynamic environment, a common investor finds it increasingly difficult to monitor his investments. EVA guides investors in evaluating the performance of the company and monitoring their investments. **Stern, Joel (2003)** presented the results of Stem Stewart's research on Indian companies, which shows considerable need to improve the wealth creation performance and allocation of capital in the Indian economy. They explained how the effective implementation of the EVA framework could be a solution to address this problem. **Balachandran and Sriram (2005)** made an attempt to study the value created for the shareholders of the company. They used to determine the relationship between Economic Value Added and dividend paid to the shareholders. The study revealed that the company had utilized the dividend-paying fund ploughing back into the business. The company was very conservative in declaring dividend and always had long-term objective of creating wealth to the shareholders, which has been achieved. **Manorselvi and Vijayakumar (2007)** in their study revealed that the traditional measures of performance do not reflect the real value addition to shareholders wealth and EVA has to be explained shareholders value addition. **Vijayakumar (2008)** empirically indicated that Net Operating profit After Tax (NOPAT) and Return on Net Worth (RONW) are the most significant variable with MVA followed by EVA and EPS. **Soral and Shurveer (2009)** revealed that EVA has found to have significant correlation with operating margin. It appears that the concept of EVA, as an emerging concept of financial management is fairly clear in the minds of almost all these researches whose studies have been reviewed above. In a fast changing business environment, the investor friendly financial performance measures may be the need of hour.

1.3 Why EVA®?

Though EVA explains to corporate owners and managers about the wealth creation in the firm, Young (1997) argues that European corporate managers are still behind from the understanding of value creation. In fact, corporate managers still stick with the conventional financial performance measures, even though it cannot tell whether there, is value created in the business, or otherwise. Investors in particular, are entitled to be informed regarding the wealth creation of a company.

EVA is gaining popularity because each of the traditional tools only can explain a specific market or firm situation only. For example, earnings per share can only explain the capital market not the capital budgeting.

Likewise, net present value cannot explain target return but it can explain only capital budgeting. On the other hand, EVA offers more than just one performance. EVA can explain capital market, capital budgeting and net assets at the same time. As a result, managers are not required to calculate three financial measures for three different performances, EVA itself can explain all three different performances.

According to Maditinos, Sevic, & Theriou (2006), hundreds of companies in United States (US) when started to use EVA as performance measurement tool and incentive compensation system, soon it gains popularity across the United Kingdom (UK), Australia, Canada, Brazil, Germany, Mexico. For instance, in New Zealand, EVA is adopted by the state owned companies as their performance measurement tool (Worthington & West, 2001). The most significant observation is the adoption of EVA by some of the world's giant companies such as Coca Cola, Sprint Corporation and Quaker Oats. However, Haque, Akter & Shil, (2004) argued that people are reluctant to implement new but strong performance measurement tool. In Asia including Malaysia, there has been very little factual research published on Malaysia's current position on EVA. Al-Amin & Hossain (2004) observe that not a single company uses EVA as a performance measure to evaluate internally in Bangladesh. Nonetheless, concept of EVA has gained popularity all over the world particularly in US, UK and European countries as companies started to use EVA as an internal as well as external performance measure due to the fact that it is consistent with the organizational objective of shareholder's value creation (Sharma & Kumar, 2010).

There are number of researchers who found positive results in their study on EVA and therefore have supported the theory of EVA. Subsequently, Forker & Powell 2004; Maditinos, Sevic, & Theriou 2006; Houle, 2008; Issham, 2010 ; Issham, 2011 agree with to (Stewart, 1994, pp. 75) who argues that "EVA stands well out from the crowd as the single best measure of wealth creation on a contemporaneous basis [and] is almost 50% better than its closest accounting-based competitor [Earnings Per Share (EPS), Return on Equity (ROE) and Return on Investment (ROI)] in explaining changes in shareholder wealth". On the other hand, the traditional performance measurement tools (ROI, RONA, and ROCE, ROIC) fail to assess the true economic return of a firm, as they all are based on the historical values (Haque, Akter & Shil, 2004). Therefore, it is argued that EVA is a financial performance measurement tool as better compared to any other tools in measuring true economic profit of a company.

1.4 Calculation of EVA®

The economic value addition concept takes into account the economic cost of capital invested by shareholders. If the EVA is positive, it

indicates that the company has created value for shareholders. If the EVA is negative, it signifies the contrary.

EVA® the surplus left after deducting the weighted average cost of capital from the net operating profit after tax. It can be calculated in the following way.

$$\text{EVA} = \text{NOPAT} - \text{WACC}$$

Where, EVA-> Economic Value Added

NOPAT-> Net Operating Profit After Tax

WACC-> Weighted Average Cost of Capital

Net Operating Profit After Tax (NOPAT) is defined as profits derived by the company's operations after taxes before financing costs and non-cash bookkeeping entries. It is the total profit available to provide a cash return to those who provide or invest capital to the firm.

Weighted Average Cost of Capital (WACC) is defined as given the cost of specific sources of finance and the scheme of weighting, the WACC can be readily calculated.

$$\text{WACC} = W_E r_E + W_P r_P + W_D r_D$$

Where W_E , W_P and W_D are the proportion of equity, preference and debt and r_E , r_P and r_D are the component costs of equity, preference and debt.

EVA® is the profit earned by the firm less the cost of financing the firm's capital.

The concept of EVA® is well understood by the Corporate as it has already been established in the financial world. It has become the base for business planning and performance monitoring.

Main Text:

2. Objective of the study

The objective of the study is to find out the impact on EVA of the organization after incorporating the cost of human capital in the WACC.

3. Impact of human capital incorporation on EVA (Hypothesis Testing)

Considering the profit and loss account and balance sheet of Central Coalfields Limited (CCL) for the year 2013, 2012 and 2011 in Crores from the source: India's No.1 Financial Portal, www.moneycontrol.com/financials/cclproductsindia/profit-loss/CC10 and <http://www.moneycontrol.com/financials/cclproductsindia/balance-sheet/CC10>, the impact on EVA of the organization after incorporating cost of human capital in the WACC has been found out.

When the researchers explored what could be the book value of human capital, then, the concept of productivity emerged. Quantification of productivity cannot be done taking due consideration only to the line managers or their subordinates who are directly involved into production/operations. The researchers have to consider the staff managers also, who exists in the other functional areas of the organization. So, the measurement of cost of human capital in other departments is quite impossible because the measurement of productivity is divided into sub-components like cost centres, profit centres, investment centres, etc. And it is difficult to quantify the productivity which is always not in quantitative terms like production units, costs, etc. Next to productivity, profitability is again an important issue in any organizations where the researchers have considered Earnings Before Interest, Tax and Depreciation (EBITD) plus cost of employees to be the book value of human capital (Cost of human capital is considered as equivalent to the productivity of human capital, profit being a part of capital).

Component cost of human capital can be considered as that of equity shareholders. This is because their returns also depend on the organization's returns.

3.1 Impact of human capital on EVA of the CCL for the year 2013 (Rs in Crores)

(1) Determination of book value of human capital

$$\text{Book Value of human capital} = \text{EBITD} + \text{Employee Cost} = 108.68 + 17.47 = 126.15$$

(2) Corporate Tax Rate has been calculated as

$$\frac{\text{Corporate Tax} \times 100}{\text{PBT (Post Extra-Ord Items)}} = \frac{26.25}{80.84} \times 100 = 32\%$$

(3) Calculation of Tax Benefit

(a) Employee Cost is a tax deductible item and therefore we get a tax benefit.

$$\text{Tax Benefit amount} = 32\% \text{ of Employee Cost} = 32\% \times 17.47 = 5.59$$

(4) Tax savings benefit is a kind of inflow in financial management. Therefore, cost of human capital will be- Average dividend % of last three years will be divided by after tax profit i.e., $(12+18+9) \% / 3 = 9\%$ (component cost)

(5) Tax Adjusted Cost

(a) No tax benefit for equity.

(b) In case of human capital

(i) Cost of Employees = 17.47

(ii) Tax Rate = 32%

(iii) After Tax Cost = Employee Cost – (Tax Benefit) = 17.47 – 5.59 = 11.88

(c) Total After Tax Cost = After Tax Cost of Equity (13.30 × 9%) + 17.47 – (32% × 17.47) = 1.197 + 17.47 – (5.59) = 13.077

(6) Calculation of WACC

$$\frac{\text{Total After Tax Cost}}{\text{Total Book Value of Equity + Human capital}} \times 100$$

$$= \frac{13.077}{13.30 + 126.15} \times 100 = \frac{13.077}{139.45} \times 100 = 9\%$$

(a) 9% of Σ of Book Value of Sources of Capital = 9% × 139.45 = 12.55

(7) EVA_{HC} = NOPAT – WACC = 107.26 – 12.55 = 94.71

(8) EVA = NOPAT – WACC = 107.26 – 13.30 = 93.96

3.2 Impact of human capital on EVA of the CCL for the year 2012 (Rs in Crores)

(1) Determination of book value of human capital

Book Value of human capital = EBITD + Employee Cost = 81.75 + 13.1 = 94.85

(2) Corporate Tax Rate has been calculated as

$$\frac{\text{Corporate Tax}}{\text{PBT (Post Extra-Ord Items)}} \times 100$$

$$= \frac{17.81}{54.34} \times 100 = 32.7\%$$

(3) Calculation of Tax Benefit

(a) Employee Cost is a tax deductible item and therefore we get a tax benefit.

Tax Benefit amount = 32.7% of Employee Cost = 32.7% × 13.1 = 4.283

(4) Tax savings benefit is a kind of inflow in financial management. Therefore, cost of human capital will be- Average dividend % of last three years will be divided by after tax profit i.e., (18+9+7) %/3=11% (component cost)

(5) Tax Adjusted Cost

(a) No tax benefit for equity.

(b) In case of human capital

(i) Cost of Employees = 13.1

(ii) Tax Rate = 32.7%

(iii) After Tax Cost = Employee Cost – (Tax Benefit) = 13.1 – 4.283 = 8.817

$$(d) \text{ Total After Tax Cost} = \text{After Tax Cost of Equity} (13.30 \times 11\%) + \text{After Tax Cost of human capital} = 13.30 \times 11\% + 8.817 = 10.28$$

(6) Calculation of WACC

$$\frac{\text{Total After Tax Cost}}{\text{Total Book Value of Equity + Human capital}} \times 100$$

$$= \frac{10.28}{13.30 + 94.85} \times 100 = \frac{10.28}{108.15} \times 100 = 9.5\%$$

$$(a) 9.5\% \text{ of } \Sigma \text{ of Book Value of Sources of Capital} = 9.5\% \times 108.15 = 10.27$$

$$(7) \text{ EVA}_{\text{HC}} = \text{NOPAT} - \text{WACC} = 80.43 - 10.27 = 70.16$$

$$(8) \text{ EVA} = \text{NOPAT} - \text{WACC} = 80.43 - 13.30 = 67.13$$

3.3 Impact of human capital on EVA of the CCL for the year 2011 (Rs in Crores)

(1) Determination of book value of human capital

$$\text{Book Value of human capital} = \text{EBITD} + \text{Employee Cost} = 67.73 + 10.28 = 78.01$$

(2) Corporate Tax Rate has been calculated as

$$\frac{\text{Corporate Tax}}{\text{PBT (Post Extra-Ord Items)}} \times 100$$

$$= \frac{12.76}{39.73} \times 100 = 32\%$$

(3) Calculation of Tax Benefit

(a) Employee Cost is a tax deductible item and therefore we get a tax benefit.

$$\text{Tax Benefit amount} = 32\% \text{ of Employee Cost} = 32\% \times 10.28 = 3.28$$

(4) Tax savings benefit is a kind of inflow in financial management. Therefore, cost of human capital will be- Average dividend % of last three years will be divided by after tax profit i.e., $(9+7+7) \% / 3 = 7.6\%$ (component cost)

(5) Tax Adjusted Cost

(a) No tax benefit for equity.

(b) In case of human capital

(i) Cost of Employees = 10.28

(ii) Tax Rate = 32%

$$(iii) \text{ After Tax Cost} = \text{Employee Cost} - (\text{Tax Benefit}) = 10.28 - 3.28 = 7.00$$

$$(e) \text{ Total After Tax Cost} = \text{After Tax Cost of Equity} (13.30 \times 7.6\%) + \text{After Tax Cost of human capital} = (13.30 \times 7.6\%) + 7.00 = 8.0108$$

(6) Calculation of WACC

$$\frac{\text{Total After Tax Cost}}{\text{Total Book Value of Equity + Human capital}} \times 100 = \frac{8.0108}{13.30 + 78.01} \times 100 = \frac{8.0108}{91.31} \times 100 = 8.7\%$$

$$(a) 8.7\% \text{ of } \Sigma \text{ of Book Value of Sources of Capital} = 8.7\% \times 91.31 = 7.943$$

$$(7) \text{ EVA}_{\text{HC}} = \text{NOPAT} - \text{WACC} = 64.54 - 7.943 = 56.507$$

$$(8) \text{ EVA} = \text{NOPAT} - \text{WACC} = 64.54 - 13.30 = 51.15$$

Table 2. Impact of Human Capital on EVA of Central Coalfields Limited Rs in Crores

Particulars	2013	2012	2011
EVA _{HC}	94.71	70.16	56.50
EVA	93.96	67.13	51.15

Sources: Author’s Computation

4. Findings

It has been observed from Table 2, that there is an increase in Economic Value Added from the year 2011 to 2103 without the inclusion of human capital and furthermore there is also an increase in Economic Value Added with the inclusion of human capital from the year 2011 to 2013. This is because of the high productivity of human capital i.e., the book value of human capital in comparison to its cost. Therefore, the economic value added with human capital reflects the real increase in the wealth of the shareholders.

Conclusion:

Through EVA Model the study gives perspective of Indian organizations adaptability about the impact of human capital inclusion on calculation of WACC which will thereby gives an appropriate value of EVA. The study focuses that EVA® has emerged as a powerful conceptual framework and is practically implemented in most of successful corporations across globe. In near future the EVA concept will become more appropriate reporting tools of financial decision making considering human capital to be an important capital in addition to existing mode of capital required to finance the business. Indian organization will have to change the reporting methods and financial statement for better forecasting of the company’s future prospects in terms of their requirement for business transformation if

needed to stand in competitive environment. This will become more or less mandatory considering the second generation reforms.

References:

- Adnan, M. Adneen, Haight, G.T (2002), “A Fresh look at Economic Value Added: Empirical Study of the Fortune Five Hundred Companies”, *The Journal of Applied Business Research*, Vol.18 (2).
- Banerjee, Ashok (1997). “Economic Value Added (EVA): A Better performance Measure”, *The Management Accountant*, 886-888.
- Banerjee, Ashok (1999), “Economic Value Added (EVA): A Better Performance Measure”, *The Management Accountant*, Vol. 32(2),pp. 89-93.
- Banerjee, Ashok and Jain (1999). “Economic Value Added and Shareholder wealth: An Empirical study of Relationship”, *Paradigm*, Vol. 3(1), pp. 99-135.
- Baptiste, I. (2001), “Educating long wolves: pedagogical implications of human capital theory”, *Adult Education Quarterly*, Vol.51, No. 3, pp.184-201.
- Bao, B.H and Bao, D.H. (1999).” The Association between Firm value and Economic Value Added”, *Indian Accounting review*, Vol. 3(2), pp. 161-164.
- Berger, L.A & D.R. Berger, (2003), “How Competencies Create Economic Value”, *the Talent Management Handbook*, Newyork, NY: McGraw Hill.
- Bhattacharyya, K.Ashish and Phani, B.V (2002). “Economic Value Added: In search of Relevance”, *Decision*, Vol.27 (2).
- Biddle, G.C., Bowen and Wallace, J.S (1997).”Does EVA beat earnings? Evidence on associations with stock returns and firm values”, *Journal of Accounting and Economics*, Vol. 24(3), pp. 301-336.
- Bontis, Nick et al., (1999), “A Review of the Tools Available to Measure and Manage Intangible Resources”, *European Management Journal*, Vol.17, No.4, pp-391-402.
- Bontis, N and Fitz-enz, J. (2002), “Intellectual capital ROI: a causal map of human capital antecedents and consequents”, *Journal of Intellectual capital*, Vol.3, No.3, pp.223-247.
- Booth, R. (1998), “The measurement of intellectual capital”, *Management Accounting*, Vol.76, No. 10, pp.26-28.
- Brooking, A. (1997), “The management of intellectual capital”, *Long Range Planning*, Vol. 30, No.3, pp.364-365.
- Brooking. A and Motta, E (1996), “A taxonomy of intellectual capital and a methodology for auditing it”, 17th Annual National Business Conference, McMaster University, Hamilton, Canada, pp.24-26.
- Cyrus, A. Ramezani, Luc, Soenen and Alan, Jung (2002), “Growth, Profitability and Value Creation”, *Financial Analyst Journal*, pp.56-65.

- Davis, H.D. and Noland, B.E (2002), “Understanding human capital through multiple disciplines: the educational needs index”, *Social Indicators Research*, Vol. 61, pp.147-174.
- Desheng, Liu et al.(2010) “The effects of human capital on competitive strategies and performance”, *IEEE*.
- Dodd, James, L and Chen Shimin (1996). “EVA: A New Panacea?”, *Business and Economic Review*, Vol.42, pp.26-28.
- Dr. Philip Stiles & Somboon Kulvisaechana, (2011), “Human Capital & Performance: A Literature Review”, available at http://www.bus.tu.ac.th/usr/sab/articles_pdf/research_papers/dti_paper_web.pdf.
- Dzinkowski, R. (2000), “The measurement and management of intellectual capital: an introduction”, *Management Accounting*, Vol.78, No. 2, pp.32-36.
- Eduardo Sandoval (2002). “Financial Performance measures and shareholders’ value creation: An Empirical Study for Chilean Companies”, *The Journal of Applied Business Research*, Vol.17 (3), pp.206-225.
- Edvinsson, L and Malone, M.S. (1997),” *Intellectual Capital: Realizing Your Company’s True Value by Finding Its Hidden Brainpower*, New York: Harper Business.
- Elizabeth E. Bailey & Constance E. Helfat (2003), “External management succession, human capital & Firm Performance: An Integrative Analysis”, *Managerial and Decision Economics*, Vol24, Issue 4, Pp.-347-369.
- Fesheng Yu & LinZhang, (2008), “Does Intellectual Capital Really Create Value?” A test based on Ohlson Model & Skandia Navigator System”, *IEEE*.
- Grant, J (1996), “ Foundation of EVA for Investment Management; Just in time, EVA”, *Journal of Financial Management*, Vol 23 (1). Pp. 41-45.
- Grantham, C.E., Nichols, L.D. and Schonberner, M. (1997),”A framework for the management of intellectual capital in health care industry”, *Journal of Health Care Finance*, Vol. 23, No. 3, pp.1-19.
- Hitt, M.A and Ireland, R.D. (2002), “The essence of strategic leadership: managing human and social capital”, *Journal of Leadership and Organizational Studies*, Vol. 9, No. 1, pp.3-14.
- Horibe, F. (1999), “Managing Knowledge Workers: New Skills and Attitudes to Unlock the Intellectual Capital in Your Organization, Toronto: John Wiley & Sons.
- Hudson, W. (1993), “Intellectual Capital: How to Build It, Enhance It, Use It, New York: John Wiley.
- Johnson, W.H. (1999), “An integrated taxonomy of intellectual capital: measuring the stock and flow of intellectual capital components in the firm”, *International Journal of Technology Management*, Vol. 38, Nos. 5-8, pp.562-575.
- Kermally, S., (1997).” *Managing Performance*”, Butterworth Heinemann, Oxford.

- Kramer, J.K and Pushner, G. (1997). “An empirical analysis of economic value added as a proxy for market value added”, *Financial Practice and Education*, pp. 41-48.
- Lehn, K., and Makhija, A.K. (1996), “EVA and MVA as performance measures and signals for strategic change”, *Strategy and Leadership*, Vol. 24, pp.35.
- Lehn, K and Makhija, A (1997), “EVA accounting profits and CEO Turnover: An Empirical examination, 1985-1994”, *Journal of Applied Corporate Finance*, Vol.10 (2), pp.90-97.
- Leliaert, P.J.C., Candries, W. and Tilmans, T. (2003), “Identifying and managing IC” a new classification”, *Journal of Intellectual Capital*, Vol. 4, No. 2, pp.202-214.
- Luthans, F., Luthans, K.W and Luthans, B.C. (2004), “Positive psychological capital: beyond human and social capital”, *Business Horizons*, Vol. 47, No. 1, pp.45-50.
- Luber, R.B (1996), “Who are the real wealth creators”, *Fortune*, pp.2-3.
- Lynn, B.E. (1998), “Performance evaluation in the new economy: bridging the measurement and evaluation of intellectual capital into the management planning control system”, *International Journal of Technology Management*, Vol. 16, Nos. 1-3, pp.162-176.
- Marr, B., Gary, D. and Neely, A. (2003), “Why do firms measure their intellectual capital?” *Journal of Intellectual Capital*, Vol. 4, No. 4, pp.441-464.
- Mangala, Deepa and Joura Simpy (2002), “Linkage between Economic Value Added and Market Value: An Analysis in Indian Context”, *Indian Management Studies Journal*, pp. 55-65.
- Michael L. Costigan and Linda, Lovata (2002), “Empirical Analysis of Adopters of Economic Value Added”, *Management Accounting Research*, Vol.13 (2), pp. 676-682.
- Molyneux, A. (1998), “IC and the ASCAP: seeking competitive advantage, *Australian CAP*, Vol. 68, No. 5, pp.27-28.
- Narayan, Raunak, (2010), “Human Resource Accounting: A new paradigm in the era of globalization”, *Asian Journal of Management Research*.
- O’ Byrne, S.(1996). “EVA and Market Value”, *Journal of Applied Corporate Finance*, Vol.9 (1), pp. 116-125.
- Pablo, Fernandez (2001). “Shareholders Value Creation”, *The ICFAI Journal of Applied Finance*, Vol.9 (3), pp. 168-180.
- Rappaport, A., (1986).” *Creating Shareholder Value*”, The Free Press, New York.
- Roos, J., Roos, G., Dragonetti, N.C and Edvinsson, L. (1997), “*Intellectual Capital: Navigating in the New Business Landscape*, London: Macmillan Business.

- Roos, J., Roos, G., Edvinsson, L and Dragonetti, N.C. (1998), “Intellectual Capital: Navigating in the New Business Landscape, New York: New York University Press.
- Saint-Onge, H. (1996), “Tacit knowledge: the key to the strategic alignment of intellectual capital”, *Strategy and Leadership*, Vol. 24, No. 2, pp.10-14.
- Scholtz, Christian et al., (2007), “Monetary Human Capital Measurement: Empirical Evidence from the German Dax 30 Companies”, Paper Accepted and Presented at the Academy of Management Conference in Philadelphia, PA, USA.
- Steen, Adam & Welch, Denice (2011), “Are Accounting Metrics Applicable to Human Resources? The case of ROI in valuing International Assignments”, *Australasian Accounting Business & Finance Journal*, Vol 5, Issue 3, pp-57-72.
- Stephan F. O’ Byrne (1997), “EVA and Shareholder Return”, *Financial Practice and Education- Spring/ summer*, pp. 50-54.
- Stewart, T.A. (1997), “Intellectual Capital: The New wealth of Organizations”, New York: Doubleday.
- Stern Stewart (1990),” One way to build value in your firm: Executive Compensation”, *Financial executive*, pp.51-54.
- Sveiby, K.E. (1997), “The New Organizational Wealth: Managing and Measuring Knowledge-based Assets, San Francisco, CA: Berrett-Koehler Publishers.
- Teleranta (1997), “Economic Value Added as a Management Tool”, *Journal of Accounting and Finance*, pp. 12.
- Tomer, J. (1999),”The Human Firm: A Socio-economic analysis of its behaviour and potential in a new economic age”, New York: Routledge.
- Ulrich, D. (1998),”Intellectual Capital=Competence × Commitment”, *Sloan Management Review*, winter, pp.15-26.
- Van Buren, M.E. (1999), “A yardstick for knowledge management”, *Training & Development*, May, pp.71-78.
- Vijayakumar, A (2012). “Economic Value Added (EVA) and other accounting Performance Indicator: An Empirical Analysis of Indian Automobile Industry”, *International Journal of Management and Technology*, Vol.2 (3).
- Zhao Jixin, Liu Bowen, (2010), “Intellectual Capital on the role of Corporate performance”, *M&D Forum*