Accounting Models For Valuation of Human Resources and Its Impact On Financial Performance

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Abstract - ***The Human Capital Accounting is a process of identifying and measuring information about human resources and communicating that information to interested parties. In the present era of competitive business world, every enterprise to sustain in the market has to improve their productivity by adding value to the human resources. HRA provides the human resource professionals and management with information for managing the human resources efficiently and effectively. These information play a key role for performing the HR functions like acquiring, developing, allocating, utilizing, evaluating in a proper way. These functions are key processes that convert human resources from 'raw material' inputs to outputs in the form of goods and services. In today's market it is very difficult to find well knowledge and highly motivated people. The skill and creativity of human-being cannot be replaced by any machine. The human resources used in any organization have to be treated as integral part of the organization like any other productive assets. The major problem is to calculate the value of human capital. In our study we have attempted to develop some models for valuation of human capital. The study also aims at disclosing human resources as assets in the financial statements of an organization.***

Keywords: Human Capital Accounting, Human Resources, Productivity, Asset, Financial statement.

INTRODUCTION

The organizations have been spending huge sums of money and they do not spare any effort in selecting, training and development of their managers to prepare them adequately to meet the challenging tasks. Capital is a type of asset that allows a business to make more money. Human capital is the sum total of person's knowledge and skills that the company can use to further its goals. In other words, human capital is the skills, talent and productivity that employees bring to a company. Better skills can increase employee's value in the workplace and the employers obtain highly skilled employees to gain a significant competitive advantage via human capital. It is mostly responsible for innovation, which can be a tremendous competitive advantage for companies.

Companies are usually very interested in investing in human capital. They do this via recruiting new employees, training existing employees. There are two types of human capital, such as specific and general. Specific human capital means knowledge and skills that few employers find useful and willing to pay for. General human capital means knowledge and skills that many employers find useful and ready to pay. To achieve growth and development of any organization it is necessary that the right people must be placed at right place. The original health of the organization is indicated by the human behavior variables like skill, motivation, communication and decision making. Every organization requires two types of resources: Animate and Inanimate. Men known as animate or human resource for an organization while as materials, machine, and money considered as physical resources.

The success of an organization depends on how significantly physical resources are utilized. But important thing is physical resources cannot act on their own. Human resource is required to operate physical resources. That is why organizations depends on skills, creativity, innovative thinking, imagination, knowledge and experience for utilizing physical resources.

LITERATURE REVIEW

Elias (1976) attempted to provide framework for analyzing the behavioral aspects of accounting methods. It was found that HRA due to its behavioral impact had a distinct effect on decision making. It had a potential impact for both functional and dysfunctional consequences which were different depending on the circumstances and management philosophy. All expenditures related to HR were considered to have been made for the acquisition and maintenance of human assets and are therefore capitalized. It was suggested to consider sunk cost in the various analysis of the company.

Fleming (1977) assessed the behavioral implications if a value for employee is published as an asset on the balance-sheet. For the purpose of the study a survey was done on faculty members and students, which was based on a questionnaire. It was revealed that 43% of faculty and 38%

of students were against the statement that placing a dollar value on human being is an insult to their dignity and an equal percentage of faculty felt that it was not only an insult but also a way treating people as slaves or machines. 85% of students were against the discloser of information publicly related with individual.

Tsay (1977) analyzed the relevance of internal and external reporting in an organization. The mutual dependence of measurements & decisions was defined by considering some examples and found that the internal reporting was relevant of effective decision making. It was concluded that measurement can be proposed after considering its purpose. HRA measures proposed for financial reporting should be based on the general purpose of financial reporting.

Batra (1996) calculated the HRA and auditing practices in selected public enterprises like BHEL, SAIL & CCI up to the period 1991-92. Primary and secondary data were collected for the purpose of study. This study suggested a model for measuring the value of human assets of these enterprises and found that HR valuation and audit activity could be helpful in improving the efficiency of human resources in the changing business scenario.

Compbell and Helleloid (2011) conducted a study to analyze the adoption of IFRS in the organization and HRM practices by global accounting firms. Theoretical framework was the base of the study. It was found that there is a need to be part of the discourse surrounding the possible U.S adoption of IFRS. It was suggested that if global accounting regulatory standards are adopted then it would be much easier for staff to work trans-nationally, and much easier to meet regulatory standards regarding supervision when audit work was performed in different countries.

Badiyani (2012) described the brief history and the popular models of assessing the value of human resources in the organization. It was found essential for an organization to consider its human resources as an asset. The gradual developments have been observed in the field of human resource accounting and new approaches and models were given. Different organizations were found using various models according to their need and the nature.

Bricker (1965), Haire (1967), and Flamholtz (1971) have argued that the management of human resources in organizations is less effective than it might be because it lacks a unifying framework to guide it. Flamholtz (1971) has suggested that a theory of human resource value may provide such a paradigm to facilitate managing services in organizations. Flamholtz (1972) has also suggested that a theory of human resource value is a prerequisite to helping solve the problem of developing methods of measuring the value of people as organizational resources. First, a theory of human resource value would by definition, identify the variables which must be considered in developing valid and reliable monetary measures of human resource value. Second, by identifying the variables which determine a person's value to an organization, the theory would provide the foundation for developing surrogate or proxy indicators of human resource value.

STATEMENT OF THE PROBLEM

Human resource constitutes a valuable resource to every organization. It is as important as machine, material and money. They have no meaning without human resources because those cannot be amalgamated and coordinated for the purpose of achieving profitability. The main problem with human resource accounting is the perception that it is not easy to quantify human resource capital in a manner that is suitable to record on a financial statement. It is very difficult to calculate the human resource capital accurately.

OBJECTIVES OF THE STUDY

The objectives of the study are:

(a) To study the conceptual framework of human resource accounting.
(b) To examine accounting models for valuation of human resources.
(c) To evaluate the impact of disclosure of human resource as asset in balance sheet on financial performance.

RESEARCH METHODOLOGY

(a) Sources of Data

Secondary data have been used for the study. The required data are collected from money control website and annual report of Infosys.

(b) Sample Design

Considering the availability of data, a study period of 10 years has been taken i.e. from 2003 to 2012.

(c) Tools

The Statistical Techniques used for analysis are Coefficient of Correlation (to analyze the relationship between Net Worth, Net Income and Human Resource Value), Multiple Regression Analysis, and Correlation to analyze the relationship between Human resource and dependent variables.

Independent and Dependent variables of the selected sample firms for the study are:

1. **Dependent variables**

- NW – NET WORTH
- NI – NET INCOME

2. **Independent variable**

- HRV – HUMAN RESOURCE VALUE

Hypothesis:

1. (a) H_0 There is no significant impact of disclosure of human resources as asset in the financial statement on net worth.
   (b) H_1 There is a significant impact of disclosure of human resources as asset in the financial statement on net worth.

2. (a) H_0 There is no significant impact of disclosure of human resources as asset in the financial statement on net income.

   (b) H_1 There is a significant impact of disclosure of human resources as asset in the financial statement on net income.

CONCEPTS OF HUMAN RESOURCE ACCOUNTING

Human resource accounting is a process of identifying, measuring data about human resources. It is a modern concept and a new branch in the field of accounting. It is the art of valuing, recording and presenting systematically the value of human resource in the books of account of an organization. It is based on traditional concept that all expenditure of human capital is treated as a charge against revenue as it does not create any physical asset. But now a day this concept has changed and the cost incurred on human resources should be capitalized as it provides benefits measurable in monetary terms. It includes measuring costs to recruit, select, hire, train, develop employees and judge their economic value to the organization. It tries to put a value on the organizational human resources as assets and not as expenses.

HRA is an information system that tells the management about changes that are occurring to the human resources of the business and the cost as well as value of the human factor to the organization. The system may serve both the internal users and external users. It provides relevant data to internal users like recruiting, training and other development decisions. It supplies financial information regarding investment and utilization of human resources in the organization to investors, lenders and other external users.

For production four factors are necessary in every organization.

(i) Man
(ii) Money
(iii) Material
(iv) Land

Money, Material and Land help management in decision making but man i.e. human resource provides skill, creativity, intelligence which help an organization to increase their production. The concept of human resource accounting can be better understood if one goes through some important definitions given by the famous authors.

The American Accounting Society Committee on Human Resource Accounting defines it as follows:

“Human Resource Accounting is the process of identifying and measuring data about human resources and communicating this information to interested parties.” In simple terms, it is an extension of the accounting principles of matching costs and revenues and of organizing data to communicate relevant information in financial terms.”

According to M.N. Baker Human Resource Accounting as follows:

"Human resource accounting is the term applied by the accountancy profession to quantify the cost and value of employees to their employing organization."

Another management consultant Stephen Knauf has defined HRA as:

"The measurement of quantification of human organization inputs such as recruitment, training, experience and commitment."

Objectives of Human Resource Accounting

- It helps in decision making about employment, allocation and utilization of such resources.
- It develops new measures for effective manpower utilization.
- It helps to motivate individual human being to increase his value in the form of training.
- To attract good competent and efficient personnel to work for the organization.
- It enables long-term opportunity for planning and budgeting by better human resource planning.

Purpose of Human Resource Accounting

- Human resource accounting helps employees to improve their performance.

- It helps the management in employment, allocation and utilization of human resources.
- It helps in deciding the transfers, promotion and training.
- It helps to identify the causes of high labour turnover at various levels and taking preventive measures to control it.
- It provides valuable information for persons interested in making long-term investment in the firm.
- It provides the information of total cost of human assets.

The biggest problem in human resource accounting to assign monetary values to different human resource costs, investments and the value of employees. There are different types of methods for valuation of human resources. So companies are getting confused which method is better for valuation of human resource. There are no common methods for valuation of human resource. In India there are many listed companies which are calculating human resource value and showing in the books of accounts.

HUMAN RESOURCE ACCOUNTING MODELS

Human Resource Accounting may be measured in terms of human resource cost or human resource value. The organizations have different approaches for valuation of human resources which are different in methodology as well as concepts. There is no generally accepted method for valuation of human resources. The different methods are discussed below.

1. ACQUISITION COST METHOD

It means expenditure incurred by the organization in recruiting, hiring, training and developing human resources. The acquisition cost is capitalized and written off over the period for which the employee remains with the organization. If that human asset leaves the organization early, the whole of the amount that is not written off is fully charged from the income of the current year. If the useful life exceeds the original estimates, then revisions are made in the amortization schedule.

2. REPLACEMENT COST METHOD

The replacement cost method was first suggested by Rensis Likert and was developed by Eric G. Flamholtz in 1973. Under this method, value of an individual to an organization is measured by sacrifice that would have to be incurred to replace human resources presently owned. An organization values an employee at the estimated cost of replacement with a new employee having equal ability. This method is difficult to define and measure replacement costs. So, Flamholtz has referred two different concepts of replacement cost.

(a) Individual Replacement Cost

The replacement cost consists of cost of hiring, training and developing individuals. It includes

- Recruiting outlay cost
- Acquisition cost
- Training and orientation cost
- Development cost
- Efficiency recovery test
- Familiarization cost
- Investment building experience cost

It also includes cost of moving existing position holders either out of the organization or to new positions within the organization i.e.

(i) Cost of carrying a vacancy until a suitable replacement can fill it

(ii) Cost of moving and displacement

(iii) Effect of a vacant position on other employees.

(b) Positional Replacement Cost

It means costs that are estimated with reference to different positions in an organization.

3. OPPORTUNITY COST MODEL

This model was developed by Hekiman and Jones. It means the value of asset when there is an alternative use of it. It attempts to estimate the value of human resources by establishing an internal labour market through the process of competitive bidding. They assign value to an employee based on what each department would be willing to pay him. Under this model, all managers of profit centers are encouraged to bid for any scarce employee they want. It involves concept of competitive bidding process. Under this system, profit centre managers are encouraged to bid for scarce employees, the successful bid being included in the organizations human investment calculations. The employees who allotted highest bid they included in division's investment base.

4. STANDARD COST METHOD

Under this method, standard costs of recruitment, placing, training and developing of employees are calculated and made up to date every year. The standard costs for all human resources are treated as the value of human resources.

5. CURRENT PURCHASING POWER METHOD

Under this method, the capitalized historical cost of investment in human resources is converted into current purchasing power of money with the help of price index numbers. The converted value becomes the value of human resources.

6. HERMANSON'S UNPURCHASED GOODWILL METHOD

This model was developed by Roger H. Hermanson in 1964. This method assumes that a business will earn a normal rate of return on resources. If a business shows different return from the normal rate, it may presume that there are some existing resources but they have not been taken into account while preparing the balance sheet. These unrecorded resources are assumed as human resources.

7. ADJUSTED DISCOUNT FUTURE WAGES METHOD

This model is based on the assumption that there is a relationship between person's salary and his value to the organization. It provides compensation as a surrogate measure of person's value to the organization. Compensation means the present value of future wages to human resource of the organization.

The discounted future wages stream is adjusted by an 'efficiency ratio' which is weighted average of the ratio of the return on investment of the given firm to all the firms in the economy for a specified period, usually the current year and the preceding four years. The weights are assigned in the reverse order i.e., 5 to the current year and 1 to the preceding fourth year. The following formula is used:

Efficiency Ratio =

$$5\frac{RF(0)}{RE(0)} \pm 4\frac{RF(1)}{RE(1)} + 3\frac{RF(2)}{RE(2)} + 2\frac{RF(3)}{RE(3)} \pm \frac{RF(4)}{RE(4)}$$

Where,

- RF(0) is the rate of accounting income on owned assets for the firm for the current year.
- RE (0) is the rate of accounting income on owned assets for all the firms in the economy for the current year.
- RF(4) is the rate of accounting income on owned assets for the firm for the fourth previous year.
- RE(4) is the rate of accounting income on owned assets for all the firms in the economy for the fourth previous year.

8. LEV & SCHWARTZ PRESENT VALUE OF FUTURE EARNINGS METHOD

This model was been developed by Brauch Lev and Aba Schwartz in 1971. Under this model, the value of human capital embodied in a person of age X is the present value of his remaining earnings from employment.

The model divides the whole labour force into certain homogeneous groups like skilled, semi-skilled, unskilled, technical staff, etc. average earning stream for different classes and age groups are prepared for each group separately and the present value for human capital is calculated. They have given the following formula for calculating the value of an individual:

$$Vx = \Sigma \frac{I(t)}{(I+r)^{(T-x)}}$$

Where,

Vx = the value of an individual X years old.

I (t) = the individuals annual earnings up to retirement.

r = a discount rate specific to a person.

T = retirement age.

9. FLAMHOLTZ'S STOCHASTIC REWARD VALUATION METHOD

Eric G. Flamholtz developed stochastic method in 1971. This method identifies the major variables which determine the value of an individual to the organization. The model indicates that a person generates value for an organization as he occupies and plays different roles and delivers services to the organization. The movement of people from one organization role to another is called stochastic process. Based upon the concept i.e. people move and occupy different organizational roles and they provide service to the organization, a person's expected realizable value of an organization can be measured as the discounted mathematical expectation of the monetary value of the future services a person is expected to deliver to the organization.

He has given the following formula for calculation of value of human resource.

$$E(S) = \sum_{i=1}^{n} S_i \, P(S_i)$$

Where,

S_i = Services that are expected from the individual in each service state (rank)

P □ □ S_i□ □ □ □ Probability that the individual will occupy a particular service state

10. JAGGI & LAU'S HUMAN VALUATION MODEL

The model developed by Jaggi and Lau based on valuation of groups rather than individuals. Under this model, a group created which includes homogeneous employees who may or may not belong to the same department. It might be difficult to predict individuals expected service in the organization but on a group it is easier to ascertain the percentage of people likely to leave the organization during each of the forthcoming period or to be promoted to high levels. In order to know the role movements of employees within the organization a markov chain representation can be used. The model required the determination of Rank Transitional matrix and the expected quantities of services for each rank of service. The matrix can be prepared from the historical personal records no of the employees available in the organization.

The value of the services of an organization that will provided by current employee in a future period is computed by multiplying the estimated number of current employees that will be in each service state in that period, by the value of the service an employee in each state renders to the organization. The formula for calculation of human resources as given below;

TV = (N) rn (T)n(V)

Where,

TV = Column vector indicating the current value of all current employees in each rank.

(N) = Column Vector indicating the number of employees currently in each rank.

n = time period

r = Discount rate

(T) = Rank transitional matrix indicating the probability that an employee will be in each rank within the organization or terminated in the next period given his current rank.

(V) = Column vector indicating the economic value of an employee of rank 1 during each period.

11. ROBBINSON'S HUMAN ASSET MULTIPLIER METHOD

The model was developed by W.J.Giles and D. Robbinson. Under this model, earnings of individual multiplied into market capitalization. Then, human resource value calculated by deducting the amount of net assets from the capitalized value.

12. WATSON'S RETURN ON EFFORT EMPLOYED METHOD

This model was developed by David Watson. It involves the measurement of effort employed on various functions i.e. buying, manufacturing and selling. There are certain factors which distinguish the quantity and quality of effort expended are used to rate the contribution made by individuals. These factors are

- Level of works done
- Effectiveness with which the individual performs his job
- Experience which increases, up to a point, the efficiency job performance.

These factors are then multiplied together to determine efforts employed by each individual.

13. ECONOMIC VALUE METHOD

Brummet, Flamholtz and Pyle developed this model in 1968. The method proposed that a group of human resources should be valued by estimating their contribution to the total economic value of the firm. The present value of a portion of the firm's future earnings attributable to human resource is the value of human resources.

14. MORSE'S NET BENEFIT METHOD

Morse has developed this method which advocates the value of human resources equal to the present value of gross value of services to be rendered in future by human beings both in an individual capacity as well as group capacity minus the present value of future payments both direct and indirect to human beings.

15. OGAN'S CERTAINLY EQUIVALENT NET BENEFIT METHOD

It is an improvement of Morse's net benefit method introduced by Pekin Ogan. It incorporates the element of certainty with which the benefits in future will accrue. Under this method the value of human resource is equal to the present value of certainty equivalent net benefits of all employees. The net benefit is the difference between expected benefits and total costs. The expected benefit of an individual employee is determined by multiplying his monetary value benefits potential with his individual performance index. The certainty factor means the probability of the employee remaining with the firm. It is determined by assessing the probability of continuation of the employee and the probability of survival of the employee. The total cost means total of the maintenance cost i.e. future salaries, wages, start up costs, recruiting and initial training costs at their historical value and the future training and development costs.

16. CHAKRABORTY'S HUMAN RESOURCE VALUATION METHOD

The model was developed by Dr. S.K. Chakraborty. This model advocates the valuation of human resources on aggregate basis instead of individual. He recommended evaluating human resource separately i.e. managerial and non- managerial. The value of human resource calculated by multiplying the average salary of the group with average tenure of employment of the employee in that group.

The average salary can be found out by salary grade structure and promotion schemes of the organization.

17. DAV'S MODIFIED PRESENT VALUE METHOD

This method was developed by Shiv Kumar Dave in 1987. This model incorporates certain indicators to reflect the effect of live factors which affect the contribution of employees to the organization, which helps to calculate human resource. The indicators are

- Experience Indicator
- Efficiency Indicator
- Labour Turnover Indicator
- Labour Unrest Indicator
- Output per Employee Indicator

The above indicators are suitable in any existing present value models.

ANALYSIS OF DATA

- **Hypothesis - 1**

"There is no significant impact of disclosure of human resources as asset in the financial statement on net worth."

RELATIONSHIP BETWEEN HUMAN RESOURCE VALUE AND NET WORTH

$$Y_e = \beta_0 + \beta_1 HRV + \varepsilon$$

Where,

Y_e = NET WORTH

β_0 = Constant or the value of Y when all values of X are zero

β_1 = Slope of the independent variables

ε = Error

Regression Statistics NET WORTH	
Statistics	Values
Multiple R	0.913472
R Square	0.834431
Adjusted R Square	0.810778
Standard Error	4279.855
Observations	9

Source: Self Compiled

From the regression statistics table it is found that there is a significant positive relationship between Human resource value and Net worth. The above regression table shows that adjusted R^2 is 0.810778. For every 1% change in human resource value, it brings .81% changes in Net worth of the business. The significance of relationship between the variables has been measured with the help of ANOVA as given below:

Table no : ANOVA

	Df	*SS*	*MS*	*F*	*Significance F (p value)*
Regression	1	6.46E+08	6.46E+08		0.000576
Residual	7	1.28E+08	18317155		
Total	8	7.74E+08			

Source: Self Compiled

ANOVA table shows the level of significance of relationship between Net worth and HRV. The P value is 0.000576 which is less than the standard i.e. 0.05. Since P value is less than table value null hypothesis is rejected and alternative hypothesis is accepted i.e. "There is a significant impact of disclosure of human resources as asset in the financial statement on Net worth. So disclosure of human resources as an asset in the financial statement has significant impact on Net worth of the business. A harmonized accounting practice for measuring human resource value and presenting the same as asset in the financial statement should be developed. So that overall net worth of the business which is the basic objective of the business i.e. maximization of shareholders value can be achieved. At the same time organization should make all possible efforts to develop and impart necessary skills in human resources from time to time to make them more sustainable in the business. Thereby it will increase the shareholder value as well as business can be made sustainable.

- **Hypothesis – 2**

"There is no significant impact of disclosure of human resources as asset in the financial statement on net income."

RELATIONSHIP BETWEEN HUMAN RESOURCE VALUE AND NET INCOME

$$Y_e = \beta_0 + \beta_1 HRV + \varepsilon$$

Where,

Y_e = NET INCOME

β_0 = Constant or the value of Y when all values of X are zero

β_1 = Slope of the independent variables

ε = Error

Table no :Regression Statistics NET INCOME

Statistics Values	
Multiple R	0.956077
R Square	0.914083
Adjusted R Square	0.901809
Standard Error	761.8987
Observations	9

Source: Self Compiled

Regression statistics table shows that there is a positive relationship between Human resource value and Net income as evident from adjusted R^2 i.e. 0.901809. Business income is the barometer of business performances. It is necessary to meet expenses of business and counter competition to survive in the market.

The objectives of stake holders can be achieved only when there is optimum profit and that is possible with improvement of skill and knowledge of human resources. So this signifies that human resources contribute more towards increasing profit of the business. How technologically sound and asset wise adequate the business may be, unless it has human resources to manage them the business cannot be successful. That is understood from the relationship between Net income and HRV. Every 1% change in human resource value brings .90% change in net income of the business. Therefore, human resources should be valued and disclosed in the financial statement as an asset.

ANOVA					
	Df	*SS*	*MS*	*F*	*Significance F (p value)*
Regression	1	43231521	43231521	74.47423	5.6E-05
Residual	7	4063428	580489.7		
Total	8	47294949			

Source: Self Compiled

There is a significant positive relationship between Net income and HRV as it is indicated from ANOVA table. It shows P value is less than 0.05. It means the null hypothesis H_0 is rejected and alternative hypothesis H_1 is accepted. So there is significant impact of disclosure of human resources as asset in the financial statement on Net income. The purpose of income is

- To sustain in the business
- To meet day to day expenses
- To meet the objective of stakeholders

So that can be achieved only by improving the quality of employees working in the organization. So that is why human resources should be valued, quantified and the same should be shown in balance sheet as an asset. They should be treated as another asset of the business.

CONCLUSION

Human Resource Accounting is the process of identifying and reporting the investments made in the Human Resources of an Organization that are presently not accounted for in the conventional accounting practices. The concept of valuation of human resource is in developing way. There is no common accepted model for valuation of human resource all over the world. But still there are some public and IT sectors, which followed Lev and Schwartz model most. In our study, we take Infosys Company which regularly followed Lev and Schwartz model and have been showing in balance sheet. In India, Indian companies act, 2013 have not developed any legal framework about HRA. The Accounting Standard Board (ASB) neither formulated any standard for HRA nor made it mandatory. But Infosys voluntarily adopted HRA practices and disclosing human resource value in its annual reports. The study also finds out HRV is contributing towards shareholder's value and Net income significantly. The government should take proper initiatives along with other accounting and professional bodies for the measurement and reporting of such valuable asset.

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