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HUMAN CAPITAL VALUE ADDED (HCVA) BY LISTED FIRMS IN INDIA: EVIDENCE FROM S&P BSE 100 COMPANIES

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ABSTRACT: - Human capital is a significant resource for the success of any organization. Further, human capital may be critical for generating long term shareholders value in service organization where human capital is the key differentiator among the firms. Researchers have developed various metrics to analyze the contribution of human capital in value creation by firms. Among those metrics, a few metrics are accounting based metrics and utilizes the financial information to assess the value added by human capital in an organization. The objective of the study is to (i) estimate the Human Capital Value Added (HCVA) by the sample of S&P BSE 100, BSE listed firms in India and (ii) explore the components of employee expenses for the sample firm. Based on the usable sample of 76 firms, grouped into twenty-nine industry and on the basis of data for the three financial year (FY 2016-17 to 18-19), the findings suggest that (i) on average HCVA by sample firms was ₹ 2.88 per employee(excluding outliers) and ₹ 7.80 including the sample firms; (ii) further, for half of the industry, growth in HCVA was positive for both the year with reference to the previous years, and (iii) the industry with positive growth in HCVA in the FY 2018-19 was significantly higher (72.41 % of total industry group) in comparison to FY 2017-18 (51.72 % of total industry group). Further, the study suggests that for the sample firms HCVA was highest for financial service activities (except insurance and pension funds) (n=1, HCVA =₹ 145.71) followed by land transport and transport via pipe line (n=1, HCVA =₹ 8.50) and lowest for manufacturing of wearing apparel (n=1, ₹ 0.33), followed by civil engineering (n= 1, ₹ 0.35).

Keywords: - Human capital, Financial performance, Firms, Human Capital Value Added.

I. INTRODUCTION

Human capital plays a significant role for any organization to meet its stated objective of shareholder wealth maximization. The role of human capital become more critical for the success of labour intensive business and is key differentiator between the successful and not so successful business. Hence, to succeed in long run, it is necessary for the organizations to attract, nurture and efficiently deploy the human capital to meet the long-term objective of the business. Further, different organization use suitable metrics to assess and manage the performance of its human capital. Different metrics and measures utilize the internal data available within the organization with reference to human capital and business performance to assess and manage their human capital. Among those metrics, a few metrics are accounting based metrics and utilizes the financial information to assess the value added by human capital in an organization. For example, Human capital value added (hereon HCVA) measures the value added (measured in economic profit terms) by employee during a period. HCVA can be utilized by the organization to (i) assess and benchmark the value added by the human capital with peer companies, (ii) design, develop and promote systems and process that lead to meeting the overall objective of the organization, (iii) assess performance of departments/ sections and profit centers if the same can be measured at disaggregate level, and (iv) design performance linked compensation plan for the management and employees. Other metrics like Human Capital Economic Value Added (HCVA) and Human Capital Return on Investment (HCROI) has also be utilized by the researchers (Dash, Agrawal, and Sinha, 2013) for the assessment of the performance of human capital in the organizations.

OBJECTIVES

The main objective of this study is to assess the Human Capital Value Added companies included in S&P BSE index. The specific research objectives are as follows:

I. To explore the key elements of employee expenses for sample IT& Consulting Companies from India.
II. To investigate the HCVA by sample companies based on the sample of S&P BSE 100 companies.
III. To investigate industry-wise performance of sample companies on HCVA performance metrics.
IV. To investigate year-wise performance of sample companies on HCVA performance metrics.

II. LITERATURE REVIEW

In this chapter, *first*, the literature on the relevance of the human capital for the business is discussed, and, the available literature on various metrics used to assess the performance of human capital in the organization is discussed

Human capital and its relevance for business

Many studies have investigated the relevance of human capital in an organization. Marimuthu, Arokiasamy and Ismail (2009) suggested that human capital positively influence the firm performance. The study suggested that it is necessary for the organization to invest in development of human capital through investment in training and development of necessary knowledge and skill, which may lead to higher innovations and hence higher business performance. Further, the study proposed that from the perspective of human capital, the firm performance can measure in financial terms like increase in market share, profitability and productivity, as well as in non-financial terms like customer satisfaction, innovation, skill development etc.

Zavyalova, Kucherov, Kosheleva, Tsybova, and Alsufyev (2015) investigated the measures used to evaluate the effectiveness use of human capital. Milost (2014) proposed a model known as "Net Value-Added Model" for estimation of the value added by employee. The proposed model captured the value added by employee in monetary and non-monetary terms.

Dash, Agrawal, and Sinha (2013) in their study discussed the relevance of economic value added (EVA) as a performance measures and estimated EVA with or without including of human capital.

Murphy (2007) in their study discussed the limitation of financial statements in capturing the value of intangible assets like human capital. Expenditure associated with the development of human capital like training and development expense are charged to the profit and loss statement and hence not capitalized as assets in accordance with generally accepted accounting principles (GAAP) and hence are not reflected in the financial statements of the company. To overcome the above gap, companies disclose (discretionarily) their human capital performance separately as part of their annual report. Murphy (2007) based on the sample of companies from food service industry showed that high performance work employment system creates an advantage for an organization, which is not explicitly reflected in the balance sheet of the company.

Kumar & Basu (2013), used a case of two listed Indian companies Bharat Heavy Electricals Limited (BHEL) and Infosys to assess the net value added by these companies. The study utilized the metrics like Human Capital value Added (HCVA), Human Capital EVA (HEVA) and Human Capital Return on Investment (HCROI) to assess human capital performance of these two companies.

Claudia Goldin (2014) investigated at the macro level, the impact of human capital on economic growths and income levels of the country

Overall, the findings suggest that expenditure of human capital development is not explicitly captured by the financial statement specifically balance sheets of the company and hence, researchers have used innovative methods to assess the performance of human capital implicitly by building its linkages with the financial performance metrics.

III. RESEARCH METHODOLOGY

Data and sources

For stage one the study, the data related to the various elements of employee expense was collected from the annual report of the specific companies. Next, the company specific data related to company characteristics and HCVA was collected from prowess IQ data base for the sample of S&P BSE 100 companies listed in Company Stock Exchange for a period for FY 2015-16 through 2018-19. Excluding those companies, for which the information was missing the usable sample size for the study was seventy-six, which became the basis for the second stage of study. National Industrial Classification Scheme (NIC) 2008 was used to classify the sample companies into various industries.

Variables for the study

Overall, the objective of the study is to assess HCVA by the sample companies. HCVA was calculated as given in equation 1

$$HCVA = \frac{(Revenue - (Total\ Cost - Employee\ Cost)}{Full\ Time\ Employees} \quad \text{----------(1)}$$

Where, Total cost = Revenue – Profit After Tax

$$HCVA = \frac{(Revenue - (Revenue - Profit\ After\ Tax - Employee\ Cost)}{Full\ Time\ Employees}$$

$$HCVA = \frac{(Revenue - Revenue + Profit\ After\ Tax + Employee\ Cost)}{Full\ Time\ Employees}$$

$$HCVA = \frac{Profit\ After\ Tax + Employee\ Cost}{Full\ Time\ Employees}$$

Table 1 summarizes the list of variables for the study. The data related to these variables were collected from the annual report of respective companies/Prowess database.

Tables 1: List of the Variables used for estimation of HCVA

Name of variable	Description	Measurement
Human Capital Value Added	It is a measurement of the contribution of each employee towards net profit of the company	HCVA= (Revenue - (Total Cost - Employee Cost)/Full Time Employees
Profit After Tax (PAT)	It is the amount that a company earns after deducting all the taxes in particular financial year. PAT is the total profit or the residual profit that company have after giving all interest and taxes.	PAT= Profit Before Tax (PBT) - Tax Rate
Employee Cost or Employee Benefit Expense	These are the expenses a company spend on employee for the ultimate growth of the organization. Employee benefit expense in the organization include various variables like salaries, wages & compensation allowances, gratuity, provident funds, etc. Companies spend on their employee in terms of training, education, in terms of giving their employee some kind of appraisal so that their employee remain satisfied, these all kind of cost are included in the employment cost. Cost that is spend upon an employee is employment cost.	Pay + Benefit
No. of Full-Time Employee	These are the employee that is employed by an organization and work for at least 30 hrs per week. These are employees who get full wages and compensation and they are eligible for the organization benefit band can claim for their benefit anytime.	In number

IV. FINDINGS

4.1 *Key Elements of Employee Expense for sample IT & Consulting Companies*

Table 4.1: Summary of the components of employee expenses (in ₹ million) for sample company

	Component of Employee Expense (2018)				**Component of Employee Expense (2019)**			
Sample Size	**Salary, incentives, and allowance**	**Contribution to provident and other funds**	**Staff welfare expense**	**Employee Benefit Expense (Total)**	**Salary, incentives, and allowance**	**Contribution to provident and other funds**	**Staff welfare expense**	**Employee Benefit Expense (Total)**
Sample Size	46	45	44	46	46	45	44	46
Mean	51895(88%)	5736(10%)	1804(3%)	59232(100%)	58121(89%)	5286(8%)	1967(3%)	65173(100%)
S.D.	112073	19258	4723	128625	129398	14812	4884	144388
Minimum	219	17	1	238	260	21	1	281
Maximum	599500	120350	25779	663960	706420	80534	24236	782460

* Figure in bracket presents the percentage of employee benefit expense (total)

Table 4.1 summarizes the findings with reference to the components of employee expense for the sample company. The employee benefit expenses has been classified as (i) salaries, incentives and allowances, (ii) contribution to provident funds by employers, and (iii) staff welfare expenses.

For the sample companies, on an average, salary incentive and allowance contribute 89 % (88% for FY 2018) of the total employee expense, contribution to provident fund 8 % (10% for FY 2018) and staff welfare expense 3 % (3% for FY 2018) for the FY 2019

4.2 Estimation of Human Capital Value Added (HCVA) (Industry-wise)

Table 4.2: Year-wise performance of S&P BSE 100 companies with respect to Human Capital value Added (HCVA) (Industry-wise)

				FY 16-17				FY 17-18				FY 18-19			
S.no	**Industry NIC code**	**Industry**	**Sample Size**	**Mean**	**S.D.**	**Min**	**Max**	**Mean**	**S.D.**	**Min**	**Max**	**Mean**	**S.D.**	**Min**	**Max**
1	10	Manufacture of food products	3	3.04	0.08	2.98	3.09	3.05	0.06	3.01	3.09	3.37	0.52	3.01	3.74
2	11	Manufacture of beverages	1	1.33	1.33	1.33	1.33	1.51	0.25	1.33	1.68	1.85	0.23	1.68	2.01
3	12	Manufacture of tobacco products	1	4.74	0.23	4.58	4.9	5.09	0.26	4.9	5.27	5.43	0.23	5.27	5.59
4	14	Manufacture of wearing apparel	1	0.29	0.01	0.28	0.29	0.33	0.05	0.29	0.36	0.38	0.03	0.36	0.4
5	19	Manufacture of coke and refined petroleum products	4	5.75	0.08	5.69	5.81	5.68	0.02	5.67	5.69	5.6	0.1	5.53	5.67
6	20	Manufacture of chemicals and chemical products	7	2.5	0.11	2.42	2.57	2.56	0.2	2.42	2.7	2.71	0.01	2.7	2.72
7	21	Manufacture of pharmaceuticals, medicinal chemical and botanical products	7	1.62	0.02	1.6	1.64	1.49	0.21	1.33	1.64	1.51	0.25	1.33	1.69
8	22	Manufacture of rubber and plastics products	1	1.65	1.03	0.92	2.38	0.82	0.14	0.72	0.92	0.77	0.07	0.72	0.82
9	23	Manufacture of other non-metallic mineral products	4	1.48	0.53	1.11	1.85	1.15	0.05	1.11	1.19	1.26	0.1	1.19	1.33
10	24	Manufacture of basic metals	4	0.77	3.19	-1.48	3.02	2.96	0.09	2.89	3.02	3.36	0.66	2.89	3.82
11	25	Manufacture of fabricated metal products, except machinery and equipment	1	1.26	0.25	1.08	1.44	1.635	0.28	1.44	1.83	1.97	0.2	1.83	2.11
12	27	Manufacture of electrical equipment	3	1.83	0.55	1.44	2.21	1.5	0.09	1.44	1.56	1.62	0.09	1.56	1.68

13	28	Manufacture of machinery and equipment n.e.c.	4	2.65	0.16	2.54	2.77	2.43	0.16	2.31	2.54	2.32	0.01	2.31	2.33
14	29	Manufacture of motor vehicles, trailers, and semi-trailers	6	1.4	0.03	1.37	1.42	1.4	0.03	1.37	1.42	1.55	0.19	1.42	1.69
15	30	Manufacture of other transport equipment	4	3.55	1.19	2.71	4.4	3.52	1.24	2.65	4.4	2.81	0.23	2.65	2.98
16	32	Other manufacturing	1	1.52	0.81	0.94	2.09	1.49	0.85	0.89	2.09	1.39	0.7	0.89	1.88
17	34	Miscellaneous	3	2.14	0.94	1.47	2.81	2.44	1.37	1.47	3.4	3.19	0.3	2.98	3.4
18	35	Electricity, gas, steam, and air conditioning supply	3	6.31	0.19	6.18	6.45	5.72	0.65	5.27	6.18	6.53	1.79	5.27	7.8
19	42	Civil engineering	1	0.32	0.03	0.3	0.34	0.36	0.02	0.34	0.37	0.38	0.01	0.37	0.39
20	47	Retail trade, except of motor vehicles and motorcycles	1	1.33	1.33	1.33	1.33	0.82	0.72	0.31	1.33	0.31	0	0.31	0.31
21	49	Land transport and transport via pipelines	1	7.69	0.86	7.08	8.3	8.03	1.34	7.08	8.97	9.79	1.16	8.97	10.6
22	51	Air transport	1	1.81	0.18	1.68	1.94	1.73	0.07	1.68	1.78	1.53	0.35	1.28	1.78
23	52	Warehousing and support activities for transportation	3	4.96	4.96	4.96	4.96	6.93	6.93	6.93	6.93	8.02	1.54	6.93	9.11
24	60	Broadcasting and programming activities	1	5.29	1.48	4.24	6.33	8.82	3.52	6.33	11.31	8.91	3.4	6.5	11.3
25	61	Telecommunications	3	3.25	3.64	0.68	5.83	2.5	2.58	0.68	4.32	4.26	0.09	4.2	4.32
26	62	Computer programming, consultancy, and related activities	4	1.92	0.1	1.84	1.99	2.19	0.28	1.99	2.39	2.27	0.16	2.16	2.39
27	64	Financial service activities,	1	185.1	18.2	172.2	198	138.9	47.2	105.6	172.2	113.1	10.7	105.6	121

		except insurance and pension funding												
28	71	Architecture and engineering activities; technical testing and analysis	1	2.215	0.01	2.21	2.22	2.61	0.55	2.22	3	3.18	0.26	3	3.37
29	82	Office administrative, office support and other business support activities	1	1.28	0.25	1.1	1.46	1.43	0.05	1.39	1.46	1.52	0.18	1.39	1.66

Table 4.2 summarizes the results of the estimation of mean and S.D. of HCVA for S&P BSE 100 companies (usable sample = 76 companies). Based on the usable sample of 76 firms, grouped into twenty-nine industry and on the basis of data for the three financial year (FY 2016-17 to 18-19), findings suggests that (i) financial services, except insurance and pension fund (NIC code 64, n=1) was an outlier with three year average HCVA of ₹ 145.71 per employee. The industry has produced highest amount of HCVA because it is labour intensive industry that need high amount of labour and to satisfy those labour needs, higher amount of wages was provided (there is direct relation between HCVA and Employee cost, higher the Employee cost Higher the HCVA). For the remaining sample companies the overall average (based on three-year average of sample companies) HCVA for the three year was ₹ 2.88 per employee and S.D. in the overall average was ₹ 2.20 per employee.

Land transport and transport via pipeline (NIC code 49), broadcasting and programming activities (NIC code 60) and warehousing and support activities for transportation (NIC code 52) had the highest HCVA measured in terms of three year average whereas manufacturing of wearing apparel (NIC code 14), civil engineering (NIC code 42) and retail trade except for motor vehicles and motorcycle industry was having minimum HCVA.

Further, wide variability was found in HCVA per employee among sample companies with maximum average for three years ranging from ₹ 8.50 per employee to ₹ 0.33 per employee (excluding the outlier).

4.3 Year-Wise Trend in HCVA by Sample Firms

Table 4.3: Summary of year-wise trend of HCVA for sample S&P BSE 100 Companies (Industry-wise)

S.no	NIC code	Industry	FY 16-17	FY 17-18	FY 18-19	Average	+ve growth	+ve growth
1	10	Manufacture of food products	3.04	3.05	3.37	3.15	1	1
2	11	Manufacture of beverages	1.33	1.51	1.85	1.56	1	1
3	12	Manufacture of tobacco products	4.74	5.09	5.43	5.09	1	1
4	14	Manufacture of wearing apparel	0.29	0.33	0.38	0.33	1	1
5	19	Manufacture of coke and refined petroleum products	5.75	5.68	5.6	5.68	0	0
6	20	Manufacture of chemicals and chemical products	2.5	2.56	2.71	2.59	1	1
7	21	Manufacture of pharmaceuticals, medicinal chemical and botanical products	1.62	1.49	1.51	1.54	0	1
8	22	Manufacture of rubber and plastics products	1.65	0.82	0.77	1.08	0	0
9	23	Manufacture of other non-metallic mineral products	1.48	1.15	1.26	1.3	0	1
10	24	Manufacture of basic metals	0.77	2.96	3.36	2.36	1	1
11	25	Manufacture of fabricated metal products, except machinery and equipment	1.26	1.635	1.97	1.62	1	1
12	27	Manufacture of electrical equipment	1.83	1.5	1.62	1.65	0	1
13	28	Manufacture of machinery and equipment n.e.c.	2.65	2.43	2.32	2.47	0	0

14	29	Manufacture of motor vehicles, trailers and semi-trailers	1.4	1.4	1.55	1.45	0	1
15	30	Manufacture of other transport equipment	3.55	3.52	2.81	3.3	0	0
16	32	Other manufacturing	1.52	1.49	1.39	1.46	0	0
17	34	Miscellaneous	2.14	2.44	3.19	2.59	1	1
18	35	Electricity, gas, steam and air conditioning supply	6.31	5.72	6.53	6.19	0	1
19	42	Civil engineering	0.32	0.36	0.38	0.35	1	1
20	47	Retail trade, except of motor vehicles and motorcycles	1.33	0.82	0.31	0.82	0	0
21	49	Land transport and transport via pipelines	7.69	8.03	9.79	8.5	1	1
22	51	Air transport	1.81	1.73	1.53	1.69	0	0
23	52	Warehousing and support activities for transportation	4.96	6.93	8.02	6.63	1	1
24	60	Broadcasting and programming activities	5.29	8.82	8.91	7.67	1	1
25	61	Telecommunications	3.25	2.5	4.26	3.34	0	1
26	62	Computer programming, consultancy, and related activities	1.92	2.19	2.27	2.13	1	1
27	64	Financial service activities, except insurance and pension funding	185.11	138.89	113.12	145.71	0	0
28	71	Architecture and engineering activities; technical testing and analysis	2.215	2.61	3.18	2.67	1	1
29	82	Office administrative, office support and other business support activities	1.28	1.43	1.52	1.41	1	1
	Number of industries with increase in industry HCVA in comparison to preceding year						15	21
	% of industries with increase in industry HCVA in comparison to preceding year						51.72 %	72.41%

Table 4.3 suggests that for half of the industry, growth in HCVA was positive for both the year with reference to the previous years, and the industry with positive growth in HCVA in the FY 2018-19 was significantly higher (72.41 % of total industry group) in comparison to FY 2017-18 (51.72 % of total industry group).

V. SUMMARY OF FINDINGS, IMPLICATION, LIMITATIONS AND FUTURE DIRECTION OF RESEARCH

Summary of Findings

1. The overall study estimated the average HCVA of by the sample of S&P BSE 100, BSE listed firms in India.
2. Table 4.1 summarizes the findings with reference to the components of employee expense for the sample company. The employee benefit expenses has been classified as (i) salaries, incentives and allowances, (ii) contribution to provident funds by employers, and (iii) staff welfare expenses. For the sample companies, on an average, salary incentive and allowance contribute 89 % (88% for FY 2018) of the total employee expense, contribution to provident fund 8 % (10% for FY 2018) and staff welfare expense 3 % (3% for FY 2018) for the FY 2019. Table 2 also shows that total employee benefit expense in 2019 (65173 million) is 10% increase to the employee benefit expense in 2018 (i.e.,59232 million), while staff welfare expense is decreased by approximately 8% from the year 2018 to 2019.
3. Table 4.2 summarizes the results of the estimation of mean and S.D. of HCVA for S&P BSE 100 companies (usable sample = 76 companies). Based on the usable sample of 76 firms, grouped into twenty-nine industry and on the basis of data for the three financial year (FY 2016-17 to 18-19), findings suggests that (i) financial services, except insurance and pension fund (NIC code 64, n=1) was an outlier with three year average HCVA of ₹ 145.71 per employee. The industry has produced highest amount of HCVA because it is labour intensive industry that need high amount of labour and to satisfy those labour needs, higher amount of wages was provided (there is direct relation between HCVA and Employee cost, higher the Employee cost Higher the HCVA). For the remaining sample companies the overall average (based on three-year average of sample companies) HCVA for the three year was ₹ 2.88 per employee and S.D. in the overall average was ₹ 2.20 per employee. Further, wide variability was found in HCVA per employee among sample companies with maximum average for three years ranging from ₹ 8.50 per employee to ₹ 0.33 per employee (excluding the outlier).
4. Table 4.3 concluded that total 76 companies that were classified under 29 industries on the basis of NIC code. Out of 29 industries 15 industries show positive (+ve) growth or positive (+ve) percentage change for the year FY16-FY18 and 21 industries in the year FY17-FY19. So overall 21 industries showing positive growth and rest 8 are showing negative(-ve) growth. Negative growth has been shown by Financial service activities, except insurance and pension funding with -21.76 of average HCVA. The industry with positive growth in HCVA in the FY 2018-19 was significantly higher (72.41 % of total industry group) in comparison to FY 2017-18 (51.72 % of total industry group).

5. The study focuses or attention that Employees positively contributed towards the organization due to: a) when they are fully Satisfied, b) when company Fulfilled the demands of the Employee.

Implication and Future Direction of Research

This study offers preliminary evidence on the recent performance of the sample of S&P BSE 100 companies on human capital based financial metrics (i.e. HCVA). Further, researchers, can draw insights on the factors that leads to higher HCVA performance and the key factors that differentiates high HCVA sample firms from low HCVA sample firms. Specifically, industry highly dependent upon human capital as key differentiators can focus on HCVA based measures viz a viz traditional financial metrics. This study addresses the limitation of balance sheet-based performance measures for human capital driven industries wherein their key assets (i.e. human capital is not reflected) in the financial balance sheet of the companies.

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