PERFORMANCE EVALUATION OF KNOWLEDGE CAPITAL MANAGEMENT IN PUBLIC SECTOR ENTERPRISES IN INDIA

ABSTRACT

THESIS

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ABSTRACT

Knowledge Capital is the prime source of an organisation that needs to be sustained, nurtured and accounted for. Human capital comprises individual talents and knowledge that is acquired through education, training, experience and cognition. Natrajan (2000) has beautifully explained, "Knowledge capital is the documented knowledge that is available in such forms as research papers, reports, books, articles, manuscripts, patents and software. Knowledge capital consists of artifacts of the human mind that are stored outside the minds of their authors and are therefore available to whoever seeks them". "Knowledge capital is the net difference between the market value of a corporation and its tangible assets" (Strassmann, 1999). The essence of knowledge capital is not in its creation or codification; it is in its use and realization of goals and aspirations. Knowledge created and codified is worthless until after it is put to use and people benefit from its use. Developing a new process is useless until after the process leads to a realization of cost containment or improved quality. Intellectual property is of no value if it remains in the vaults of the intellectual property office. Knowledge capital for it to be of some value and worth must lead to realization.

The full cycle of knowledge capital must commence from inception or creation to realization. Realization is important if one is to focus on wealth creation. Knowledge capital that does not contribute to wealth creation is really doing work for nothing, or simply the epitome of gross inefficiency (Sveiby, 2007). It can be concluded that the collective knowledge capital of an organization is represented by the skill and experience of its employees as also by its corporate information repositories. It is a very reliable indicator of the future earning potentialities or net worth of a company.

Enron who was sixth (Fortune, 2002) place was no longer exists now. Many companies not in existence now due to erosion of knowledge capital like Enron and World.com, partially AOL etc. Back home, Silverline Software, Mining and Allied Machinery Corporation, Metal Box are also not in existence now due to the same reason. There is no doubt that the traditional indicators of business success, such as increase in total income, profit or cash flow, do not reflect the real business capacity of a company. Moreover, these indicators do not reveal
whether companies create value or not, as one can talk about value creation only if a company is creating more than it has invested in resources, capital employed (physical and financial) and intellectual capital. This “gap” is generated by new modes of value creation and out-dated evaluation of business success. The existing criteria for business success, revenue and profit, do not cover the performance of intellectual capital, the key value creation factor of modern business.

In this context, the ability of employees to transform their knowledge and skills into actions that create value is crucial. It is almost impossible to measure “knowledge and ability” of a company per se, but it is possible to measure the results of applied knowledge, the achieved value added, and the efficiency of this value creation. Practice has shown that information gained by measuring value creation efficiency can be essential for successful management of intellectual assets.

In order to remain viable, an organization has to create value and grow its financial performance on a sustainable basis. In the knowledge era, our belief is that the best way to attain breakthrough performance is by building a conductive organization where sustainable financial capital growth is based on the organization’s ability to grow its customer capital. And customer capital generation requires that the organization’s structural and human capital is fully aligned to value creation at the customer interface.

There is a growing need to raise knowledge capital because:

- **KC** has the power to influence profitable existence of an organization.
- **KC** is needed for collaboration contracts and its implementation.
- **KC** is needed for carrying amalgamation and mergers.
- **KC** has the capacity to build brand.
- **KC** is the basis for other forms of capital.
- **KC** makes high quality and international mobility possible.

It has great analytical power and it has given it an extra edge over any other form of capital. This analytical power leads to new technologies, strategies, policies, principles, tactics etc. Understanding something and understanding it properly and then finding out way to work with it has made this capital great.
There are models of Knowledge Capital Management.

- Karl-Erik Sveiby's Model
- Paul A. Strassmann's Model
- Kaplan and Norton's Model
- Baruch Lev's Model
- VAIC (Value Added Intellectual Coefficient)

VAIC is a management and control tool that is designed to enable the organizations to monitor and measure the IC performance and potential of the firm. It’s formula is very simple and straight-cut to calculate. It takes data mostly from Audited Annual reports of the firm which is very authentic and regular in fashion. It uses only one indicator VAIC which is very helpful to compare firms. It takes care of both intellectual capital and financial performance which help in combining two distinctive discipline of finance and performance measurement (Pulic, 2000 and 2002).

Performance evaluation of knowledge capital management is one measure improve perform Public Sector as a business enterprise.

The primary objective of this study is to evaluate the performance of Knowledge Capital of the Public Sector Enterprises in India so that ordinary shareholder’s earning is maximised. The study is based on the argument that the shareholders earning is an outcome of Knowledge Capital efficiency.

"Value creation" is the process by which one accumulates value. The key question when examining particular instances of value creation, is why goods and services are priced as they are, and how the value of these goods and services is determined. Theories of value fall into two main categories:

- Intrinsic.
- Subjective.

Value based on knowledge is not based on tangible "quantity," rather it is based on the
perception that potential clients have. It is “value creation” and not the “production of prices” that serves principal actors in the new economy. “Quantity” is now substituted with “value.”

Our new paradigm juxtaposes the relationship between “clients and products” against the relationship between “value created and resources employed” in the productive process. The correlation between resources and results is what economists usually define as “efficiency.”

Value added grows out of physical capital and intellectual capital but, instead of directly valuing the intellectual capital of a firm, the coefficient mainly measures the efficiency of the firm’s three types of inputs:

- Physical and Financial Capital (Capital Employed).
- Human Capital.
- Structural Capital.

The sum of HCE and SCE gives ICE and sum of the three measures results in the coefficient VAIC, calculated by Puluic: ICE and VAIC. The higher a company’s ICE and VAIC value, the better its value creation potential.

The researcher has covered more than 100 numbers of literature covering Knowledge Management, Knowledge Capital and Company Performance, Value Added Intellectual Coefficient (VAIC), Knowledge Management and Knowledge Capital in Indian Companies. Also, Gap of study has been identified.

This Research Methodology chapter presents issues relating to Research Methodology adopted for the present study. The chapter starts with Research Process Section. The second section deals with Problem statement. The third section list out Research Objectives. The fourth section noted down Hypotheses formulation. The fifth sections deals with scope of study. The sixth section discuss about the Research variables. The seventh section list out the sources of the data. The eight section discuss about the Sample Size and Selection. The ninth section tested the Reliability. The tenth section described the Tools for Data Analysis and it’s justification. The chapter ends with the limitation section. The Hypotheses are list.

The hypotheses are test –
• H0 1: There is no significant successful business performance for Public Sector Enterprise (PSE) - Rejected

• H1 1: There exists significant successful business performance for Public Sector Enterprise (PSE) – Accepted.

• H0 2: No significant relationship of Human Capital Efficiency (HCE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) – Accepted

• H1 2: Significant relationship of Human Capital Efficiency (HCE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Rejected

• H0 3: No significant relationship of Structural Capital Efficiency (SCE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) – Rejected

• H1 3: Significant relationship of Structural Capital Efficiency (SCE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H0 4: No significant relationship of Capital Employed Efficiency (CEE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H1 4: Significant relationship of Capital Employed Efficiency (CEE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Rejected

• H0 5: No significant relationship of Size of Assets (ASSET) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) – Rejected

• H1 5: Significant relationship of Size of Assets (ASSET) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H0 6: No significant relationship of Frequency of Board Meeting (MEETING) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H1 6: Significant relationship of Frequency of Board Meeting (MEETING) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Rejected

• H0 7: No significant relationship of Number of Executive (NOEXE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Rejected
• H1 7: Significant relationship of Number of Executive (NOEXE) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H0 8: No significant relationship of Remuneration of CEO and Directors (CEOEXDIR) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) – Rejected

• H1 8: Significant relationship of Remuneration of CEO and Directors (CEOEXDIR) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H0 9: No significant relationship of Number of Independent Board member versus Total Number of Directors (NONR) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) - Accepted

• H1 9: Significant relationship of Number of Independent Board member versus Total Number of Directors (NONR) with Earnings Per Share (EPS) exists for Public Sector Enterprise (PSE) – Rejected

• H0 10: The panel data has no Fixed effect - Rejected

• H1 10: The panel data has Fixed effect - Accepted

The researcher has observed that HCE has no significant influence on EPS (r = -.02 and p > 0.05) while SCE has significant influence on EPS (r = 0.14 and p < 0.01). But CEE has no significant influence on EPS (r=0.06 and p > 0.05). He also found that ASSET(r = -0.09 and p < 0.05), NOEXE(r=0.18 and p < 0.01), CEOEXDIR(r = 0.32) and p < 0.01) have significant influence on EPS while NONR (r = 0.04 and p > 0.05) has no.

The researcher has observed that:

HCE has significant influence on EPS in Finance (p< 0.01), Metal and Mining (p<0.01), Miscellaneous (p< 0.01) and Oil and Gas sector(p < 0.01). SCE has significant influence on EPS in Consolidated (p <0.01), Finance (p < 0.01), Capital Goods(p <0.01), Oil and Gas(p < 0.01) and Transport(p < 0.05) sectors. CEE has significant influence on EPS in Oil and Gas (p <0.01) sector. ASSET has significant influence on EPS in Consolidated p < 0.01), Finance (p < 0.05) and Oil and Gas (p < 0.01) sectors. MEETING has significant influence on EPS in Finance (p < 0.05) and Capital Goods (p < 0.05) sectors. NOEXE has significant influence on
EPS in Finance (p < 0.01), Oil & Gas (p < 0.01) and Power (p < 0.01) sectors. CEOEXDIR has significant influence on EPS in Consolidated (p < 0.01), Finance (p < 0.01), Agriculture (p < 0.05), Capital Goods (p < 0.01) and Power (p < 0.01) sectors. NONR has significant influence only on Oil and Gas (p < 0.01) sector.

The Structural Equation modelling (SEM) is for confirmatory analysis for the regression analysis. The researcher has done this analysis by maximum likely-hood estimation method and the R adjust values of all sectors are showing the same values as those are received in regression analysis. Hence, it is inferred that the regression equations are correct.

The result found that model of fixed effect has been selected to be appropriate and also received one single equation. That means with different intercept with same slope. 2nd year (2002-03) and 3rd year (2003-04) have no significant effect but from 4th year (2004-05) onwards it has a significant effect on EPS. It has also been seen that the time coefficients are increasing only dropped in 8th year (2008-09) and again increasing from 9th year (2009-10). The researcher has also observed that HCE, SCE, ASSET MEETING and NOEXE are having significant effect in EPS. But CEE and NONR has no significant effect on

Here, CEE is an important constituent of VAIC (Wasim-ul-Rehman et. al, 2009) but it is insignificant in the above analysis. Here the author found that CEE’s effects is insignificant on EPS. The reason might be that each company has different size and portfolio of financial and physical assets. Also, Gu Lixia et al. (2009) while studying listed companies in China found that Board independence (the ratio of independent director in the board) has insignificant effect on EPS.

The researcher has observed that rank of PFC is highest with 0.4740 average grey relational grades and MTNL is the lowest with 0.3987 average grey relational grades. It is an aggregate measure of relative efficiency for each company, one can realise a ranking system of the firms within their industry.

The researcher has observed that under variable return to scale and output oriented DEA model SBI is most efficient (all score are < 100%). This was observed that in the year 2007-08 when SBI’s score was 17.86% (most least score). GRA is the operational performance (average) and MPI is indicator for productivity improvement (efficient in incremental way).
Wang et al. (2011) found that one single company is the best in both operational performance and productivity improvement. On the contrary, the researcher has found that on the basis of GRA, it is PFC and on the basis of MPI is it SBI are the best performer.

It can be concluded from the study that Human Capital Efficiency (HCE) has no significant influence on Earning Per Share (EPS). However, the study also depicted a contrary result (the researcher has found that Human Capital Efficiency (HCE) has significant influence on Earning Per Share (EPS) with respect to select sectors). Therefore impact of HCE on EPS can be said to be mixed. As a result, human capital efficiency gives dismal figure leading to no significance influence on EPS performance.

The researcher also concludes that Structural Capital Efficiency (SCE) has significant positive influence on Earning Per Share (EPS) as shown in the correlation analysis. Structural capital is deemed as the foundation stone for an organization in the knowledge age. If the organizational culture, rules, procedures and system are weak, well motivated employee capabilities would not be able to add value to the firm. Strong structural capital possesses supportive environment to its employees thus increasing productivity and eventually profit and decreasing total cost of product. This justifies the result that Structural Capital Efficiency (SCE) has significant influence on value creation which leads to higher performance of EPS.

The study concludes that Capital Employed Efficiency (CEE) has no significant influence on Earning Per Share (EPS). This was a significant conclusion. Capital Employed by the Public Sector is mostly decided by the Government and are not solely market driven. There are green field investments made by the Government for long-term benefits of the citizens. So, Capital Employed efficiency is not showing significant contribution of value creation leading to higher performance of EPS.

Size of the Asset (ASSET) depicted significant negative influence on Earning Per Share (EPS). This is contrary to the result shown made by Carol-Anne Ho and S. Mitchell W. (2011) that size increase the Impact of IC on financial performance considerably which leads to higher Earning Per Share (EPS). This may be the cause that in Indian Public Sector Enterprises there are large assets in possession but their efficient utilization are not being done.
Frequency of the Board meeting (MEETING) has no significance influence on Earning Per Share (EPS). It is not in line with the perception that more board meeting will create more value leading to higher Earning Per Share (EPS). Meeting of the board of directors are generally treated as intellectual exercise by executive and non-executive directors. Vafeas (1999) studies found that operating performance improves following the years of high frequency of board meeting. Somehow, in Indian public sector it is not effective as may be due to the fact that board meeting are called adhoc without any concrete agenda.

Remuneration of CEO and Directors has significant positive influence on Earning Per Share (EPS). Literature also supports that remuneration of CEO and Directors have significant impact on board efficiency as well as company performance. Merhebi (2006) conclude that CEO pay-performance association is positive and significant in Australia.

Number of Executives (NOEXE) has been taken into account in performance of Knowledge Capital as Executives are the knowledge worker in the organization. The results can be said to be mixed as the results indicated that the Number of Executives (NOEXE) has no significant influence on Earning Per Share (EPS) but in Panel data analysis it also revealed contrary result wherein NOEXE showed significant and positive influence on EPS. This may be due to the fact that hiring of executives in absence of any proper planning hampers optimum utilization of manpower and thus reduces their ability in creating value which leads to no influence on EPS as whole.

Ratio of Number of Non-Executives Director to Total Number of Directors (NONR) has no significant influence on Earning Per Share (EPS). Executive Directors are usually responsible for running day to day operations of the organization while non-executive Directors keep independent and close eye on executives and oversee whether activities and polices are fruitful for the business. But just as the frequencies of meeting are not effective so is the number of independent director on board. This may be due to the fact the independent directors are not really independent.
As the investment in intellectual capital brings higher financial return than the same investment in physical assets, organisations are recommended to use Value Added Intellectual Coefficient (VAIC) as an indicator of future EPS. Among SCE, CEE and HCE, SCE is found to be the most important factor influencing EPS. Therefore, it is recommended that Indian Public Sector should take steps to enhance this Structural Capital like Brand Building, Knowledge Management system implementation. It is recommended that since impact of additional variables reveal that Size of the Assets and CEO's & other Director's remuneration have highly significant impact on Earning Per Share (EPS) and can be accommodated in Value Added Intellectual Coefficient (VAIC) to have a better picture of Intellectual Capital Efficiency (ICE).

It is recommended that Public Sector Enterprises include Remuneration of CEO and other Directors and Size of Asset as important variables of VAIC. Potential investors and portfolio managers should look after the Knowledge Capital of companies for investment. New model of valuation of a firm based on the study can emerge and it will help to judge the proper valuation of Public Sector Enterprises for disinvestment. Low-ranking companies, whose GRA levels low Intellectual capital will have a other companies to follow their best practices. It prescribes to inefficient firms specifically benchmarks to follow and what adjustments to the inputs and outputs should be made to reach the efficiency frontier. This result of GRA offers a guideline to become efficient. In the basis of MPI indicator the companies can find and benchmark for most productive users of Intellectual Capital.

This research study provides an essential link between intellectual capital and financial performance that should help to bring together the currently distinctive disciplines of finance and performance measurement. The research provides the evidence of the impact of intellectual capital on earnings per share in the companies by using data from listed public sector companies in Bombay Stock Exchange. The findings of the research will enhance the importance of intellectual capital in emerging economies. The research indirectly provides evidence of the relationship between intellectual capital and corporate performance. Investors in the market place tend to demand shares of firms having higher performance than those with average performance in the market. The research study will provide evidence of application of VAIC as an aggregated, standardized measure of corporate intellectual ability, specifically, the explanatory power of VAIC and its components towards earnings per share in the different industries in India, since
investors' earning is related to corporate performance. Shareholders invest money in any organization so they want maximum return of their shares. In the literature survey the researcher observed that there has been studies undertaken covering Intellectual Capital, Return of Investment, market to book value ratios, profitability, productivity, market valuation, average turnover etc. but no study has been done so far to see impact of Earning Per Share on Value creation efficiency to maximise long term shareholder value specially in Indian context. The concluded with the discussion for future research. At the end list of References and Annexure are attached.