AN EMPIRICAL STUDY ON FIRM'S *INTELLECTUAL CAPITAL* AND ITS COMPONENTS, WITH A SPECIAL REFERENCE TO NATIONAL HYDRO ELECTRIC POWER CORPORATION LIMITED

Tarit Kanti Sen
Lecturer of Commerce, Siliguri College of Commerce, Siliguri, Darjeeling, India.

Abstract
In view of the fact that, presently, there is no common international framework for the identification, measurement and disclosure of information on the intangible determinants of corporate value, except some scattered efforts around the world, it seems appropriate to devote efforts to the development of a set of general guidelines to help companies to identify measures and to monitor their intangible sources of value. The objective of these guidelines is to increase management efficiency and to assist companies in the process of producing and disclosing relevant and comparable reports in a timely manner which shall allow their providers of capital to draw efficient estimates of the future benefits and risks associated with their investment opportunities.

The present paper attempted to study firm's intellectual capital and tried to identify those factors that stimulate the intellect. Various research studies suggest that there are three components, in broad sense, that influence a firm's intellectual capital namely structural capital, human capital and capital employed. The study investigated empirical relationship between firm's intellectual capital and its components. The analysis were performed using data obtained from the Annual Reports of the National Hydroelectric Power Corporation (NHPC) Limited during a eight year period from 2004-05 to 2011-12. Pearson Correlation have been used on data to check the impact of components of intellectual capital on firm's intellectual capital. The empirical finding revealed a highly significant influence of Value Added Human Capital (VAHC) and Value Added Capital Employed (VACE) on Value Added Intellectual Capital (VAIC) of the power generating industry.

Key Words: Human Capital, Physical Capital, Structural Capital, Vahc, Vace, Vaic.

INTRODUCTION
Rapid growth of knowledge and emergence of capital, in new sense, are the two basic drivers for dramatic changes in economic growth. In global economy, intellectual capital can represent a principal asset of many organisations and has given importance to become a key driver for business sustainability. In knowledge era, intellectual capital is the primary source for wealth creation of organisation (especially in the service sector) and also for the nation. Though the intellectual capital is being considered as a key driver for firm's value creation, still there are also many unsettled issues regarding identification, measuring, reporting and managing of intellectual capital. The issue of the development of intellectual capital measurement model are generally responsible for answering the reason for hidden firm's value. It has been seen in recent years that a considerable number of companies and countries to develop intellectual capital reporting framework so as to reflect the firm's value that are absent in the traditional reporting (Majdshaban, V.Kavida,2013). However, still it is not known clearly the firm's view toward the intellectual capital whether they considered it as a critical asset or not (Usoff, Thibodeau and Burnaby ,2002). So it is needed to recognize the impact of intellectual capital on the performance of (both current and future) the companies as to find out the importance to manage its intellectual capital.

COMPONENTS
Generally three component of intellectual capital has been reveals from various literatures, such as human capital, structural capital and physical capital (capital employed).

Human capital includes knowledge, professional skill and experience and creativity and competence of employees.

Structural Capital consists with networks system, culture polices and distribution channel, management process, information technology system and financial system. According to Van Buren, structural capital consists of innovation capital (the capability of an organization to innovate and to create new products and services) and process capital (An organization's processes, techniques, systems, and tools).Review of literature showed three component of structural capital such as system, structure, strategy and culture.

Physical capital or capital employed efficiency is an indicator of value added created by the capital that afforded by the company with efficient (Firer and Williams in Margaretha 2006). As for the example of the Physical capital or capital

employed efficiency is land, buildings, equipment, technology that easily sold or bought in the market. It could be argued that physical capital or capital employed efficiency are assets that have a physical form and not owned by the company are used efficiently and optimally in the company's operations to the creation of added value to the companies concerned.

REVIEW OF LITERATURES
A.Studies at International Level
Ghalam et.al (2014), conducted a study on the effect of IC on financial performance of companies listed in Tehran stock exchange. Empirical result of this study support that intellectual capital has a significant effect on growth, market value and profitability of companies

Eskender Jafari (2013), carried out a study on the relationship of intellectual capital with market value and financial performance of listed companies in Iran. This study found that human capitals are a key in determines the rate of intellectual capital.

Abbasali Pouraghajan et.al (2013). Investigated the relationship between value added intellectual capital (VAIC) and market value to book value ratio ,between value added capital asset(VACA) and value added structural capital (VASC) with market value to book value ratio of companies enlisted in Tehran stock exchange. A positive significant relationship among intellectual capital and revenue growth, (RG), return on asset (ROA) and return on equity (ROE) were found in this study.

Dr. Saeed Fathi et.al (2013), conducted a survey Iranian companies listed in the Tehran Stock exchange (TSE) and observed that intellectual capital is an important strategic asset for sustainable competitive advantages. This study found a significance positive relationship between value added efficiency of capital employed (VACA) and value added efficiency of human capital (VACA).

Hiras Pasaribu et.al (2012), carried out a study on manufacturing companies listed in IDX and found that intellectual capital have a significant positive effect on firms future performance. The future performance of the company highly affect by the potentially of human capital in creating value for a company.

Ramat T.Salman et.al (2012), Investigated the association between efficiency of intellectual capital component and Return on Assets in Nigeria. The study was found a significant positive relationship between human capital efficiency and return on assets in manufacturing companies. This study suggested that efficiency of intellectual capital can be enhancing by making more investment on intellectual capital component.

Bambarg Soedaryono (2012), investigated t5hat the physical capital (VACE) has a significant influence to market value of baking firms in Indonesia. This study revealed that physical capital, human capital and structural capital have a positive impact on return on assets (ROA).

Chokri Zehri et.al (2012), investigated the exact effect of intellectual capital on the performance of non-financial companies listed on Tunisia stock market. The study had been conducted from the stand point of financial performance, market place and economics performance of the firms. VAIC model was used in this study and found a significant positive association between financial performance and components of intellectual capital. It was found that 54.96% of the variation in economic performance is explained ccomponent of intellectual's capital. This study also found that the size of the company does not have any impact on stock performance.

V.Taghizadeh Khanqah et.al (2012), carried out a research to investigated the relationship between intellectual capital, market value and financial performance of 28 Iranian companies listed in the Tehran stock exchange, Companies were selected from vehicles and parts manufacturing sectors and VAIC model was used and examined that intellectual; capital was failure to recognised as a important strategic asset for sustainable competitive advantage. This study revealed a significant relationship between structural capital efficiency and return on equity and return on asset..

Nik Maheran Nik muhammed (2009), Carried out a study on financial company in Malaysia and found that intellectual capital has greater influence in banking institution rather than insurance company and security brokerage companies.

Sri Iswati and Muslish Anshari (2007), investigated the impact of intellectual capital on insurance company's performance in Jakarta. Empirical data were used in this study collected from Indonesia capital market directory 2005 which was issued by Jakarta stock exchange (JSE).This study argue that intellectual capital play a important role in business life cycle since staring to till maturity stage. Market to Book value method was use in this study to measure intellectual capital. This study revealed a positive relationship between human capital and financial performance both low knowledge based corporate and high knowledge based corporate.

Ming-Chin Chen et.al (2005), using data from 4254 firms listed on the Taiwan stock exchange adopted the VAIC method to examine the relationship between form's value creation efficiency and its market to book value ratio. This study depicted intellectual capital is being increasingly recognized as the major driver of corporate and national growth. They found that intellectual capital enhanced the firm's profitability and revenue for both current and future period.

Ahmed Riahi-Belkaoui (2002), has conducted a study on manufacturing and service firms in USA from the view point of resource based and stakeholder based. He was observed that intellectual capital is essential sustainable sources of superior wealth creation.

B) Studies at National Level
Majid Shaban, V.Kavida(2013), measure the impact of intellectual capital on the financial performance of private sector banks in India during 2005-2011 by using a sample of 18 private sector banks and concluded that intellectual capital has a significant positive association with financial performance of private sector banks.

A.M. Goyal (2013) examined the impact of capital structure on profitability of public sector banks listed on National Stock Exchange (2008-2012) by using of regression analysis and concluded that short term debt is positively associated with profitability of public sector banks in India

Mani Mukta and Sharma Eliza (2012), discussed the impact of human capital efficiency on the performance of public and private sector banks in India (2006-2010). The result of this study indicates that the private sectors banks have outperformer than the public sector banks with regard to human capital efficiency.

Ashim Paul (2012), has conducted a study on information technology sector in India to investigate the problem of valuation and accounting of intellectual capital .The study duration was 2009-2012 where three leading IT companies were selected as a sample. The study was found that IT companies are incorporated their intellectual capital assets in their financial statement in the same way as they include and show their traditional hard assets.

Basanta Khamrui and Dilip Kumar Karak (2012), measured the effect of intellectual capital on financial performance of selected firms. The data were collected from published financial statement during the period from 2010 to 2012. This study argues that the performances of the firms are mainly depending on how they will create, capture and leverage their intellectual capital.

Kamath (2007) has a made study on Indian banks between the period of 2000 to 2004 and using VAIC model to measured intellectual capital and noticed a vast difference in the performance of Indian banks indifferent segments and found an overall improvement in performance over the study period. There was an evident bias in favour of foreign banks performance as compared to the domestic banks.

RESEARCH GAP
Two types of gap such as subject gap and geographical gap were notice in literature survey, which motivated to conduct this study.

Subject gap: A few numbers of studies have been conducted in India to examining the association between intellectual capita and its components. Out of these mostly were carried out in pharmaceutical, banking sector and information technology sectors. All these sectors are basically knowledge intensive sector and its human resource more homogeneous in nature than in other sectors.
Geographical Gap: The majority country wise study on intellectual capital has been carried out in the developed countries such as USA (Bram Handller et.al,2007, Beaker et.al 1992,) Australia (Ferrier 1999, Guthrie 1999, Guthrie et.al 1999,

Guthrie and Gome 2001,) Canada (Subbarao and Zeghal 1997) Germany (Subbarao and Zeghal 1997,) Ireland (Brennan 2001) Japan (Nonaka 1991, Imai and Kumiya, 1994, Koshiro 1994, F.rein 1997) Sweden (Grojer 1997, Jensen 2001. Olssan 2001), Uk (Kim and Kim 2000,) where as a few isoloted studies has been carried in industrialsied developnig countires such as Malaysia (Giround ,2000) South Kores (subborao and Zeghal 1997) India (Mamath 2007, Majid Shoban 2013, A.M Gogel 2013, Pal and Suriya 2012, Ghosh and Mondal 2009,) .It was hardly found any studies have been carried out in non-industrialised developing country.

NEED OF THE STUDY
The canvas of global business in the twenty first century (also known as knowledge economic) has been changed rapidly. In this knowledge society basic economic resource such as land , capital natural resource or labour has been replaced by intellectual capital .Now a day's physical tangible assets along is not only the key driver to successful communities and organization .In general market value of firm is higher than its book value, because of balance sheet do not fully reflect the value of intellectual capital, as a result financial statement has loss it's utility value and effectiveness of their information. The gap between market value and book value of firm badly affects to the investors decision making process and which lead to generate interest issue related to intellectual capital and finding reason behind this gap. Measuring intellectual capital and factors affecting intellectual capital is essential to the organization which make it visible and understanding the level of influence on total value (stock price) of organization, especially in case of those organization which are intend to listing on the stock market exchange, issuing shares, take over, merger, alliance formation, increasing the value of the organization etc(Marus De bear, neil Burnes. ,2003).In order to influence the stock price of a company its Intellectual capital must therefore be identified, measurable, be valued and be made visible.

OBJECTIVE OF THE STUDY
The aim of this research is to study firm's intellectual capital and indentify those factors that influence of intellectual capital. Thus the objective of the study is to measuring the intellectual capital and show the relationship between elements of the intellectual capital.

METHODOLOGY
Study Sample: .Intellectual capital is relevant to any kind of organization in this knowledge economic. It is undoubtedly that intellectual capital is strategically important to any organization in the process of value creation. Organization irrespective of their nature and size are used intellectual capital as a strategic asset to create value. The listed companies on Bombay stock exchange (BSE) have been identified as most suitable population for this study because of mandatory nature of preparing and publishing the financial statement .These listed companies are classified into 37 different sectors on the basis of homogeneous in nature of business. Out of these sectors, power generating sector has been selected purposefully for this study. The following conditions were considered at the time selection of sample firm.

1. The firms must be enlisted with Bombay stock exchange since 2001.
2. Firm's financial year must be end 31th march and it should be remain unchanged in the study's period.
3. Firms should power generating sector firms.

On the basis of above mentioned conditions National Hydroelectric Power Corporation (NHPC) Limited was selected as sample firm. Data during the period from 2005 to 2012 was considered for study purpose.

METHOD OF MEASURING THE INTELLECTUAL CAPITAL
In this method Value Added Intellectual Coefficient (VAIC) method was used for measuring intellectual capital. This Austrian method, introduced Anti Piulic in 1997.Survey of literature showed that most of the research studies used value added intellectual coefficient (VAIC) method due to its several advantages. It is a standardised method to measure the Intellectual capital performance of the firms as it is based on published audited financial information of the firm; mainly audited income statement and balance sheet are used to measure intellectual capital. (K.deep, K.pal Norwal, 2014). This method considers both intellectual capital and physical capital to find out the firm's potential for value creation (M.Joshi et.al, 1990). Survey in literature, it was found that VAIC was widely used to measure intellectual capital in finance and banking sectors (Ranjani RPC and Jayendrika W.A.D.I.K.).VAIC method deals with three types of capital such as financial capital, Human capital and structural capital in order to measuring the efficiency of intellectual capital (Silvia Sumedrea, 2013).A high value for VAIC indicate a greater efficiency of the firm inthe use of intellectual capital, since VAIC is called as the sum of capital employed efficiency, human capital efficiency and structural capital efficiency. (Nik Meheran, Khaira Amin, 2009)

DATA ANALYSIS AND FINDING
Value Added
Value added can be used as a substitute measure for the stock of firm's intellectual capital. It helps management by better understanding exact what contribution that has been made by company's intangible resources and as a result a effective manage of company's intellectual capital could be possible. The difference between total revenue and operating expenses is the value created by the organization during the particular financial year. Data regarding value creation of the company clearly indicate an increasing trend during the study period, except F.Y.2008=09 and 20010-2011 where operating expenses was increase in a higher proportion as compared with sales(table1).The mean value added was 2830.935 during the study period.

Value Added = (Total Income) – (Operating Expenses)

Table 1: Showing Value Added during last 8 years.

Years	Total Income	Operating Expenses	Value Added
2012	6784.27	1763.44	5020.83
2011	4932.11	1222.05	3710.06
2010	4892.09	768.51	4123.58
2009	3261.49	818.98	2442.51
2008	3155.5	580.36	2575.14
2007	2187.5	419.75	1767.75
2006	1973.66	454.02	1519.64
2005	1843.78	355.81	1487.97

Source: Annual Report

Structural Values Added.
Structural capital is one of the important determinants of Intellectual capital. All non-human assets are included in structural capital. It recognized as all system, procedures, copy right, patent, data base, structural procedures, rules and policies are important for decision making as advocated by Bontis et.al (200). An increased trend was found in structural capital during study period, except 2006-7, because of proportion increased in value added was less than that the proportion of increased in administrative expenses (Table-2).The management should pay attention towards operating expenses. Mean structural values added was 0.123287125

STVA = (Administrative Expenses) / (Value Added)

Table - 2 Showing Structural values added for last 8 years

Years	Administrative Expenses	Value added	STVA
2012	934.4	5020.83	0.186105
2011	522.43	3710.06	0.140814
2010	238.67	4123.58	0.057879
2009	326.47	2442.51	0.133662
2008	263.58	2575.14	0.102356
2007	182.56	1767.75	0.103273
2006	240	1519.64	0.157932
2005	155.16	1487.97	0.104276

Source: Annual Report.

Value Added Human Capital
Human capital is the sum total of all the expenses incurred on compensation and development the employees. Employee's compensation and other development cost are considered as investment not expenditure and hence would be deducted from total expenses. An increased trend in value added human capital was revealed in study period excluding the F.Y.2010-11 (Table 3). Mean value added human capital was 0.181681375.

Table - 3 , Showing Human Capital value added for last 8 years

Years	Value added	No of Employees	VAHC
2012	5020.83	11036	0.45495
2011	3710.06	11420	0.324874
2010	4123.58	11712	0.352082
2009	2442.51	12028	0.203069
2008	2575.14	12341	0.208665
2007	1767.75	12768	0.138452
2006	1519.64	13118	0.115844
2005	1487.97	13470	0.110465

Source: Annual Report.

Capital Employed Value Added

Capital employed is formed with all the physical and material assets of the company. Capital employed efficiency in another indicator of vale added create by the capital that perform by the organization with efficient. Capital employed of National Hydroelectric Power Corporation Limited has showed an increased trend but no specific trend was found in value added capital employed during the study period (Table 4). The reason may be inefficient used of physical or capital employed by the company in value creation.

Table 4: Showing Capital Employed Value Added for last 8 years

Years	Value added	Capital Employed	VACE
2012	5020.83	45558.1	0.110207
2011	3710.06	40721.03	0.091109
2010	4123.58	38717.95	0.106503
2009	2442.51	31541.79	0.077437
2008	2575.14	28535.08	0.090245
2007	1767.75	25326.22	0.069799
2006	1519.64	23458.3	0.06478
2005	1487.97	22193.53	0.067045

Source: Annual Report.

Intellectual Capital Value Added

The value added intellectual Capital (VAIC) used in present study as a basic procedures to measure Intellectual Capital (IC) of National Hydro Electric Power Corporation Limited. The empirical investigation showed (Table 5) an increased trend in intellectual capital value added during the study period, which was a good indicator to the management of Concern Company. Data shows Intellectual Capital Value Added for last 8 years are 0.751262, 0.556798, 0.516464, 0.414168, 0.401266, 0.311523, 0.338557 and 0.281787 respectively. There was an increasing trend in Intellectual Capital Value Added which is a good indicator. It has been seen that major proportion of VAIC was VAHC which was near about 50 percentages of VAIC.

VAIC = (STVA+VAHC+VACE)

Table - 5, Showing Intellectual Capital Value Added for last 8 years

Years	STVA	VAHC	VACE	VAIC
2012	0.186105	0.45495	0.110207	0.751262
2011	0.140814	0.324874	0.091109	0.556798
2010	0.057879	0.352082	0.106503	0.516464
2009	0.133662	0.203069	0.077437	0.414168
2008	0.102356	0.208665	0.090245	0.401266
2007	0.103273	0.138452	0.069799	0.311523
2006	0.157932	0.115844	0.06478	0.338557
2005	0.104276	0.110465	0.067045	0.281787

Source: Annual Report

From descriptive Statistics (table 9) it is confirmed that there was a positive (0.443) association exist between VAIC and STVA. In power generation company STVA has a positive influence on VAIC. The relationship between VAIC and STVA was statistically significant at 1% level. It can be concluding that increase in investment in STVA as a result VAIC will also be increase.

The statistical relationship between VAIC and VAHC was very interesting finding of this study. The empirical result showed that VAHC was highly associate (correlation 0.978) with VAIC (Table -10). The correlation was significant at 1 % level. It indicates that VAIC of power generating company was largely influenced by VAHC. Human capital has played an important role to value creation process.

Statistical relationship between VAIC and VACE was also found very high (0.965) as well as significant at 1 % level (table11). It also indicates that the VAIC was highly influence by VACE in power generating company.

Table – 9, Descriptive Statistics

	Mean	Std. Deviation	N
VAIC	.44647796738	.155853777713	8
VAHC	.23855009	.125814158	8

CORRELATIONS

		VAIC	STVA
VAIC	Pearson Correlation	1	.443
	Sig. (2-tailed)		.271
	Sum of Squares and Cross-products	.170	.019
	Covariance	.024	.003
	N	8	8
STVA	Pearson Correlation	.443	1
	Sig. (2-tailed)	.271	
	Sum of Squares and Cross-products	.019	.011
	Covariance	.003	.002
	N	8	8

**. Correlation is significant at the 0.01 level (2-tailed).

Table -10, Descriptive Statistics

	Mean	Std. Deviation	N
VAIC	.44647796738	.155853777713	8
VAHC	.23855009	.125814158	8

CORRELATIONS

		VAIC	VAHC
VAIC	Pearson Correlation	1	.975[**]
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	.170	.134
	Covariance	.024	.019
	N	8	8

VAHC	Pearson Correlation	.975[**]	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	.134	.111
	Covariance	.019	.016
	N	8	8

**. Correlation is significant at the 0.01 level (2-tailed).

CORRELATIONS			
		VA	VACE
VA	Pearson Correlation	1	.965[**]
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	12109148.948	156.751
	Covariance	1729878.421	22.393
	N	8	8
VACE	Pearson Correlation	.965[**]	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	156.751	.002
	Covariance	22.393	.000
	N	8	8

**. Correlation is significant at the 0.01 level (2-tailed).

Table 11: Descriptive Statistics			
	Mean	Std. Deviation	N
VA	2830.9350	1315.24843	8
VACE	.0846	.01765	8

CONCLUSION
In conclusion NHPC ltd was more efficient in terms of Capital employed and human capital than structural capital efficiency. This indicated a effective and efficient utilization of human resources and capital employed in NHPC ltd. The major contribution to the value added intellectual capital has comes from human capital efficiency and capital employed efficiency rather than structural capital efficiency because of NHPC ltd are operating with minimal staff and they relying on more proper utilization of capital. Thus intellectual capital efficiency can be increase by making investment in human capital and capital employed in case of power generating company.

REFERENCES
1. Ghalam Saadi Khah et.al: Analysis of the effect of intellectual capital on financial performance of companies accepted in Tehran's stock exchange// Applied Mathematics in engineering management.(2014)(www.amiemt-journal.com)
2. Eskandar Jafari: Intellectual Capital and its effects on firm's market value and financial performance in Iran: An investigating Pulic model// *Research journal of Recent science. Vol. 2(3)1-6 (2013).*
3. Abbasali Pouraghajan et.al: Impact of intellectual capital on market value and firm's financial performance: Evidences from Tehran stock exchange // World Science journal, volume 1 (2013).
4. DrSaesd Fathi et.al: Impact of intellectual capital on financial performance.// International journal of Academic research in Economics and management sciences vol.3 (2013).

5. Hiras Pasarila et.al: the role of corporate intellectual capital: American international journal of contemporary research.vol-2 (20012).

6. Remat.T.almon et.al: Impact of intellectual capital on return on asset in Nigerian manufacturing companies.//Interdisciplinary journal of research in business.vol-2(2012).

7. *Bambang Soedaryono, Murtanto, and Ari Prihertini: Effect of intellectual capital (value Added intellectual capital) to market value and financial performance of banking sector companies listed in Indonesia stock exchange.// the 2012 international conference on Business and Management, Phuket-Thailand*

8. Chokri Zehri et.al: How intellectual capital affects a firm's performance?// Austria journal of business and management research vol,2 (2012).

9. V.Taghizadeh Khanqeh et.al: An empirical investigation of the impact of intellectual capital on firm market value and financial performance,: Evidence from Iranian companies, //International journal management and business research .Vol 2(1). (2012).

10. Nik Meteran Nik Muhammed, MD Khairu Amin Ismail: Intellectual capital efficiency and firm's performance study on Malasian financial sectors.// International journal of economics and finance vol-1 No 2 (2009)

11. Sri Tswati and Muslich Anshri : The influence of intellectual capital to financial performance of insurance companies in Jakarta stock exchange (JSE) .//13th Asia pacific management conference, Malbourne, Australia (2007)

12. Ming-Chinchen et.al: An empirical investigation of the relationship between intellectual capital and financial performance.//Journal of intellectual capital vol, 6 (2005).

13. Ahmed Riahi Belkaoui: Intellectual capital; and firm performance of US multinational firms: A study of the resource-based and stakeholder –based/ Journal of intellectual capital (2002)

14. Shaban majid and Kavida.V. (2013): impact of intellectual capital on the financial performance of Indian private sector banks. // journal of pacific business review international .Vol 6(2). (2013)

15. Goyal A.M. (2013): Impact of capital structure on performance of listed public sector banks in India. // international journal of business and management invention .Vol 2(10) pp.35-43. (2013).

16. Mukta Mani and Sharma Elixa (2012): A comparative analysis of human capital efficiency of public and private banks in India. // Research journal of Finance and Accounting .Vol 3(1) (2012

17. Paul Ashim(2012):Accounting for intellectual capital: A case study of select IT companies in India.// The management Account, the journal for CMAS vol.47(11)(2012).

18. Khamrui Basanta and Karak kumar Dilip (2012): intellectual Capital: An emerging issue in the global accounting arena. // The management Account, the journal for CMAS vol.47(2012).

19. G.B.Kamath(2007): The intellectuall capital performance of Indian banking sector.// journal of intellectual capital vol8(1) (2007)'