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RESEARCH PAPER

Evaluating employees' intellectual capital performance of commercial banks in India

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ABSTRACT

This paper attempts to analyse the intellectual capital performance of different commercial banks in India. Secondary data regarding pay, total income and expenditure pertained to 2006-07 to 2011-12 were collected from websites of RBI. Value added intellectual coefficient (VAIC) was used to measure the intellectual capital efficiency in this study. The results indicated that foreign and new private sector banks ranked high towards human capital efficiency and value added intellectual coefficient. VAIC score is indirectly motivating and reflecting the profit motive of banks only rather than the number and volume of business concentrating to all sections of people. Public sector banks topped the list with regards to capital employed efficiency. Even though, VAIC score for public sector banks are less when compared to foreign banks and new private sector banks but public sector banks are performing well by achieving the priority sector loans, agriculture credit lending, education loan, financial inclusion, DRI scheme, BPL customers and social banking etc. The policies of financial inclusion, DRI scheme, BPL customers, social banking etc., also made public sector banks to add more value to their performance. Thus, along with VAIC performance, social and priority sector capital can also be included for analyzing the performance of banks.

KEY WORDS : Value added intellectual co-efficient (VAIC), Human capital efficiency (HCE), Structural capital efficiency (SCE), Capital employed efficiency (CEE)

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Bank's business volume in India had grown more than fourfold *i.e.* from USD 11.8 billion in 2001 to USD 46.9 billion in 2010. India is expected to increase its share in global banking revenue from 1.5 per cent in 2009 to 2.8 per cent in 2015. The loan volume disbursed by banks is currently around 50 per cent of the country's Gross Domestic Product as compared to less than 19 per cent at the beginning of the decade (Kamath, 2012). Banking sector in India is one of the major employment providers. About one million employees are working at present in this sector. Public sector banks alone employ around 0.8 million employees. Thus, many transformations are taking place in the banking sector (Khandelwal, 2010).

Any business organization including banks has both tangible and intangible assets. The tangible assets constituted a major share in total assets earlier. However, the intangible assets including human capital now plays a major role in business organizations. Such situation warrants the need for organizations to manage these intangible resources effectively. Improved human capital practices, which are directly tied to performance, could increase the stockholder's value of the business unit. Managing human capital drives employees to their maximum potential, recognizes that the knowledge each person possesses is an intellectual capital, and utilizing effectively is capital payoff for the business. The "human capital" is thus a combined knowledge, skill, experience and ability of the organizations' individual

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employee (Becker, 1993).

"Knowledge" is also an intellectual asset or intellectual capital (Allee, 2000; Sveiby, 1997, 1998). Intellectual capital is also knowledge that can be converted into value or profit (Allee, 2000; Edvinsson and Sullivan, 1996; Harrison and Sullivan, 2001; Sveiby, 1997). Ante Pulic (2001) was one of the earliest scholars in the area of Intellectual Capital research to focus more on the relationship between intellectual capital and economic performance. This researcher was the first to base his study exclusively on organization's balance sheet figures and to study the impact of intellectual capital on the banking industry. It is new management and control tool that is designed to enable the organization to monitor and measure intellectual capital performance and potential of the firm.

In the competitive global environment besides relative performance and financial performance models, intellectual capital coefficient is one of the performance evaluation techniques employed for analyzing the performance of banks. A large number of studies have been done in case of financial performance and relative performance of banks, whereas very few studies were done in intellectual capital performance of banks *vis-a-vis* in group wise performance of banks. So, there is a need to study the level of contribution of human capital, structural capital and capital employed efficiency towards the intellectual capital performance of banks. With this background, the following objectives were framed in this study to analyze value added and intellectual capital performance among scheduled commercial banks and to analyze the contribution of human capital, structural capital and capital employed efficiencies towards the intellectual capital coefficient of scheduled commercial banks

Past studies:

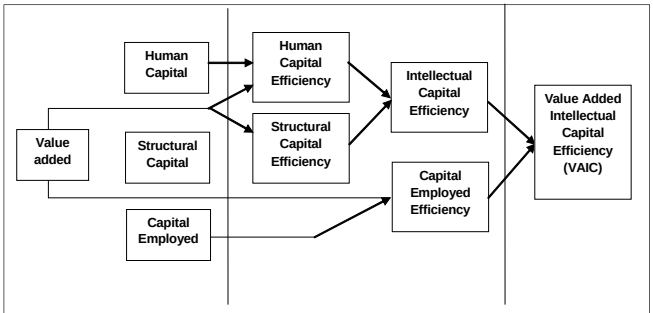
Value Added Intellectual Coefficient (VAIC) model is used by many researchers to study the different aspects of intellectual capital efficiency Chen *et al.* (2004). Chen *et al.* (2004) found a significant relationship between the scores of the four intellectual capital elements and the business performance of firms and proved evidence of the validity and rationality of the VAIC model and the qualitative index system.

Firer and Stainbank (2003) showed relationship between intellectual capital and productivity and profitability level of company. Yalama and Kuskin (2007) used VAIC to establish the intellectual capital performance and then tested the effect on profitability using data envelopment analysis and found that intellectual capital is a more important factor than physical capital for banks. Joshi and Daryll (2010) examined the IC performance of 11 Australian owned banks for the period 2005-2007 and revealed that the best performing banks have high HCE than the CEE.

Ahangar (2011) conducted a study by employing the VAIC to measure the intellectual capital performance and its impact on financial returns of Iranian companies. He concluded that Human Capital Efficiency (HCE) has significant and positive impact on financial returns of companies whereas the relationship of structural and physical capital was not significant with financial performance of companies.

METHODOLOGY

As on 2011-2012, there are 168 Scheduled Commercial banks in India including Regional Rural Banks. Regional Rural banks (82 numbers) were not considered in this study due to non availability of data. Secondary data were collected from various published sources and also through the websites of RBI, IBA, Bank quest and Indian Banker. The data were pertained to recent years i.e. from 2006-07 to 2011-12. Data regarding pay, total income and expenditure were collected from RBI report on "Profile of Banks". Value added intellectual coefficient (VAIC) was used to measure the intellectual capital efficiency in this study. In order to arrive better results and conclusions, simple tabular analysis technique was used. The structure and features of the model is shown in Fig. A. The details of estimation procedure are furnished in Appendix 1.



Source: Laing, Dunn and Hughes-Lucas (2010)

Fig. A : Value Added Intellectual Coefficient (VAIC) model

Appendix 1:

Value added (VA):

Value added (VA) = Output – Input …….. (1)

where, Output = Total income from all products and services sold during the particular fiscal year. Input = Total costs and expenses incurred by the firm during particular fiscal year (excluding labor expenses, which are employee compensation and all expenses that are related to their training and development.

Human capital (HC):

Human capital (HC) is basically interpreted as employee expenses. It includes all expenses regarding compensation and development. Human capital is experience and expertise of employees which increases the efficiency of organizations. More efficient employees' means more efficient of organization to boost value added

(VA) efficiency.

Structural capital (SC):

SC=Value added (VA)– Human capital..... (2)

Structural capital is another important determinant of intellectual capital. It consists of all non human assets and interpreted as the difference between produced added value (VA) and human capital (HC). It recognized all systems, procedures, databases, copy rights, patents, structural procedures, rules and policies which are important for decision making as argued by Bontis *et al.* (1998).

Capital employed:

Capital employed (CE), which is interpreted as financial capital, e.g. book value. It covers all the net physical and material assets of the organization.

Mathematical calculations employed in the study are as follows

Human capital efficiency (HCE):

It is the ratio of value added to human capital. This ratio reflects the contribution made by every unit of money invested in human capital to the value added in the organization.

$$\text{HCE} = \frac{\text{Value added (VA)}}{\text{Human capital (HC)}} \quad \text{.....(3)}$$

Structural capital efficiency (SCE):

It is the indicator that shows the share of SC in value creation. It is defined as the difference between value added (VA) and human capital

$$\text{SCE} = \frac{\text{Structural capital}}{\text{Value added}} \quad \text{..... (4)}$$

Capital employed efficiency (CEE):

It is calculated by dividing the value added by the capital employed. Capital employed efficiency explains how much of the value is created with the capital employed.

CEE=Value added / Capital employed

Value added intellectual coefficient (VAIC):

It is the summation of all the three ratios of HCE, SCE and CEE

Value added intellectual coefficient = Human capital efficiency (HCE) + Capital employed efficiency(CEE) + Structural capital efficiency (SCE) ..... (5)

ANALYSIS AND DISCUSSION

The study results indicated that the value creation capability of scheduled commercial banks in India is directly attributable to the human capital efficiency of the banks (Table 1).

It could be also inferred that foreign banks had the highest Value Added Intellectual Coefficient for a continuous period of three years *i.e.* 5.26, 5.50, 6.34 starting from the year 2006-07 to 2008-09 and 5.24 during 2011-12. New private sector banks, however, had the highest VAIC during 2009-10 and 2010-11 with the value of 5.73 and 5.08, respectively. In case of CEE, SBI group and nationalized banks had the highest CEE for a continuous period of six years starting form 2006-07 to 2011-12.

It was also found that the major contributor for VAIC score was mainly due to Human Capital Efficiency (HCE). Structural capital efficiency and Capital Employed Efficiency are contributing less when compared to human capital efficiency towards intellectual performance of the banks (Fig. 1). This is supported by Joshi and Daryll (2010) as they inferred that the contribution of human capital efficiency was more towards value creation of banks than the structural and capital employed efficiency in Australia.

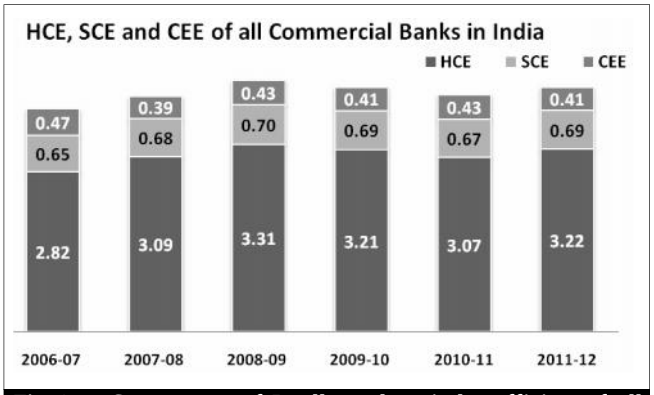


Fig. 1 : Components of Intellectual capital coefficient of all Scheduled Commercial banks from the year 2006-07 to 2010-11

Thus, the performance of these banks in terms of structural capital efficiency (SCE) and capital employed efficiency (CEE) has less impact on Intellectual efficiency of the banks and their value creation.

The efficiency in utilizing human capital is the main reason for the high intellectual performance as revealed by scheduled commercial banks in India (Fig. 1).

Number of employees employed in banks also had an impact on human capital efficiency of banks. For instance, among the commercial banks, public sector banks have employed more employees (Appendix 2). This would lead to high human wage costs. Besides these public sector banks are dealing with more number of low value customers and all sections, subsidized agriculture loan, housing loan, education loan, BPL customers, rural artisans, targeting financial inclusion, small customers etc. These factors resulted in low

Table 1 : Comparative analysis of VAIC, CEE, HCE and SCE of commercial banks in India

Bank	Particulars	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
SBI and Associate	VAIC	3.52 (5)	3.77 (5)	4.05 (5)	3.68 (5)	4.03 (3)	4.10 (4)
Banks	CEE	0.58	0.45	0.49	0.48	0.61	0.57
	HCE	2.36	2.69	2.90	2.59	2.78	2.88
	SCE	0.58	0.63	0.66	0.61	0.64	0.65
Nationalized banks	VAIC	3.75 (4)	3.88 (4)	4.08 (4)	4.21 (3)	4.03 (3)	4.24 (3)
	CEE	0.49	0.45	0.48	0.49	0.50	0.45
	HCE	2.64	2.79	2.94	3.04	2.88	3.11
	SCE	0.62	0.64	0.66	0.67	0.65	0.68
Old private banks	VAIC	3.86 (3)	4.02 (3)	4.24 (3)	3.79 (4)	3.78 (4)	3.87 (5)
	CEE	0.44	0.35	0.40	0.38	0.39	0.38
	HCE	2.78	3.00	3.16	2.77	2.75	2.83
	SCE	0.64	0.67	0.68	0.64	0.64	0.65
New private banks	VAIC	5.10 (2)	4.96 (2)	5.15 (2)	5.73 (1)	5.08 (1)	4.92 (2)
	CEE	0.36	0.28	0.31	0.31	0.31	0.32
	HCE	3.99	3.94	4.08	4.64	4.02	3.86
	SCE	0.75	0.75	0.75	0.78	0.75	0.74
Foreign banks	VAIC	5.26 (1)	5.50 (1)	6.34 (1)	5.54 (2)	5.04 (2)	5.24 (1)
	CEE	0.38	0.37	0.42	0.30	0.27	0.26
	HCE	4.12	4.36	5.12	4.46	4.02	4.21
	SCE	0.76	0.77	0.80	0.78	0.75	0.76

Note: VAIC-Value Added Intellectual capital, CEE-Capital Employed Efficiency, HCE-Human Capital Efficiency, SCE- Structural Capital Efficiency. Parentheses indicate ranks among the respective bank groups

human capital efficiency compared to new private sector and foreign banks that are concentrating high net worth individuals (HNI's), highly technology intensive, perform only specialized activities and other high value non-priority sector loans. This was supported by Kamath (2007) who indicated that foreign banks are concentrating the corporate customers and that may be the reason for the high human capital efficiency.

Using the data, the value additions (difference between total income and total expenditure excluding wages) were estimated (Appendix 3) and banks are ranked accordingly as shown in Table 2.

In case of value added, nationalized banks ranked first for a continuous period of six years starting from 2006-07 to 2011-12. Even though value added (VA) is high among public sector banks (*i.e.*) size of the bank, total assets and total number of employees Value Added Intellectual Coefficient (VAIC) of Public sector banks were low when compared to foreign and new private sector banks. This is supported by Joshi and Daryll (2010) as they inferred that the size of the bank, total assets and total number of employees and total share holders' equity has little or no impact on the intellectual capital performance of banks in Australia.

Conclusion:

This paper used value added intellectual coefficient (VAIC) as a tool to analyze the contribution of human capital, structural capital and capital employed efficiency towards the

Table 2 : Ranking according to value added (VA) of commercial banks in India

Rank	Value added					
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
1.	NB	NB	NB	NB	NB	NB
2.	SBIA	SBIA	SBIA	SBIA	SBIA	SBIA
3.	NPB	NPB	NPB	NPB	NPB	NPB
4.	FB	FB	FB	FB	FB	FB
5.	OPB	OPB	OPB	OPB	OPB	OPB

Note: SBIA- State Bank of India and its Associates, NB- Nationalized Banks, NPB- New Private banks, OPB- Old private Banks and FB- Foreign Banks

Appendix 2 : Number of accounts and amount outstanding of priority sector credit over different financial years (Amount in Rs Lakhs)

Year	State bank and its Associates		Nationalized banks		Private sector		Foreign banks	
	Number	Amount outstanding	Number	Amount outstanding	Number	Amount outstanding	Number	Amount outstanding
Agriculture loan								
2006	67,78,244	42,65,432	1,32,86,853	96,71,968	13,94,164	13,77,276	5,102	71,689
2007	81,46,937	56,05,958	1,49,36,162	121,77,588	12,54,264	22,20,448	3,485	3,96,622
2008	96,97,800	73,32,808	1,66,16,576	132,08,364	22,21,226	36,08,039	521	50,928
2009	94,35,692	75,32,385	1,65,21,949	157,80,362	42,18,815	39,48,130	156	42,303
2010	107,02,289	92,29,308	1,84,37,047	204,03,669	28,47,639	48,53,045	1,073	73,247
2011	114,41,478	101,74,883	2,01,94,106	241,84,910	34,97,476	62,57,006	730	140,096
Housing loan								
2006	13,20,428	43,31,548	20,27,079	72,32,098	8,02,669	47,48,544	1,24,447	16,34,845
2007	15,75,173	51,16,673	21,51,297	88,43,329	9,39,599	74,80,123	75,829	11,35,507
2008	16,49,279	59,22,567	22,03,452	89,72,929	9,92,187	80,26,418	94,596	15,85,011
2009	18,35,065	72,89,803	24,74,554	110,13,686	9,57,006	76,27,224	1,50,997	21,64,657
2010	22,35,035	99,61,023	25,06,984	121,14,804	8,99,152	65,20,142	97,301	16,07,755
2011	20,95,651	113,47,05.9	26,16,145	131,35,545	8,56,035	73,68,642	96,274	22,09,471
Education loan								
2009	5,32,813	9,74,291	8,92,556	13,90,722	46,234	78,967	7	16
2010	6,40,582	12,40,952	11,09,206	19,22,493	2,32,204	6,13,880	11	9
2011	7,48,081	15,25,306	13,19,596	25,80,125	2,15,915	5,06,524	283	4431

Source: www.rbi.org.in

Priority sector lending by Scheduled commercial banks over different financial years (Amount – Rs in Crores)

Year	Public sector		Private sector		Foreign banks			
	Priority	MSE	Priority	MSE	Priority excludes export credit	Export credit	Priority includes export credit	MSE
2006	4,09,748 (40.3)	82,434 (8.1)	1,06,586 (42.8)	10,421 (4.2)	13,113 (14.8)	17,326 (19.6)	30,439 (34.4)	8,430 (9.5)
2007	5,21,376 (39.7)	1,02,550 (7.8)	1,44,549 (42.9)	13,136 (3.9)	17,120 (15.1)	20,711 (18.3)	37,831 (33.4)	11,637 (10.3)
2008	6,10,450 (44.7)	1,51,137 (11.1)	1,64,068 (42.5)	46,912 (13.7)	21,300 (16.8)	28,954 (22.7)	50,254 (39.5)	15,489 (12.2)
2009	7,24,150 (42.7)	1,91,408 (11.3)	1,87.849 (46.20)	46,656 (11.8)	23904 (14.8)	31,511 (19.4)	55,415 (34.2)	18,063 (11.2)
2010	8,63,777 (41.6)	2,76,319 (13.3)	2,14,669 (45.8)	64,825 (13.8)	26,564 (15.9)	33,396 (20.1)	59,960 (36.0)	21,147 (12.7)
2011(p)	10,28,615 (41.3)	3,76,625 (15.1)	2,48,828 (46.6)	87,857 (16.4)	24,040 (14.5)	42,487 (25.5)	66,527 (40.0)	21,501 (12.9)

The figures in parentheses indicate the percentage to total credit Source: www.rbi.org.in

intellectual capital performance of scheduled commercial banks. Results of this study indicated that human capital efficiency is the major contributor for the value added intellectual coefficient. Foreign and new private sector banks ranked high towards human capital efficiency and value added intellectual coefficient. VAIC score is indirectly motivating and reflecting the profit motive of banks only rather than the number and volume of business concentrating to all sections of people. Public sector banks topped the list with regards to capital employed efficiency. Even though, VAIC score for public sector banks are less when compared to foreign banks and new private sector banks but public sector banks are performing well by achieving the priority sector loans, agriculture credit lending, education loan, financial inclusion, DRI scheme, BPL customers and social banking etc. Thus, along with VAIC performance, social and priority sector capital can also be included for analyzing the performance of banks.

Appendix 3 : Estimation of value addition in different financial years

Year	No. of banks	No. of offices	No. of employees	Value added (Rs in crores)
Public Sector Banks				
State bank of India and its associates				
2006-07	8	14673	255699	24763.01
2007-08	8	15848	249008	27741.04
2008-09	7	16894	268598	35738.81
2009-10	7	18178	266605	40484.55
2010-11	6	18772	282453	51377.10
2011-12	6	19485	280256	60968.15
Nationalized banks				
2006-07	20	37435	473179	45696.81
2007-08	20	39255	466400	51235.20
2008-09	20	40956	462926	65433.95
2009-10	20	43452	473041	77482.80
2010-11	20	45640	475082	102927.25
2011-12	20	50013	491132	112809.89
All public sector banks				
2006-07	28	52108	728878	70462.67
2007-08	28	55103	715408	78976.83
2008-09	27	57850	731524	101157.40
2009-10	27	61630	739646	117979.42
2010-11	26	64412	757535	154313.18
2011-12	26	69498	771388	173797.05
Private sector banks				
Old private sector banks				
2006-07	17	4723	47994	4712.72
2007-08	15	4690	48700	5406.76
2008-09	15	4908	51341	7023.10
2009-10	15	5220	55052	7595.85
2010-11	14	5011	55075	9371.64
2011-12	13	5555	62965	10704.11
New private sector banks				
2006-07	8	2599	91060	14253.31
2007-08	8	3635	110123	20944.21
2008-09	7	4333	124998	25698.64
2009-10	7	5232	127468	31001.19
2010-11	7	6957	163604	35772.02
2011-12	7	7853	151339	42403.73
All private sector banks				
2006-07	25	7322	139054	18969.64
2007-08	23	8325	158823	26351.87
2008-09	22	9241	176339	32722.11
2009-10	22	10452	182520	38599.46
2010-11	21	11968	218679	45150.43
2011-12	20	13408	214304	53049.79
Foreign banks				
2006-07	29	272	28426	12701.88
2007-08	28	277	31301	18228.92
2008-09	31	295	29582	24981.74
2009-10	32	308	28012	21006.39
2010-11	33	316	27968	21716.02
2011-12	40	323	27698	24232.67
All Scheduled Commercial banks (Except Regional rural banks)				
2006-07	82	59702	896358	102130.59
2007-08	79	63705	905532	123557.29
2008-09	80	67386	937445	158879.34
2009-10	81	72390	950178	177593.63
2010-11	80	76696	1004182	221163.41

Note: Value added(VA) was estimated by the authors Source: www.rbi.org.in

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