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Role of Intellectual Capital As an instrument of Efficiency in Public Sector Banks Since 1991 to 2013

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Abstract

Intellectual capital which is encompasses of human capital, structural capital and capital employed has been regarded as a prominent source of competitive advantage of various organizations, which influence the level of innovativeness and creativity that lead to the increase of business performance and a country's economic growth. Economic development is a function of capital, technology and labour. In the emerging knowledge oriented service intensive economies, the highest form of labour is intellectual capital. Intellectual capital is the currency of the future and is an organization's most important asset. Those who learn how to manage it effectively will realize accelerated performance and achieve the ultimate competitive advantage (Bontis, 2000).Therefore, the aim of this paper is to examine the efficiency level and the trend of intellectual capital among Public sector banks and its impact on their banking industry's value added. Using a model introduced by Pulic (1998) to measure value added intellectual Capital (VAIC) and data analysis to measure the trend of intellectual capital; it was found that as increase level of intellectual capital in public sector banks, banks' performance is also increase. Banking industry's value added was very much related to the amount of capital employed as compared to other variables. The trend of intellectual capital shows positive relationship for Public sector banks.

Keywords: Intellectual Capital, Human capital, Structural Capital and Capital employed.

Introduction

Intellectual capital has been regarded as a prominent source of competitive advantage of various organizations, which influence the level of innovativeness and creativity that lead to the increase of business performance and a country's economic growth. Intellectual capital has contributed to the creation of whole new types of business and ways of doing business. Intellectual capital assets are strategically now more important to wealth creation than they were in the past (Waterhouse, 1998). Therefore, the importance of intellectual capital in today's economy indicates a need for high performance systems to manage them (Luthy, 2000). Given the tremendous power of intellectual capital assets to influence the valuation of an enterprise, it is critical that executives learn to employ these assets to improve profitability and increase shareholder value (Muhammad et al., 1998). As far as the measurement of intellectual capital assets is concerned, good measurement systems should satisfy two key areas of performance: effectiveness and efficiency. Effectiveness can be measured as the change in intellectual stocks and effects on business performance. In terms of efficiency, intellectual resource measure can include operating performance measures such as lead times, customer satisfaction, employee productivity etc (Gray, 2001).

Banking system is one of the many institutions that impinge on any economy and affects its performance. Banks are considered to be one of the most important of all the financial intermediaries in the financial system of the country. Banks have been playing a crucial and pivotal role in financial system of developed countries and most of the emerging economies. In the developing countries, even banks are not only playing an important role in economic development, but banks help to maintain the financial stability of India. In India, banking sector performs three primary

functions: the operation of the payment system, the mobilization of savings and the allocation of savings to investment projects. By allocating capital to the highest value use while limiting the risks and costs involved, the banking sector can exert a positive influence on the overall economy, and is thus of broad macroeconomic importance. The monetary and banking policies and external situation have influenced the evolution of Indian banking in diverse ways.

The industrialized world is rapidly moving into an era where economic growth depends highly on knowledge. More of what is produced and consumed today is intangible. A greater emphasis is now placed on information technology skills, customer relationship skills and personal skills than on manual skills. As the world has undergone this metamorphosis, practitioners, accountants and academics alike have identified a perceived need to manage, measure and report on the intellectual value of companies (Gray, 2001).

Aim of the Study

For this reason, the driving force of the paper is to analyze in detail, the intellectual capital efficiency level of public banks in India. In the recent times, the major upheaval in Indian banking was witnessed in the year 1991 when new economic policy in India was adopted. Therefore, the intellectual capital efficiency level of public banks in India since 1991 has been studied in the present paper. More specifically the objectives of the present papers are:

1. To study the intellectual capital efficiency level in Public Banks since 1991-2013.
2. To analyze sales turnover, capital employed, value addition and human capital of public banks since 1991-2013.
3. To analyze human capital efficiency, capital employed efficiency and value added intellectual coefficient of public banks since 1991-2013.

Literature Review

Intellectual Capital

Intellectual capital is a package of useful knowledge which includes organization processes, technological patents, employees' skills and information about customers, suppliers and stakeholders. It deals with particular, reasonable, knowledgeable and substantial fruits of the mind (Kok, 2007). Intellectual capital can be defined as intangible assets which comprise of technology, customer information, brand name, reputation and corporate culture. These are invaluable to a firm's competitive power (Muhammad et al., 1998). Intellectual capital significantly affects the performance of an organization. It has not only contributed in the creation of whole new types of business, but also provided various other ways of doing business. In fact, many companies such as those in the software field rely wholly on intellectual capital for generating revenue (Luthy, 2000). Based on the definition given, intellectual capital can be divided into three important components: Human capital, structural capital and customer capital are the three basic components of intellectual capital. Human capital is creative; structural capital is reliable; and customer capital leverages the other two components.

Human Capital

Human capital is related to the attributes such as stock of competences, knowledge and personality. These attributes contribute to produce economic value; and are gained by a worker through education and experience. The factors such as experience, know-how, capabilities, skills and expertise of the human members of the organization together form human capital (Gray, 2001). The combined human capability of an organization to solve business problems can be called human capital. It is inherent in people and cannot be owned by organizations. Therefore, when people leave an organization, the human capital also leaves. Human capital also encompasses how effectively an organization uses its people resources as measured by creativity and innovation (Luthy, 2000).

Human capital is represented by the employees of an organization. Employees produce intellectual capital through their competence, their attitude and their intellectual agility. Competence includes skills and education; attitude is the behavioural component of the employees' work; and intellectual agility enables them to change the current practices and to think of innovative solutions to problems. The employees are considered the most important corporate assets in a learning organization, but they are not owned by the organization.

Structural Capital

An organization having a strong structural capital provides a supportive culture to its people which allow them to learn from their failures. Such a culture encourages the employees to perform their duties quite earnestly Structuring intellectual assets with information systems can turn individual know-how into group property (Nicolini, 1993).

Structural capital enables human capital to function. It includes the systems, networks, policies, culture, and distribution channels. Structural capital belongs to an organization and remains with it even when the employees leave (Gray, 2001). Unlike human capital, structural capital is owned by companies. Thus, the companies can sell, replace and gain new structural capital (Kolakovic and Holmik, 2006). While illustrating further, structural capital includes traditional things such as buildings, hardware, software, processes, patents, and trademarks. Apart from it, it includes such things as the organization's image, organization, information system, and proprietary databases (Gray, 2001).

Customer Capital

Customer capital is represented by the potential an organization has due to the knowledge embedded in customers, suppliers, the government or related industry associations. Relationships are considered valuable intangible assets in business research. A relationship can be defined on the basis of various dimensions such as commitment, trust, cooperation, communication, influence and mutual adaptation (Hakansson and Snehota, 1995). Relationships lead the organizations toward success, but the process is quite costly; and it should be

considered as an investment. Thus, relationships stand as a part of the firm's intellectual capital (Agndal and Nilsson, 2006).

Customer capital depends highly on the loyalty of customer relations. Customer satisfaction, repeat business, financial well-being, and price sensitivity are the indicators of customer capital (Luthy, 2000). Customer capital relates to clients, buyers and suppliers, brand names, the company's reputation and clients' opinion about the company. Customer capital emphasizes on having a close interaction with the customer. It also includes their satisfaction, continuity, price reactions, and good relationship with loyal customers. Customer capital can be created by accustoming clients to the activities of the company. The trust of customers is vital in the sense that it forms a permanent relationship with them (Kolakovic and Holmik 2006).

Methodolgy

This study focuses on the intellectual capital efficiency of Public sector banks in India. The annual reports of the public sector banks from the publications of 'Indian Banks' Association' like special issues, annual publications on 'Performance Highlights of Public sector banks for the year 1990-91to 2012-13 were chosen for this study. The data obtained from secondary sources have been used to derive value added intellectual coefficient (VAIC). VAIC measures the intellectual capability and performance of the organization. A higher value for VAIC implies a greater efficiency in the use of firm capital, since VAIC is calculated as the sum of human capital efficiency and capital employed efficiency. Intellectual capital in banks is measured through value added intellectual coefficient (VAIC). The steps involved in the process are follows.

Output (OUT) is the total of all income/revenue generated during the fiscal year by an organization by selling its goods or services. *Input (IN)* includes all the costs which are incurred by the organization towards purchase of inputs for operating and continuing the business. The employees' compensation and other costs incurred on them for training and development are deducted from total expenses due to the simple reason that they would be treated as investment and not expenditure. *Value Added (VA)* is defined as the difference between the output and input. It is the value created by the organization during a particular financial year. Thus,

VA = OUT - IN

Let us define it further as follows. *Human Capital (HC)* may be defined as all the expenses on compensation and development of employees. *Capital Employed (CE)* is all the physical and material assets of the organization. *Capital Employed Efficiency (CEE)* is ratio of VA to CE. This ratio provides the contribution made by every unit of capital employed to the value added in the organization. Hence,

CEE = VA / CE

Human Capital Efficiency (HCE) is the ratio of VA to HC. This ratio provides the contribution made by every unit of money invested in human capital to the value added in the organization. Thus,

HCE = VA / HC.

Value Added Intellectual Coefficient (VAIC) reflects the intellectual ability of the organization. It is the sum of the HCE and CEE, and is used to measure the intellectual capability of the organization. It can also be denoted as the Business Performance Indicator (BPI). Hence,

VAIC (BPI) = HCE + CEE.

Since the value added in any organization would be a function of the capital employed and also the intellectual capital invested, two regressions have been run using VA as the dependent variable in both, and CE as the independent variable in one and HC as the independent variable in the other:

VA = f (CE), and

VA = f (HC),

Results and Finding

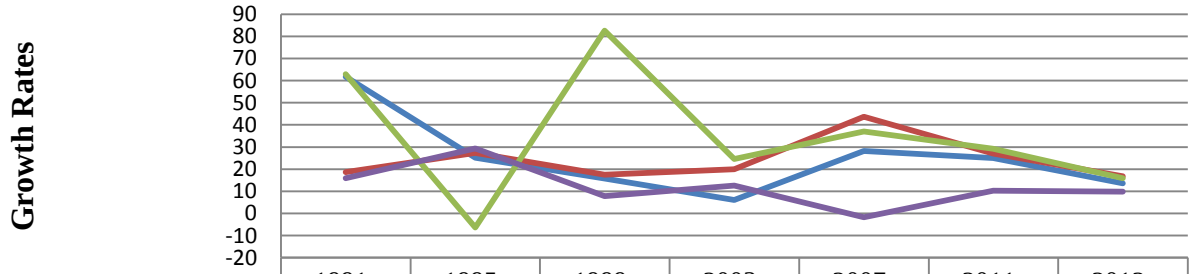
Public Sector Banks

The term Public Sector Banks is used commonly in India. This refers to banks where a majority stake (more than 50 percent) is held by a government. These banks can also be termed as government owned banks. There are two types of public sector banks such as Nationalised banks and SBI and its Associates in India.

SBI and its Associate Banks

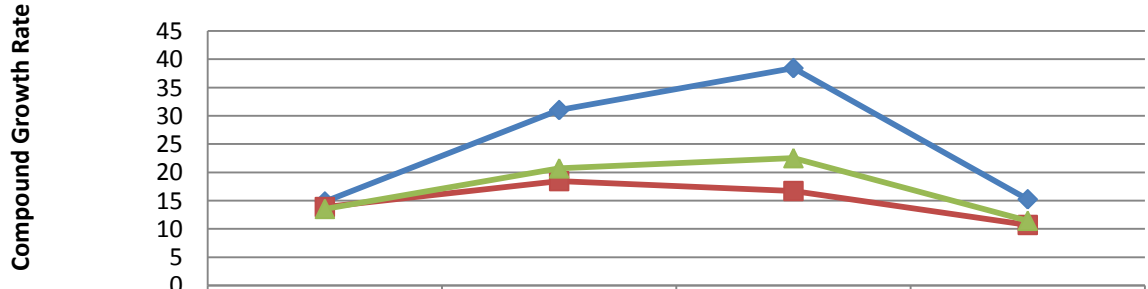
Growth profile of parameters in SBI and its associate banks (Fig.1.1) shows that sales turnover has grown at the rate of 13.55 percent per annum. In the pre 2000s era the growth was 14.83 percent per annum which later subdued slightly and became 13.87 percent per annum. Capital employed growth rate has been 20.73 per annum for the total period under consideration. In the beginning of new policy regime, the growth rate of capital has turned out to be 31.04 percent per annum which came down to 18.44 in the last decade. Almost same is the behavior pattern followed by value addition. Human capital growth for the total period is 11.45 percent per annum which had been 15.23 percent in the earlier decade and 10.70 percent per annum in the later decade.

Fig. 1: Growth of Intellectual Capital Indicators of SBI and its Associates in India (1991-92 to 2012-13)



	1991-1992	1995-1996	1999-2000	2003-2004	2007-2008	2011-2012	2012-2013
Sales Turnover	61.76	25.29	15.9	6.16	28.23	25.03	13.72
Capital Empolyed	18.79	27.35	17.53	19.96	43.7	27.08	16.85
Value addition	62.91	-6.38	82.64	24.54	37.03	29.26	15.98
Human Capital	15.97	29.31	7.89	12.66	-1.68	10.31	9.82

Fig. 1.1: Growth of Intellectual Capital Indicators of SBI and its Associates in India (1991-92 to 2012-13)



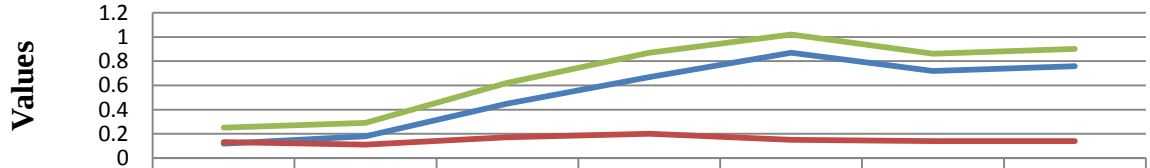
	Sales Turnover	Capital Employed	Value Addition	Human Capital
Up to 2000	14.83	31.04	38.47	15.23
Post 2000	13.87	18.44	16.68	10.7
All Data	13.55	20.73	22.54	11.45

Source: Calculated by using Indian Banks' Association Annual Reports

Value addition and capital employed have grown at almost a synchronous growth rate and human capital has followed the trend. SBI and its associates have improved value addition by making the system capital intensive in the early 1990s and its effect is visible in human capital also.

Figure 2 shows that *Human capital efficiency* of SBI and its Associates have depicted a fluctuating trend for various years. The index has experienced huge variations in its year-to-year figure. HCE has achieved its highest value of 0.87 recorded in 2007-08. Overall HCE of SBI and its Associates witnessed a trend growth rate of 5.57 percent per annum over the period of twenty three years. CEE has achieved its highest value of 0.20 recorded in 2003-04. Overall CEE of SBI and its Associates has witnessed a trend growth rate of -0.87 percent per annum over the period of twenty three years. *VAIC index* for SBI and its Associates in India has registered a trend growth rate of 4.11 percent per annum. *VAIC index* has achieved the highest value of index, i.e., 1.02, in 2007-2008.

Fig.2: VAIC Index for SBI and its Associates in India (1991-92 to 2012-13)



	1991-1992	1995-1996	1999-2000	2003-2004	2007-2008	2011-2012	2012-2013
HCE	0.12	0.18	0.45	0.67	0.87	0.72	0.76
CEE	0.13	0.11	0.17	0.20	0.15	0.14	0.14
VAIC	0.25	0.29	0.62	0.87	1.02	0.86	0.9

Source: Calculated by using Indian Banks' Association Annual Reports

In SBI and its associates, the HCE and VAIC both have improved over a period of time but the capital employed efficiency has shrunk over a period of time. This implies VAIC has improved on account of human capital.

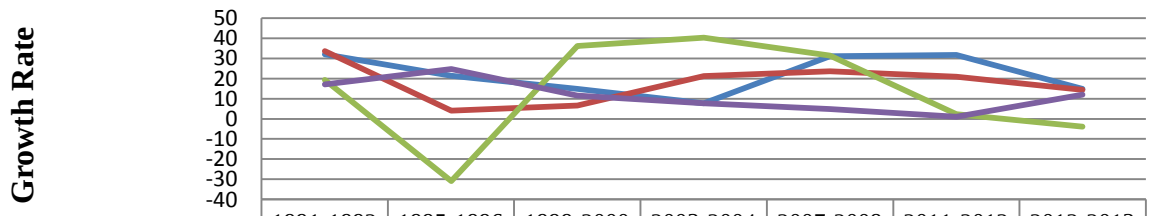
Nationalized Banks

The growth of nationalised banks in India is presented in the Figure 3. Sales turnover in the banking environment is defined as the sum total of interest earned and other income. Sales turnover has increased manifold in the Indian banking industry. The amount of sales turnover shows an increasing trend during the study period; it has registered a trend growth rate of 14.00 percent per annum. In the 1990s era, the annual growth rate of sales turnover has been 12.64 percent per annum and in the 2000s era, it has grown at the rate of 17.01 percent per annum. So the sales turnover has picked up in the 2000s era.

Capital employed for the nationalized banks reveals that the volume of capital employed of nationalized banks has witnessed steady improvement during the study. On the whole, capital employed has a trend growth rate of 16.99 percent per annum. In the pre 2000 period, the capital employed grew at the rate of 21.42 percent per annum but in the latter period the growth rate subdued slightly and came down to 19.60 percent per annum. Broad parameter of efficiency in banking is *value addition* made by the sector. In the period under consideration, the value addition has grown at the rate of 21 percent per annum, during the post 2000 period, in the Indian nationalized banks.

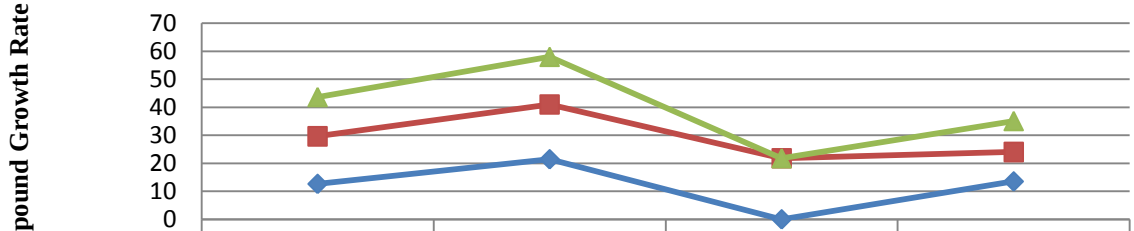
The Indian nationalised banks are investing heavily in human capital and new technologies such as tele-banking, mobile banking, internet banking, automated teller machine, credit cards, smart cards and call centers etc. *Human capital* has shown an increasing trend, during the period under study. It has observed a trend growth rate of 11.05 percent per annum in nationalized banks. In the 1990s decade, the growth rate of human capital has been 13.52 percent which later decreased and registered the level of 10.53 percent per annum. Value addition has grown at the fastest growth rate as compared to sales turnover, capital employed and human capital, in order. This implies value addition has increased less due to output and much due to cost saving techniques or efficient usage of inputs. Due to technology upgrading and automation, the business process re-engineering has been done and human capital efficiency has been improved.

Fig.3: Growth of Intellectual Capital Indicators of Nationalized Banks in India (1991-92 to 2012-13)



	1991-1992	1995-1996	1999-2000	2003-2004	2007-2008	2011-2012	2012-2013
Sales Turnover	32.11	21.42	14.92	7.68	31.13	31.73	14.83
Capital Employed	33.71	4.06	6.58	21.3	23.6	20.91	14.48
Value Addition	19.41	-30.86	36.28	40.39	31.44	2.42	-3.83
Human Capital	17.25	24.82	11.64	7.7	4.89	1.09	12.01

Fig.3.1: Growth of Intellectual Capital Indicators of Nationalized Banks in India (1991-92 to 2012-13)

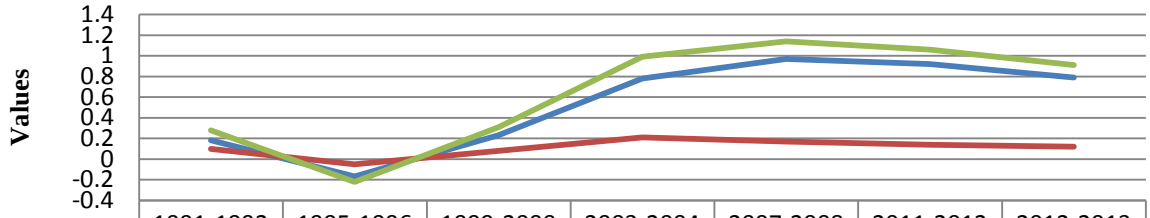


	Sales Turnover	Capital Employed	Value Addition	Human Capital
All Data	14	16.99	0	11.05
Post 2000	17.01	19.6	21.82	10.53
Up to 2000	12.64	21.42	0	13.52

Source: Calculated from Indian Banks' Association Annual Reports

Figure 4 reveals that *Human Capital efficiency (HCE)* of nationalized banks has shown a fluctuating trend for various years. The index has experienced huge variations in its year-to-year figures. Overall HCE of nationalized banks witnessed a trend growth rate of 11.83 percent per annum over the period of twenty three years. Capital Employed Efficiency (CEE) has achieved its highest value of 0.21 recorded in 2003-04. Overall CEE of nationalized banks witnessed a trend growth rate of 5.87 percent per annum over the period of twenty three years.

Fig.4: VAIC index for Nationalized Banks in India during 1991-92 to 2012-13



	1991-1992	1995-1996	1999-2000	2003-2004	2007-2008	2011-2012	2012-2013
HCE	0.18	-0.17	0.23	0.78	0.97	0.92	0.79
CEE	0.1	-0.05	0.08	0.21	0.17	0.14	0.12
VAIC	0.28	-0.22	0.31	0.99	1.14	1.06	0.91

Source: Calculated by using Indian Banks' Association Annual Reports

Conclusion

In the earlier reforms period, banking concentrated on enhancing sales turnover, capital employed and value addition; and the human capital growth followed it. So the public sector banks, historically burdened with overstaffing have continuously strengthened the human capital side to improve the performance. Public sector banks have been able to improve sharply due to their size and scale advantage.

In SBI and its associates, value addition and capital employed have grown at almost a synchronous growth rate and human capital has followed the trend. It has improved value addition by making the system capital intensive in the early 1990s and its effect is visible in human capital also and HCE and VAIC both have improved over a period of time but the capital employed efficiency has shrunk over a period of time. This implies VAIC has improved on account of human capital.

In Nationalized banks, Value addition has grown at the fastest growth rate as compared to sales turnover, capital employed and human capital, in order. This implies value addition has increased less due to output and much due to cost saving techniques or efficient usage of inputs. Due to technology upgrading and automation, the business process re-engineering has been done and human capital

efficiency has been improved. The HCE has grown at a fastest growth rate and VAIC and CEE have followed it. Analysis is indicative of the fact that VAIC has grown with the growth of human capital efficiency and capital employed efficiency, in order.

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Appendix

Table 2: VAIC Index for SBI and its Associates in India during 1990-91 to 2012-13

Year	Human Capital Efficiency (HCE)	Capital Employed Efficiency (CEE)	Value Added Intellectual Coefficient (VAIC)	
			Value	Growth Rate (Percent)
1990-1991	0.09	0.09	0.18	-
1991-1992	0.12	0.13	0.25	38.89
1992-1993	0.12	0.13	0.25	0.00
1993-1994	0.14	0.07	0.21	-16.00
1994-1995	0.25	0.15	0.40	90.48
1995-1996	0.18	0.11	0.29	-27.50
1996-1997	0.38	0.17	0.55	89.66
1997-1998	0.52	0.20	0.72	30.91
1998-1999	0.27	0.11	0.38	-47.22
1999-2000	0.45	0.17	0.62	63.16
2000-2001	0.28	0.13	0.41	-33.87
2001-2002	0.51	0.17	0.68	65.85
2002-2003	0.61	0.20	0.81	19.12
2003-2004	0.67	0.20	0.87	7.41
2004-2005	0.63	0.17	0.80	-8.05
2005-2006	0.56	0.16	0.72	-10.00
2006-2007	0.63	0.15	0.78	8.33
2007-2008	0.87	0.15	1.02	30.77
2008-2009	0.96	0.16	1.12	9.80
2009-2010	0.80	0.15	0.95	-15.18
2010-2011	0.62	0.14	0.76	-20.00
2011-2012	0.72	0.14	0.86	13.16
2012-2013	0.76	0.14	0.90	4.65
CAGR (%)	5.57	-0.87	4.11	-

Source: Calculated by using Indian Banks' Association Annual Reports

Table 4: VAIC index for Nationalized Banks in India during 1990-91 to 2012-13

Year	Human Capital Efficiency (HCE)	Capital Employed Efficiency (CEE)	Value Added Intellectual Coefficient (VAIC)	
			Value	Growth Rate (Percent)
1990-1991	0.09	0.06	0.15	-
1991-1992	0.18	0.10	0.28	84.21
1992-1993	-0.93	-0.48	-1.41	-608.57
1993-1994	-1.10	-0.33	-1.43	-10.67
1994-1995	0.05	0.01	0.06	-104.40
1995-1996	-0.17	-0.05	-0.22	-471.43
1996-1997	0.20	0.06	0.26	-219.23
1997-1998	0.32	0.09	0.41	58.06
1998-1999	0.19	0.06	0.25	-34.69
1999-2000	0.23	0.08	0.31	28.13
2000-2001	0.16	0.06	0.22	-21.95
2001-2002	0.39	0.13	0.52	131.25
2002-2003	0.60	0.18	0.78	60.81
2003-2004	0.78	0.21	0.99	32.77
2004-2005	0.63	0.16	0.79	-16.46
2005-2006	0.63	0.14	0.77	21.21
2006-2007	0.77	0.16	0.93	25.63
2007-2008	0.97	0.17	1.14	28.36
2008-2009	1.00	0.17	1.17	10.08
2009-2010	1.04	0.18	1.22	14.08
2010-2011	0.90	0.17	1.07	-7.41
2011-2012	0.92	0.14	1.06	-1.67
2012-2013	0.79	0.12	0.91	-9.83
CAGR (%)	11.83	5.87	10.68	-

Source: Calculated by using Indian Banks' Association Annual Reports