Intellectual Capital: Its Effect on Financial Performance of Indian Private Sector Banks

Selvam Murugesan[1], Thanikachalam Vadivel[2], Kathiravan Chinnadurai[3] and Dhanasekar Dhamotharan[4]

[1] Dean, Faculty of Management, Professor & Head
Department of Commerce and Financial Studies, Bharathidasan University,
Tiruchirappalli, Tamil Nadu, India

[2,3,4] Research Scholar in Management (Full Time)
Department of Commerce and Financial Studies, Bharathidasan University,
Tiruchirappalli, Tamil Nadu, India

Abstract
This empirical study proposes to evaluate and estimate the Modified Value Added Intellectual Coefficient (MVAIC),in order to measure the financial performance of 21 Indian private sector banks in India. Drawing data from sample banks, the performance of intellectual capital was measured by MVAIC, as a comprehensive model based on Ante Pulic's VAIC Model. This study found that the value of MVAIC of Indian private sector banks proved its dynamic relationship with the financial performance of sample banks. Hence a need for the management of the sample banks to pay due attention to managing its Intellectual Capital (IC).

Keywords: MVAIC, Intellectual Capital, Financial Performance, Indian Private Sector Banks,

1. Introduction
The exponential growth of knowledge and development of intellectual capital are the two fundamental key drivers for dramatic changes in economic growth. The intellectual capital, especially in the service sector, represents a principal asset of many organizations, because, it provides business sustainability. In knowledge epoch, the intellectual capital is an essential source of wealth creation of an organization (Firer and Williams, 2003). Though the intellectual capital is being considered as a key driver for the value creation of banks, still there are also many unsettled issues regarding identification, measuring, reporting and managing intellectual capital of firms (BerzkalneandZelgalve, 2014). The development of intellectual capital and its measurement methods are the answers for the hidden value of firms (Edvinsson and Malone, 1997).It is found that recent years that a notable number of companies have to enrich the intellectual capital and the reporting framework of intellectual capital in their financial statement so as to reflect the firm's true value that are absent in the traditional reporting (Aboodyand Lev, 1998).

But still it is not clearly known whether the firm considered the intellectual capital as a critical asset or not (Gan, K. and Saleh, Z. 2008).Indian banks have to recognize the impact of intellectual capital on its performance (both current and future) so as to know the importance of managing its intellectual capital. Against this background, this study analyzed the performance of intellectual capital of select Indian private banks. Besides, this study also provides an ideal environment for conducting research on intellectual capital and also to make available the data of published accounts. Banking sector is one of the knowledge intensive sectors in India and its human resource is more homogenous in nature than in other sectors (Ghosh, S.K. and Maji, S.G. 2012).

1.1. Intellectual Capital

There is no universally accepted definition for intellectual capital. The most widely used definition of Intellectual Capital is "knowledge that is of value to an organization." Its paramount elements are Human Capital, Structural Capital, and Customer Capital. The definition clearly suggests that the management of knowledge (the sum of what is known) creates Intellectual Capital(Bassi, Laurie, J, 1997).It includes organizations' processes, technologies, software, trade mark, patents, employees' skill and information about customers, suppliers and

stakeholders. Themes like ability, skill, expertise, communication intelligence, innovation skill, financial and marketing intelligence and ecological intelligence create economic value of firm. Intellectual capital can be defined legally as intellectual property, patents, trademark and copy right.

1.2. Structural Capital

Structural Capital consists of a wide range of assets like patents, concepts, models, and computer and administrative systems. These assets are created by the employees and generally 'owned' by an organization (Bontis, Nick, 1996). The decisions to develop or further invest in such assets, can be made with some degree of confidence because the work is done in-house, or bought from outside. The internal structure and the people together constitute the 'organization' (Sveiby, Karl-Erik, 1998).

1.3. Human Capital

Human Capital is defined as the knowledge, skills, experiences, intuitions and attitudes of the workforce. It also covers capability of individual employees providing solutions to customers (Tapsell, Sherrill, 1996). Human Capital is the banks' collective capability to extract the best solutions from the knowledge of its people. It is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, improving personal skills or developing new sales leads (Bontis, Nick, 1996).

1.4. Capital Employed

Capital employed is formed with all the physical and material assets of the company. Capital employed efficiency in another indicator of value addition, created by the capital, which results from the performance of an organization in an efficient manner (Saint-Onge and Hubert, 1996).

1.5. Measuring Intellectual Capital - Importance

It is typical of firms to use its asset to produces goods and services and generate cash by selling them. Banks use both tangible and intangible assets for this purpose. The efficiency of cash generated cycle depends on intangible assets of the banks of all types. The banks utilize

the cash so generated either towards capitalization of more tangible assets or spending for the development of more intangible assets of the banks. Measuring the value of intangible assets is the holy grail of accounting. The employees' skills, information technology systems, and cultures of banks are worth far more to all types of banks than their tangible assets (Ten et al. 2007).

1.6. Current Scenario of Private Banks in India:

According to India Brand Equity Foundation (IBEF, 2018), the economic and financial situation in India is far superior to any other country in the world. Though scams and frauds rocked the banking industry by chance, there are no imminent or long-term threats to private banks in India due to its automation made by human capital, which caused rapid growth in all the types of banks, namely, government banks, private banks, foreign banks and regional rural banks. They are well regulated by the Reserve Bank of India and live up to the expectations of majority of customers. It is a well-known fact is that banks as a service sector holds a large amount of human capital and customer capital for their survival. According to Kubo and Saka(2002), the banking sector in general is a new area for intellectual capital research because he business nature of the banking sector is intellectual; the aggregate staffs are intellectually more homogeneous than in other economy sectors. It is felt that more and more academic research needs to be conducted on the performance of banks in general and private banks in particular.

2. Design of the Study

2.1. Review of Literature

The intellectual Capital (IC) enhances the performance of firms and creates a long term competitive advantage to the firms by creating strong market places. Hence it is important to identify the measures to manage the intellectual capital of firms. Though many firms have successfully indentified, measured, and managed their intangibles, complete IC reporting by banks is still in its infancy stage. There are a few studies, conducted in the context of intellectual capital disclosure and its effect on financial performance of firms. Rubina Afroze **(2011)** identified the influence of Intellectual Capital (IC) on the financial performance of 13 Private Commercial Banks (PCB$_s$) of Bangladesh, listed with Dhaka Stock Exchange Limited. It was found that there was statistically significant correlation between the IC efficiency scores and financial performance indicators, in addition to the statistically significant influence of intellectual capital on the

financial indicators. Majid Shaban and Kavida(2013) quantified the impact of intellectual capital, and found a significant positive association with financial performance of private sector banks. Ihyaul Ulumet et al, (2014) analyzed the modified VAIC (M-VAIC) for measuring the value-based performance of the Indonesian banking sector. The results showed that the ranking of three of the four state banks were on the top performers' category. Goyal (2013)tested the influence of capital structure on the profitability of public sector banks, listed on National Stock Exchange and found that short term debt was positively associated with profitability of public sector banks in India. Mohammed-Sani Abdulaiet al.(2012)investigated the factors instrumental for the success of software industry, in 31 countries(including India, Ireland and Israel),examined the association between its elements, and studied the performance of software firms. 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 study found that the private sectors banks outperformed the public sector banks with regard to human capital efficiency. In India, many of the companies have ignored the human resources accounting. Ashim Paul (2012) examined the problems of valuation and accounting of intellectual capital. The study found that IT companies had 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 the financial performance of selected firms. This study found that the performance of the firms mainly depended on how they created, captured and leveraged their intellectual capital. Mishra and Shital Jhunjhen wala (2009) measured the financial value of 422 companies, listed in National Stock Exchange (2008), by using return on asset method and confirmed the fact that the intangible value of sample firm did not have correlation to estimated value of firms. Deepa Venugopal and Subha (2015) used the analytical approach to measure the value of firms, by using Ante Pulic's Value added intellectual capital (VAIC™) method. The study covered two major Indian industries, namely, banking industry and information technology industry. It was found that there was an effect on performance of sample firms. Kamath (2007),by using VAIC model, measured the intellectual capital and observed a vast difference in the performance of Indian banks and found an overall improvement in performance of sample banks over the study period.

2.2. Statement of the Problem

Financial sectors, particularly banking firms, are knowledge-intensive, skills-based and relationship-rich industry across the Globe. In an increasingly complex and more liberal business environment, the competitiveness of banking firms depends critically on the quality of human intellectual capital and the extent to which the banking industry is able to leverage these talents. Although the intellectual capital has been recognized as a firm's inevitable wealth driver, there are many other issues that are yet to be identified (**Virender Singh Thakur, 2017**). On the issue of measurement methods that best portray the intangible or hidden values of banks, multifarious attempts have been made by banks and countries to develop an intellectual capital manifestation framework, to exhibit values that have been unexplained by traditional accounting(**Sharma** and **Doa Naqvi, 2017**).In the digitalized era, the banking sector, notably, the private banks abandoned the traditional methods and they are rapidly moving towards smart banking i.e. maximum utilization of human capital by minimizing its expenses. Besides, there is an urgent need, on the part of Indian private banking sector, to enhance its competitive capabilities and sustain its position as a leading financial sector in the region, through diversifying its products and services and by improving relationship with its customers. Thus, the private sector banks in India is required to pay more attention to develop its intellectual capital performance, which is widely considered to be a major source of corporate competitive advantage. It is expected that the emphasis given to intellectual capital by private sector banks is consistent with India's vision. Hence, this study on the effect of intellectual capital on the financial performance of Indian private banks is undertaken.

2.3. Need of the Study

The brain power of staff members always plays a vital role in the financial performance of banks that contain much non-performing assets that is to be minimized with the support of intellectual capital. Besides, the banking sector in any country plays a pivotal role in setting the economy in motion. Besides, the commercial banks in general and private banks in particular play a vital role in the growth and success of businesses, in both developed and developing countries. **Kamath (2007)** maintained that the banking sector is an ideal area for IC research. This study would help all the banks particularly private banks, to improve its performance by minimizing NPA and its enhancing efficiency in the long run.

2.4. Objective of the Study

The aim of this study is to empirically evaluate the impact of intellectual capital on the financial performance of private sector banks in India during the past global financial crisis period.

2.5. Hypotheses of the Study

In order to achieve the main objective of evaluating the impact of intellectual capital components and sample banks' performance, the following null hypotheses were developed and tested.

NH 1: There is no impact of intellectual capital on ROI of sample private banks
NH 2: There is no impact of intellectual capital on ROA of sample private banks, and
NH 3: There is no impact of intellectual capital on GR of sample private banks

3. Research Methodology

The study was originally proposed to cover all private sector banks in India. But the required data for this study were available only for 21 banks, as on31-12-2017. Hence for the empirical investigation of the proposed hypotheses, only21 private banks in India were taken into consideration as the sample unit. The present study covered a span of ten years, from 01-01-2007 to 31-12-2017, after global financial crisis. The data, used in this empirical study, were collected from the published annual reports of the banks, which are available on Centre for Monitoring Indian Economy (CMIE) Prowess IQ Database (Kathiravan, C at al. 2017&2108 and Sigo, M. O. et al 2018). The other required data were collected from the websites of respective sample banks, books and journals. VA could be used as an ancillary measure for intellectual capital of bank. It supports the management of banks by well understanding the exact contributions that have been made by banks' intangible resources. As a result of VA, an effective management of banks' intellectual capital could be realized. The difference between total revenue and operating expenses is the value created by the banks during the particular financial year (Dalkir and Chen et al., 2005).

$$MVAIC = ICE + RCE + CEE \qquad \ldots (1)$$
Where,
MVAIC = Modified Value Added Intellectual Coefficient
ICE = Intellectual Capital Efficiency
RCE= Relational Capital Efficiency, and
CEE = Capital Employed Efficiency

3.1 Method of Measuring the Intellectual capital

Modified Value Added Intellectual Coefficient (MVAIC) method was used for measuring intellectual capital of banks. This method measured the efficiency of banks, using three types of inputs - physical / financial capital, human capital and structural capital and the sum total of these three values was added to reach the efficiency indicators under MVAIC. A higher value of MVAIC indicates better management and proper utilization of banks' strategy resources.

Thus, basically MVAIC is additive value of three components i.e. Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Relational Capital Efficiency (RCE) and Capital Employed Efficiency (CEE). These three components of MVAIC are calculated as follows:

$$HCE = VA/ HC \qquad \ldots (3)$$
$$RCE = RC/VA \qquad \ldots (4)$$
$$SCE = SC/ VA \qquad \ldots (5)$$
$$CEE = VA/ CE \qquad \ldots (6)$$
$$Value\ Added\ (VA) = P + C + D + A \qquad \ldots (7)$$

Where,
P = Operating profits of the organization
C = Cost of salaries of employees
D = Depreciation expense
A = Amortization expense

HC = Human capital
Where,
HC=Cost of salaries of employees
RC=Relational capital
Where,
RC=Marketing, Selling & Advertising Expenses
SC = Structural capital
Where,
SC = Value Added – Human Capital
$$\qquad \ldots (8)$$

CE = Capital Employed

Where,
CE = Total tangible assets of the organization – Total Intangible assets of the organization
$$\qquad \ldots (9)$$

On the other hand, there are several ways of measurement of the financial performance of banks such as Return on Equity (ROI), Return on Assets (ROA) and Growth in Revenue (GR). In this study, Growth in Revenue (GR) was used to measure the financial performance of the sample private sector banks as a traditional financial performance indicator. In addition to the above, the following statistical tool was also used and multiple Linear Regression (for scaling the impact of intellectual capital on financial performance and value of sample banks)

4. Results and Discussion

Impact of Intellectual Capital (MVAIC) on Financial Performance (ROI, ROA and GR) of Sample Private Banks

The present section discusses the empirical investigation of the data, for 21 private sector banks in India. Tables 1, 2 and 3 present the results of the regression models to test the research hypothesis developed in the study.

The results of regression, for the components of MVAIC on ROI in respect of sample private sector banks, during the study period of post global financial crisis, from 01 January 2007 to 31 December 2017, are shown in Table-1. It is to be noted that the coefficients of model was used to explain the association between ROI and various components of M-VAIC (HCE, RCE, SCE, ICE and CEE).The linear regression model, as shown in Table –I, did find strong association between financial performance and IC performance of the private sector banks in India, during the post global financial crisis period, as all the components of M-VAIC earned p values of 0.000 and its R^2 value was 0.996 in respect of sample private banks. The R^2 values, for all components, were at0.034 for HCE, 0.999 for RCE, 0.898 for SCE, 0.998 for ICE, 0.997 for CEE and 0.996and this confirmed the impact of intellectual capital on financial performance of sample private banks. The comparative analysis of P-Value towards each component of MVAIC shows that variables like RCE, SCE and ICE recorded the P-value of 0.000 at0.05 significant levels while only one variable, namely, HCE earned the P-value of 0.057 during the study period. It shows the fact that components of MVAIC did influence the financial performance (ROI) of sample private banks. It is observed from the results that Relational Capital Efficiency (RCE) emerged as the most significant driver of value creation of sample private banks, by way of improving Return on Investment (ROI) of sample banks. Therefore, the NH1 - There is no impact of intellectual capital on ROI of sample private banks was rejected. In other words, there was relationship between intellectual capital and financial performance of private sector commercial banks. The management of sample private banks should take appropriate steps, to keep its existing quality of intellectual capital, for their continual growth in the competitive environment.

According to the results of linear regression, for MVAIC on Return on Assets (ROA), in respect of sample private sector banks during the post global financial crisis period, from 01 January 2007 to 31 December 2017, presented in Table-2, positive impact on ROA was found in respect of four sample variables, namely, HCE, RCE, ICE and MVAIC and negative impact in respect of two variables, namely, SCE and CEE. It is clear that one percent growth in the value of HCE, RCE, ICE and MVAIC, had enhanced the value of ROA by 0.724, 2.807, 1.457 and 3.409 percent respectively, in respect of sample banks. F-statistic, p value, R-squared, Adjusted R-squared and t-statistics were used to test the fitness of the regression model. The results of these tools are reported in Table-2 and it clearly shows the F-Statistic to be 415.907 for HCE, 948.690 for RCE, 1.118 for ICE and 2.248, with the p value of 0.000, in respect of sample private banks, during the study period. The values of R-squared were at0.798 for HCE, 0.916 for RCE, 0.914 for ICE and 0.979 for MVAIC and the results oft-statistics were at 20.394 for HCE, 30.801 for RCE, 33.443 for ICE and 49.474 for MVAIC, in respect of sample private sector banks. According to the results, as given in the Table, intellectual capital created significant impact on profitability ratio (ROA) under the model. The values of R-squared to HCE, RCE, ICE and MVAIC were greater than that of Adjusted R-squared value during the post global financial crisis period. Further, the results of t-statistics clearly confirmed that the model was good and the variables were independently distributed. Hence, the null hypothesis - NH 2 "There is no impact of intellectual capital on ROA of sample private banks", was not accepted.

Table-3 portrays the results of linear regression for MVAIC on Growth Revenue (GR) in respect of sample private sector banks, during the post global financial crisis period, from 01 January 2007 to 31 December 2017. In order to examine the impact of intellectual capital on the profitability of sample private sector banks, regression analysis was used. According to the results of the Table, the profitability performance variable (Growth Revenue) was considered a dependent variable and six performance intellectual capital variables (HCE, ECE, SCE, CEE, ICE and MVAIC) were treated as independent variables. The results clearly show that the values of t-statistics were at 31.674 for HCE, 40.704 for RCE, 49.288 for SCE, 38.398 for ICE, 4.274 for CEE and 247.109 for MVAIC while p values of t-statistic were at 0.000 for sample independent variables, in respect of sample private sector banks, during the study period. It implies that the results of regression analysis for HCE, RCE, SCE, ICE, CEE and MVAIC were statistically significant at 95% confidence level. From the values of F-statistic, (1.003 for HCE; 1.657 for RCE; 2.429 for SCE; 1.474 for ICE; 18.266 for CEE and 6.106 for MVAIC) and R-squared values (0.905 for HCE; 0.942 for RCE; 0.960 for SCE; 0.936 for ICE; 0.154 for CEE and 0.999 for MVAIC), with the p value of 0.000, it is inferred that the intellectual capital performance model was good and perfectly fit. Hence, the null hypothesis - NH 3 "There is no impact of intellectual capital on GR of sample private banks", was rejected.

5. Tables

Table-1 Results of Linear Regression for MVAIC on Financial Performance (ROI) in respect of Sample Private Sector Banks from 01 January2007 to 31 December2017

Independent Variables	R2	F-Value	p-Value	Coefficients	t-value	Significance
HCE	0.034	3.705	0.057	Constant	48.861	0.014
				HCE	-1.925	0.057
RCE	0.999	8.3404	0.000	Constant	1.013	0.000
				RCE	288.787	0.000
SCE	0.898	887.295	0.000	Constant	1.475	0.000
				SCE	29.787	0.000
ICE	0.998	6.405	0.000	Constant	0.224	0.823
				ICE	253.081	0.000
CEE	0.997	3.442	0.000	Constant	0.475	0.000
				CEE	185.518	0.000
MVAIC	0.996	3.408	0.000	Constant	0.262	0.094
				MVAIC	184.607	0.000

Source: Data extracted from http://prowessiq.cmie.com and computed using SPSS

Note: Here *p<.05

Table-2 Results of Linear Regression for MVAIC on ROA in respect of Sample Private Sector Banks from 01 January2007 to 31 December2017

Independent Variables	R2	F-Value	p-Value	Coefficients	t-value	Significance
HCE	0.798	415.907	0.000	Constant	0.724	0.427
				HCE	20.394	0.000
RCE	0.916	948.69	0.000	Constant	2.807	0.006
				RCE	30.801	0.000
SCE	0.012	1.235	0.269	Constant	39.111	0.000
				SCE	-1.111	0.269
ICE	0.914	1.118	0.000	Constant	1.457	0.048
				ICE	33.443	0.000
CEE	0.000	0.450	0.833	Constant	1.169	0.245
				CEE	-0.212	0.833
MVAIC	0.979	2.248	0.000	Constant	3.409	0.000
				MVAIC	49.474	0.000

Source: Data extracted from http://prowessiq.cmie.com and computed using SPSS

Note: Here *p<.05

Table-3 Results of Linear Regression for MVAIC on GR in respect of Sample Private Sector Banks from 01 January2007 to 31 December2017

Independent Variables	R2	F-Value	p-Value	Coefficients	t-value	Significance
HCE	0.905	1.003	0.000	Constant	0.864	0.094
				HCE	31.674	0.000
RCE	0.942	1.657	0.000	Constant	-0.271	0.785
				RCE	40.704	0.000
SCE	0.960	2.429	0.000	Constant	-0.319	0.000
				SCE	49.288	0.000
ICE	0.936	1.474	0.000	Constant	2.808	0.006
				ICE	38.398	0.000
CEE	0.154	18.266	0.000	Constant	7.228	0.000
				CEE	4.274	0.000
MVAIC	0.999	6.106	0.000	Constant	2.266	0.026
				MVAIC	247.109	0.000

Source: Data extracted from http://prowessiq.cmie.com and computed using SPSS

Note: Here *p<.05; n=21

indicators of select private sector banks during the study period. It is interesting to note that the findings of this study validated the findings of **Nyugen (2016),** who found that the organizations could improve their efficiency and performance by investing their capital in people i.e. its employees. The Relational Capital Efficiency was considered as value addition, measured by the selling, advertising and marketing expenses of a firm and it positively and significantly affected both the banks' profitability. Increased competition between public and private sector banks had compelled them to follow greater advertising and branding wars between them and such trends that existed over a period of three decades, affected profitability of banks of all types. As per the findings of present study, SCE showed positive association with ROA and GR of the select banks but CEE was found to have positively and significantly impacted ROI and GR in respect of the sample banks. The results of this study confirmed that the traditional drivers of physical and financial capital still create the value in the knowledge based sector of India. Besides, Relational Capital Efficiency (RCE),as measured by selling, advertising and marketing expenses of banks, has emerged as a major driver of value creation in the knowledge based sector and it indicated positive and significant association with profitability of sample banks in India.

6. Suggestion of the Study

On the basis of the findings of the present study, the Researcher suggests that the modified version of the classic VAIC model could forecast the variances of all three dependent variables chosen for the study. The newly introduced sub-component, RCE and the proxy measures of these sub-components, namely, HCE, SCE, ICE and CEE may, therefore, be accepted as the drivers of value creation in knowledge based firms in the banking sector of the country. Investors in banking sector should consider their information about human capital aspect of banks while investing their money in banks. It is suggested that banking sector particularly private banks, have to gear up to invest their capital in its employees and realize their importance in achieving the targets in the long run, to avoid non-performing assets of respective banks, by making automation in its regular practices.

5. Findings of the Study

The findings of this study revealed that all the components of the MVAIC Model (as measured by Human Capital, Structural Capital, Capital Employed and Relational Capital) did have significant and positive relationship with traditional measures of financial performance like, ROI, ROA and GR. Human Capital had a significant and positive influence on all three financial performance

6. Conclusions of the Study

The present study employed MVAIC as a tool to measure the IC performance of Indian private banks. Besides, a linear regression was run to find the adequacy of the variables for their predictive powers. The results indicated a perfect fit of both the independent variables with the dependent variable over the period of study. The results of this study showed that the HCE played a vital role in all

dependent variables dynamically than other variables whereas CEE influenced only ROI and GR, not ROA. The private sector banks in India seem to have created the huge baggage of a large and efficient work force, which is contributing to the overall value creation. It is surprising to note some limitations observed in this study. The data used in methodology were taken from financial statements and some differences may occur in the application of accounting rules. Moreover, this study was confined to only private banks and hence the results may not be applicable to other banks. However, there is vast association between intellectual capital and value creation performance of the Indian private sector banks. The findings of this study can be used as a benchmark for evaluating the true performance of banks in India, by using Modified Value Assed Intellectual Capital (MVAIC), in the emerging competitive environment. The newly added value variable namely, RCE, proved to be best in measuring the intellectual capital as it vitally impacted the profitability of select private banks, when the performance of Indian private banks was viewed from an innovative perspective. The study of this nature can be taken as a base for further research in the same or other service sectors. Eventually, by this study, it could be concluded that the MVAIC may be employed to measure the performance of intellectual capital with reference to the performance of different types of banks. The model MVAIC used in this study could be employed to measure the human values across all industries.

Acknowledgments

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