

# EFFECT OF INTELLECTUAL CAPITAL ON SUSTAINABLE CORPORATE PERFORMANCE OF NIFTY FINANCIAL SERVICES COMPANIES

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## ABSTRACT

*In the modern era, intangible assets, including intellectual capital are important for the performance of any organization. This study proposed to examine the role of Intellectual Capital in the sustainable performance of NIFTY Financial Services Companies. The results of this study indicated and that Intellectual Capital (Human Capital, Structural Capital and Capital Employed) reported significant relationship with sustainable corporate performance of NSE NIFTY Financial Services Companies. Further, the study found that knowledge management exercised moderating role on the relationship between human capital and structural capital and sustainable financial performance. The study presents new empirical inputs for managerial decision in NIFTY Financial Services Companies in India.*

**Keywords:** Intellectual Capital, Sustainable Corporate Performance, Knowledge Management.

## INTRODUCTION

In the modern knowledge economy, intellectual capital indicates the transition to innovative, competitive and sustainable development (Carrillo et al., 2000). According to Guthrie et al. (2006), the personnel, who possess higher worth of intellectual capital, are undervalued in a business but the knowledge possessed by them is the most valuable resource for the organization. Joshi et al. (2013) defined the intellectual capital as a set of skills and experiences of employees in an organization (Bhasin, 2011). The role of intellectual capital, in the implementation of organizational processes for the creation of value, is based on the knowledge of the organization (Liebowitz & Suen, 2000). There has been strong emphasis, on the interactions between intellectual capital and corporate performance, in order to create and maximize the advantages of intellectual capital (Zhou & Fink, 2003). According to Caputo et al. (2000), companies could align themselves with market expectations through the involvement of human resources. The mobilization of knowledge, in all sectors of social, economic and environmental life, has become a key tool to contribute to the creation of a more sustainable future (Malone & Yohe, 2002). Additionally, Selvam et al. (2020) rightly viewed that knowledge-based economic operations are more important than land, labour and capital. Kalkan et al. (2014) explained the intellectual capital with regard to the market worth and the book value of the business. There are three components in the intellectual capital such as human capital, structural capital and capital employed.

## **Sustainable Corporate Performance**

Performance of firm could be described as the amount of attainment of business objectives (BL & Muchran, 2017). Business performance could be evaluated via various financial and non-financial tools. In general, many measures have been based around financial aspects, omitting significant non-financial features, which include the importance of dynamic competence with the help of continuous research and development, to advance performance of the business to greater level to match top firms of the world (Kamal et al., 2012). The performance of individual firms is periodically assessed because the assessment stimulates and motivates the employees, to achieve further and helps the business to achieve better organizational goals and it also helps the firm for generation of desired outcomes at the firm level (Yıldız et al., 2014). In response to the globalization, the market has become more saturated nowadays. Therefore, the performance could be evaluated in numerous ways, to know the extent to which, the standard performance has been attained. Khaddafi (2015) maintained that better financial performance and business efficiency, regarding profit generation, could be achieved through the use of the assets. This would give the indication to the management to better manage the assets. Higher financial performance is good for the company because the investors would have the confidence to make further investments. The present study aims to investigate the effect of intellectual capital and its components on the sustainable development of firms in India. In addition, this study aims to find out the most influential component of intellectual capital on the sustainable development of firms. In doing so, this study provides evidences for the correlation between intellectual capital and its components and the sustainable development of firms in India. Secondly, the present study incorporated the Value-Added Intellectual Coefficient (VAIC) into the research model, with the intention to provide further insight into the roles of intellectual capital in corporate sustainable growth, by way of knowing the efficiency of firms. Thirdly, the present study could help Indian corporate managers in understanding the role of intellectual capital and its components, in establishing a sustainable advantage for financial services firms. Lastly, in today's vibrant and competitive business world, managing the corporate growth is a big challenge for corporate managers, especially in developing countries (Hashim et al., 2015). Thus, this study could help Indian corporate managers in managing the firm's sustainable growth and implementing its policies effectively for future benefits and sustainable development. In accordance with the core objective, the rest of this paper is organized as follows: Second section deals with Literature Review and Hypothesis development. The subsequent section delineates the Research Methodology. Then, Results and Discussions are presented, and the last section concludes the paper.

## **LITERATURE REVIEW**

It is difficult to discuss a generally accepted definition for intellectual capital and it is even more complicated to present a commonly accepted typology for intellectual capital because this concept is still in its emerging phase of development (Mehralian et al., 2012). In common parlance, intellectual capital keeps a storehouse of potential intangible resources that enable an organization to expand profitably. Human capital is the common concept that involves capabilities, competencies, trainings and commitment of the workers (Stewart, 1997). Moreover, the structural capital includes all the structures of the business, including of catalogues, organizational charts, operation guidelines, plans, procedures and other things apart from the human capital. However, capital employed includes entire financial and non-financial resources of a business (Kamath, 2007). According to Firer & Williams (2003), the intellectual capital is an

efficient framework, which measured the value generation that is commonly known as Value Added Intellectual Coefficient (VAIC). Double entry accounting system is the old-fashioned method for determining and valuing the firm's productivity which is mainly on physical assets (Ahangar, 2011). But intellectual capital was not considered under the double entry system, thus undervaluing the actual value of the firm.

### **Intellectual Capital and Corporate Sustainable Growth**

As stated earlier, the intellectual capital is essential for sustainability (Bismuth & Tojo, 2008) and the intellectual capital is the foundation for sustainable growth and competitive edge. Numerous studies (Li & Wu, 2004); Arifin (2017); Vadivel et al. (2019) and Mondal & Ghosh (2012) have confirmed that firms, having higher intellectual capital, perform better than the firms, which did have lower intellectual efficiency. On the other hand, Dženopoljac (2016) found a negative relationship or no relationship between intellectual capital and firm's performance. However, Xu & Wang (2018) found that the impact of intellectual capital on corporate sustainable growth is significant and positive. The performance of firms and intellectual capital are directly connected with sustainable development. Against this, background, it was hypothesized - NH-1: Intellectual capital efficiency does not have positive impact on the sustainable corporate growth of financial services firms in India.

As stated earlier, the human capital represents the competencies, tacit experiences and overall knowledge-base of individuals in an organization (Tovstiga & Tulugurova, 2009). Besides, and Murugesan et al. (2018) confirmed that firms, with higher human capital efficiency, displayed a superior financial or overall business performance. In other words, the efficient utilization of human capital enables the firms, to achieve superior financial or overall business performance. On the contrary, Chu et al. (2011) found that the human capital efficiency exercised negative influence on the firm's performance. However, in terms of revenue growth, Díez et al. (2010) found a significant positive impact of HCE on the firm's revenue growth. Acknowledging the same, Xu & Wang (2018) claimed that HCE significantly influenced corporate sustainable growth of firms. Hence, the hypothesis NH-2: Human Capital Efficiency does have a positive impact on the sustainable corporate growth of Financial Services Firms in India. It is crucial to take financial and physical resources into account, to gain a broad picture of the efficiency of value creating resources (Pulic & Bornemann, 1997). Earlier evidences given by Ahangar (2011) and Selvam et al. (2020), suggest that the physical capital has a strong positive linkage with the firm's performance. However, Chu et al. (2011) asserted that physical capital has negative or no relationship with the firm's performance. Nevertheless, regarding the corporate sustainable growth, the empirical evidence (Xu & Wang, 2018) suggests that physical capital exercises a significant positive influence on corporate sustainable growth of financial services firms in India. Thus, it is hypothesized, namely, NH-3: Capital Employed Efficiency (CEE) does not have a positive impact on the sustainable corporate growth of financial services firms in India. According to Soriya & Narvwal (2015), SCE was significantly associated with profitability, growth and employee productivity of bank. Poh et al. (2018) noted no relationship between structural capital and corporate performance. Hence, the hypothesis, NH-4: Structural Capital Efficiency (SCE) does not have a positive impact on the sustainable corporate growth of financial services firms in India.

### **Motivation for the Study**

A sound and updated financial system is the lifeline for the growth of economy of any country. The intellectual capital plays a pivotal role in the success of financial firms and in promoting its competitiveness in future too (Selvam et al., 2020). The authorities of financial

firms in India should explore the various strategies, to encourage the employees to work more effectively and to be innovative, in order to enrich the financial performance of sample firms of any ownership type. The paramount motivation for this study is to impart the value of intellectual capital in the current market to the players. No such study on intellectual capital has covered the NSE listed financial firms in India due to limited number of firms providing services to the public. Hence, this study is a pioneering in nature and attempts to understand the implications of the intellectual capital of the performance of financial firms in India. Moreover, this study would enable the financial firms, to compete with banks operating in India and bring more benefits to the Indian economy and strengthen its competitiveness. In short, the aim of this study is to measure the Effect of Intellectual Capital on Sustainable Corporate Performance of NIFTY Financial Services Companies.

### METHODOLOGY OF THE STUDY

For the purpose of analysing the Effect of Intellectual Capital on Sustainable Corporate Performance of NIFTY Financial Services Companies, this study covered all Nifty Financial Services Indexed firms in India. The study covered all the 10 financial companies. The study depended mainly on secondary data. The required data were collected from annual reports of sample banks, available at Prowess Database of Centre for Monitoring Indian Economy (CMIE), reputed journals, magazines and websites of foreign banks. The present study covered a span of ten years from 01-04-2011 to 31-03-2020. Numbers of accounting- and market-based measures were used as proxy measures of corporate sustainable growth, considered as the dependent variable in the present study. Sustainable Growth Rate (SGR) Model of Van Horn and Higgins (2013) is widely accepted and used by many scholars (Firer & Williams, 2003). For the purpose of present study, two dependent variables, namely, SGR and ROE were employed. The efficiency level of intellectual capital in terms of HCE, SCE and CEE was measured, based on VAIC indicator. The VAIC method was developed from the original VAIC model, proposed by Pulic & Bornemann (1997). It has also been used in many studies across the globe. The formula is as follows:

$$\begin{aligned} \text{VAIC} &= \text{HCE} + \text{SCE} + \text{CEE} \text{ (Kamath, 2017)} && \dots (1) \\ \text{HCE} &= \text{VA}/\text{HC} \text{ (indicator of human capital efficiency).} && \dots (2) \\ \text{SCE} &= \text{SC}/\text{VA} \text{ (indicator of structural capital efficiency).} && \dots (3) \\ \text{CEE} &= \text{VA}/\text{CA} \text{ (indicator of capital employed efficiency).} && \dots (4) \\ \text{Output} &= \text{Gross income} && \dots (5) \\ \text{Input} &= \text{Operating expenses (excluding personal costs)} && \dots (6) \\ \text{Value added} &= \text{Output} - \text{Input.} && \dots (7) \\ \text{HC} &= \text{personal cost, considered as an investment.} && \dots (8) \\ \text{SC} &= \text{VA} - \text{HC} \text{ (a result of human capital' past performance)} && \dots (9) \\ \text{CE} &= \text{Capital employed (both physical and financial capital).} && \dots (10) \\ \text{Sustainable Growth Rate} &= \text{Return on Equity} \times \text{Retention Ratio} && \dots (11) \\ \text{Return on Equity} &= \text{Net Income}/\text{Average Equity} && \dots (12) \\ \text{Retention Ratio} &= 100\% - \text{Dividend}/\text{Earning Per Share} && \dots (13) \end{aligned}$$

### RESULTS AND DISCUSSION

#### Descriptive Statistics for Intellectual Capital Performance and Sustainable Corporate Performance Variables of NIFTY Financial Services Companies

The results of Descriptive Statistics, for intellectual capital performance and firm performance of the NIFTY financial services companies, during the study period from 1<sup>st</sup> April

2011 to 31<sup>st</sup> March 2020, are given in Table 1. It is to be noted that HCE, SCE, CEE and VAIC were used as independent variables, for measuring the intellectual capital performance while SGR and ROE were used as dependent variables, to understand the nature of sustainable corporate performance of NIFTY financial services companies. The mean value reflects the nature of the variables set and the value of standard deviation indicates the measure of dispersion from its mean value in respect of intellectual capital performance variables and firm performance ratios. Minimum and maximum values help to identify the range of tested variables during the study period. The results of descriptive statistics, for NIFTY financial services companies, indicated that during the study period, values of intellectual capital performance variables moved within the range of minimum values of 0.582 (HCE) 0.441 (SCE) -2.219 (CEE) -1.194 (VAIC) -3.684 (SGR) -4.256 (ROE) and maximum values of 3.079 (HCE) 0.954 (SCE) -0.080 (CEE) 3.670 (VAIC) 3.008 (SGR) 3.113 (ROE) respectively. At the same time, the mean value and standard deviation values of HCE, SCE, CEE, VAIC, SGR, and ROE were at 2.492, 0.880, -0.708, 2.666, 1.423, 0.340 and 0.741, 0.156, 0.619, 1.485, 2.263, 3.036 respectively. The NIFTY financial services companies created more value from HCE, which reported a value of 2.492, than from SCE (0.880) and CEE (-0.708), indicating that the NIFTY financial services companies yielded more value from the human capital than from the physical capital. The aggregate value of VAIC was 2.666, which indicated that companies produced an average value of INR 2.666 for each one INR employed. The aggregate value of SGR was at 1.423 than ROE (0.340) showing the highest mean value among the dependent variables. This implied that the NIFTY financial services companies earned huge growth.

<b>Variables</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Independent Variables	10	0.582	3.079	2.492	0.741
HCE					
SCE					
CEE					
VAIC					
Dependent Variables	10	-3.684	3.008	1.423	2.263
SGR					
ROE					

Source: Data extracted from CMIE Prowess IQ database and computed using IBM SPSS 16.0

Note: \*N – Number of Observation; \*VAIC – Value Added Intellectual Coefficient; \*HCE – Human Capital Efficiency; \*SGR-Sustainable Growth Rate; \*SCE – Structural Capital Efficiency; \*ROE – Return on Equity; \*CEE – Capital Employed Efficiency; \*S. D – Standard Deviation

### **Relationship between Intellectual Capital Performance and Sustainable Corporate Performance of NIFTY Financial Services Companies**

Table 2 shows the results of correlation analysis, for intellectual capital performance and firm performance of the NIFTY financial services companies, during the study period from 1<sup>st</sup> April 2011 to 31<sup>st</sup> March 2020. The results of Pearson Correlation Matrix analysis revealed that values of correlation coefficient were at 0.960 for (SCE-HCE), 0.927 for (CEE-HCE), 0.907 for (CEE-SCE), 0.987 for (VAIC-HCE), 0.963 for (VAIC-SCE), 0.975 for (VAIC-CEE), 0.871 for

(SGR-HCE), 0.844 for (SGR-SCE), 0.750 for (SGR-CEE), 0.837 for (ROA-VAIC), 0.787 for (ROE-HCE), 0.804 for (ROE-SCE), 0.700 for (ROE-VAIC) and 0.777 for (ROE-SGR) and there was significant association between each other positively. But the variable sets such as, SGR with HCE, SCE, and VAIC; ROE with HCE and SCE, were at 99% confidence level (i.e., p value was less than 0.01). However, other sets of variables like SGR with CEE and ROE with VAIC, registered a positive correlation, at 95% confidence level (i.e., p value was less than 0.05) during the study period. The overall results, as provided at the Table, revealed that the increase in the values of HCE, SCE, CEE, and VAIC enhanced the appreciation of SGR and ROE of NIFTY financial services companies during the study period.

Variables		HCE	SCE	CEE	VAIC	SGR	ROE
HCE	Pearson Correlation	1					
	Sig. (2-tailed)						
SCE	Pearson Correlation	0.960**	1				
	Sig. (2-tailed)	0.000					
CEE	Pearson Correlation	0.927**	0.907**	1			
	Sig. (2-tailed)	0.000	0.000				
VAIC	Pearson Correlation	0.987**	0.963**	0.975**	1		
	Sig. (2-tailed)	0.000	0.000	0.000			
SGR	Pearson Correlation	0.871**	0.844**	0.750*	0.837**	1	
	Sig. (2-tailed)	0.001	0.002	0.012	0.003		
ROE	Pearson Correlation	0.787**	0.804**	0.533	0.700*	0.777**	1
	Sig. (2-tailed)	0.007	0.005	0.113	0.024	0.008	
	N	10	10	10	10	10	

Source: Data extracted from CMIE ProwessIQ database and computed using IBM SPSS 16.0

Note: \*\*indicates statistically significant at 99% confidence level.

\*Indicates statistically significant at 95% confidence level.

### **Impact of Intellectual Capital Performance on Sustainable Corporate Performance of NIFTY Financial Services Companies**

The results of regression analysis, during the study period from 1<sup>st</sup> January, 2008 to 31<sup>st</sup> December, 2018 are shown in Table 3. Values of coefficient for SGR by HCE were recorded at 0.871, SCE at 0.844, CEE at 0.750, and VAIC at 0.837, with t-statistics values of 5.012, 4.449, 3.211 and 4.320 respectively. Similarly, values of coefficient for ROE by HCE were recorded at 0.697, SCE at 0.603, CEE at 0.542, and VAIC at 0.638, with t-statistics values of 2.748, 2.140, 1.823 and 2.341, in respect of NIFTY financial services companies during the study period. In other words, the results of coefficient indicated that the SGR was positively influenced by HCE at 99% confidence level. This proved the fact that investment on employees had increased the sustainable growth rate of NIFTY financial services companies. Hence, NH-2: The Human Capital Efficiency does not have a positive impact on the sustainable corporate performance of Financial Services Companies in India, was rejected. A component of VAIC, namely, SCE, exercised positive influence on SGR at 99% confidence level i.e., P-Value was less than 0.001. In other words, spending on research and development also enhanced the sustainable growth

rate. Therefore, NH-4: The Structural Capital Efficiency does not have a positive impact on the sustainable corporate performance of Financial Services Companies in India, was not accepted. Similarly, another component of VAIC (CEE) also influenced SGR at 99% confidence level positively i.e., high level of total assets and low level of current liability enabled the growth of sustainable development. Hence, NH-3: The Capital Employed Efficiency does not have a positive impact on the sustainable corporate performance of Financial Services Companies in India was rejected. The overall VAIC exercised positive impact on sustainable growth rate significantly and investors recognized the importance of human resources, in the form of employees' knowledge, aptitude and skills. Hence, NH-1: The Intellectual Capital Efficiency does not have a positive impact on the sustainable corporate performance of Financial Services Companies in India, was not accepted. CEE, as proxy of physical capital, did not influence ROE and only capital employed efficiency contributed most towards sustainable growth rate. Adjusted R-squared value was used to test the fitness of the regression model with values of 0.823 for SGR and 0.975 for ROE. Hence, the regression was perfectly fit for measuring the impact of intellectual capital on sustainable corporate performance of NIFTY Financial Service Companies.

**Table 3**  
**RESULTS FOR THE IMPACT OF INTELLECTUAL CAPITAL PERFORMANCE ON SUSTAINABLE CORPORATE PERFORMANCE OF NIFTY FINANCIAL SERVICES COMPANIES DURING THE STUDY PERIOD FROM 1<sup>st</sup> APRIL 2011 TO 31<sup>st</sup> MARCH 2020**

Variables	SGR	ROE
Constant	0.036** - 2.511	076* - 2.040
HCE	0.001*** 0.871 5.012	0.025** 0.697 2.748
SCE	0.002*** 0.844 4.449	0.065* 0.603 2.140
CEE	0.012*** 0.750 3.211	0.106 0.542 1.823
VAIC	0.003*** 0.837 4.320	0.047** 0.638 2.341
Adjust R <sup>2</sup>	0.823	0.975
N	11	11

Source: Data extracted from CMIE ProwessIQ database and computed using IBM SPSS 16.0

Note: \* indicates statistically significant.

## CONCLUSION AND RECOMMENDATION

This study intended to investigate the effect of intellectual capital on sustainable corporate performance of NIFTY financial services companies in India. This study found that components of intellectual capital significantly impacted the sustainable corporate performance of NIFTY financial services companies in India. HCE, SCE and CEE significantly enhanced the sustainable corporate performance of NIFTY financial services companies. The study also found that the overall intellectual capital (VAIC) also positively recorded a significant relationship with sustainable corporate performance of sample companies in India. The findings of current study were found to be consistent with the results of Makarov (2010); Massaro et al. (2013) and BL & Financial Management & Accounting

Muchran (2017) and the study provides insight into the effect of intellectual capital on sustainable corporate performance of financial services companies. The study offers helpful inputs for the managers and owners of financial services companies, to maintain the sustainable corporate performance. This study was confined to only ten major financial services companies and further study may explore the possibility of applying the results to entire financial services companies. The model, employed to measure the sustainable growth in this study, could be applied to other service sector companies in future.

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