

Impact Of Intellectual Capital Components And Firm Characteristics On Corporate Performance: A Case Of It Based Listed Companies In India

Anandi Sarkar Pyne¹ Dr. Mitra Goswami²

Abstract

Intellectual Capital (IC) is a significant strategic asset for gaining competitive advantage, investor confidence and strong performance of a corporate entity. Already prior research has established that IC increases corporate performance. Further, an empirical investigation is conducted upon the effect of its components upon corporate performance of 37 listed IT companies in India for fifteen years from 2008 to 2023 using multiple regression analysis. The endogenous variables of the study are firm size, leverage, human capital, structural capital and capital employed, and corporate performance is the dependent variable, measured using profitability position of the firm. The investigation revealed that though entities invest more fund in human capital but capital employed exerts stronger positive influence over the performance. However, both capital employed and human capital creates a positive influence on profitability. Firm size and leverage, both as the endogenous variable significantly established relationship with profitability of the entity. Further, the study revealed that leverage negatively but significantly influences corporate performance.

Keywords: *Human capital, Structural Capital, Capital Employed, Return on Total Asset, Intellectual Capital, VAIC™*

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I. Introduction

With the rise of the globalized economy triggered by technology an increasing emphasis of knowledge and innovativeness is observed for economic development. Investors are looking beyond physical capital. In the age of cutting-edge competition, the existence of intangible assets has gained higher importance. Intellectual Capital (IC) is a crucial intangible asset for the companies and their stakeholders. The emergence of IC is posited to be a strategic asset that tempts investors and increases Firm Performance (CP) (Desoky, 2020; Maji, 2016). The competitiveness of the economies largely depends on the efficiency with which they utilize knowledge. 93% of changes in a developing country's economic growth are attributable to dependence on the knowledge economy (Bontis, 1999). The developing countries have taken the path of developed countries; their pathway has indicated the pivotal role of the knowledge economy in the development of the countries.

IC is one of the strong indicators of the Knowledge Economy (Clarke, 2011). Research on this arena has witnessed some prominent developments, which started in the mid-1990s emphasizing on the mechanism of governing and measuring IC (Dženopoljac, 2016).

The term has been defined differently by different researchers, resulting in a lack of precise agreement upon the notion. Typically, IC refers to intangible assets or business elements that substantially influence corporate performance and overall success, despite not being expressly listed on the balance sheet. Thus, companies are initiating in categorizing the capital under goodwill. Further, knowledge, resources, and intangibles that could be converted into the net wealth of the organization can be categorized as IC (Mukaro, 2023; Andreeva, 2016; Firer, 2003; Akorede, 2024; Charles, 2024). Managing intellectual resources can enhance the market value, productivity, specifically, competitive position of a firm (Charles, 2024; Chen, 2005; Clarke, 2011; Desoky, 2020).

The key elements of IC include human, physical and structural capital (SC), among others (Andreeva, 2016; Felicio, 2014). Typically, human capital (HC) is a crucial element of IC. The capital is acknowledged widely as one of the paramount assets of the companies, possessing considerable strategic significance. Investments in the enhancement of HC and SC can yield favorable effects on business outcomes. The concept can be divided into three different sub-concepts, namely, HC, SC and CE (Capital Employed). The first element comprises human resources, encompassing expertise, skills, experience, and knowledge, influencing organizational value and cost (Pulic, 2009; Lonnqvist, 2007; Alipour, 2012; Roos, 1997). The second component, Structural Capital, is the capital that involves the organizational structure that helps in the

¹ Amity College of Commerce and Finance, Amity University Kolkata, India

² Faculty of Commerce & Management, St. Xavier's University Kolkata, India

functioning of HC and the resources retained within the company post-employee departure, sustaining organizational resilience and knowledge and customer relationship strategies (Pulic, 2009; Hurtado-Palomino, 2024; Maji, 2020; Sharma D. V., 2024). The intangible aspect of IC comprises Structural and Human Capital, while the third element of IC, CE represents the firm's physical or tangible capital. The VAICTM model assesses the efficiency of all these elements by shareholders. CE is the result of the difference between total assets and current liabilities (Maji, 2020)

The recent business environment of volatility, uncertainty, complexity, and ambiguity resulted into creating various measures to gain competitive edge over their counterparts. The stakeholders have increasingly recognized that Intellectual Capital (IC) plays a pivotal role in driving corporate success. IC encompasses a wide array of intangible assets, including employees' expertise, skills, organizational culture, values, customer relations, R&D and the infrastructure that supports employee efforts. These intangible resources are crucial for maintaining competitive advantage and fostering long-term sustainable growth.

Understanding the importance of IC leads to the next critical question which deals with IC measurement. A significant challenge in this regard lies in the complexity of aggregating the diverse components of IC for reporting purposes, as these elements are highly context-specific and difficult to quantify with precision. Traditional financial indicators such as Profit, ROI, ROE and Return on Total Assets (RTA) are inadequate for assessing intellectual capital's contribution to performance. These metrics focus primarily on tangible financial outcomes, overlooking the broader intangible value that IC brings to an organization. Consequently, multi-dimensional performance measurement frameworks emerged during the 1990s to bridge this gap. Among them are the Direct Intellectual Capital measurement approach, the Skandia Navigator, and Pulic Value Added Intellectual Pulic came up with a popular and prominent measuring tool, VAICTM model, which is based on the Skandia Navigator (Pulic A., 2000). Despite the limitations of this model, the advantages of VAICTM cannot be Coefficient (VAICTM) model. Each framework offers a unique perspective on evaluating and reporting IC, recognizing the need for both financial and non-financial measures to capture the full scope of organizational performance. Pulic VAICTM model has gained widespread acceptance due to its simplicity and ability to quantify the value generated by intellectual capital, offering organizations a more comprehensive and reliable method for assessing their overall performance. These models continue to evolve as businesses increasingly acknowledge the importance of IC. As per the model, IC is the Intellectual Capital Efficiency (ICE). Further, it is categorized as human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE).

The paper investigates the effect of IC individually upon CP using multiple regression model. The present research differs from other studies as the paper is a stakeholder-based, resource-based perspective in investigating the cause-and-effect relationship of SCE, HCE and CEE, size, and leverage upon the CP of the selected Indian IT companies.

II. Rationale Of The Study

This study is grounded in strong theoretical foundations and employs a validated methodology, ensuring the reliability of its findings. By extending knowledge of Intellectual Capital (IC) among academicians and managers, it highlights the crucial role IC plays in value creation. This research sheds light on the effect of different elements of intellectual capital (IC), specifically HC, SC and CE on corporate performance, with a particular focus in India. The insights gained can assist stakeholders, including policymakers and business leaders, in recognizing the strategic significance of IC and its capacity to promote sustainable growth. Additionally, the study provides practical recommendations for the efficient allocation of intellectual resources, thereby boosting competitiveness and fostering innovation. In a developing country like India, where intellectual resources are frequently underutilized, this research can inform strategies aimed at optimizing IC to stimulate economic development. The paper analyzes the individual impact of IC on corporate performance (CP) using a multiple regression model.

III. Objectives Of The Study

- The objective of this paper is to assess empirically the cause-and-effect relationship between IC individually with corporate performance.
- Secondly, the paper aims to appraise the cause-and-effect relationship between firm characteristics upon the corporate performance.
- Also, the study intends to analyze and find out the IC component where the relatively the investment is highest by the IT based companies in India.

IV. Review Of Literature

IC literature review

Intellectual Capital (IC) has become a crucial strategic resource in the contemporary global marketplace (Bukh, 2003). This research explores how the elements of Intellectual Capital Efficiency (ICE), alongside internal firm characteristics such as size and leverage, affect Corporate Performance (CP) through the lenses of stakeholder theory and resource-based theory. These theories propose that ICE components are vital markers for enhancing corporate performance and creating value for shareholders, investors, and various stakeholders. For instance, providing incentives to staff can boost the organization's capacity to recruit and maintain high-caliber talent, thereby improving its HCE. Furthermore, effective SCE cultivates strong organizational frameworks, facilitating the establishment of goodwill, which allows the firm to foster enduring relationships with customers and other stakeholders while minimizing external risks (Soch, 2008; Hurtado-Palomino, 2024).

Prior studies indicate that SCE significantly influences a firm's performance (Hurtado-Palomino, 2024; Firer, 2003). Nonetheless, some research posits that the elevated expenses linked to innovation within structural capital may detract from corporate performance (El-Bannany; Felício, 2014). Investigations into CEE present varying conclusions about its effects on corporate performance. Certain studies assert that CEE does not directly correlate with corporate performance (Clarke, 2011; Chen, 2005), while others argue that a higher reliance on tangible assets can adversely impact firm performance due to increased debt levels. Conversely, Tripathy (2015) and Dženopoljac (2016) demonstrated that investments in physical capital can enhance a company's Return on Total Assets (RTA).

Human Capital Efficiency (HCE) has largely been found to positively correlate with corporate performance. However, some studies suggest that rising HCE might negatively influence a firm's profitability and credibility (Andreeva, 2016; Bayraktaroglu, 2019). In general, while most research supports a beneficial force of IC on corporate performance, the dynamics between IC components, corporate performance, and firm characteristics remain intricate.

Historically, corporate performance was evaluated primarily based on physical assets as reflected in financial statements. However, the implementation of Indian Accounting Standards has broadened this perspective to include intangible assets, allowing companies to be assessed through both book and market value. This transformation acknowledged the growing importance of Intellectual Capital (IC) in achieving corporate success. Numerous studies have indicated that corporate performance enhances with the expansion of IC (Chadha, 2015; Bayraktaroglu, 2019; Assfaw, 2024; Roos, 1997). Components of IC, including HC, SC, and CE, have been associated with increasing value for shareholders, stakeholders, and the larger market.

However, as noted previously, contradictions exist in the literature regarding the specific effects of these IC components on corporate performance. While some studies affirm that HC, SC, and CE contribute positively to performance, others reveal potential negative impacts or unclear correlations between these factors and corporate results. This complexity highlights the necessity for further investigation to clarify the specific roles of each IC component in enhancing corporate performance and their interactions with firm characteristics such as size and leverage.

To evaluate the lasting impact of ICE components, firm size, and leverage on corporate performance, this study utilizes multiple regression analysis. This approach assesses the causal relationships between the endogenous variables (FSIZE, FLVRG, HCE, CEE, SCE) and the dependent variables (RTA). Despite an exhaustive review of the literature, no study has been identified that examines the interaction and proportionate effect between HCE, SCE, and CEE on CP. This research attempted to fill that gap by providing a more comprehensive understanding of how these components interact to influence corporate performance.

Effect of leverage, size and Intellectual Capital on CP

The size of the firm positively influences the performance of corporate entities. On the other hand, contrasting literature exists concerning the influence of leverage on the CP. Some literature suggests a positive relation between the two, while others suggest a negative association between the two attributes, LVRG and CP (Singh, 2018). Furthermore, some literature suggests the existence of a substantial influence of leverage on CP (Hurtado-Palomino, 2024; Chadha, 2015).

Based on the literature review of the study we can state that there exists a contradiction in relation to the effect of SCE, HCE and CEE on corporate performance. Further contradiction is also found among the relation between leverage and corporate performance. In order to understand the relationship between these variables, the research study has been initiated.

The Conceptual Framework

Figure 1: Conceptual Framework Of Ic, Firm Characteristics And Profitability Of The Firm

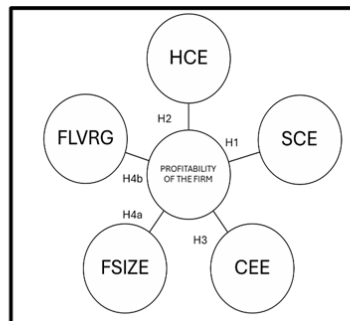


Figure 1 depicts the conceptual framework of this study, illustrating the hypothesized relationships between Intellectual Capital (IC) components, and Corporate Performance (CP) of Indian IT firms. IC, measured by Intellectual Capital Efficiency (ICE) using the VAICTM model. Based on the exhaustive literature review, it is theorized to influence CP (Shaneeb & Sumathy, 2021; Mondal & Ghosh, 2012). This study is an initiative to understand the relationship between HCE, SCE and CEE upon the profitability of the firm. CP is assessed through profitability (Return on Total Assets (RTA)). The model further explores the potential influence of SC, HC, and CE on CP. SC and HC represent the intangible aspects of IC, while CE reflects the tangible component. The VAIC™ model provides quantitative measures for these elements, facilitating an empirical analysis of the association between IC components with CP. Additionally, the theoretical research model suggests a relationship between firm size (FSIZE) and firm leverage (FLVRG) with profitability of the firm (RTA).

V. Research Methodology

Hypothesis Formulation

Several scholars highlight innovation and knowledge management as key drivers of value and competitive advantage (Sullivan, 2000; Pew et al., 2007). However, the empirical relationship between IC and traditional CP like RTA showed mixed results (Smriti & Das, 2018;; Firer et al., 2003).

The conflicting and limited evidence on IC's impact on CP calls for further research. Some studies indicate a positive link between IC and CP (Riahi-Belkaoui, 2003; Sullivan, 2000), while others focus on the significance of structural capital (Hurtado-Palomino et al., 2024). In contrast, certain studies find no connection (Firer and Williams, 2003) or present conflicting results (Charles et al., 2024). This ambiguity leads to the following hypothesis proposal.

H1: There is no significant relationship between SCE and profitability of selected IT companies in India.

Numerous HR studies have demonstrated that a comprehensive HR system significantly influences firm performance. Employees are not merely an operational expense, but a valuable asset, aligning with the resource-based view, which posits that HC serve as key drivers of competitive advantage for organizations. In this context, the studies indicate a positive link between Human Capital (HC) and competitive advantage in software firms (Abdulai et al., 2012; Ahangad, 2011). However, the evidence on relationship with Human Capital and Corporate Performance (CP) is inconsistent. To investigate this further, the following hypothesis is formulated:

H2: There is no significant relationship between HCE and RTA of selected IT companies in India.

The influence of tangible assets specifically Capital Employed (CE), in comparison to intangible assets is still debated. Some research argues that CE, evaluated through CEE, has a more significant impact on CP than Intellectual Capital (IC) (Singh & Narwal, 2018). Conversely, other studies report minimal or negative correlations (Firer & Williams, 2003). This leads to the formulation of the following hypothesis:

H3: There is no significant relationship between CEE and RTA of selected IT companies in India.

Further, we are curious to know whether there exists any relationship between the firm characteristics with the profitability of the firm or not. In the study firm size and leverage defines firm characteristics. Previous studies suggests that firm size exerts positive influence over profitability of the firm. This study is a modest initiative to appraise the relationship between the two variables. On the other hand, as per the literature reviewed, the researcher found the effect of leverage varies based on the industry type. To study all these the following hypothesis is framed:

H4: There is no significant relationship between firm characteristics and profitability of the firm of selected IT companies in India.

H4a: There is no significant relationship between firm size and profitability of the firm of selected IT companies in India.

H4b: There is no significant relationship between firm leverage and profitability of the firm of selected IT companies in India.

Sample and Data Selection

This research examines Information Technology (IT) firms listed on the Bombay Stock Exchange (BSE), highlighting the sector's crucial role in India's economy. The IT industry is noted for its significant dependence on technology, knowledge, and innovation, making it an excellent context for exploring how intellectual capital affects company performance. Moreover, the IT sector plays a vital part in contributing to India's GDP and job creation, further emphasizing its importance for this analysis (Das & Raut, 2014).

The data for this study was obtained from the CMIE Prowess database, encompassing all 56 IT companies listed on the BSE over a fifteen-year period from 2008 to 2023. This long data period was selected to capture long-term trends and the evolution of intellectual capital within the industry. Companies with missing data for two or more variables during the 2008-2023 span were excluded from the analysis to maintain the integrity of the dataset. Specifically, if a company lacked two or more data points, it was removed from consideration.

After this initial review, the final sample comprised 37 IT companies, accounting for about 66% of all IT firms listed on the BSE. This sample size is deemed adequate for offering a thorough understanding of the dynamics of IC in the IT sector and its influence on firm performance. The decision to include 66% of the companies is supported by the idea that incomplete data could skew results, and their exclusion boosts the overall reliability and validity of the findings. Thus, the final sample is both representative and robust, enabling meaningful insights into the interactions among intellectual capital, firm size, leverage, and profitability within India's IT landscape.

Variable definition

Building on earlier studies that highlight the increasing significance of intangible assets for corporate performance (Maji & Goswami, 2016), this research empirically investigates the connection between these assets and firm profitability. A summary of the variables utilized in this analysis, including their abbreviations and measurement methods, is presented in Table 1. Corporate performance (CP) serves as the dependent variable, while IC, SC, HC, and CE are identified as independent variables. This framework is designed to evaluate how these components impact profitability in IT firms listed on the BSE. The study employs the VAICTM model to quantify IC via Intellectual Capital Efficiency (ICE) (Mehralian et al., 2012; Chen et al., 2005; Pew et al., 2007). SCE, HCE, and CEE are measured as well (El Bannany, 2008; Dalwai et al., 2024). Specifically, SCE is determined by the difference between a company's Value Added (VA) and its HC. HCE is calculated as the ratio of VA to HC, while CEE indicates the relationship between VA and CE (Table 1). VA signifies a firm's overall efficiency and is mathematically defined by Pulic (1997) as:

$$VA = OP + PC + D + A$$

where:

OP = EBIT (Earnings Before Interest and Tax)

PC = Personnel expenses (salaries and other incentives)

D = Depreciation

A = Amortization

Table 1: Variable Details

FACTORS	VARIABLE	ABBREVIATION	TYPE	MEASUREMENT
Financial Performance (CP)	Return on Total Assets	RTA	Dependent	(EBIT/ Total Assets) (%)
	Value Added	VA		OP + PC + D + A
Intellectual Capital Efficiency (ICE)	Structural Capital Efficiency	SCE	Independent	Value Added (VA)- Human Capital (HC)
	Human Capital Efficiency	HCE	Independent	VA/HC
	Capital Employed Efficiency	CEE	Independent	VA/CE

	Capital Employed	CE		Total Assets - Current Liabilities
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SOURCE: Author’s compilation

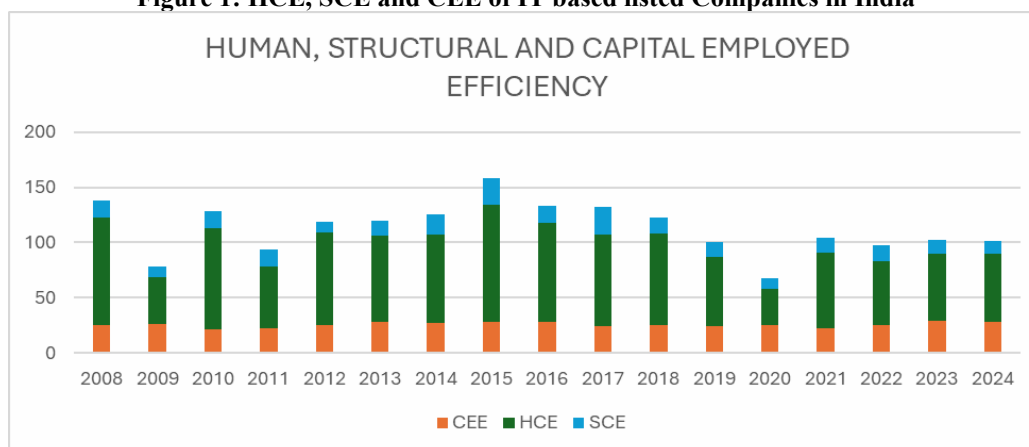
Research Methods

The primary aim of the research is to empirically appraise the impact of IC and firm characteristics on the corporate performance of 37 IT-based companies in India over the period from 2008 to 2024. Utilizing a panel data approach, this research analyzes 15 years of longitudinal data, which is sourced from the annual reports of the selected companies. This dataset enables a comprehensive examination of how various forms of intellectual capital, alongside specific firm characteristics, influence overall corporate performance.

To explore the relationships among the variables, correlation analysis is first conducted to assess the strength and direction of associations between the independent (corporate performance) and endogenous variables (IC and firm characteristics). Following this, multiple regression analysis is employed to assess the presence and extent of the relationships between these variables. This methodological framework allows for a nuanced understanding of how different IC such as HC, SC and CE and firm-specific attributes effect performance outcomes. By focusing on the IT sector, this study adds to the growing body of literature on the significance of intangible assets in enhancing corporate performance in emerging markets like India.

VI. Results And Analysis

Figure 1: HCE, SCE and CEE of IT based listed Companies in India



Information Technology based companies invest more in human capital (Figure 2) followed by Capital employed and then Structural Capital. The trend to invest in IC components was lowest in 2020. There are various reasons for such low trend, one reason can be the mass resignation of employees due to the sudden increase in employability in the market in these sectors because of COVID 19 pandemic. However, the investment started to increase in 2021. Knowledge based companies like IT inherits high scope of further investment in IC to gain competitive advantage. However, the investment has not exceeded relative to the year 2015.

The study further conducted the analysis to determine the relationship between the IC components and profitability of the firm.

An Adjusted R-squared is employed to assess the reliability of the data results, demonstrating satisfactory levels of reliability across the developed models. To test the hypotheses, correlation analysis is conducted first to evaluate the direction and strength of the relationships between the variables. This initial step provides insight into the relationship between related endogenous variables, including Intellectual Capital and firm characteristics, are to the dependent variable of corporate performance. The findings from the correlation analysis inform subsequent regression analyses, ensuring a robust examination of the proposed hypotheses.

Table 2: Correlation Analysis

	VAIC	CEE	HCE	SCE	RTA
VAIC	1				
CEE	0.088847	1			
HCE	0.97392	-0.00412	1		
SCE	0.253483	-0.10955	0.075627	1	
RTA	0.298202	0.594021	0.239238	0.000166	1

Table 2 reveals a strong positive correlation between Capital Employed Efficiency (CEE) and Return on Total Assets (RTA), surpassing the relationships observed with other independent variables such as ICE, HCE and SCE. Notably, while SCE demonstrates a positive influence on RTA, its impact is statistically insignificant. This suggests that intangible assets play a crucial role in enhancing corporate performance. However, the importance of physical capital remains essential.

To further investigate these relationships, a multiple regression model is employed, focusing on panel data from 37 IT companies in India spanning 2008 to 2023 (Equation 2). This equation articulates the relationship between various types of intellectual capital—measured through SCE, HCE, and CEE—and firm characteristics such as firm size and leverage. Each variable is treated as an endogenous variable, allowing for a comprehensive analysis of their interdependencies. The model is specifically designed to test the hypotheses H1, H2, H3, and H4, which posit that SCE, HCE, and CEE do not significantly influence RTA. By framing these hypotheses, the study aims to clarify the distinct roles of intellectual capital components and firm characteristics in determining corporate performance.

$$\begin{aligned}
 RTA_{jt} = & \alpha + \sum_{j=1}^k \beta_{1j} CE_{jt} \\
 & + \sum_{j=1}^k \beta_{2j} HE_{jt} + \sum_{j=1}^k \beta_{3j} SE_{jt} + \sum_{j=1}^k \beta_{4j} FSIZE_{jt} + \sum_{j=1}^k \beta_{5j} FLVRG_{jt} \\
 & + \varepsilon
 \end{aligned}
 \tag{1}$$

Table 2: Model Fit Measures

Model	R	R ²
1	0.747	0.559

SOURCE: Author's Compilation
Note. Models estimated using sample size of N=592

The regression analysis results indicate an R value of 0.747, reflecting a strong positive correlation between profitability and the independent variables: Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), firm size (FSIZE), and leverage (FLVRG). A correlation shows that there is a positive relationship with the return on total assets (RTA) as the dependent variable. The R-squared value of 0.559 indicates that 55.9% of the variance in the values can be explained by these independent variables, which reflects the quality of the regression model. However, the remaining 44.1% of the variance results remain unexplained and may be due to variables or other factors that affect firm performance but are not included in this analysis. This unexplained difference reflects the complexity of the interaction between intellectual capital, firm behaviour and profitability.

This analysis uses a large sample of n = 592, which increases the reliability of the estimated regression coefficient. Such a large sample size provides more confidence in deriving the results of these changes in values and enables the respondents and researchers to have a better understanding of the performance of the Indian IT industry.

Table 3: Multiple Regression Analysis

Model Coefficients – RTA

Predictor	Estimate	SE	t	p
Intercept	-17.161	1.5512	-11.06	<.001
CEE	12.874	0.7228	17.81	<.001
HCE	0.622	0.0831	7.48	<.001
SCE	0.790	0.4199	1.88	0.060
FSIZE	2.023	0.1615	12.52	<.001
FLVRG	-18.565	3.0375	-6.11	<.001

SOURCE: Author’s Compilation

Table 3 shows that Capital Employed Efficiency (CEE), a measure of tangible assets, has a strong value positive effect on firm profitability, closely followed by Human Capital Efficiency (HCE). These findings underline the importance of tangible and intangible assets in managing business performance. Additionally, firm size (FSIZE) is positively correlated with CP, indicating that generally larger companies attain higher profitability than relatively smaller companies. Conversely, leverage (FLVRG) was found to have a negative impact on corporate performance, highlighting the potential risks associated with high levels of debt. Interestingly, the study failed to prove that SCE effects CP of the companies. Thus, accepting the null hypothesis H1. The hypotheses are summarized in Table 4, which illustrates statistical results. Based on the data analysis of IT listed companies, we failed to accept the null hypothesis H2, H3, H4a and H4b because the p-values are less than 0.001. This indicates the efficiency of human capital, capital employee efficiency, firm size and leverage all significantly affect a company's performance in this sector.

In contrast, the null hypothesis H1 is accepted because the p-value exceeds 0.06, indicating that the SCE has no measurable effect on IT companies in India. This distinction highlights the different roles played by different components of intellectual capital influencing business results.

Table 4: Hypothesis Results

Hypothesis number	Hypothesis Statement	p value	Rejection/ Acceptance
H1	There is no significant relationship between SCE and profitability of selected IT companies in India.	0.06	Reject
H2	There is no significant relationship between HCE and RTA of selected IT companies in India.	<.001	Accept
H3	There is no significant relationship between CEE and RTA of selected IT companies in India.	<.001	Accept
H4a	There is no significant relationship between firm size and profitability of the firm of selected IT companies in India.	<.001	Accept
H4b	There is no significant relationship between firm leverage and profitability of the firm of selected IT companies in India.	<.001	Accept

VII. Conclusion

The present study is the empirical assessment of the effect of IC determinants, firm characteristics, and CP among IT-based companies listed in BSE from 2008 to 2023. Utilizing Pulic VAIC™ method, a well-established framework in IC literature. This research measures the efficiency of HC, CE, and SC.

By empirically analysing the impact of these IC components and firm characteristics, such as firm size and leverage, the study seeks to clarify the inconsistencies observed in previous research regarding the relationship between IC and company profitability. This comprehensive approach not only enhances understanding of how intellectual capital contributes to corporate performance but also sheds light on the significance of tangible and intangible assets in the IT sector.

The findings aim to provide valuable insights for practitioners and policymakers, emphasizing the role of HC, SC and CE in driving profitability. Ultimately, this research contributes to the ongoing discourse on

intellectual capital, aiming to establish a clearer link between these intangible assets and financial outcomes in the dynamic landscape of India's IT industry.

The results suggest that increase in Capital Employed (CE) and Human Capital (HC) results into increase in the performance of IT firms in India. Interestingly, though the investment in HC is high the CEE exhibits a stronger effect on CP than HCE. This finding implies that firms that optimize the use of their financial and physical assets tend to perform better in terms of profitability. CEE is a critical determinant of corporate success, as the effective utilization of capital resources directly impacts the firm's ability to generate returns. Human Capital, while also important, plays a relatively lesser but still significant role in enhancing profitability. The skills, knowledge, and expertise of employees contribute to corporate performance, although their impact is more pronounced in the long run and may depend on the ability of the corporate entities to integrate HC with other resources.

Further, the study finds that Structural Capital Efficiency (SCE), which includes all non-human resources that support human capital, does not significantly influence profitability. This finding aligns with the arguments of some previous studies that suggest structural capital, while important for organizational support, may not have a direct impact on an entities' financial outcomes. This could be because IT-based firms place more emphasis on tangible resources like capital employed, which generate immediate returns, rather than on intangible support systems that form part of structural capital which takes longer period to generate returns.

Regarding firm characteristics, the study identifies two key determinants: firm size (FSIZE) and firm leverage (FLVRG). The analysis reveals that firm size positively and significantly influences corporate performance. Larger firms tend to have more resources, economies of scale, and market power, allowing them to generate higher returns. The finding of the research supports the theory that firm size is a critical factor in determining profitability, as larger firms are better equipped to leverage their assets for competitive advantage.

Also, the paper shows that leverage (FLVRG) has a significant but negative effect on corporate performance. An increase in debt capital negatively impacts profitability, suggesting that IT firms relying heavily on debt financing may face higher financial risks, leading to reduced profitability. This finding is consistent with financial theory, which argues that excessive debt increases financial burden due to interest obligations and reduces the firm's ability to invest in value-generating activities. Consequently, firms with higher levels of leverage are more vulnerable to financial distress, which ultimately affects their performance.

In conclusion, the study underscores the importance of IC components, particularly Capital Employed and Human Capital, in enhancing the profitability of IT-based firms in India. It also highlights the critical role of firm size in driving corporate success while cautioning against the negative impact of leverage on performance. Firms should focus on optimizing their IC components, especially CEE and HCE, to improve profitability, and should consider minimizing debt reliance to reduce financial risks. By emphasizing equity capital over debt, IT firms can enhance their financial stability and achieve sustainable growth in the competitive business environment.

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