

THE IMPACT OF INTANGIBLE ASSETS ON VALUE CREATION: EVIDENCE FROM NIFTY PHARMA INDEX

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ABSTRACT

This study aimed to investigate the relationship between intangible assets and profitability, firm value creation of Nifty pharma index companies. For the research, data of nifty pharma index companies for the 6-year period from 2016 to 2021 is collected and analyzed. Descriptive statistics and regression analysis were used to examine the relationship between intangible assets, profitability, and firm value creation. The results indicated that intangible assets (IA) had a positive significant relationship with profitability- return on assets (ROA), return on equity (ROE), return on capital investment (ROIC), and profit after tax (PAT) of nifty pharma index companies. Further, the study found that intangible assets also had a positive significant relationship with firm value as measured by Tobin q (Q). Price to book ratio (PB ratio), and economic value added (EVA) did not have a significant relationship with intangible assets. The research has contributed to the understanding of intangible assets and their influence on profitability and firm value generation, particularly among pharma companies in the nifty pharma index.

Keywords: *Intangible Assets, Return on Assets, Return on Equity, Return on capital investment, Profit after Tax, Tobin q, and Economic Value Added.*

Introduction

Firms attempt to acquire strategic assets that can be the foundation for producing and maintaining a competitive advantage in today's continuously changing and competitive business settings. The strategic assets of a company can take numerous shapes. Intangible assets may offer a corporation crucial and valued competitive advantages; hence they are undoubtedly one of the most important strategic assets.

Patents and computer programmers are essential intangible assets for many businesses in the industrial and service industries. Intangible assets are divided into two categories: those that can be differentiated independently, such as copyright, and those that cannot be isolated from a company, each other, or other assets, such as sales staff abilities and expertise, and administrative efficiency (TomA, 2007). Intangible assets are more likely to produce a competitive advantage since they are generally unique and socially multipliable (Hall, 2001). According to (Van Ark, 2009), intangible assets are becoming increasingly important drivers of innovation and knowledge development. According to (Saunila, 2014), in practically all businesses, the potential to produce innovation, which intangible assets may provide, is becoming increasingly important for successful operation and management. (Lev, 2001), conducted a comprehensive study on intangible assets and their role in company value. The study

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elaborated that intangible assets play an important role as the major factor of the economic growth of companies. Lev stated that despite intangible assets playing an important role in company growth, most companies still record intangible expenses as factors in producing goods and combine them as the cost of goods sold. By contrast, numerous other companies do not consider intangible assets as a special expense. (Garanina, 2009), studied the association between intangible assets and firm value in a sample of companies in the UK and Russia. The authors' research found a positive correlation between the market value of equity and intangible assets. (Lew, 2015), revealed that intangible assets have a positive effect on the value of a firm. In addition, (Swanson, 2018), conducted an exploratory data analysis on currently unrecorded internal intangible firm values. The results showed that the measure of the internally generated intangible assets affects firm value.

Review of Literature

(Bhattacharjee, 2022), This paper aimed to outline the link between intellectual capital efficiency and a variety of characteristics of business performance, including financial, market, and economic performance. To calculate IC efficiency, the value-added intellectual coefficient (VAIC) method was utilized. VAIC considers physical, human, and structural capital when calculating a company's value addition capabilities. Physical capital efficiency is the most essential aspect in anticipating corporate performance, according to the VAIC components. (Buzinskiene, 2021), This study showed differences in the effects of financial and non-financial information on intangible assets on the market value of companies. The integration of the value of NINT into the basic valuation model revealed that the value of FINT may not always have a direct and significant impact on the market value of companies. It was confirmed that the value of NINT, which has a positive effect, has a stronger impact on the market value of companies than the value of FINT. Growth in the value of NINT increases a company's market value. However, an increase in the value of FINT reduces a company's market value. (Xu J. &, 2020), This study looked at whether IC and its components had an impact on business performance in South Korea's manufacturing industry. It also compares the original VAIC method's regression findings to the modified and expanded VAIC method's results. According to our findings, the modified and expanded VAIC model outperforms the original VAIC model. The findings add to the IC literature by indicating that in the Korean context, IC is a fundamental driver in producing value in manufacturing enterprises. Furthermore, CEE_m has the greatest impact on the performance of Korean manufacturing enterprises. RDE_m and RCE_m have negative effects on company profitability as assessed by ROA and ROE, but HCE_m has a favorable impact. SCE_m was shown to have no discernible effect on business performance. (Vasconcelos, 2019), Intellectual capital, brand value, and R&D expenditure are all linked to intangible assets in this study. All emphasized the importance of intangible assets, their increasing representation on company equity, and their effect on business value, which directly affects firm profitability. Intangible assets, for example, have been found to play a substantial and dominant impact in firm success in research including Latin American countries. (Smriti, 2018), Indian publicly traded companies appear to be making good use of their IC. During the research period, human capital had a significant influence on company productivity. Furthermore, the empirical investigation revealed that structural capital efficiency and capital utilized efficiency were both significant drivers to sales growth and market value for the business. The increasing relevance of IC's contribution to value creation was reflected in the financial statements of these Indian enterprises. (Xu J. &, 2018), Better organizational performance is linked to technical progress, innovation, and the quality of human, structural, and relational variables in this article. In turn, investments in education, research, and development- in other words, knowledge and intellectual capital management have a significant impact on these parameters. (Nadeem, 2017), It was shown that IC efficiency is strongly linked to return on assets and return on equity. Human, structural, and physical capitals all have a positive and considerable influence on company success. While the findings support resource-based, resource-dependency, and learning organization theories, they also highlight the relevance of IC for firm success. (Maji, 2016), According to the findings, IC and physical capital efficiency are both positively and significantly related to business performance in both sectors. The coefficient of human capital efficiency is positive and substantial among the components of IC, however, the current attempt fails to isolate any meaningful impact of structural capital efficiency on firm performance. However, the data show that IC efficiency has a substantially bigger impact on business performance in the knowledge-based industry than in the conventional sector. (Nagaraja, 2016), This study is to tests empirically the relationship between Intangible assets, financial policies, financial performance have a significant influence on the firm value simultaneously. Debt policies and financial performance (ROA) influenced firm value positive and significant. The financial statement's limitation in measuring and disclosing intangible assets is the cause of the significant difference between book value equity and market value equity. Measurement and

disclosure of intangible assets (intellectual capital) precisely and quarterly is very important because intangible assets have a positive impact on firm value. (Russell, 2016), The findings have the following implications for practitioners and consumers of financial statements: the display of sales revenue information would aid asset assessment and stock price discovery. Furthermore, the discounted cash flow approach of valuing intangible assets may be more effective in evaluating pharmaceutical businesses' financial status than other methods of valuation. The findings suggested to researchers that intellectual capital reporting is a worthwhile field of study in which assets are measured using well-established quantitative methodologies. (Tandon, 2016), The VAIC scores of companies in financial services, mining, and energy were found to be the highest in this study. Furthermore, VAIC has a favorable relationship with all financial performance metrics such as profitability, productivity, and market values. Profitability, market valuation, and productivity all demonstrated a substantial positive relationship with the efficiency of physical capital used. Human capital efficiency was shown to have a high positive relationship with profitability, but structural capital efficiency had no meaningful influence on any of the financial performance indicators. (Gamayuni, 2015) As it pertains to the asymmetry in accounting information owing to inside information about the real value of intangible assets, which also influences the company's market value, this study assessing the value of intangible assets is one of the most significant research topics. Depending on the value of publicly available and concealed information, the fair value of the property, and the reaction of market players to that information, the value of intangible assets may have a varying influence on the market value of the company. Intangible assets are a crucial role in boosting competitive advantage and shareholder value in the knowledge economy, according to both scholars and investors, which has an impact on a company's market value. (Pandya, 2015), The study examined the relationship between the intangible assets and the firm's value for the companies in India. The researchers concluded that traditional information systems are not able to provide a true value of a firm as they can't provide adequate information about corporate intangible assets. In addition, with the lack of information about the largest part of corporate assets, the risk in managerial decision-making increases. (Vishnu, 2014), In Iran, the influence of IC on the pharmaceutical industry's performance has been investigated. The authors use the VAIC™ model and find that just one performance metric – Return on Assets – has a positive relationship with components of IC (ROA). Furthermore, they discover that Physical Capital, not Intellectual Capital, is the most important 28 elements impacting organizational success. As a result, the study is unable to demonstrate a beneficial relationship between IC and performance. (Belem, 2012), The degree of intangibility of the firms has a beneficial influence on the return on equity, according to market expectations that are not justified by intangible assets reported in the balance sheet. (Salamudin, 2010), Multiple regressions with the market value as the dependent variable and the net value of assets and net income divided by revenues as explanatory factors were used to investigate the link between market value and intangible assets. Intangible assets are vital in determining the market value of businesses, whereas physical assets are becoming less significant. (Garanina, 2009), The study "The function of intangible assets in value creation: the case of Russian enterprises" looked at the influence of the fundamental value of both tangible and intangible assets on the market value of Russian companies' assets. It was discovered that in order to determine the fair market value of a company's tangible assets, the value of intangible assets must be modified. Understanding how intangible assets are transformed into a value is critical due to the strategic importance of intangible asset management for a company's competitiveness. Managers should be able to make better-informed decisions on intangible asset allocation and management as a result of this knowledge. (Ghosh, 2009), According to the findings of this study, there is a positive relationship between a firm's Intellectual Capital and its Profitability (ROA). However, the relationship between IC and Productivity (Asset Turnover Ratio) as well as IC and market valuation is not significant (Market-to-Book Value). (Kamath, 2007), The notion of Value Added Intellectual Coefficient is used to assess and evaluate the value added to a company by its IC (VAIC). According to the author, value is generated only when resource efficiency is leveraged, and value-added growth in absolute terms is not a measure for assessing value creation; instead, if VAIC™ is rising, value is being created. (Athma.P, 2006), The value of IC was calculated using financial data from three organizations: Infosys Technologies Ltd., Satyam Computers Ltd., and Dr. Laboratories. Reddy's the reasons for fluctuations in the value of IC at these companies were also investigated. For IC measurement, the market value-added technique is used. (Hall, 2001), In "Market value and patent citations" proved the presence of dependence between the number of patents available in a company and its market value, in particular that the additional disclosure of information about patents increases the market value of the company by 3%.

Objectives

- To analyze the impact of Intangible assets on profitability of Nifty Pharma Constituents.
- To analyze the impact of Intangible assets on Firm value of Nifty Pharma Constituents.

Hypothesis

H0₁: There is no significant impact of Intangible assets on profitability of Nifty Pharma Constituents.

H0₂: There is no significant impact of Intangible assets on Firm value of Nifty Pharma Constituents.

Data and Methodology

The paper primarily focuses on analyzing the impact of intangible assets on the profitability and firm value of Nifty Pharma index constituents. For the analyses the secondary data has been collected from 2016 to 2021. The Intangible assets (ITA ratio) has considered as independent variable, the ROA, ROE, ROIC and PAT are dependent variables to measure the profitability and Tobin-Q, PB ratio and EVA are dependent variables to measure the firm value of Nifty Pharma Constituents. The analyses starts with by understanding the descriptive statistics i.e., mean, minimum, maximum, standard deviation, skewness, kurtosis, J-B statistic and concludes by interpreting the regression outcomes.

Analysis and Interpretation

Table 1. Descriptive Statistics

	ITA Ratio	ROA	ROE	ROIC	PAT	PB Ratio	Q	EVA
Mean	8.543097	7.949833	13.97033	11.56600	9.544009	3.807167	2.135177	8.737338
Median	8.160126	6.995000	13.68500	10.09500	9.560539	3.340000	1.977295	8.983544
Maximum	24.96073	22.96000	33.93000	31.30000	11.26911	10.37000	8.444987	10.75207
Minimum	0.056586	-1.070000	-2.140000	-3.710000	5.353752	0.730000	0.252914	4.552283
Std. Dev.	5.811695	4.885208	7.107035	7.141802	0.842277	1.859502	1.389562	1.230016
Skewness	0.759764	0.832954	0.212142	0.585038	-1.932226	0.885620	2.003565	-1.847411
Kurtosis	3.227652	3.623342	2.998718	3.361792	11.91227	4.009526	9.166487	7.567151
Jarque-Bera	5.901980	7.909505	0.450045	3.749927	231.9746	10.39109	135.2066	53.20381
Probability	0.052288	0.019163	0.798498	0.153361	0.000000	0.005541	0.000000	0.000000

Source: Compiled from Eviews

As per above Table 1, provides a summary of the descriptive statistics of the firms examined. The mean of ROE was 13.9703 followed by ROIC 11.566, PAT 9.544, EVA 8.7373, ITA Ratio 8.5430, ROA 7.9498, PB Ratio 3.8071, and Q 2.1351. The standard deviation of ROIC 7.1418, followed by ROE 7.1070, ITA Ratio 5.8116, ROA 4.8852, PB Ratio 1.8595, Q 1.3895, EVA 1.2300, and PAT 0.8422. The skewness of Q 2.0035 followed by PB Ratio 0.8856, ROA 0.8329, ITA Ratio 0.7597, ROIC 0.5850, ROE 0.2121, EVA -1.8474, and PAT -1.9322. The kurtosis of PAT 11.9122 followed by Q 9.1664, EVA 7.5671, PB Ratio 4.0095, ROA 3.6233, ROIC 3.3617, ITA Ratio 3.2276, and ROE 2.9987. The Jarque-Bera of 231.9746 followed by Q 135.2066, EVA 53.2038, PB Ratio 10.3910, ROA 7.9095, ITA Ratio 5.9019, ROIC 3.7499, and ROE 0.4500.

The regression equation is as follows:

$$Y_i = \alpha_0 + \alpha_1 X_i + \epsilon_i$$

Table 2: Regression Analysis results:

Table 2.1: Dependent Variable: ROA				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.67829	1.052129	10.14923	0.0000
ITA RATIO	-0.319376	0.102097	-3.128171	0.0028
R-squared	0.144359	Mean dependent var		7.949833
Adjusted R-squared	0.129607	S.D. dependent var		4.885208
S.E. of regression	4.557648	Akaike info criterion		5.904256
Sum squared resid	1204.785	Schwarz criterion		5.974067
Log likelihood	-175.1277	Hannan-Quinn criter.		5.931563
F-statistic	9.785452	Durbin-Watson stat		0.956853
Prob(F-statistic)	0.002751			

$$\text{ROA} = \text{C} + \text{ITA RATIO} +$$

$$\text{ROA} = 10.67829 + -0.402527 \text{ ITA RATIO} +$$

As per the above table 2.1, shows the impact of the intangible assets ratio (ITA RATIO) on return on assets for all of the companies in the sample (ROA). The R squared and corrected numbers, respectively, explain 14% and 13% of the ROA. The probability value of the ITA RATIO is 0.0028, which is statistically significant at the 5% level of significance; thus, the ITA RATIO has a considerable impact on explaining the ROA. The series demonstrates positive autocorrelation, according to the Durbin Watson test result of 0.9568.

Table 2.2:Dependent Variable: ROE				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16.55176	1.603425	10.32275	0.0000
ITA RATIO	-0.302165	0.155594	-1.942014	0.0470
R-squared	0.061054	Mean dependent var		13.97033
Adjusted R-squared	0.044866	S.D. dependent var		7.107035
S.E. of regression	6.945774	Akaike info criterion		6.746909
Sum squared resid	2798.139	Schwarz criterion		6.816721
Log likelihood	-200.4073	Hannan-Quinn criter.		6.774216
F-statistic	3.771420	Durbin-Watson stat		1.028558
Prob(F-statistic)	0.046997			

$$\text{ROE} = \text{C} + \text{ITA RATIO} +$$

$$\text{ROE} = 16.55176 + -0.302165 \text{ ITA RATIO} +$$

From Table 2.2, explains the regression outcome of all sampled companies intangible assets ratio (ITA RATIO) impact on return on equity (ROE). The R squared and adjusted figures explain the ROE with 06% and 04 % respectively. The probability value of ITA RATIO is 0.0469 which is statistically significant at a 5% level of significance; hence conclude that the ITA RATIO has no significant impact in explaining the ROE. Durbin Watson test statistic value 1.0285 which indicates that the series exhibits positive autocorrelation.

Table 2.3:Dependent Variable: ROIC				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.08048	1.566887	9.624485	0.0000
ITA RATIO	-0.411383	0.152048	-2.705610	0.0089
R-squared	0.112068	Mean dependent var		11.56600
Adjusted R-squared	0.096759	S.D. dependent var		7.141802
S.E. of regression	6.787497	Akaike info criterion		6.700807
Sum squared resid	2672.067	Schwarz criterion		6.770618
Log likelihood	-199.0242	Hannan-Quinn criter.		6.728114
F-statistic	7.320326	Durbin-Watson stat		1.000127
Prob(F-statistic)	0.008937			

$$\text{ROIC} = \text{C} + \text{ITA RATIO} +$$

$$\text{ROIC} = 15.08048 + -0.411383 \text{ ITA RATIO} +$$

In table 2.3, explains the influence of the intangible assets ratio (ITA RATIO) on return on invested capital for all selected enterprises (ROIC). The R squared and adjusted statistics explain the ROIC with 11 and 9%, respectively. The probability value of ITA RATIO is 0.0089, which is statistically significant at the 5% level of significance; hence, the ITA RATIO has a substantial influence on explaining the ROIC. The series has positive autocorrelation, as indicated by the Durbin Watson test statistic value of 1.0001.

Table 2.4: Dependent Variable: Q				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.766747	0.307679	8.992315	0.0000
ITA RATIO	-0.073928	0.029857	-2.476084	0.0162
R-squared	0.095601	Mean dependent var		2.135177
Adjusted R-squared	0.080008	S.D. dependent var		1.389562
S.E. of regression	1.332815	Akaike info criterion		3.445229
Sum squared resid	103.0310	Schwarz criterion		3.515040
Log likelihood	-101.3569	Hannan-Quinn criter.		3.472536
F-statistic	6.130990	Durbin-Watson stat		0.926037
Prob(F-statistic)	0.016223			

$$Q = + \text{ITA RATIO} +$$

$$Q = 10.67829 + -0.402527 \text{ ITA RATIO} +$$

The analysis shown in above Table 2.4, explains the regression outcome of all sampled companies' intangible assets ratio (ITA RATIO) impact on Tobin q (Q). The R squared and adjusted figures explain the Q with 09% and 08% respectively. The probability value of ITA RATIO is 0.0162, which is statistically significant at 5% level of significance; hence conclude that the ITA RATIO has a significantly impact in explaining the Q. Durbin Watson test statistic value 0.9260, which indicates that the series exhibits positive autocorrelation.

Table 2.5: Dependent Variable: PB RATIO				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.388811	0.423034	10.37461	0.0000
ITA RATIO	-0.068084	0.041050	-1.658533	0.1026
R-squared	0.045279	Mean dependent var		3.807167
Adjusted R-squared	0.028818	S.D. dependent var		1.859502
S.E. of regression	1.832513	Akaike info criterion		4.082018
Sum squared resid	194.7700	Schwarz criterion		4.151830
Log likelihood	-120.4606	Hannan-Quinn criter.		4.109326
F-statistic	2.750732	Durbin-Watson stat		0.984733
Prob(F-statistic)	0.102609			

$$\text{PB RATIO} = + \text{ITA RATIO} +$$

$$\text{PB RATIO} = 4.38881 + -0.06808 \text{ ITA RATIO} +$$

The above table 2.5, shows the influence of intangible assets ratio (ITA RATIO) on price to book value ratio for all tested firms (PB RATIO). With 04 per cent and 02 per cent, the R squared and adjusted numbers describe the PB RATIO, respectively. The probability value of the ITA RATIO is 0.1026, which is not statistically significant at the 5% level of significance; hence, the ITA RATIO is not substantially explaining the PB RATIO. The test statistic for Durbin Watson is 0.9847, indicating that the series has positive autocorrelation.

Table 2.6: Dependent Variable: PAT				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11824.23	2634.245	4.488658	0.0000
INTANGIBLE ASSETS	0.256019	0.085455	2.995949	0.0040
R-squared	0.134014	Mean dependent var		17831.32
Adjusted R-squared	0.119084	S.D. dependent var		14100.03
S.E. of regression	13233.89	Akaike info criterion		21.85171
Sum squared resid	1.02E+10	Schwarz criterion		21.92153
Log likelihood	-653.5514	Hannan-Quinn criter.		21.87902
F-statistic	8.975713	Durbin-Watson stat		1.312204
Prob(F-statistic)	0.004020			

$$\text{PAT} = + \text{ITA RATIO} +$$

$$\text{PAT} = 11824.23 + -0.250619 \text{ INTANGIBLE ASSETS} +$$

As per the table 2.6, explains the regression outcome of all sampled companies' intangible assets impact on profit after tax (PAT). The R squared and adjusted figures explain the PAT with 13% and 11% respectively. The probability of intangible assets is 0.0040, which is statistically significant at a 5% level of significance; hence conclude that the intangible assets have a significantly impact in explaining the PAT. Durbin Watson test statistic value 1.3122, which indicates that the series exhibits positive auto-correlation.

Table 2.7:Dependent Variable: EVA				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4556.565	3867.610	1.178135	0.2436
INTANGIBLE ASSETS	-0.195349	0.125466	-1.556992	0.1249
R-squared	0.040120	Mean dependent var		-26.99564
Adjusted R-squared	0.023570	S.D. dependent var		19663.17
S.E. of regression	19430.05	Akaike info criterion		22.61979
Sum squared resid	2.19E+10	Schwarz criterion		22.68961
Log likelihood	-676.5938	Hannan-Quinn criter.		22.64710
F-statistic	2.424224	Durbin-Watson stat		1.260239
Prob(F-statistic)	0.124913			

EVA= + INTANGIBLE ASSETS +

EVA=4556.56 + -0.195349 INTANGIBLE ASSETS +

From table 2.7 explains the regression result of all chosen firms' intangible asset influence on economic value add (EVA). The R squared and corrected numbers explain the EVA by 4% and 2%, respectively. The probability value of intangible assets is 0.124913, which is not statistically significant at a 5% level of significance; hence, it is concluded that intangible assets have no significant influence on explaining EVA. The Durbin Watson test statistic result is 1.2602, indicating that the series has positive autocorrelation.

Conclusion

The study has been undertaken to establish the relationship and impactful association between the intangible assets and the profitability and firm value creation of the Nifty Pharma companies. The overall study has shown that there is a significant impact of intangible assets on profitability- Return on assets (ROA), return on equity (ROE), return on capital investment (ROIC), and profit after tax (PAT). Further, the study found that intangible assets also had a positive significant relationship with firm value as measured by the Tobin Q ratio (Q). Price to book ratio (PB ratio) and economic value added (EVA) had no significant relationship with nifty pharma constituents' intangible assets. The study outcomes have been useful to investors, policy decision makers, and also different stakeholders. Further studies can be undertaken with different industries and also global comparisons can be conducted to establish a meaningful relationship with the intangible assets.

Referencs

1. Athma.P, K. S. (2006). measurement of Intellectual Capital, A study of selected companies. *Indian Journal of Accounting June*.
2. Belem, V. &. (2012). A influencia dos ativos intangíveis na rentabilidade do patrimônio líquido das empresas brasileiras,. *Congresso USP de Controladoria e Contabilidade*, Vol.12.
3. Bhattacharjee, S. &. (2022). Intellectual capital efficiency and firm performance: evidence from an emerging knowledge-economy. *International Journal of Learning and Intellectual Capital*, 19(1), 30-52.
4. Buzinskiene, R. &. (2021). The Impact of Intangible Assets on the Company's Market Value. *Montenegrin Journal of Economics*, , 17(2), 59-73.
5. Gamayuni, R. R. (2015). The effect of intangible asset, financial performance and financial policies on the firm value. *International Journal of scientific and technology research*,, 4(1), 202-212.
6. Garanina, T. (2009). The role of intangible assets in value creation: case of Russian companies. *Perspectives of Innovations, Economics and Business, PIEB*,, 3(3), 92-94.

7. Ghosh, S. &. (2009). Indian software and pharmaceutical sector IC and financial performance. . *Journal of intellectual capital*.
8. Hall, B. H. (2001). The NBER patent citation data file: Lessons, insights and methodological tools. *NATIONAL BUREAU OF ECONOMIC RESEARCH*.
9. Kamath, G. B. (2007). Intellectual capital statements: what do they measure and report?. . *The IUP Journal of Accounting Research and Audit Practices*, , 6(4), 52-64.
10. Lev, B. (. (2001). Intangibles: Management, Measurement, and Reporting, . *The Brookings Institution. Washington DC, USA*.
11. Lew, S. H. (2015). Investment expenditures and firm value. . *SSRN 2695674*.
12. Maji, S. G. (2016). Intellectual capital and firm performance in emerging economies: the case of India. . *Review of International Business and Strategy*.
13. Moeller, K. (2009). Intangible and financial performance: causes and effects. . *Journal of intellectual capital*.
14. Nadeem, M. G. (2017). Does intellectual capital efficiency improve firm performance in BRICS economies? A dynamic panel estimation. *Measuring Business Excellence*.
15. Nagaraja, N. &. (2016). . The Effect of Intangible Assets on the Firm Value. *International Journal of Engineering and Management Research (IJEMR)*, , 6(1), 307-315.
16. Pandya, H. &. (2015). Relationship between intangible assets and firm value: a study of selected Indian companies. . *ZENITH International Journal of Business Economics & Management Research*, , 5(1), 132-148.
17. Russell, M. (2016). The valuation of pharmaceutical intangibles. . *Journal of Intellectual Capital*.
18. Salamudin, N. B. (2010). Intangible assets valuation in the Malaysian capital market. . *Journal of Intellectual Capital*.
19. Saunila, M. &. (2014). Intangible aspects of innovation capability in SMEs: Impacts of size and industry. . *Journal of Engineering and Technology Management*,, 33, 32-46.
20. Smriti, N. &. (2018). The impact of intellectual capital on firm performance: a study of Indian firms listed in COSPI. *Journal of Intellectual Capital*.
21. Swanson, Z. L. (2018). Internal intangible asset effect on firm valuation. *Available at SSRN 3134117*.
22. Tandon, K. P. (2016). Measuring intellectual capital and its impact on financial performance: Empirical evidence from CNX Nifty Companies. *Global Business Review*, 17(4), 980-997.
23. TomA, I. &. (2007). Intangible Assets Identification and Valuation- a Theoretical Framework Approach to the Portuguese Airlines Companies. *Electronic Journal of Knowledge Management*,, 5(2), pp191-200.
24. Van Ark, B. H. (2009). Measuring intangible capital and its contribution to economic growth in Europe. *EIB papers*,, 14(1), 62-93.
25. Vasconcelos, T. F. (2019). The impact of intangibles of german, english and portuguese companies: from 1999 to 2016. . *RAM. Revista de Administração Mackenzie*,, 20.
26. Vishnu, S. &. (2014). Intellectual capital and performance of pharmaceutical firms in India. . *Journal of intellectual capital*.
27. Xu, J. &. (2018). Intellectual capital, financial performance and companies' sustainable growth: Evidence from the Korean manufacturing industry. *Sustainability*,, 10(12), 4651.
28. Xu, J. &. (2020). The impact of intellectual capital on firm performance: a modified and extended VAIC model. . *Journal of Competitiveness*, , 12(1), 161.

