AN ANALYSIS OF IMPACT OF INTELLECTUAL CAPITAL ON FINANCIAL PERFORMANCE IN INDIAN SOFTWARE FIRMS

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Abstract

Purpose – An analysis of impact of intellectual capital on financial performance in Indian software firms.

Design/Methodology/Approach – The study is based on assumption that intellectual capital is having a positive affects firm's financial performance and it is more perceptible in software sector. For the purpose, secondary data related to intellectual capital and financial performance has been collected for three years (From 2011 to 2014). The analysis has been done using Random Effect panel regression model.

Findings – The intellectual capital are positively associated with firm's financial returns.

Practical implications – Positive association between intellectual capital and firm's financial performance in software sector point out the need to look at their intellectual capital in a more nuanced manner.

Originality/value – The determination of impact of intellectual capital on financial performance sector of Indian software industry has not been researched so far.

Keywords – Intellectual capital; Knowledge management; Software sector.

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Introduction

Capital is the money or wealth for the purpose of producing goods and services. Basically the capital is termed as money. Broadly there are two type of capital one is financial capital and another is intellectual capital. The financial capital is used as on the monetary term which includes the capital used by business man for driving his business activities. Moreover, it is a liquid medium or mechanism which represents wealth and other styles of capital. It is a purchasing power in form of money available for the production or purchasing of goods etc. Knowledge, expertise, stakeholders, customer relations, brands and other intangibles are the basic factors for identifying and analysing the company's value drivers and business processes. Intellectual capital is a relatively recent concept that quickly gained ground because organizations increasingly tend to develop models based on knowledge where the human factor plays a central role. An increasingly turbulent and changing business environment constrains firms to seek alternative solutions to the problems they face and to use all their available resources more efficiently. Intellectual capital is generally intangible in nature. In which IC includes without physical work activities and to identify opportunities to increase the intellectual capital of the company. IC has the broader area in the field of the industrial sector. Intellectual capital can be a source of competitive advantage for businesses and stimulate innovation that leads to wealth generation. IC is not the derivative of the financial balance sheet. The raw materials are called a physical but knowledge of the formula for pepsi is an intellectual asset. Which is they used few cents' worth of sugar, water, carbon dioxide, and flavours into a dollar's worth of refreshment.

The concept of intellectual capital gained momentum in the 1990s with the rapid emergence of information and communication technologies. The Organisation for Economic Co-operation and Development (2000) describes intellectual capital as the economic value of two categories of intangible assets of a company: organizational capital and human capital. It is possession of knowledge, applied experience, organizational technology, customer relationships and professional skills that provide a competitive edge in the market (Edvinsson, 1997). As a consequence it signifies that information is an important factor of production along with land, labour, capital and energy. It is the prime source of organisation that needs to be sustained, nurtured and accounted for. (Natrajan and Ganesh, 2003) describe Intellectual capital as the

documented knowledge available in the form of research papers, reports, books, articles, manuscripts, patents and software. (Magdaraog, 2004) believes that the essence of knowledge capital does not lie in its creation or codification rather in its use and realization because knowledge created and codified is worthless until it is put to use and people benefit from its use. The intellectual capital can be further classified as structural capital, human capital, customer capital and relational capital.

Human capital is a source of innovation and strategic renewal, whether it is from brainstorming, daydreaming at the office, throw out the old files, re-engineering new processes, improvement in personal skills or developing new leads in a sale. The presence of human capital is the increase the intelligence of the organizational member. The human capital is limited to the knowledge oriented (mind of the employee). Examples of Human Capital is Revenue generated per employee, number of senior positions filled by junior staff, training spent per employee, average length of service of staff, staff turnover, educational level of staff, new ideas generated by staff, value added per employee.

The strong structural capital develops culture that allows individuals to try things, to fail, to learn, and to try again. If the culture failure, its success will be nominal. Structural capital gives the information about the intellectual capital to be measured and developed in an organization. Without structural capital, intellectual capital is same as human capital. This contains elements of efficiency, transaction time, procedural innovativeness and access to information for codification into knowledge. These elements support for the cost minimization and profit maximization per employee. The examples are Income per R&D expense, individual computer links to database, number of times database has been consulted, upgrades of database, contributions to database, number of patents, number of new product introductions.

As far as customer's capital is concerned it is associated with customer's loyalty which can be predicted by measuring employees' loyalty. The customer capital represent a unit of an organisation overall intellectual capital. The customer capital is the value of relationships with suppliers, allies, and customers. Two common forms are brand equity and customer loyalty. The former is a promise of quality (or some other attribute) for which a customer agrees to pay a

premium price; the value of brands is measurable in financial terms. The loyalty of a base of customers is also measurable, using discounted cash flow analysis. Both are frequently calculated when companies are bought and sold. The relational capital and customer capital has the minimum difference in the sense of intellectual capital. The relational capital builds on the relationships between the organisation and its customers, suppliers, competitors, partner's relational capital refers to the ability of the organisation to interact in a positive manner with the external stakeholder, and in doing so maximise the wealth. The examples are Growth in sales volume, revenues per customer, brand loyalty, customer satisfaction, customer complaints and reputation of company.

After analysing different dimensions of capital another issue of concern is the sector for which level of intellectual capital have to be analysed. Generally, the services based industries like (software, financial services, BPO, media, healthcare, pharmaceutical industries etc.) emphasize on intangible assets. In its 11th five year plan (2007- 08), the Planning Commission, Government of India highlighted that Information technology had made a revolutionary change in the history of global trade and services. Today, India has made its presence felt in the Information Technology world and is considered as the premier destination for the global sourcing of Information Technology and IT-enabled Services. Further, the companies that measure intangibles may experience substantial gains. For example, Leif Edvinsson, former corporate director for intellectual capital at Swedish financial services company Skandia AFS, claims that a reduction in the cost of capital of 1 per cent was directly attributable to the company's ability to measure and report its intangibles. According to the Dun and Bradstreet surveys (2008) depicts that the contribution of the Information Technology industry to the GDP of India has grown significantly from 1.8% in 1999-2000 to around 5.4% in the financial year 2007. According to The National Association of Software and Services Companies (NASSCOM), the size of the Indian Information Technology industry was estimated to be approximately US$ 47.8 billion in the financial year 2007. The exports market constitutes the largest segment accounting for around 65.5% of the total revenue generated by the Indian Information Technology industry, including hardware. It is more aggressive in tapping the global market. Thus, it is in the convenient to interpret that during the last few years, Indian Information Technology companies have established themselves in the global market and the country is on the threshold of becoming

a knowledge superpower because one of its strongest assets as a nation is the toiling nature and creativity of its people.

Review of literature

The review of literature shows that a number of studies have been conducted `worldwide, and only few studies found in India are also inconclusive. There is a need for literature on the subject in the Indian context. In addition, there is an increasing significance of intangible assets in the Indian corporate sector.

A few researchers have examined the interrelationship among intellectual capital measures within the Malaysian business context (Bontis et al., 2000). As an extension of the Bontis (2000) study, we hope to support a similar set of hypotheses. They provide the results as on exists a positive relationship between sub-constructs of intellectual capital and business performance regardless of industry. Bontis (2000) Uses the "Cronbach's alpha" test was used to evaluate the reliability of the measures as suggested by Nunnally (1978). Churchill (1979) suggests that this calculation be the first measure one uses to assess the quality of the Instrument the sample size of 107 respondents is high enough for PLS. Partial Least Squares (PLS) is a structural equation modelling technique typically chosen for handling relatively small data samples.

Table1: Review of literature

Author(s) with year	Term	Categorization
Brooking (1996)	Intellectual Capital	Market assets, human-centered assets, intellectual property and infrastructure assets
Edvinssion (1997)	Intellectual capital	Human capital, organizational capital and customer capital
Edvinssion and Malone (1997)	Intellectual capital	Human capital and structural capital
Roos and Roos (1997)	Intellectual Resources	Human capital and structural capital
Sveiby (1997)	Immaterial	Internal structure, External structure and

	values	personnel competence
Stewart (1998)	Intellectual Capital	Human capital and structural capital and customer capital
Bontis et al (2000)	Intangible resources	Human capital and structural capital
Canibano et al. (2000)	Intangibles	Human capital and structural capital and relational capital
Brennan and Connel (2000)	Intellectual Capital	Internal structure, External structure and human capital
Sullivan (2000)	Intellectual Capital	Human capital, Intellectual assets that include intellectual property
Gu and Lev (2001)	Intangible assets	Advertising, IT, capital expenditures and human resource practices

Research methodology and Sample design

The sample used in this study is composed of all IT sector Indian companies listed in the stock exchange (NSE) for which annual corporate governance reports from 2011 to 2014, were available on prowess database. Over the three-year period, several companies were delisted, merged or acquired. Some companies which incurred huge losses and whose balance sheets degenerated into negative net worth were eliminated. A few companies were also suspended from trading while others did not submit their annual reports for at least one of the four - years to the NSE. Further, some companies did not register any trading of their shares for a whole year. Given these limitations and constraints, 35 firms met required criteria, for a total of 105 observations. The dependent variable includes profit after tax (PAT) and total asset. And independent variable includes total Income, total expenses, salaries and wages, current liabilities, total asset and other expenses.

Hypothesis 1: The probability is positively associated with C (dependent variables)

Hypothesis 2: The probability is positively associated with VAIC (independent variables)

Analyzing the link between the intellectual capital and the company's growth reveals that the dynamic of business is influenced primarily by human and structural capital, customer capital and relational capital and not essentially by the financial return of the companies.

ROA= C+VAIC*b

VAIC= VACA + VAHU + STVA

Return on Assets (ROA): Profitability shows the degree to which a firm's revenues exceed its cost. ROA is an indicator of how profitable a company is in relation to its total assets. It gives an idea as to how efficient the management uses assets to generate earnings. It is the ratio of the net income (less preference dividends) divided by book value of total assets as reported in the annual reports; (Williams and Firer, 2003). It is expressed mathematically as:

ROA=Profit after tax / Total Assets

VAIC= VACA + VAHU + STVA

Value Added Intellectual Co efficient (VAIC)

The Value Added Intellectual Coefficient (VAIC) methodology forms the underlying measurement basis for the independent variable in the present study. In his words VAIC is an analytical procedure designed to enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of value added by a firm's total resources and each major resource component. VAIC is the sum of two indicators. These are: (i) Capital Employed Efficiency (CEE) –the indicator of VA efficiency of capital employed; and (ii) Intellectual Capital Efficiency (ICE) – the indicator of VA efficiency of company's Intellectual Capital base. Intellectual Capital Efficiency, on the other hand, is composed of (a) Human Capital Efficiency (HCE) – the indicator of VA efficiency of human capital; and (b) Structural Capital Efficiency (SCE) – the indicator of VA efficiency of structural capital.

Value Added Intellectual Coefficient (VAIC) model to compare both the intellectual capital indices as well as the financial performance variables of 35 highly rated companies in the NSE with the aim of determining their financial performance indices could be explained by the

deviations in the companies' intellectual capital variables. After that manipulating these data related to the Value Added Intellectual Capital. These are: VA expresses the new created wealth of a period. And the VA is impacted by the efficiency of human capital and structural capital

VA - value added = Total income – total expenses + salaries and wages

CA generates the greater return in one company than another so the first company is better at utilization of its CA. Thus, better utilization of CA is part of the IC of the companies. When compared over a group of companies.

CA - Physical Capital = capital employed = total asset – current liabilities

Human capital indicators is salaries and wages of the companies and indicates that the ability of HC to create value in a company.

HC - Human Capital = Salaries and wages

Structural capital shows that the capital employed of the companies and they provide the information about the lesser the contribution of HC in value creation the greater is the contribution of SC.

SC - Structural Capital =   Capital employed = Total asset – current liabilities

VACA – Value added capital coefficient = Value added/ physical capital

VAHU - Human capital coefficient = Value added/Human capital

STVA - Structural capital coefficient = Structural capital/Value added

VAIC is measure the companies and provides the information about the value creation efficiency of tangible and intangible assets within a company.

VAIC - Value Added Intellectual Capital =   VACA + VAHU + STVA

Result and discussion

Table 2: Descriptive statistics

Variables	statistics	2011	2012	2013	2014
Total income	Mean	164372.98	193726.45	207229.45	210640.20
	Standard Deviation	384602.50	429084.97	461246.02	437262.48
	Maximum	2242607.7	2525652.6	2726627.2	2561368.1
Total expenses	Mean	151511.01	175008.40	188392.66	190789.36
	Standard Deviation	380745.59	426031.18	457636.78	420237.42
	Maximum	2235512.7	2513943.3	2706330.1	2465412.8
Salaries and wages	Mean	10841.01	7090.78	8284.20	8702.72
	Standard Deviation	18273.05	9067.50	10585.06	10186.73
	Maximum	100661.3	41421	42034.9	37195.5
Current liabilities	Mean	45319.48	43378.68	48416.25	51315.97
	Standard Deviation	71803.82	67574.08	73262.20	76644.86
	Maximum	335684.3	292425.3	266849.4	277713.3
Total asset	Mean	514357.44	652950.33	764355.26	827308.99
	Standard Deviation	1129452.55	1345041.69	1634946.05	1782105.94
	Maximum	4473214.7	5471354.5	6595045.4	7149885.5
Capital employed	Mean	474165.01	6095711.65	715939.01	775993.02
	Standard Deviation	1104743.73	1315489.03	1597687.31	1739416.34
	Maximum	4386270.3	5342524.4	6440944.9	6956228.9
Other expenses	Mean	6077.06	1037.41	955.62	1416.35
	Standard Deviation	17745.73	1966.67	2043.92	2817.49
	Maximum	100661.3	7066.5	8096.7	11560.9

These tables' shows that the mean value, standard deviation and maximum values of the companies and these calculations calculated with the help of excel sheet including in mega stat Software. In which table's shows that the mean value of the total income the highest mean value is 210640.20 in the year of 2014, and the standard deviation of the total income is high

461246.02 in which the year of 2013, the total maximum value of the total income is 2726627.2 in the year of2013.

In which total expenses the highest mean value in the year of 2014 the value is 190789.36 and shows the total average of the expenses the standard deviation of the total expenses 457636.78 in the year of 2013.the total maximum value is 2706330.1 in the year of 2013.

The total salaries and wages is paid average by the companies in the year of 2014 is the total mean is 8702.72,and the standard deviation of these companies is 18273.05 in the year of 2011,the total maximum value in the year of 2011 is high.

The highest average of the current liabilities in the companies is 51315.97 in the year of 2014 is called the mean value, and the standard deviation is high in the year of 2014 is 76644.86, the total maximum value of the current liabilities is 335684.3 is in the year of 2011.

The highest value of the total asset is increased in the year of 2014 is 827308.99 these shows the mean value of the companies. The standard deviation of the total asset is high in the year of 2014 is 1782105.94 and the maximum value of these companies is high in the year of 2014 is 7149885.5.

The total mean value of the companies is in which the other expenses is high in the year of 2011 is 6077.06, the standard deviation of the other expenses is high in the year of 2011 is 17745.73, and the maximum value of these companies in which other expenses is high in the year of 2011 is 100331.3.

The total tables is shows the positive relation in which variables the highest values show the efficiency of the companies more reliable in those year which shows the high rate of capital expenditure by the companies in exchanges with the positive impact. They provide the positive financial return in the companies.

In the table show the Intellectual Capital in ROA coefficient are 0.617438 and it show positive correlation and its effective utilization are sufficient for the intellectual capital because its positive correlation.

The next is VAIC in table show in ROA are 0.001072 and it shows positive correlation and its effective utilization is sufficient for intellectual capital because it's positive correlation. In intellectual capital ROA are positive coefficient correlation and we can say that the effect of intellectual capital is positive and correlation is positive? In VAIC are positive coefficient correlation and we can say that the effect of intellectual capital is positive and correlation is positive?

In which intellectual capital the probability of the dependent variables are significant level are more than so that we accept the null hypothesis we can say that the positive impact on the intellectual capital. In intellectual capital in VAIC are positive coefficient correlation and we can say that the effect of intellectual capital on financial returns of the companies is positive impact? In intellectual capital the probability are significant level are more than so that we accept the null hypothesis.

Table 3: Panel regression

Variables	Coefficient	Standard error	Probability
C	0.617438	0.010654	0.000000
VAIC	0.001072	0.000203	0.000000

C is called the ROA (Return on Assets) under in the dependent variables. And the VAIC is called the Value added Intellectual Capital it is included in the independent variables. companies performance are positively related In which table the dependent variables and independent variables shows the probability is 0.000000 it means the hypothesis value is not negative the value is positive it means the hypothesis is highly significance of the coefficient of these variables shows the positive impact in these companies.

Conclusion

We can say that the investment in the intellectual capital is creates the good impact on the financial return of the companies. In this study we analyse the intellectual capital in the various financial companies. We find that the intellectual capital are positive in relation with the financial return of the companies are positive impact because ROA in intellectual capital are positive and significant level are more than of probability. In this study the intellectual capital and the financial return of the companies are positive correlation on Indian companies and it will helpful and useful for the financial return of the Indian companies. Both the two variables are show the positive correlation in the Indian companies and create the positive impact.

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