Voluntary Reporting of Intellectual Capital: Scenario of a Developing Economy

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A B S T R A C T

Objective: This is an exploratory study, which focuses on two issues: (a) mapping the current state of intellectual capital (IC) reporting scenario, and (b) attempt to measure the value of IC by the selected 8 companies in the Indian pharmaceutical industry during the 5 financial years.
Methods: The Modified Intangible Assets Monitor is used to capture the reporting of elements of the IC framework. The technique used for calculation of reporting index is content analysis applying the five-point rating scale.
Results: The findings show that, on an average, the sample companies reported a positive value of IC; significant correlation has been noticed between tangible assets (TA) and net operating profits (NOP). However, no significant difference was found between percentage of IC to MV, and per cent of TA to MV. The study finds wide-disparity, low-level, and purely voluntary nature of the ICR made by the selected companies. But as expected, IC reporting are very low and substantially differs across these companies. First three top ICR scorers were: Dr. Reddy's, Aventis Pharma and Aurbindo; they get first, second and third ranks.
Conclusion: The IC reporting done by the sample companies does not adequately fulfill the information needs of stakeholders, and hence companies need to report more meaningful information in their annual reports or in separate IC Reports. Furthermore, the above analysis reveals that the IC Reporting among Indian pharmaceutical companies is very low. It is recommend to the international accounting bodies, to take the lead by establishing a harmonized ICR standard, and provide guidance to the big listed companies for proper measurement and disclosure of IC, both for internal and external users.

Keywords: Intellectual capital, Financial reporting, Market & book value, Developing economy.

INTRODUCTION

The world is changing very rapidly from an 'industrial' economy to a 'knowledge' economy, and the Indian economy has attracted the attention of the whole globe, with its fast growing knowledge sectors. The rise of the knowledge economy underpins the importance of knowledge management, intellectual capital, and innovation in economic development[1]. In the modern innovation-driven world, learning and the command of IC have become the 'key' success factors of international competitiveness. New technologies based on this IC are playing the vital role in creating the more sophisticated product and the business of the future, which will be able to improve the quality of life and the global environment. Business organizations are realizing that knowledge is the most important factor in fully understanding the performance of their business for creating "economic value". Therefore, the future drivers of any modern economy will no longer be capital, land or equipment, but the "people" and their "knowledge" reservoir. According to Jose[2], "a knowledge-intensive company leverages their know-how, innovation and reputation to achieve success in the market place."

Business dynamics of the 21st century are increasingly determined and driven by Intellectual Capital (IC) elements. Recently, Survilaite[3] pointed out that "In the era of information and knowledge, effective use of IC is the most important factor that determines the success of a business. The traditional point of view has changed and companies have shifted their focus from investments into tangible assets to investments in intangible assets. IC is considered to be an intangible with human capital, structural capital, and customer capital as its components." According to Anuonye[4] "IC is the total of all human

efforts in the form of intangible assets which can be measured, and through which organizations can gain competitive advantage. The inability of firms to measure and quantify IC has posed fundamental problems overtime in the value measurement of firms." As far as the IC disclosure (henceforth, ICD) is concerned, unfortunately rarely some select organizations from across the world are 'consistently' providing ICD in their Annual Reports (in brief, AR). The global market place of new era will reward firms that value entrepreneurial risk-taking, invest heavily in developing their IC, promote growth, and adopt policies that are environmentally friendly. The future drivers of any modern economy will no longer be capital, land or equipment, but the "people" and their "knowledge" reservoir. A knowledge-intensive company leverages their know-how, innovation and reputation to achieve success in the market place. Market participants, practitioners and regulators alike argue that there is an important need for greater investigation and understanding of IC reporting (ICR) as the usefulness of financial information in explaining firm profitability continues to deteriorate. For example, Bukh[5] asserts that "traditional disclosure mechanisms are not able to cope adequately with the disclosure requirements of new economy firms. He observed an increasing dissatisfaction with traditional financial disclosure and its ability to convey to investors the wealth-creation potential of firms." The annual report has long outlived itself as the best source of corporate disclosure because it contains backwards looking information and is only a one-way means of presenting information rather than engaging with information users. Financial statements' limitation, both in measuring and reporting intangible assets information, is the fundamental cause of significant

difference between book value (BV) equity and market value (MV) equity. Systematic measurement and reporting of intangible assets (or IC) precisely and accurately is very important, because they have a positive and significant effect on the firm's market value.[6] Therefore, accounting standards should be concerned about this, without further delays. The inclusion of IC information in the corporate financial statements would "result in a balance sheet that more realistically describes the value of the company, and displays all relevant assets from which the company expects to obtain benefits in the coming years." IC is critical to sustaining competitive advantage and is a valuable source of wealth creation. Thus, in an ever increasing competitive world, ICR are an important and useful means to keep investors well-informed.[7] Although this is an appealing idea, unfortunately, it is not per definition of value to the disclosing company. In short, traditional financial metrics provide insight into "a company's short-term performance but may not be the best way to measure the long-term value creation."

Various estimates indicate that "intangible" assets currently constitute 60-75% of corporate value, on an average. For example, Lev[8] compared the investment pattern of 1929 and 1995 and concluded that "in 1929 among the U.S. companies, approximately 70% of their investment went into tangible assets (TA) and some 30% went to intangible assets. In contrast, in 1995 the trend was reversed. It was found that a major part (68%) of investment goes into intangibles, such as research and development, IT software, education and competences and internet."[9,10] In 2009, intangible assets were 81% of investments, and the rising trend will continue, see the graph as shown in **Figure 1**. Further, he compared that relationship between market value and book value of shares. In 1970 it

was 1:1 and in mid-1990 it had increased to an average of three times. This statistical information provided an insight into the growing importance of IC.

No doubt, intangible assets (or IC) are "enablers and sources of value to business, as they transform resources into value-added performance." Therefore, the corporate world is now devoting a lot of time and effort to manage its "intellectual" assets in order to improve its shareholder's wealth. Despite growing interest and demand for IC information, prior research till date suggests a persistent and significant variation, both in the 'quantity' and 'quality' of information reported by firms on this pivotal resource. As existing economic and business metrics track a declining proportion of the real-economy, the deficiency and inconsistency in the reporting of IC-related information is creating growing information "asymmetry" between 'informed' and 'uninformed' investors. This provides a fertile ground for informed investors to extract higher abnormal returns.[11] Thus, IC is increasingly being recognized as having much greater significance in creating and maintaining "competitive" advantage and shareholder "value". This clearly calls for a refreshed understanding of business principles, information reporting, and decision-making processes.

The concept of IC measurement, management and reporting is still relatively new. Accountants, business managers, and policy-makers have still to grapple with its concepts and detailed application.[9] As expected, definition of IC varies substantially. According to Stewart,[12] "It has become standard to say that a company's IC is the sum of its human capital (talent), structural capital (intellectual property, methodologies, software, documents, and other knowledge artifacts), and customer capital (client relationships)." One of the most comprehensive definitions of IC is

offered by the Chartered Institute of Management Accountants[13]: "The possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give organizations competitive advantage."

In fact, Sveiby[14] first proposed a classification for IC into three broad areas of intangibles, viz., Human capital, Structural capital and Customer capital—a classification that was later modified and extended by replacing customer capital by relational capital. Some examples of IC are shown in Box-1. The diagram is only a broad guide to the components of IC as the elements combine and interact with each other and with traditional capital elements (physical things and monetary elements) in ways unique to individual companies to create value.

Here, it should be noted that the terms intangible assets, knowledge assets/capital, or intellectual assets/capital are, very often, used as synonyms. The term intangible assets can often be found in the accounting literature, whereas the term knowledge assets is used by economists and IC is used in the management and legal literature, but all refer essentially to the same thing.

Why & How to Measure and Report Intellectual Capital (IC)?

The pressure from investors and emerging global markets, which are very demanding on the quality of information and analysis of business performance, have led some groups to voluntarily report information explaining their IC investments.[15] Hopefully, this information would complete the financial statements, provide evidence of the ability of firms to create value in the future, and give more credibility to the information summarized in the annual financial statements[16,17].

Companies may, therefore, want to measure IC for a variety of reasons. A study by Bernard[18] has identified the following five main reasons. First, measuring IC can help an organization to formulate business strategy. By identifying and developing its IC, an organization may gain a competitive advantage. Second, measuring IC may lead to the development of key performance indicators that will help evaluate the execution of strategy. IC, even if measured properly, has little value unless it can be linked to the firm's strategy. Third, IC may be measured to assist in evaluating mergers and acquisitions (M&A), particularly to determine the prices paid by the acquiring firms. Fourth, using non-financial measures of IC can be linked to an organization's incentive and compensation plan. However, the first four reasons are all internal to the organization. A fifth reason is 'external': to communicate to all stakeholders' what intellectual property the firm owns, how is it valued, and how much is its market worth, etc.? Undoubtedly, improving "external" reporting of IC can (1) close the gap between book value and market value, (2) provide improved information about the real value of the organization, (3) reduce information asymmetry, (4) increase the ability to raise capital by providing a valuation on intangibles, and (5) enhance an organization's reputation. Good measures of IC, of course, will complement financial measures, provide a feedback mechanism for actions, provides information to develop new strategies, assist in weighting different courses of action, and enhance the management of the business as a whole.[19]

In the business world where most of the organizational value is based on intangible assets (IA), the ability to recognize and estimate the sources of this value has become vital for companies. One way to measure knowledge assumes that the stock market implicitly performs the

valuation. In its simplest form, this method accepts "the market to be invariably accurate in its valuations, and that any excess valuation of a company over its book value will be the correct valuation of the company's intangible assets."[20] Thus, the market capitalization is made up of the value of the physical assets (book value) and an additional intangible value associated, which is recognized by the financial market but ignored by the balance sheet.[17] Generally, the relationship between Intellectual Capital and Market Value, in equation form, can be stated as:

Market Value (MV) = Book Value (BV) + Intellectual Capital (IC)

When there is a large disparity between a firm's "market" value and "book" value, that difference is often attributed to "IC". Market Value (MV) is, of course, the company's total shares outstanding times the stock market price of each. However, Book Value (BV) is the excess of total assets over total liabilities. Thus, MV can be calculated as: Number of ordinary shares outstanding multiplied by the share price plus the number of outstanding preference shares multiplied by the share price minus the book value of invested capital.[10, 4] This equation shows that MV has a tangible portion BV, in addition to an intangible component IC. Hence, supposing MV minus BV is greater than zero (MV- BV > 0); it shows that the company needs to make provision for both measuring and disclosing its IC. It can be assumed that the more knowledge-intensive the company is, the greater the IC value will be. The invisible equity of a firm can be considerably large depending on how effectively the firm is harnessing its IC. For companies in the service sector, it is disproportionately large in comparison to physical assets. Some of the prominent models/methods for measuring and estimating IC of a company are: Skandia

Navigator, Organizational IC, IC-index, Technology Broker's IC Audit, Intangible Asset Monitor, MVA and EVA, Citation Weighted Patents, Tobin Q's Ratio, Human Resource Accounting, Balanced Scorecard etc.[19] (Bhasin, 2011a). Thus, a long and arduous road still needs to be negotiated before we have reliable measurement and reporting of IC information.

The Financial Accounting Standards Board's (FASB, SFAS No. 142)[21], provides the accounting basis for measuring intangible assets. An intangible asset that is acquired from an external source is initially recognized at its fair value. If an intangible asset is developed internally, it is recognized as an expense when it is incurred. This will limit the recognition of most IC to what is purchased from outside the organization, such as patents, licenses, and trademarks, because they are the only ones recognized as assets. Generally accepted accounting principles do not recognize a value of human capital nor much of the structural capital, such as internally developed software, patents, and brands. In developing the Statement, the FASB relied upon the four recognition criteria found in FASB Concept Statement No. 5.[22] These criteria are: (1) The item meets the definition of an asset, (2) the item is measureable with sufficient reliability, (3) the information is capable of making a difference in decisions, and (4) the information indeed represents what it claims to represent, is verifiable, and is neutral.

Since IC is a relatively new concept and there is no agreement on how to 'measure it, many IC items will fail on criterion two (reliability in measurement) and criterion four (verifiability). Until these two criteria can be met, it is doubtful whether many intellectual assets will be included in financial statements. Additionally, there are no standards and/or generally accepted accounting policies for

the IC accounts; the reliability of IC accounts depends on quality data and accumulation methods. Thus, IC does not appear in the traditional financial report. With the rise of the "knowledge economy" over the past 20 years, however, IC is becoming more important and should be reported. The various forms of IC reporting provide valuable information for investors as they help reduce uncertainty about future prospects and facilitate a more precise valuation of the company. However, financial reports fail to reflect such a wide-range of value-creating intangible assets, giving rise to increasing information asymmetry between firms and users, and creating inefficiencies in the resource allocation process within capital markets.

THE LITERATURE REVIEW

The main ICR studies were typically cross-sectional and country-specific, although some longitudinal studies have been reported too. Some of the leading ICR studies, widely reported in the literature, were conducted in Australia, UK & Ireland, Sweden, Canada, Malaysia, Sri Lanka, New Zealand, Bangladesh and India. While most studies employed "content analysis" as the research methodology, other studies[23] have used questionnaire surveys. Despite the fact that the importance of IC has increased in recent times, there are inadequate reporting of IC in the financial statements of companies.[24]

In a review of the current state of financial and external reporting research, Parker [25] identified IC accounting as a major area for further research. However, most of the IC reporting studies were cross-sectional and country-specific. Examples include studies in Australia, Ireland, Italy, Malaysia, UK, and Canada. Relatively very few longitudinal studies have been reported. Moreover, some studies focued on the specific aspects of IC reporting, such as

human capital reporting, while others conducted international comparative studies. Some IC reporting studies have looked beyond annual reports to examine other communication channels, such as, analyst presentations.

Studies have also been conducted to explore IC related issues from the firm's perspective. Chaminade and Roberts[26] investigate the implementation of IC reporting systems in Norway and Spain. Habersam and Piper[27] employed case studies to explore the relevance and awareness of IC in hospitals. Two studies[16,28] looked at the possible determinants of voluntary IC reporting. Based on analyst presentation reports of listed Spanish companies, García-Meca[16] found significant association between IC reporting and size and type of reporting meeting but not ownership diffusion, international listing status, industry type and profitability. Based on analysis of European Biotechnology companies over a period of three years [28] found governance related variables to strongly influence voluntary IC reporting. Guthrie and Petty's analysis [30] of IC reporting practices suggests that reporting has been expressed in discursive rather than numerical terms and that little attempt has been made to translate the rhetoric into measures that enable performance of various forms of IC to be evaluated.

Bontis[31] conducted an empirical pilot study that explores the development of several conceptual measures and models regarding IC and its impact on business performance through principal components analysis (PCA) and partial least squares (PLS) methods. The main findings of study show that there is valid, reliable and significant link between dimensions of IC and business performance. Similarly, Brennam and Connell[32] examined substantial difference between company book value and market value, which

indicates the presence of intellectual assets, not recognized and measured in company balance sheets and also provides guidelines to companies for reporting on IC. Kamath[33] measures and evaluates the value added approach to a firm by its IC using a concept of value added intellectual coefficient (VAIC). The author remarked that value is created only if efficiency of resources is leveraged and value added increase in absolute terms is also not a measure for determining the value creation only if VAIC is increasing then it can be said that value is being created. Bhanawat[34] measured the IC of companies by applying difference between market value and book value of firm. He found that present system of reporting of intellectual property in companies is not adequate and all selected companies fail to report whether an IP is self-developed or acquired.

Ghasempour and Yusof[35] in their study of 65 companies listed on Tehran stock exchange. They concluded that "voluntary reporting of IC and human resource information had a significant and positive impact on firm value, with a one year lapse. This is an indication of the importance of such information for financial statements." Similarly, Deep and Narwal[36] in their study analyzed the relationship of IC with financial performance measures of Indian textile sector for a period of 10 years. Value added intellectual coefficient method was applied for measuring the IC of the companies. He concluded as: "It has been observed that IC especially physical capital (VACA), in textile sector has positive relationship only with profitability of the companies. Indian investors consider only financial reporting of the companies regarding their investment decisions." Recently, Dammak[17] performed an empirical investigation to clarify the relationship between voluntary reporting on the IC and firm valuation through content and factor

analysis. Moreover, Bhatia and Agarwal[37] conducted the study based on companies that went through IPO on BSE/NSE in the period 2011-12 using content analysis and by constructing an IC-related reporting index. The regression results reveal that of all the independent variables studied, ICR is influenced by industry differences.

In the Indian-context, there has been very limited number of ICR studies, as compared to the US and European counterparts. However, few studies are available on ICR in India using the content analysis. Some studies were performed by researchers like Kamath[33], Joshi[38,39], Bhasin[9,10], Singh and Kansal[40], Sen and Sharma[41], and Rentala[42]. The foregoing discussion suggests that the literature on the determinants of ICR in the Indian-context is very limited and inconclusive. Thus, our study builds on the previous literature of ICR practice and overall ICR scenario in the Indian corporate sector, especially pharmaceutical firms. The scope of the study has been confined to 8 companies and market value added (MVA) approach was used on their annual reports for five years, namely, 2005 and 2009, respectively.

RESEARCH METHODS

The Indian pharmaceutical industry is the one of the fastest growing sector of Indian economy. This sector is now valued at estimated Rs. 100,000 crores, has tremendous potential, with an estimated growth rate of 10-14%. There are about 250 large units and about 8000 small units, including five central public sector units.

This study is an exploratory one and aims at two issues: (a) first, mapping the current state of IC reporting scenario, and (b) second, attempt to measure the value of IC by the selected 8 companies in the Indian pharmaceutical industry during the 5 financial years 2005 to 2009. Accordingly, the sample-size of this study consists of the

following companies: Aurobindo Pharma Limited, Aventis Pharma Limited, Cadila Limited, Cipla Limited, Dr. Reddy's Laboratories Limited, Novartis Limited, Sun Pharma Limited, and Torrent Limited. The two limitations of this study are: sample size is small and time period of study is also short. But we feel it will provide us a glimpse of the scenario, and help us to analyze and establish the trend of IC reporting and measurement for the selected pharmaceutical companies from India.

The annual reports for the sample companies are collected from their respective corporate Web sites. The use of annual reports has been validated by several earlier research studies on ground of accessibility, consistency, timeliness and finally, it is an audited and comprehensive document, which is perceived to be more reliable than other documents. "Modified Intangible Assets Monitor" is used to capture the reporting of elements of IC framework, as done by researchers in the past. The technique[38] used for calculation of reporting index is content analysis. We are also going to use the five-point scale.

In order to attain the second objective, market value added approach (MVA), as a research methodology, is adopted for measuring the value of IC for the selected pharmaceutical companies in India. Moreover, under the present study, various statistical techniques are used to analyze the data. More specifically, the objectives of this part of the study are: first, to measure IC in monetary terms for the sample companies, second, to examine the relationship of IC and tangible assets with net operating profits, and third, to examine effectiveness of IC over tangible assets. In the final section, an attempt would be made to test the two hypotheses: (a) there is no relationship between IC and net operating profit, and (b) there is no difference between percentage of IC to market value and

percentage of tangible assets to market value.

ANALYSIS OF RESULTS

In the knowledge economy, most of the business organizations have realized that the true potential of creating value for their firm lies in the measurement, management and finally, reporting of their IC [15,20]. Therefore, measurement and reporting of IC is no more a choice but imperative for the IC driven firm's performance. As mentioned earlier, this study aims at portraying the current state of the IC reporting and measurement in the Indian scenario. Accordingly, "Modified Intangible Assets Monitor" is used to capture the reporting of elements of IC framework, as done by researchers in the past. The technique used for calculation of reporting index is content analysis[39,40]. The five-point scale (0-4 score) has been applied in the following manner: No reporting (0), Narrative reporting (1), Quantitative reporting (2), Monetary reporting (3), Formula-based/comparative reporting in statement form (4).

Table 1 provides a broad glimpse of the ICR scores of the 8 selected companies in 2008-09. A careful look at the data reveals that "first three top ICR scorers are: Dr. Reddy's (28), Aventis Pharma (22), and Aurbindo (19) and Torrent (18), respectively; thus, they get first, second and third ranks. However, the ICR score of three companies (viz., Novartis, Cadila and Cipla) is very poor and even below score of 10. Although, 8 listed companies of pharmaceutical sector in India have been taken in the study, IC reporting varies among companies significantly. The highest and lowest ICR score values are 28 and 04, respectively with a substantial variation. Finally, the overall mean ICR score is 15 out of the total expected score of 96 (24 elements of IAM@4 points), which is drastically low and poor. In most of the

cases, ICR are low, narrative and vary significantly among companies. External capital is the most reported category. Brands and business collaborations is most reported element of IC, followed by employee competence and internal organizational capital respectively. ICR leads to creation of IC in some companies. Overall, correlation between IC valuation and reporting is negative, weak and insignificant. The ICR made by some of the sample companies does not adequately fulfill the information needs of stakeholders, and hence companies need to report more meaningful information in their annual reports or in separate IC Reports.

Not surprisingly, this finding is in alignment/tune with some of the previous studies. For example, Sen and Sharma [41] attempted to measure and evaluate voluntary Intellectual Capital (IC) reporting made by Indian pharmaceutical companies in their annual report. The content analysis has been used to measure the extent and nature of reporting in sample companies with the help of 18 IC indicators across three broad categories, viz., structural capital elements, relational capital elements and human capital elements. From the study, it can be inferred that most of the reported IC attributes are expressed in discursive rather than numerical or monetary terms. The IC reporting made by the sample companies does not adequately fulfill the informational needs of stakeholders, and hence companies need to report more meaningful information in their annual reports or in separate IC reports." Similarly, Guthrie and Petty's[30] analysis of IC reporting practices suggests that reporting has been expressed in discursive rather than numerical terms and that little attempt has been made to translate the rhetoric into measures that enable performance of various forms of IC to be evaluated. The low level of reporting in both developed and developing countries is testament to the fact that "IC as a concept has not been widely adopted practically."

Let us examine the second objective of the study, namely, estimated value of measurement of IC in monetary terms. Therefore, market value added approach (MVA) as a research methodology is adopted for measuring IC of the eight Indian pharmaceutical companies during the study period. For the purpose of present research, IC is valued as the difference of market value (MV) and book value (BV). This method has already been used by several existing research studies in the past. The average of monthly highs and lows of market prices for the last 12 months is used to calculate the MV of the company. As described earlier, the estimated value of IC of all the 8 selected companies has been calculated by applying market value added (MVA) approach. Thereafter, the relationship of the IC and tangible assets with the net operating profits (NOP) has been discussed in terms of coefficient of correlation. Last, but not the least, the effectiveness of IC over tangible assets has been examined through t-tests.

Table-2 shows the measurement of estimated value of IC of eight selected companies during the five years from 2005 to 2009. The following observations can be made: Keeping in view the computed value of IC, there has been widely fluctuating trend in the amount of IC during the entire period of study among all the pharmaceutical companies. The highest absolute 'average' amount of IC has been reported by the Sun Pharma Limited (rank 1), followed by Cipla Limited (rank 2), Aventis Pharma (rank 3), Torrent (rank 4), Novartis (rank 5), Cadila (rank 6), and Aurbindo Pharma (7) . Surprisingly, Dr. Reddy's Laboratories Limited was the only company from the sample, which created the least amount of IC (rank 8) as compared to other companies. It reported not only least

amount of average IC but negative value (Rs. -134 crores). The Indian pharmaceutical sector reported "an overall average amount of IC of Rs. 3065 crores during 2004-05 to 2008-09." There is considerable variation, both ups and downs, observed among the average amount of IC of selected companies during five years. Keeping in view the data shown in above Table, 2009 may be considered as very good year for the shareholders of Indian pharmaceutical sector because this year reported highest average amount of IC (Rs. 3,905 crores). By and large, an increasing trend in the average amount of IC, from 2005 to 2009, has been observed, except in 2007 with a marginal fall. The dispersion among the selected companies has been measured in terms of range, which comes to Rs. 12,132 crores. The biggest inconsistency has been noticed in the case of Aurbindo Pharma Limited, as it is evident by its highest coefficient of variation (1943). On the other extreme, least amount of fluctuation has been observed in Aventis Pharma Limited with lowest amount of coefficient of variation (C.V. 33). In other words, the performance of IC shown by Aventis Ltd. is more consistent during the entire period of study, with minor changes. Also, Brennam and Connell [32] noticed substantial difference between company book value and market value, which indicates the presence of intellectual assets, not recognized and measured in company balance sheets.

Table-3 depicts the Karl Pearson's correlation analysis of IC and tangible assets (TA) with net operating profit, and then examines the relationship of IC and TA with net operating profit (NOP). It is amply clear from the results that "there is a 'positive' correlation between tangible assets of companies and net operating profit, while in majority of companies 'negative' correlation is found between IC and net operating profit." One strong observation can be made

here. Out of 8 companies selected, only two companies viz., Sun Pharma Limited (0.98, 0.98) and Cipla Limited (0.33, 0.92), have net operating profit positively correlated with both IC and tangible assets. In sharp contrast to this, all other companies are negatively correlated with IC and net operating profit. However, the overall average coefficient of correlation of IC and NOP is (-0.26), while the average coefficient of correlation of Tangible assets and NOP is (0.85) during the study period. Further more, Probable Error (PE) based test of significance has also been applied. It clearly reveals that significant correlation exists between tangible assets and net operating profit, while no significant correlation exists between IC and NOP.

The effectiveness of IC over tangible assets of selected companies is shown in above **Table 4**. It shows IC and tangible assets to market value expressed in terms of percentage. The inner brackets () in the above table represents tangible assets to market value in percentage. A careful perusal of the data reveals that the highest average percentage of IC to market value during the 5 years period of study is noticed in the following four companies: Sun Pharma Limited (78%), followed by Aventis Pharma Limited (74%), Novartis Pharma Limited (71%), and Cipla Limited (71%), respectively. Thus, Sun Pharma Limited, Aventis Pharma Limited get first and second rank, while two companies viz., Novartis Pharma Limited and Cipla Limited jointly share the third rank. However, the negative IC to market value is reported by both Dr. Reddy's Laboratories Limited (-4%) and Aurbindo Pharma Limited (-7%). Overall, correlation between IC valuation and reporting is negative, weak and insignificant.

After a careful look at the above Table, the following additional broad generalizations can be made. On an average

basis, the overall pharmaceutical industry reported 41% of IC to market value, and 59% of tangible assets to market value. So, it very clearly indicates that tangible assets (TA) are more powerful as compared to IC. Moreover, on making a year-wise analysis, it is observed that there is a continuous declining trend in IC to market value ratio throughout the study period. For example, it declined from 52.00 in 2006, 47.37 in 2007, 36.00 in 2008 and finally, stands at 19.00 in 2009. However, a lone exception was in the year 2006 when the overall ratio slightly increased from 51.78 in 2005 to 52.00 in 2006. The highest IC to market value ratio is noticed in the year 2006 with 52%, while least ratio is noticed in the year 2009 with 19%. Further, the highest tangible asset to market value ratio is observed in the year 2009 with (81%) and the least in the year 2006 with (48%). Further, in order to examine the hypothesis that there is no significant difference between mean values of IC & T.A. to M.V. (in percentage); a t-test has also been administered. The calculated value of t-test is derived at (0.53) where table value at 5% level of significance at 14 d.f. is (2.15). So, our null hypothesis is accepted because calculated value is less than table value, which clearly indicates that there is no significant difference between % of IC and tangible assets to market value (MV). The small visible difference is only due to sampling fluctuations and not due to any major reason.

CONCLUSION

It is widely accepted that IC measurement and reporting discussions have entered the corporate world, but review of the extant literature and previous studies reveals that IC, as a concept, has not been widely adopted practically by the corporate sector. In view of the increasing strategic importance of IC information, more and more organizations are shifting their focus to measurement, reporting and management of IC, their most valuable assets. Unfortunately, IC is very difficult to measure and report, both accurately and consistently, but its returns can be nearly infinite.[12] Research till-date has yet to conclude how best to measure and report the IC. Current debates about IC are part of the search for a methodology to measure the knowledge base of a firm.

This study is an exploratory one and aims at two issues: (a) first, mapping the current state of IC reporting scenario, and (b) second, attempt to measure the value of IC by the selected 8 companies in the Indian pharmaceutical industry during the 5 financial years 2005 to 2009. To answer the first issue, we selected eight-listed companies from the pharmaceutical sector in India. MIAM is used to capture the reporting. But as expected, IC reporting done by companies are low and vary across these companies significantly. In most of the cases, ICR are mostly in narrative form and vary significantly among companies. Not surprisingly, these findings are in alignment/tune with some of the previous studies done by Guthrie and Petty's [30] and Sen and Sharma.[41] No doubt, IC discussions and experimentation process has entered the corporate world but evidence published reveals that "IC as a concept has not been widely adopted practically. The low level of reporting in developed as well as developing countries (like India), is testament to this fact." Second, an attempt is made in this study to measure the estimated values of IC using MVA approach. There have been widely fluctuating trend in the amount of IC during the study period, across all eight companies. Brennam and Connell[32] also noticed substantial differences between company book value and market value, which indicates the presence of intellectual assets, which are not recognized and measured in company balance sheets and

also provides guidelines to companies for reporting on IC. Because of lack of standardized accounting guidelines on this vital asset, resources worth thousands of millions go unreported in the annual reports thwarting the basic motive of true and fair view of financial statements."

The International Accounting Standards Committee and its national counterparts face a challenge in setting standards for IC reporting [42]. The measurement examples thus far have been too firm-specific and no set of indicators could hope to be general enough to encompass the needs of a variety of international and industry settings. Auditing all of the different frameworks at this point would be pointless. The adoption of IC should be given due weightage in rating the companies. The reporting of IC influences market price, therefore it may lead to improvement of rating of the companies as well, through enhancement of market capitalization. Voluntary reporting is the only solution in the short-term. In the long-term, it will be up to the demands of the capital markets. If shareholders and analysts agree that IC reporting is beneficial in explaining business performance, than companies will have no choice but to appease their audience. In the meantime, academic researchers must continue to push the envelope on empirically-based studies so as to support the growing number of early adopters.

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Box-1: Components of Intellectual Capital.

Human Capital	Structural Capital	Customer Capital
Knowledge Competence Skills Individual & Collective Experiences Training Communities of practice...	Business processes Manuals/ policies Information systems Research findings Trademarks Brands...	Customer relations Customer Loyalty Repeat business... **Relational Capital** Relations with vendors Investor trust and feedback...

Table 1: Reporting of IC by the Select Companies in 2008-09

S. No	Name of the Company	IC Reporting Score	Ranking
1	Aurbindo Pharma Ltd.	19	3
2	Aventis Pharma Ltd.	22	2
3	Cadila Ltd.	07	7
4	Cipla Ltd.	04	8
5	Dr. Reddy's Laboratories Ltd.	28	1
6	Novartis Ltd.	08	6
7	Sun Pharma Ltd.	14	5
8	Torrent Ltd.	18	4
	Overall Average	15	
	Maximum Overall Score	96	

(Source: Compiled by the author)

Table 2: Estimated Value of Intellectual Capital for Selected Companies **(Rs. in Crores)**

S. No.	Name of company	2005	2006	2007	2008	2009	Average	C.V.	Rank
1	Aurbindo Pharma Ltd.	305	-125	1163	369	-1464	**50**	1943	**7**
2	Aventis Pharma Ltd.	2564	3230	2408	1811	1267	**2256**	33	**3**
3	Cadila Ltd.	868	460	-68	-420	-101	**148**	346	**6**
4	Cipla Ltd.	1823	16361	4327	12618	11500	**9326**	65	**2**
5	Dr. Reddy's Laboratories Ltd.	1021	1038	152	-1031	-1853	**-134**	-952	**8**
6	Novartis Ltd.	707	564	153	186	-53	**311**	101	**5**
7	Sun Pharma Ltd.	4751	5871	12203	15356	21809	**11998**	58	**1**
8	Torrent Ltd.	340	335	1159	861	138	**567**	75	**4**
	Overall Average	1547	3467	2687	3719	3905	3065	209	
	Coefficient of Variance (C.V.)	97.13	161.02	153.07	173.02	214.90	**159.83**		
	High Value	4751	16361	12203	15356	21809	11998		
	Low Value	305	-125	-68	-420	-53	-134		

(Source: Compiled from company annual reports by using MVA Method: IC= Market Value–Book Value, and by using average of market prices for the last 12 months.)

Table 3: Correlation Analysis for the Selected Companies

S. No	Name of Company	Correlation value of Intellectual Capital and Net Operating Profit	Correlation value of Tangible Assets and Net Operating Profit
1	Aurbindo Pharma Ltd.	-0.67	0.74
2	Aventis Pharma Ltd.	-0.26	0.72
3	Cadila Ltd.	-0.72	0.93
4	Cipla Ltd.	0.33	0.92 (close correlation)
5	Dr. Reddy's Laboratories Ltd.	-0.66	0.84
6	Novartis Ltd.	-0.96	0.92
7	Sun Pharma Ltd.	0.98	0.98 (perfect correlation)
8	Torrent Ltd.	-0.12	0.80
	Overall Average	**-0.26**	**0.85**

(Source: Compiled by author from annual reports of companies)

Table 4: Percentage of Intellectual Capital, Tangible Assets to Market Value

S. No	Name of Company	2005	2006	2007	2008	2009	Average	Rank
1	Aurbindo Pharma Ltd.	17(83%)	-8(108%)	35(65%)	11(89%)	-92(192%)	**-7(107%)**	**7**
2	Aventis Pharma Ltd.	84(16)	85(15)	77(23)	68(32)	58(32)	**74(25)**	**2**
3	Cadila Ltd.	47(53)	30(70)	-6(106)	-43(143)	-6(106)	**4(95)**	
4	Cipla Ltd.	54(46)	89(11)	63(37)	78(22)	72(28)	**71(29)**	**3**
5	Dr. Reddy's Laboratories Ltd.	31(69)	28(72)	5(95)	-37(137)	-47(147)	**-4(104)**	**4**
6	Novartis Ltd.	54(46)	90(10)	63(37)	78(22)	72(28)	**71(107)**	**3**
7	Sun Pharma Ltd.	79(21)	66(34)	79(21)	81(19)	83(17)	**78(22)**	**1**
8	Torrent Ltd.	49(51)	36(64)	63(37)	52(48)	12(88)	**42(57)**	**5**
	Overall	**51.87(48)**	**52.00(48)**	**47.37(53)**	**36.00(64)**	**19.00(81)**	**41(59)**	**6**
	High	**84(16)**	**90(10)**	**79(21)**	**81(19)**	**83(17)**		
	Low	**17(83)**	**-8(108)**	**-6(106)**	**-37(137)**	**-6(106)**		