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Research Article

INTELLECTUAL CAPITAL DISCLOSURES IN IPO PROSPECTUSES OF INDIAN COMPANIES

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Abstract

The study is based on companies that went through IPO on the Bombay Stock Exchange (BSE) and/or National Stock Exchange in the period 2011-2012. The paper applied a disclosure index comprising of 78 items to quantify the amount of information regarding intellectual capital included in the IPO prospectuses of Indian companies. The sum of disclosed score is divided by 78 to arrive at the index. For disclosure index content analysis is used. Multiple regression model and Correlation is used to examine the significance and association between disclosure index with independent variables. The main objective of this paper is to study the extent of intellectual capital disclosures in Initial Public offering (IPO) prospectus of Indian companies and also to examine the factors that influence the intellectual capital disclosure. The regression results reveal that of all the independent variables studied i.e. Board size Board independence Size Age Leverage Managerial ownership and Industry differences; Intellectual capital disclosure is influenced by industry differences. India is considered as knowledge economy and has highest contribution in gross domestic product from services sector wherein intellectual capital plays the most important role. As regards intellectual capital the studies have been insufficient. To our knowledge this is the first research on intellectual capital disclosures in IPO prospectuses of Indian companies.

Keywords: Initial public offering; intellectual capital disclosure; content analysis; multiple regression and correlation analysis; India

Introduction

Intellectual capital is almost impossible to measure but its returns can be nearly infinite (Stewart, 1991). The global market place of 21st century will reward firms that value entrepreneurial risk-taking invest heavily in developing their IC promote individual growth and adopt policies that are environmentally friendly (Shaker, 1999). It is often said that the value of a company is based more on IC-organizational culture customer loyalty and brand equity than on traditional financial measures (like price/earnings ratios revenue and market share) (Barsky and Garry, 2000). The traditional financial statement model based on historical pricing concentrating mainly on the measurement of material measurable values and the financial effects of executed transactions omit certain key factors for determining the value of an enterprise such as the significance of intellectual capital and the capacity for creating future value (earnings driver). The result of this is a gap in the disclosed information between the value of the company estimated by the capital market and its adequate balance sheet value. (Helin, 2001)

Due to globalization and integration of financial markets disclosure of information to stake holders has gained increased attention. More so there has been transformation towards knowledge based economy. This impacted the kind of information that is now reflected in the prospectuses reports and communication by companies to stake holders. In addition to physical and financial capital intellectual capital (IC) resources such as knowledge workers brands corporate culture research and development technological advancements and business strategies are equally important for companies to remain competitive and sustain their growth. The value of companies is driven by the unique blend between IC and tangible resources (Ashton, 2005) which results in securing a sustainable competitive advantage.

In an ever increasing competitive world IC disclosures are an important and useful means to keep investors well informed (Abeysekera, 2008). Chartered Institute of Management Accountants CIMA defines Intellectual Capital as the possession of knowledge and experience professional knowledge and skill good relationships and

technological capacities which when applied will give organizations competitive advantage.

IC is recognised as an important topic for further research in the fields of financial and external reporting (Parker, 2007). There have been various studies conducted on developed economies on IC disclosures (Cordazzo and Vergauwen, 2012; Abeysekera, 2007) and reasons of these disclosures there have been very few on developing economies (Rashid *et al*., 2012; Kamath, 2007). The implications of IC are more prominent in these economies as they have abundant human capital at their disposal. There are many firms that have started measuring managing and reporting their intellectual capital. However the complete disclosure of intellectual capital (IC) is still at its embryonic stage.

The present study is based on intellectual capital disclosures in IPO prospectuses of Indian companies. To our knowledge this is the first research on intellectual capital disclosures in IPO prospectuses of Indian companies.

The objective of this study is summarized below

- To examine the extent of intellectual capital disclosures in IPO prospectuses companies during 2011-2012
- To examine whether there is any association between the intellectual capital disclosures and Board size Board independence Size Age Leverage Managerial ownership and Industry differences.

For meeting the above objectives seven hypothesis are proposed and then tested using multivariate analysis.

The rest of the sections are organized as follows: Section 2 presents the review of literature; Section 3 discussed the variables affecting disclosures and describes the development of hypothesis Section 4 presents Methodology of study; Section 5 presents the results and discussions of the study and Section 6 summarizes the findings and draws conclusions.

Review of Literature

According to (Stewart, 2002) - It has become standard to say that a corporation‘s IC is the sum of its human capital (talent) structural capital (intellectual property methodologies software documents and other knowledge artefacts’) and customer capital (client relationships).

The purpose of any disclosure system is to ‘provide information that is useful to present and potential investors and creditors and others in making rational investment credit and similar decisions’ (FASB, 1978).

Intellectual Capital disclosure studies conducted are either based on annual reports or prospectus. Literature is reviewed under these two categories.

A. Intellectual Capital disclosure in annual reports

(Bontis, 2003) studied the IC disclosure level in the annual reports of Canadian Corporations using the content analysis approach. His research involved electronic search for 39 individual items which represented the intellectual capital index. He observed that only eight terms were disclosed from the total set of 39 intellectual capital terms. These terms were intellectual capital, knowledge management, human capital, employee value, employee productivity, economic value added, intellectual capital and intellectual assets.

(Vandemaele *et al.,* 2005) based on the IC disclosure index developed by (Bozzolan *et al.,* 2003) compared ICD level of some companies (including banks) across countries like Netherlands Sweden and UK. He deployed manual way of investigation using content analysis of the annual reports. His observation was that the Swedish sample companies disclose more on average about IC than Dutch and UK ones.

In the research conducted by (Abdolmohammadi, 2005) on a sample of Fortune 500 USA companies he extended the categories of (Guthrie *et al.,* 2006) IC disclosure index into ten categories named Brand (5 items) Competence (11 items) Corporate culture (4 items) Customer base (8 items) Information technology (7 items) Intellectual property (7 items) Partnership (2 items) Personnel (7 items) Proprietary process (6 items) and R&D (1 item). His results show that the disclosure of information about brand and proprietary processes increased over the study period.

Another model developed by (Vergauwen *et al.,* 2007) used three categories named Structural capital (46 items) Relational capital (29 items) and Human capital (22 items) in a study of IC disclosure index conducted electronically content analysis on the annual reports of a sample of firms from Sweden The UK and Denmark. The results show that there is a strong significant positive relationship between the level of structural capital possession of a firm and the firm’s IC disclosure level. The study found no such significant association between human and relational capital in firms and the IC disclosure level regarding these issues.

B. Intellectual Capital Disclosure in IPO prospectuses

Annual reports are highly useful sources of information because managers of companies commonly signal what is important through the reporting mechanism. (Guthrie *et al.* 2004) Most of the research pertaining to Intellectual capital disclosure has been carried out on annual reports. The IPO prospectus deserves equal interest as it is a crucial corporate communication document at an equally crucial time for the company i.e. the moment the company tries to fund its future by inviting the capital markets to join (Cordazzo and Vergauwen, 2012).

The first study on measuring intellectual capital disclosure in IPO prospectuses through an index of disclosure was conducted by (Bukh *et al*. (2005). They developed a framework of 78 items for disclosure indexed. This study was conducted on Danish IPOs. In this study it was examined what factors can explain the amount of disclosure in the prospectus. The findings of this study was that the

ICD is affected by two factors namely extent of managerial ownership prior to the ownership and industry type.

(Cordazzo, 2007) investigated intangibles disclosure in Italian initial public offerings (IPO) prospectuses. This study examined the correlation between identified firm specific variables namely firm's size age pre-IPO managerial ownership and level of technology and level of intellectual capital disclosure. Study concluded that age and level of technology are not related with the ICD firm's size and pre-IPO managerial ownership are associated with intangibles disclosure.

Rimmel *et al*. (2009) studied the quantity of intellectual capital information in Japanese initial public offering (IPO) prospectuses. Variables studied were similar to above mentioned studies; the variable influencing the level of icd in this study is age of the company.

Ho *et al.* (2012) performed a study on Hong Kong companies; they studied whether icd has an impact on subscription rate of initial public offering. The study concluded that ICD has a significant influence on the level of investor confidence in the IPO.

Rashid *et al*. (2012) conducted a study on Malaysian public offering to investigate the factors influencing the disclosure of intellectual capital (IC) information; the factors studied are age board size underwriter board independence leverage listing board size of the company board diversity and auditor. Of these variables board diversity size and auditor are not significant.

Cordazzo and Vergauwen (2012) investigated the extent of intellectual capital (IC) disclosure on the UK biotechnology initial public offering (IPO) prospectuses; the findings of the study was that the age and independence of the board are associated with IC disclosure while size and age do not influence the extent of ICD.

Variables affecting disclosures and Hypothesis development

There have been various studies in recent past on intellectual capital disclosures and these studies associated the ICD index with various variables as given in Table 1

Table 1: Studies on IC disclosures in IPO prospectus and the variables studied

Study conducted by	Country of study	Variables studied
Bukh *et al.*, 2005	Denmark	i. Company type ii. Managerial ownership before the IPO iii. Size of the company iv. Age of the firm
Cordazzo, 2007	Italy	i. Firm size ii. Pre-IPO managerial ownership iii. Firm age iv. Level of technology
Rimmel *et al.*, 2009	Japan	i. Industry differences ii. Managerial ownership before the IPO iii. Company size iv. Company age
Ho *et al.*, 2012	Hongkong	i. Industry difference ii. Managerial ownership before the IPO iii. Size of the company iv. age of the firm
Rashid *et al.*, 2012	Malaysia	i. Board size ii. Board independence iii. Age iv. Leverage v. Underwriter vi. Listing board vii. Board diversity viii. Size ix. Auditor
Cordazzo and Vergauwen, 2012	UK	i. Size ii. Maturity iii. Age iv. Independence of the board

This study focuses on the study of the extent of IC disclosure in Indian companies' IPO prospectuses and examines the association of the IC disclosure with firm specific determinants. The firm specific determinants that this paper examines are: I. Board size, II. Board independence, III. Size, IV. Age, V. Leverage, VI. Managerial ownership and VII. Industry differences. We believe that these variables will help in understanding the rationale and mechanism of IC disclosures in IPO prospectuses in India.

I. Board size

It is expected that companies with larger boards shall benefit as the monitoring capacity of the organisation increases. As per (Pierce and Zahra, 1992) larger boards have advantage over a smaller board on matters pertaining to information access. On the other hand Kim and (Nofsinger, 2007) are of the view that a board with fewer members may be a better board. (John and Senbet, 1998) advocated that limiting the size of the board might improve efficiency and improve corporate governance and that larger boards incur incremental cost of poorer communication and decision-making efficiencies. (Cheng and Courtenay, 2004) found no association between the level of disclosure and board size whereas in their study (Cheng and Courtenay, 2006) opined that too large board actually has diminished monitoring capabilities.

II. Board independence

As per clause 49 (corporate governance) Securities and Exchange Board of India the Board of directors of the company shall have an optimum combination of executive and non-executive directors with not less than fifty percent of the board of directors comprising of non-executive directors. The responsibility of a non-executive director is to provide with creative contribution to the board of directors by giving objective criticism and advice. Today it is widely accepted that non-executive directors have an important contribution to make to the effective running of many companies. Study by (Rashid *et al*., 2012) concluded that IC disclosure is negatively related to the proportion of independent directors on the board which is in contrast with the results of (Chen and Jaggi, 2000) and (Eng and Mak, 2003). For the present study percentage of independent directors to total directors has being considered.

III. Size

Singhvi and Desai (1971), Buzby (1975) and Cooke (1989) found that the size of the organization has a positive relationship with the extent of voluntary disclosures. Study by Cordazzo (2007) revealed that firm size is a determinant of the level of intangibles disclosure in IPOs. There are several ways of measuring size of the company total sales (Rashid, 2012; Cordazzo, 2007) number of employees (Bukh *el al.*, 2005; Cordazzo and Vergauwen, 2012) market capitalisation (Abdullah, 2008). For the present study size has been measured in terms of amount of Sales.

IV. Age

Study by Rimmel *et al.* (2009) on the IPO prospectuses of Japanese companies concluded that company's age had a significant influence on the extent of disclosure. Study by Bukh *et al.* (2005), Cordazzo (2007), Cordazzo and Vergauwen (2012) also used age as a variable in their study on ICD in IPO prospectuses. It is often considered that more established companies are less risky and these companies disclose more voluntarily as compared to younger companies. For the present study age as calculated as on 31st March 2013 since incorporation.

V. Leverage

As per agency theory there are higher incentives to disclose more information voluntarily by leveraged firms to reduce their agency costs. On the contrary the signalling theory advocates that a firm with a relatively low leverage shall disclose more voluntarily as it would like to send positive signals about its positive financial structure. In the study carried by Rashid *et al.* (2012), it was reported that leverage is one of the influencing factors of intellectual capital disclosures in ipo prospectuses'. For calculation of leverage percentage of total debt to total funds are taken in the present study.

VI. Managerial ownership

Managerial ownership before the IPO may influence companies' disclosure practices and thus the extent of disclosure in the IPO prospectus (Bukh *et al.,* 2005). Directors of the board who themselves do not own a substantial portion of the company can be expected to encourage more intensive auditing and disclosure because they are more likely to perceive them-selves as fulfilling a monitoring role (Bukh *et al.,* 2005).

VII. Industry differences

Several studies argued that there an association exist between the industry classification and disclosure (Watson *et al.* 2002; Abdullah and Ismail, 2008; Cooke, 1991). Study by Bukh *et al.* (2005) reported that industry type affects the amount of voluntary intellectual capital disclosure. The difference between sectors also supports that the companies with more intellectual capital need to disclose more voluntary non-financial information because increased information can help to reduce investors' uncertainty and thereby ensure that the company in question does not have to pay a high premium due to investors' perceived information risk (Bukh *et al.,* 2005). Intellectual capital is considered to be especially important for high tech (Bukh *et al.,* 2005) biotechnology (Cordazzo 2012) and services sector; it is anticipated that these shall disclose more than the manufacturing companies. We have used four broad classifications for industry i.e. (i) Pharmaceutical & Research, (ii) IT & Technology, (iii) Production and (iv) Trade & Service.

From the discussions outlined above seven hypotheses are developed and are mentioned below. Going by the review of literature these hypotheses are stated in the null form:

H_1: Board size- There is no association between extent of intellectual capital disclosure and Board size of the firm.

H_2: Board independence- There is no association between extent of intellectual capital disclosure and board independence of the firm

H_3: Size- There is no association between extent of intellectual capital disclosure and size of the company.

H_4: Age- There is no association between extent of intellectual capital disclosure and age of the company.

H_5: Leverage- There is no association between extent of intellectual capital disclosure and leverage of the firm.

H_6: Managerial ownership- There is no association between extent of intellectual capital disclosure and managerial ownership of the firm.

H_7: Industry differences- There is no association between intellectual capital disclosure and type of industry.

Methodology

This section discusses the sample selection method and data collection process using content analysis methodology.

Sample selection

The companies selected for the study are those which came up with IPO offering in the year 2011-12. There were 34 companies which came up with the IPO offerings in year 2011-12 we could get prospectus of 33 companies from SEBI's website and our study is based on these 33 companies. These companies are listed either on Bombay stock Exchange BSE and/or National Stock Exchange NSE. Apart from these IPOs funds were raised through equity on Small and Medium Enterprise (SME) platform and through follow on public offering (FPO). The constituents of the sample are shown in Table 2.

Table 2: Constituents of Sample

S. N.	Industry	Number of IPO	Percentage
1	Pharmaceutical and Research	3	9.09%
2	IT and Technology	3	9.09%
3	Production	15	45.45%
4	Trade and Service	12	36.36%
	Total	33	

Content Analysis

Content Analysis is a research technique for the objective systematic and quantitative description of manifest content of communications (Berelson 74). The main research method used in this study is content analysis. Content analysis is conducted on IPO prospectuses.

Scoring of items and construction of index

Companies' IPO prospectuses for the period 2011-12 are downloaded from Securities Exchange Board of India SEBI's website for scoring purposes.

This study uses a 78 items disclosure index developed by Bukh *et al.* (2005). For constructing the disclosure index each company is given a score of 1 for item disclosed and a score of zero for item not disclosed. Disclosure index is made by dividing the total number of items disclosed by the the denominator of total items measured i.e. 78. Intellectual Capital disclosure is divided into six categories and total of items is 78. These six categories, 1. Employee (27 individual items), 2. Customer (14 individual items), 3. Information technology (4 individual items), 4. Processes (8 individual items), 5. Research and development (9 individual items) and 6. Strategic statement (15 individual items) are given in Table 3.

The extent of the IC disclosure index is quantified using the following formula:

$$ICDisclosureScore(ICDS) = \left(\sum_{i=1}^{n} d_i / M \right) \times 100\%$$

Where, di expresses item i when the item's value is 1 with disclosure and 0 when there was no disclosure and M is 78 (the total number of items being measured).

Regression Analysis

In the IC disclosures literature the associations among the IC disclosure level and its potential indicators are commonly estimated using multiple regression analysis. The following OLS regression model is used to evaluate the association between IC disclosure and potential explanatory variables:

$$Y_{ICDS} = \alpha + \beta_1 X_{BSIZE} + \beta_2 X_{BIND} + \beta_3 X_{CSIZE} + \beta_4 X_{CAGE} + \beta_5 X_{LEV} + \beta_6 X_{MOWN} + \Sigma\, \beta_7 X_{PHARMA} + \beta 8 X_{IT\&TECH} + \beta 9 X_{PROD} + \beta 10 X_{TRA\&SER} + \varepsilon$$

Where, ICDS = Represents the percentage of the number of IC items disclosed by IPOs to the total number of IC items.

BSIZE = Represents the total number of directors.

BIND = Represents the percentage of independent directors on the board.

CSIZE = Represents the total sales as a proxy for company size.

CAGE = Represents the duration between the founding date and the IPO date.

LEV = Represents the percentage of book value of total debt to value of total assets.

MOWN = Pre issue ownership of the mangers.

PHARMA = It is a dummy variable equal to one if the IPO engaged of the Pharmaceuticals and Research companies in the year of its listing and zero otherwise.

IT&TECH= It is a dummy variable equal to one if the IPO engaged of the IT & Technology companies in the year of its listing and zero otherwise.

PROD = It is a dummy variable equal to one if the IPO engaged of the Production companies in the year of its listing and zero otherwise.
TRA&SER = It is a dummy variable equal to one if the IPO engaged of the Trade & Service companies in the year of its listing and zero otherwise.
ε = Represents the residual error.

Results and discussions

This section presents the results of the study. In the first part of the analysis information pertaining with each item on disclosure index in discussed and analysed. Analysis is also carried out with respect to six categories and industry wise. Second part deals with multivariate analysis wherein results with respect to correlation and regression is presented and discussed.

IC Disclosure analysis item wise category wise and industry wise and descriptive analysis

The intellectual capital disclosure index is percentage of the firm's disclosure in six areas and it is reflected in table 3. Item-wise each of these six heads is being analysed. Of the head Employees Staff health and safety is the highest disclosed item with the score of 75.8% and the lowest with zero score are Staff breakdown by gender and nationality and value added per employee. Out of 5 items of information technology the highest item disclosed is description and reason for investment in IT with 9.4% score and the lowest is Software assets with 3% score. Of processes the most disclosed is information and communication within the company with 81.8% score and internal sharing of knowledge and information and Efforts related to the working environment with no score. Details of company patents with 48.5% is the most disclosed item under the head research and R & D invested in product design/development Number of patents and licenses etc and patents pending scored lowest with 3% score. Under the head customers description of customer relations is the highest disclosed item with 48.5% score and nothing was disclosed regarding corporate culture statements and description of community involvement. Description of the network of suppliers and distributors is the most disclosed item overall with 84.8% score and within head strategy and corporate culture statements and description of community involvement is not disclosed by any company.

Table 3: Intellectual Capital Disclosure item-wise in percentage

S. N.	Intellectual capital items	Companies making disclosure (%)
	Employees	
1	Staff breakdown by age	3.0
2	Staff breakdown by seniority	60.6
3	Staff breakdown by gender	0
4	Staff breakdown by nationality	0
5	Staff breakdown by department	45.5
6	Staff breakdown by job function	39.4
7	Staff breakdown by level of education	15.2
8	Rate of staff turnover	15.2
9	Comments on changes in number of employees	36.4
10	Staff health and safety	75.8
11	Absence	57.6
12	Staff interview	3.0
13	Statements of policy on competence development	15.2
14	Description of competence development program and activities	9.1
15	Education and training expenses	18.2
16	Education and training expenses/number of employees	12.1
17	Employee expenses/number of employees	24.2
18	Recruitment policies	21.2
19	HRM department division of function	6.1
20	Job rotation opportunities	3.0
21	Career opportunities	12.1
22	Remuneration and incentive systems	33.3
23	Pensions	54.5
24	Insurance policies	63.6
25	Statements of dependence on key personnel	57.6
26	Revenue/employee	30.3

Table 3: Intellectual Capital Disclosure item-wise in percentage

S. N.	Intellectual capital items	Companies making disclosure (%)
27	Value added/employee	0
	Information Technology	
1	Description and reason for investment in IT	39.4
2	IT systems	36.4
3	Software assets	3.0
4	Description in IT facilities	27.3
5	IT expenses	9.1
	Process	
1	Information and communication within the company	81.8
2	Efforts related to the working environment	0
3	Working from home	3.0
4	Internal sharing of knowledge and information	0
5	External sharing of knowledge and information	6.1
6	Measure of internal and external failures	69.7
7	Fringe benefits and company social programs	27.3
8	Environmental approvals and statements/policies	12.1
	Research & Development	
1	Statements of policy strategy and/or objectives of R&D activities	15.2
2	R & D expenses	6.1
3	R & D expenses/sales	9.1
4	R & D invested in basic research	9.1
5	R & D invested in product design/development	3.0
6	Future prospects regarding R & D	6.1
7	Details of company patents	33.3
8	Number of patents and licenses etc.	3.0
9	Patents pending	3.0
	Customers	
1	Number of customers	24.2
2	Sales breakdown by customer	21.2
3	Annual sales per segment or product	6.1
4	Average customer size	3.0
5	Dependence on key customers	36.4
6	Description of customer involvement	24.2
7	Description of customer relations	48.5
8	Education/training of customers	6.1
9	Customers/employees	27.3
10	Value added per customer or segment	15.2
11	Market share (%)	39.4
12	Relative market share	39.4
13	Market share breakdown by country/segment/product	24.2
14	Repurchase	9.1
	Strategic Statements	
1	Description of new production technology	12.1
2	Statements of corporate quality performance	9.1
3	Strategic alliances	27.3
4	Objectives and reason for strategic alliances	21.2

Table 3: Intellectual Capital Disclosure item-wise in percentage

S. N.	Intellectual capital items	Companies making disclosure (%)
5	Comments on the effects of the strategic alliances	21.2
6	Description of the network of suppliers and distributors	84.8
7	Statements of image and brand	12.1
8	Corporate culture statements	0
9	Best practice	36.4
10	Organization structure	36.4
11	Utilization of energy raw materials and other input goods	60.6
12	Investment in the environment	3.0
13	Description of community involvement	0
14	Information on corporate social responsibility and objective	33.3
15	Description of employee contracts/ contractual issues	78.8

Table 4: Intellectual capital disclosure per six major categories

S.N.	Major Categories of Disclosure Index	Average Percentage score
1	Employee (27 individual items)	26.37%
2	Information technology (4 individual items)	23.03%
3	Processes (8 individual items)	25.00%
4	Research and development (9 individual items)	9.76%
5	Customer (14 individual items)	23.16%
6	Strategic statement (15 individual items)	29.09%

Table 5: Frequency of Companies with intellectual capital disclosure

Number of IC items disclosed	Frequency	Percentage
0 to 5	1	3.03%
6 to 10	4	12.12%
11 to 15	8	24.24%
15 to 20	3	9.09%
21 to 25	14	42.42%
26 to 30	1	3.03%
31 to 35	0	0.00%
36 to 40	2	6.06%
41 to 78	0	0.00%
Total	33	100%

Table 5 presents information about frequency of intellectual capital disclosure items by 33 companies, which were used in the present study. The results reveal that of 78 items considered for study (reflected in table 3) 21 to 25 items are being disclosed by 14 companies which is 42.42% of the sample.

None of the companies are disclosing more than 40 items; highest disclosure is by a Pharmaceutical company which disclosed 40 items of 78 items taken for the study. Only 3 companies of 33 companies are disclosing more than 25 intellectual capital items.

Descriptive statistics for the impendent variables are reflected in Table 6. It reflects that the extent of disclosure as reflected by mean score is 24.05% varying from highest as 51.28% and the lowest being 6.41% of the proposed voluntary intellectual capital items. Category wise the results are reflected in Table 4. Highest score is for category strategy with disclosure score of 29% followed by category employees with 26.37% score and category process with 25% score. Lowest score is of the category Research and development with the score of 9.76%. This indicates that Indian companies are disclosing the least information with regard to research and development this category has 9 items in it which constitutes 11.53% of the list of the items considered for the study.

The average number of Directors on the board is eight and approximately 54% are independent. Average age of the companies is 20 years and these companies on average use 25% of funds through debt. The pre-issue ownership by the owners is on average 80% this reflects that Indian companies are primarily run by owners and their families.

Table 7 reflects the results of disclosure as per the industry category. The results indicate that the voluntary disclosure is associated with industry differences. This is consistent with the earlier studies (Cooke, 1989; Bukh *et al.*, 2005). The highest disclosure is by pharmaceuticals & research companies shows agreement with the findings of Rimmel *et al.*, 2009).

Table 6: Descriptive statistics of dependent and explanatory variables

Variables	Mean	Std. Deviation	Min.	Max.	Variance
Disclosure (Percentage)	0.24028	0.096741	0.064	0.513	0.009
Board Size (Number)	7.55	2.237	4	14	5.006
Board Independence (ratio)	0.5366	0.242837	0	0.929	0.59
Sales (Rupees crores)	6.5285E+02	1274.78821	0.98	5389.89	1.63E+06
Age (Years)	19.61	16.397	5	81	268.871
Leverage (Percent)	0.25412	0.241113	0	0.994	0.058
Pre-issue ownership (percent)	0.80735	0.199562	0.312	1	0.4

Table 7: Average amount of disclosure by industry and category

	Employees	IT	Process	R &D	Customers	Strategic statements	Total	Disclosure (%)
Max items	27	5	8	9	14	15	78	
Pharma & research	11.33	0.667	2.667	2.333	4.667	7	28.664	36.75%
IT & Tech	7.7	3	1.7	1.3	3.7	3	20.4	26.15%
Production	8	0.25	2.067	0.8	3.667	4.133	18.917	24.25%
Trade & services	4.83	1.92	1.833	0.5	2	4.33	15.413	19.76%

Table 8: Pearson Correlation Coefficient among variables

	Discind	boardsize	Bindp	sales	Age	lev	Preissueo	pharma	Tech	Prod	tradeser
Discind	1										
Boardsize	.134	1									
Bindp	.234	.425*	1								
Sales	.127	.122	-.054	1							
Age	.031	.193	.035	.263	1						
Lev	.070	-.080	-.063	.317	.019	1					
Preissueo	.025	-.209	-.418*	.232	-.178	.301	1				
Pharma	.422*	.209	.160	-.114	-.253	-.098	-.003	1			
Tech	.067	-.174	.135	-.134	.021	-.052	-.056	-.100	1		
Prod	.022	-.198	-.372*	-.191	.015	.219	.326	-.289	-.289	1	
Tradeser	-.314	.185	.208	.346*	.124	-.137	-.303	-.239	-.239	-.690**	1

** Significant at p < 0.01 * Significant at p < 0.05

Multivariate analysis

Multivariate analysis is appropriate when there are two or more independent variables and the variables are analysed simultaneously. This technique is concerned with the simultaneous relationships among two or more independent variables and a dependent variable.

Table 8 reveals results of Pearson Correlation Coefficients among variables. There is a positive and significant relationship between IC disclosure and Pharmaceutical and Research companies at 5% level of significance (r = 0.422 p-value = 0.015 < α = 0.05). The present study supports the view that the level of IC disclosure and industry type is significantly associated with previous reports (Bukh *et al.*, 2005; Bozzolan *et al.*, 2003; Oliveira *et al.*, 2006).

The present study also indicates that there is a significant and high & positive correlation between age and sales of the companies at 1% level of significance (r = 0.810 p-value = 0.00 > α = 0.01). This means the companies which are old have higher sales as compared to the young companies.

The study also indicates that there is a significant and weak & positive correlation between sales and trade & services companies at 5% level of significance (r = 0.346 p-value = 0.049 > α = 0.05). This reflects that the companies under trade & services category have significant but weak association with sales as compared to other categories of companies: Pharmaceutical and research IT and Technology and Production which shows there is no association between these categories and sales.

Results of multiple regression are presented in table 9a and 9b. The adjusted R2 is 0.109; it means this model explains 10.9% of the association between ICD and independent variables. Analysis of Variance (ANOVA) assesses the overall significance of the model. Table 10 shows that the overall regression model is significant (F > F critical; F= 1.390 and F critical =0.248). Table 9b reveals that two variables namely production companies (at 10% significance) and pharma companies (at 5% significance) have association with ICD; thus rejecting rest nine variables

Table 9a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.622[a]	.387	.109	.091335

Table 9b: Regression results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.149	0.12		1.244	0.226
boardsize	-0.004	0.009	-0.087	-0.41	0.689
bindp	0.129	0.089	0.323	1.453	0.16
sales	4.18E-05	0	0.55	1.248	0.225
age	0	0.001	-0.018	-0.07	0.944
assets	-2.84E-06	0	-0.234	-0.55	0.591
lev	-0.003	0.079	-0.008	-0.04	0.967
preissueo	-0.036	0.105	-0.075	-0.35	0.732
prod	0.084	0.044	0.437	1.886	0.073*
pharma	0.191	0.065	0.577	2.947	0.007**
tradeser	-0.08	0.064	-0.402	-1.24	0.23
tech	0.08	0.064	0.24	1.243	0.227

a. Dependent Variable: discind; *** Indicates significance at the10 percent and 5 percent respectively

Table 10: ANOVA for regression Model

Model		Sum of Squares	df	Mean Square	Computed F	F Critical
1	Regression	.116	10	.012	1.390	.248[a]
	Residual	.184	22	.008		
	Total	.299	32			

Conclusions and limitations

This study provides us with valuable insights about IC disclosure in IPO prospectuses of Indian companies. Content analysis was done with 78 items under six categories i.e. employees information technology process research and development Customers and Strategic statements. The extent of Intellectual capital disclosure is reflected through the mean score which is 24%. The category which contributed the highest to this score is Strategy wherein the item description of the network of suppliers and distributors was disclosed by 28 of 33 companies. Information and communication within the company Description of employee contracts/ contractual issues Staff health and safety was also disclosed by large number of companies (25 to 27 companies). Indian IPOs prospectus of year 2011-12 did not contain information pertaining to Staff breakdown by gender Staff breakdown by nationality Value added/employee Efforts related to the working environment Internal sharing of knowledge and information Corporate culture statements and Description of community involvement. The highest score by a company is 51.28% with a score of 40 out of 78 items considered for the study this company is Pharma Company and minimum score is 6.41% with only 5 items being disclosed. This reflects no clear pattern of IC disclosure practices of Indian companies in ipo prospectus. Within the categories of industry the highest disclosure is by pharmaceutical and research companies followed by information technology companies.

Seven independent variables were considered for the study Board size Board independence Size Age Leverage Managerial ownership and Industry differences. The correlation results revealed that there is positive and significant relationship between disclosure index and pharmaceutical and research companies. This is consistent with the results of Bukh *et. al.* (2005). Regression result also reveals positive and significant association between disclosure index and pharmaceutical companies (at 5% significance) and with production companies (at 10% significance). Regression results also revealed weak and significant association between disclosure index and Trade & services companies.

This study has three limitations first the period of study is a year. Future research should enlarge the time period and the sample size studied. Second this study was based on Indian companies for better understanding more than one country should be considered. Third a predetermined list was considered for data collection and presence of information was a given score of one a better approach can be to revise

and update the list to suit Indian conditions after taking views of practitioners and researchers.

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