Practices of Intellectual Capital Disclosure by the Selected Firms of the Dhaka Stock Exchange Limited

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Abstract: The main objective of this study is to measure the level of intellectual capital (IC) disclosure practices by the firms from different industries listed on the Dhaka Stock Exchange. Actually, intellectual capital is the prime for every firm, because it runs the physical assets of a firm. This IC consists of internal capital, external capital and human capital. But these prime assets are not reported in the annual report adequately or properly. But it can be a fixed, distinguishing advantage for the firm. The Content analysis method is used in this study. An unweighted disclosure index, with 65 IC items, has been developed. The Sample covers 10% firms in 11 industries. As the source of data the corporate annual reports of the companies for the years 2019-2020 were used in this study. The average disclosure score of internal capital, external capital and human capital is 61%, 56% and 61% respectively. So, the average disclosure score of the sample companies are 59%. The regression results show that size, profit and leverage have a positive influence on intellectual capital disclosure.

Keywords: Intellectual Capital Disclosure, Internal Capital, External Capital, Human Capital, Dhaka Stock Exchange.

1. Introduction

Nowadays, companies must be able to communicate information on their main sources of wealth to their stakeholders. These main sources of wealth focus more on resources of the intangible type (Oliveras *et al*., 2008), such as corporate reputation and employee's knowledge, experiences, skills, commitment and loyalty, and less on tangible resources, such as physical and financial assets. Information on the intangible resources cannot be included in financial statements because of identification, recognition, and measurement problems (García-Meca & Martínez, 2005). Therefore, companies face a challenge related to the lack of adequate accounting processes for measuring them. A possible solution to this problem is voluntary disclosure of intellectual capital information to relevant stakeholders (Branco *et al.,* 2010).

Traditional financial accounting identifies and records the transactions that are measured in terms of money. But the traditional financial statement model is unable to reflect new ways of crating business value (Oliveras *et al*., 2008). For this reason, in recent years there has been increasing dissatisfaction with traditional financial reporting and its ability to provide stakeholders with sufficient information on a company's ability to create wealth (Bozzolan *et al*., 2003).Thus, intellectual capital (IC) is currently the focus of significant discussion and enquiry across the management disciplines and beyond (Roslender & Fincham, 2001). It is recognized that intellectual capital provides a crucial source of value for the contemporary business enterprise. Like physical assets IC assets are also important for any organization. IC ensures the utilization of physical assets effectively and efficiently (Hossain ,2011).In addition, in today's knowledge based economy, intellectual capital plays a crucial part in the value creation process of organizations and thus, intellectual capital disclosure (ICD) is an emerging issue in both the corporate world and the academic research. Along with the deficiency in traditional accounting methods has led many researchers to investigate the impact of intellectual capital and find ways of how to incorporate them in financial statements (Rahman, 2019). Rahman and Hasan (2019) study states that a better information and disclosure system should be developed to ensure high quality disclosure and to make investment and financing decision. ICD has been recognized as one probable answer for

extending transparency by diminishing asymmetries of data between the providers of corporate data and the users of such data (Eccles & Mavrinac, 1995; Bukh & Johanson, 2003).

2. Conceptual Development

Many authors have defined ICD from different perspectives. According to Caroll and Tensey (2000), "IC is best conceived as the knowledge and creativity available to a firm to implement a business strategy that maximizes stakeholders view." On the other hand, Collier (2001) defines it as "Intangible knowledge and competence base that provides the capacity for organizational purpose."A standard definition of intellectual capital has not emerged. Intangible asset is typically described as good/asset without physical existence but has economic value (Edvinsson & Malone, 1997; Berry, 2004; Gerpoth *et al.*, 2008). Intangibles are otherwise called Intellectual capital or knowledge asset (Lev, 2001). Until now, a standard definition of intellectual capital (IC) has not been arrived at because scholars define it in accordance with the way they perceive it (Maditinos *et al.*, 2011). It is against this background that Lev (2001) defines intellectual capital/assets as "a claim to future benefit that does not have a physical or financial (a stock or a bond) embodiment." Some have defined it by its drivers. For example Gu and Lev (2001) and Chan *et al.* (2001) describe this the set of assets as R&D, Advertising, IT and Human Resource. Pablo (2003) simply puts it as the difference between market value and book value. As plausible as these definitions are, it is discovered that no widely accepted definition of intellectual capital has emerged (Gerpoth *et al.*,2008). However, there is an agreement that IC covers three main capitals which are Human Capital (HC), Structural Capital (SC), and Relational Capital (RC) (Bontis, 1998; Verguwen & Alem, 2005).

i. Human Capital (HC) is defined as the value of all the employees in the organization and the rewards that are attached to their utilization (Verguwen & Alem, 2005). These include the skills, knowledge, experience, ability, competence and capability that employees take with them when they leave the organization (Roos & Roos, 1997). Some group considered it as what people are owned from learning, experience and skill, while another group delineated it as human capability that is directly linked to the work (Al Maani & Jeradat, 2010). Although, organizations invest in the human capital that does not belong to the organization (Verguwen & Alem, 2005) but owned by the employees (Roos *et al.,* 1998), nevertheless it is a source of wealth for an organization (Bontis, 1999) and its ability to be innovative (Ahangar, 2011). Therefore, Human capital can be simply put as learning, training, experience, knowledge, capabilities, capacities, creativity, and core competencies of human resources present in an organization (Mahamad & Salman, 2011).

ii. Structural Capital (SC) is the process, system, procedure and practice of organization used by the employees (Boisot, 2002; Ordonez de Pablos, 2004). This component is viewed by Maheran and Khairu (2009) as competitive intelligence, formulas, information systems, patents, policies, and others which resulted from the products or systems the company has created over time. Structural capital is the supportive infrastructure for human capital and unlike human capital, it is owned by the company which can be traded, reproduced and shared by, and within, the organization (Ahangar, 2011; Mahamad and Salman, 2011). This structural capital (SC) may be leveled as internal capital (that is IC) (Guthri *et al.*, 2009).

iii. Relational Capital (RC) is defined as an intellectual capital developed, maintained and nurtured by an organization in order to sustain its external relationship that influences corporate performance (Eugstrom *et al.,* 2003). Thus, it is the strength and networking of an organization through its customers and external factors that develop this important capital (Bontis, 1996; Stewart, 1997). Relationship capital may be leveled as external capital (that is EC) (Abeysekera, 2007).

4. Literature Review

Benefits of voluntary disclosure are mainly those associated to a reduction in information asymmetry (García-Meca *et al.,* 2005;Vergauwen & Alem, 2005). Better informed stakeholders will make better assessments of a firm's future wealth creation capabilities, allowing a more precise valuation of the firm. It also leads to increases in analyst following and promotes greater liquidity in the stock market. ICD also has costs, namely those of preparing, disseminating and auditing information (García-Meca *et al.,* 2005; Vergauwen & Alem, 2005). In addition, voluntary disclosure is likely to contain proprietary information that may undermine the firm's competitive position (García-Meca *et al.,* 2005;Vergauwen & Alem, 2005).

The first empirical study on voluntary disclosure of IC was carried out by Guthrie and Petty (2000) who examined the reporting practices of the top 20 (by market capitalization) Australian companies from six industry groups in the year 1998.

They measured the level and extent to which the various categories of IC are represented in the annual reports using a content analysis methodology. They considered a total of 24 variables from three IC categories: internal capital (9), external capital (9), and human capital (6). Their results showed that internal capital accounted for 30 percent of disclosures, external capital 40 percent and human capital 30 percent. The researchers opined that their sample of Australian companies cannot be compared with their European counterparts in their ability to measure and report their IC in the annual report. Guthrie and Petty (2000) examined the extent to which the various categories of intellectual capital are represented in the annual reports. Here total 24 items of IC were coded from three IC categories as internal capital nine, external capital nine and human capital six. Similarly, Brennan (2001) performed content analysis of annual reports with internal capital nine, external capital nine and human capital six. He thinks IC assets are rarely referred to in annual reports and, when referred to, it is in the most qualitative terms.

Bozzolan *et al.* (2003) studied aiming to answer two research questions namely: what is the amount and content of ICD; and what are the factors that influence different voluntary reporting behaviors. IC items were selected by Bozzolan *et al.* (2003) as internal structure 8; external structure 9; and human capital 5. Intellectual capital disclosure was measured using a 24-item index dividing into three IC categories; internal, external and human capital by Wong and Gardner (2005) and found that industry sector had little influence on intellectual capital disclosure. Vandemaele *et al.* (2005) conducted a study to investigate IC disclosure. In their disclosure index structural capital items are 8, relational capital items are 9 and human capital items are 5. The findings of Oliveira *et al.* (2006) are minimum disclosure 5.75%, maximum 72.22% and average disclosure 30.3%. They comment that the voluntary reporting of intangibles is found to be influenced significantly by size, ownership concentration, types of auditor, industry and listing status. Guthrie *et al.* (2007) conducted a research named "Intellectual Capital Reporting: Lessons from Hong Kong and Australia". They used unweighted coding system, i.e., score 0 for not reported item and 1 for reported item. Using the content analysis of annual reports of the top 20 firms listed on the Australian stock exchange in 2004. The study of Striukova *et al.* (2008) reveals that disclosure of internal capital is 17%, external capital is 61% and human capital is 22% of total ICD. Oliveras *et al.* (2008) found that there is a greater volume of communication in the area of external (customer/relational) capital than in either internal or employee capital. April *et al.* (2003) investigated the intellectual capital measurement, reporting and management of the 20 largest South African listed companies by market capitalization. In their research, only a "0" and a "1" were used, with a value of "1" indicating that the attribute was reported in some form and the number of occurrences was ignored, i.e. a value of "1" was chosen to mean that the attribute was mentioned at least once. Their findings of IC reporting are maximum 75% and minimum 3% and average 36%. Goh and Lim (2004) performed contents analysis for 20 most profitable companies on Malaysian Stock Exchange. They found that IC disclosures highly in qualitative nature and among the three IC categories, external capital items are most disclosed. Ali *et al.* (2008) intended to investigate the level of awareness of Bangladeshi companies about intellectual capital and how disclosures are made in the annual reports. They performed content analysis of annual reports for the period of 2005-2006 of 22 companies listed 0n the Dhaka Stock Exchange on the basis of highest market capitalization. Internal Capital 10, External Capital 10, Human Capital 7 and total 27 items were in the unweighted disclosure index. Their result showed that the companies did not have a positive approach in reporting and interpreting the IC. Nurunnabi *et al.* (2011) made a comment that IC reporting depends on the self interests of the company and has no market implication. The main benefits associated to voluntary disclosure derive from reductions in information asymmetry (Brüggen *et al.,* 2009; García-Meca *et al.,* 2005; Vergauwen & Alem, 2005). It had given that managers usually have access to information that investors do not (information asymmetry), in the absence of credible information about the company investors will assume the worst and will bid down its stock price or require an interest rate premium on debt. Alternatively, if investors consider the benefits from information gathering to

outweigh the costs, they may seek and collect more information from alternative sources. By disclosing credible information, a company allows investors to reduce such data collection and analysis costs thereby making the company shares more attractive (Lang & Lundholm, 1993). Benefits derived from this strategy are related to the reduction in cost of capital, an increase in stock liquidity and the enhancement of interest by investors (Healy *et al*., 1999). Thus, there are benefits from additional disclosure related to a reduction in information asymmetry and in overall information gathering costs to be assumed by investors. (Ferreira *et al.,* 2012). Sengupta (1998) suggests that benefits arising from disclosure quality are not limited to the cost of equity capital, and also include a lower cost of issuing debt.

4. Hypothesis development

4.1. Company Size (Size)
There is abundant evidence suggesting a positive relationship between the size of a company and its ICD (Bozzolan *et al*., 2003; Brügen *et al.,* 2009; Guthrie *et al.,* 2006; García-Meca *et al.,* 2005; Oliveira *et al.,* 2006; Ousama *et al.,* 2012). There are some relatively straightforward reasons explaining why large companies are considered to be more prone to disclose IC information (Ousama *et al*., 2012): 1) large companies have the resources to disclose more information; 2) larger companies tend to have better internal management information systems as a result of the variety of their activities, thus being able to disclose more information. Whilst Bukh *et al*. (2005) found no relationship in Danish ICD determination but Robb *et al*. (2001) found size was positively associated with the non-financial disclosures in the annual reports by Anglo American firms. This study uses Logarithm of the value of firm total asset total assets as proxy for size (Ferreira *et al.,* 2012).

H1: There will be a positive relationship between size and ICD.

4.2. Profitability (Profit)
Khlif and Souissi (2010) contend that a positive relationship between disclosure and profitability can be justified on the basis of two theoretical arguments. First, as suggested by agency theory, higher performance makes it easier for managers to convince shareholders about their superior managerial abilities. They are likely to use voluntary disclosure to obtain higher degrees of confidence from investors, which may be reflected in higher compensation. Second, profitable firms have incentives to disclose more information in order to screen themselves from less profitable firms. In addition, managers of profitable companies have incentives to use information in order to obtain personal advantages such as continuance of their positions and compensation arrangements. On the other hand, the adverse attention that high-profits draw may lead to political costs (Watts & Zimmerman, 1978). Profitable companies are more likely to use voluntary disclosures to reduce political costs. Another important aspect is that profitability may be the result of continuous investment in intellectual capital and companies are likely to engage in ICD to signal the significance of such investment (Li *et al*., 2008). This study uses Ratio of net profit before taxation to total assets as proxy for profitability (Ferreira *et al.,* 2012).

H2: There will be a positive relationship between profitability and ICD.

4.3. Leverage
Morris (1987) explains agency theory as the reason for which highly leveraged firms tend to disclose more so as to reduce the cost of the agency. Empirical studies demonstrate a mixed relationship. Leverage has been used as an explanatory variable to disclosure in several studies (Brüggen *et al.,* 2009; Kılıç & Kuzey, 2018; Nurunnabi *et al*., 2011; Taliyang *et al*., 2011). High leverage firms need to attract creditors, and ICD may be used for this purpose. High disclosure tends to reduce information asymmetry and leads to a lower cost of borrowing. Widiatmoko and Indarti (2017) documented a significant positive impact of leverage on ICD. In contrast, Rahman *et al*. (2019) suggested a   negative association and the extent of disclosure in the annual reports, has also been found by some prior studies (e.g. Williams, 2001; White *et al*., 2007; Zuliana, 2007).. However, it is estimated a positive relationship based on the theoretical suggestion. This study uses ratio of total liability to equity as proxy for leverage.

H3: ICD in the annual reports of the listed companies is positively associated with leverage.

4.4 Board Size
As a top-level management body, the board of directors formulates policies regarding disclosure. The level of disclosure is a strategic decision made of the board of directors (Akhtaruddin *et al*., 2009). Zahra *et al*. (2000) argued that the size of the board is believed to affect the ability of the board to monitor and evaluate management and small board encourages faster information processing. SEC (2006) also prescribed the board size in between 5-20. The collective capability and experience of the board members may ensure the proper disclosure of information. So, it is expected that size of the board of directors is positively

related to the IC disclosure (Hossain, 2011).

4.5 Audit Firm (Audit)

Hossain (2011) stated that The financial statements of an issuer of a listed security shall be audited by a partnership firm of chartered accountants within the meaning of Bangladesh Chartered Accountants Order, 1973 (The President of the People's Republic of   Bangladesh, 1973) consisting of not less than two partners in practice for a minimum of seven years (Government of the People's Republic of Bangladesh, 1987). So, the status of audit firm is important to ensure the quality of disclosure. Firth (1979) argued that larger, well known audit firms may be able to exercise greater influence and that they be associated with higher disclosure level. For this reason some other researchers, like, Nurunnabi and Hossain (2010), Akhtarudding, *et al.* (2009), Al-Shammari (2007) used this variable. This is measured by a dichotomous variable which takes the value of 1 if the company is audited by the audit firm which is under the eligible list (published by Bangladesh Bank) and 0 for otherwise. The hypothesis drawn for this variable would be: firms audited by the eligible auditor are more likely to disclose more IC information in their annual reports than others.

Table 1: provides a summary of the operational definition of variables and their sources

Variable	Operational definitions	Source of information
Company size (Size)	Logarithm of the value of firm total assets	Company annual report
Profitability (profit)	Ratio of net profit before taxation to total assets	Company annual report
Leverage	Ratio of total liability to equity	Company annual report
Board size (Board)	Number of the members from board of directors	Company annual report
Audit firm (Audit)	Eligible audit firms accepted by BD Bank	www.bdnews24.com, accessed 22 Dec, 2020
Intellectual capital disclosure (ICD)	Total number of intellectual capital items to the total number of disclosed items by firm j	

5. Research Methodology

5.1 Selection of Sample

There are 22 types of industries present in the DSE. In this study the researcher randomly selected 30 companies in 11 different industries. In tables 2 and 3 the industry wise companies' selection method and name of the companies are given-

Table 2: Company selection / Population and Sample Size			
Serial Number	Industry	Total companies/population	Sample companies (10% of the population)
1	Bank	30	3
2	Cement	07	1
3	Ceramic sector	05	1
4	Engineering	39	4
5	Financial institutions	23	2
6	Food & Allied	17	2
7	Fuel & power	19	2
8	Insurance	47	5
9	IT Sector	10	1
10	Pharmaceuticals &chemicals	32	3
11	Textile	56	6
		=285	= 30

Table 3 : Name of the companies		
Serial Number	Industry	Companies
1	Bank	Islami Bank Bangladesh Limited
		Eastern Bank Limited
		Dutch Bangla Bank Limited
2	Cement	Premier Cement Mills Limited
3	Ceramic sector	R.A.K Ceramics (Bangladesh)Limited
4	Engineering	Aftab Automobiles Limited
		BSRM Steels Limited
		Kay & Que (Bangladesh) Limited
		Quasem Industries Limited
5	Financial institutions	IDLC Finance Limited
		Investment Corporation of Bangladesh
6	Food & Allied	Apex Foods Limited
		Fine Foods Limited
7	Fuel & power	Energypac Power Generation Limited
		MJL Bangladesh Limited
8	Insurance	Green Delta Insurance
		Reliance Insurance Limited
		Bangladesh National Insurance Co. Limited
		Pragati Insurance Limited
		Asia Insurance Limited
9	IT Sector	Intech Limited
10	Pharmaceuticals &chemicals	The ACME Laboratories Limited
		Orion Pharma Limited
		Advanced Chemical Industries Limited
11	Textile	Apex Spinning & Knitting Mills Limited
		Aman Cotton Fibrous Limited
		H.R. Textile Mills Limited
		Matin Spinning Mills Limited
		Paramount Textile Limited
		Square Textile Limited

So the sample covers 30% of the population and thus 30 companies were selected from 285 companies from 11 different industries. The data was collected from the 2019-2020 annual reports of the selected companies.

5.2 Construction of the IC Disclosure Index

It is also argued that the information contained in the report usually differs from company to company and the selection of the proper items of information that are expected to be disclosed in the annual report is not an easy task (Akhtaruddin, 2005). For preparing a disclosure index for the study the researcher studied the IC disclosure checklist from a previous research paper. After studying the prior study 65 IC items selected for the current research. IC items were classified into three categories:–internal capital, external capital and human capital. There are 13 IC items under the internal capital, 24 items under the external capital and 28 items under the human capital category. Appendix-I presents the IC disclosure checklist (Hossain, 2011).

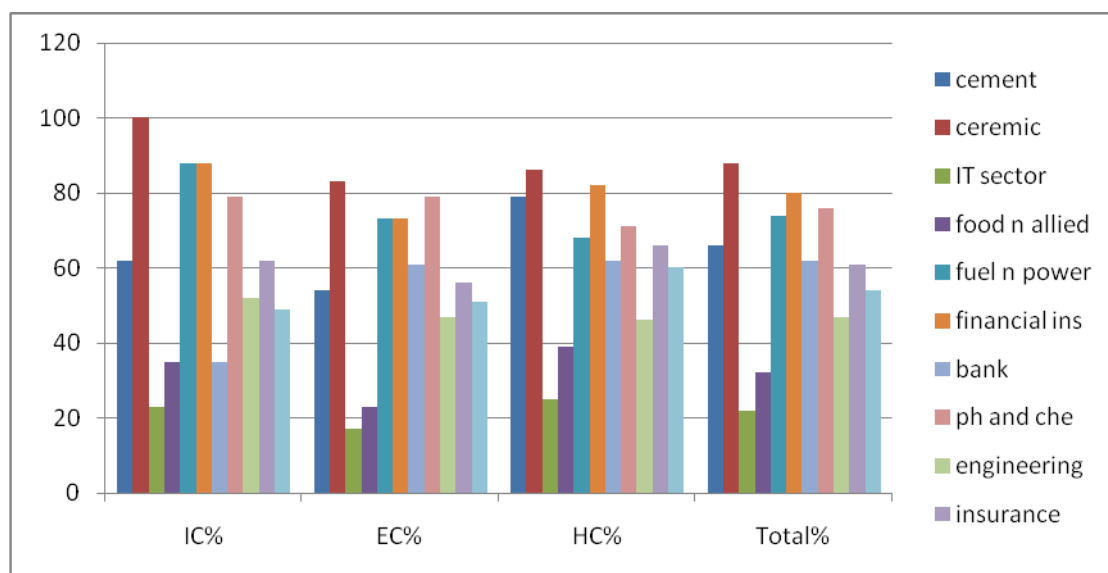| Table 4: Average IC disclosure by Industry								
IC category								
	Internal		External		Human		Total	
	Total items 13		Total items 24		Total items 28		Total items 65	
Industry	No. of item	%	No. of item	%	No. of item	%	No. of item	%
Bank	4.2	35	14.67	61	17.33	62	40	62
Cement	8	62	13	54	22	79	43	66
Ceramic	13	100	20	83	24	86	57	88
Engineering	6.75	52	11.25	47	12.75	46	30.75	47
Financial ins.	11.5	88	17.5	75	23	82	52	80
Food &A	4.5	35	5.5	23	11	39	21	32
Fuel	11.5	88	17.5	73	19	68	48	74
Insurance	8	62	13.4	56	18.4	66	39.80	61
IT	3	23	4	17	7	25	14	22
Pharma	10.33	79	19	79	20	71	49.33	76
Textile	6.33	49	12.17	51	16.8	60	35.33	54

Chart 1: The disclosure of IC in percentage by the industries

5.3 Scoring the Disclosure Items

There are two recognized methods for determining the level of intellectual capital disclosure – weighted and unweighted. Some of the researchers like Abeysekera (2008); Bozzolan *et al.* (2003); Brennan (2001); Nurunnabi *et al.* (2011); Oliveira *et al.* (2006); Orens et al. 2009; Sujan and Abeysekera (2007); Vandemaele et al. (2005); Xiao (2008) used weighted approach in their study. On the other hand there are some other researchers who used unweighted scoring system, (for example, Ali *et al.*,2008; April *et al.,* 2003; Davey *et al.,*2009; Goh & Lim, 2004; Guthrie *et al.,* 2007). Logic behind this approach is that disclosure of more items is more important than disclosure of fewer items in several ways. Wallace (1988) stated that all

disclosure items are equally important to the average users. Besides, there are some items which may not be disclosed in terms of money, e.g. employee competency. Following these logics present study used unweighted approach for scoring and ignoring frequency of disclosure. Based on this procedure, disclosure of a specific item in the annual report is given a score of 1. On the other hand, if the item is not disclosed, it is scored 0. The extent of disclosure is a ratio of the recorded information items found in the annual report divided by the maximum number of information items in the disclosure index. The measurement of the Percentage of intellectual capital disclosure (ICD) is calculated as follows: $ICD_j = TDS_j/MDI_j$, here $TADS_j$ is the total disclosure score for a company j and MDI_j is the maximum disclosure items (maximum 65 items) of the company j ((Hossain, 2011).

5.4 Regression Model

The regression technique is used to test the relationship between intellectual capital disclosure and a number of company characteristics. The regression model is as follows:

$Y = \beta + \beta1$ BOARD + $\beta2$ LEVERAGE + $\beta3$PROFIT + $\beta4$ AUDIT + $\beta5$ SIZE + ε

6. Results and discussion

6.1 Level of IC Disclosure by Industry

Table 4 presents the summary of average IC disclosure by sample industries. There are 13 IC items under internal capital (IC) category, 24 IC items under External capital (EC) category and 28 IC items under Human capital (RC) category. On average fuel, pharmaceutics, financial institution and ceramic disclose more IC items (11.58) which are equivalent to 88.75%. In case of EC, average disclosures are more by the above industries, average items are 18.5 and average percentage is 77% respectively. The average HC disclosure is higher in the cement, ceramic, financial institution and pharmaceuticals industries, showed average 22.25 items, which are 79.5 in percentage. In total financial institutions and ceramic Industry presented highest disclosures, in average 54.5 items that is 84%.

6.2 Level of IC Disclosure by Sample Firms

Out of 13 IC items average disclosure of the sample firms is 7.97 i.e. 61% (Table 5). Sample companies disclose, on average, 13.47 EC items out 24 which is corresponding to 56%. In the same way average HC disclosure is 17.17 (61%). In total from 65 IC items in the companies disclose only 38.6 items which is equivalent to 59%. Out of total intellectual capital disclosure (TICD) internal capital (IC) is 20.64%, external capital (EC) is 34.89% and human capital (HC) is 44.47%. So, the most disclosed category is HC whereas least disclosed category is IC.

From the Table 6 the prior researcher's findings from Bangladesh it can be said that after 10 years the disclosure of IC has decreased (40% to 20.64%), EC slightly decreased (37% to 34.89%) but the disclosure of HC has increased (23% to 44.47%).

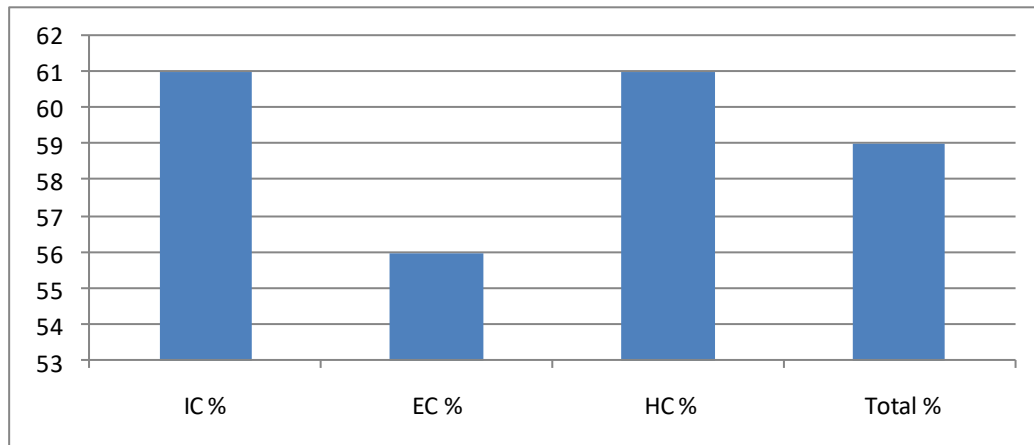| Table 5: Average Disclosure by Sample Firms				
IC category	**No of items**	**Average no of item**	**Average %**	**Proportion of disclosure (%)**
IC	13	7.97	61	20.64
EC	24	13.47	56	34.89
HC	28	17.17	61	44.47
Total	65	38.6	59	100

Chart 2: Average disclosure by the sample firms

Table 6: Summary of Prior Research Regarding Proportion of Average IC Disclosure in Three Different Categories in Bangladesh		
Study	**Data & Time reference**	**Key findings**
Current study	Bangladesh 2019-2020	IC 20.64% EC 34.89% HC 44.47%
Hossain (2011)	Bangladesh 2007-2009 or 2008	IC 40% EC 37% HC 23%

6.3 Result of Correlation Test

Pearson correlation coefficient is a measure of the correlation between two variables which is also used as a measure of the strength of linear dependence between the variables. Table 7 presents the result of the correlation coefficient of dependent and independent variables. Result shows that there is a positive correlation between ICD with SIZE, PROFIT and LEVERAGE where SIDE is most influential (0.448 at 0.05 level). Along with SIZE LEVERAGE, BOARD and AUDIT had made positive correlation and here LEVERAGE is the most important (0.748 at 0.001 levels). PROFIT is also showing a positive relation with BOARD (0.371 at 0.05 levels). Correlation between AUDIT and ICD, BOARD and PROFIT are showing negative but in slight percentage (0.023, 0.276 and 0.115 respectively).

Table 7 : Correlation Matrix						
Variables	**ICD**	**SIZE**	**PROFIT**	**LEVERAGE**	**BOARD**	**AUDIT**
ICD	1	.448*	0.128	0.351	-0.080	-0.023
SIZE	-	1	-0.060	0.748**	0.264	0.255
PROFIT	-	-	1	-0.232	0.371*	-0.115
LEVERAGE	-	-	-	1	0.053	0.207
BOARD	-	-	-	-	1	-0.276
AUDIT	-	-	-	-	-	1

*0.05 level, **0.01 level

6.4 Results of Descriptive Statistics

Descriptive statistics of variables are presented in Table 8. Result shows that minimum score of IC is 1 and maximum score is 13 out of 13 and mean score is 7.97. EC disclosure score is between 4 to 23 out of 24 items and mean score is 13.47. In case of HC minimum score is 4 and maximum score is 26 out of 28 items. Considering all three categories of IC together minimum disclosure items are 12 and maximum disclosed items are 59 with mean score 38.60. The mean of SIZE is 10.07 with standard deviation (SD) 0.94. The mean of   PROFIT is 0.034, LEVERAGE is .56, BOARD is 9.70 and AUDIT is 0.70.

Table 8: Descriptive Statistics of the Variables				
Variable	Minimum	Maximum	Mean	SD
SIZE	8.20	12.06	10.07	0.94
PROFIT	0.0008	0.09	0.034	0.03
LEVERAGE	0.05	0.94	0.56	0.24
BOARD	4	20	9.7	4.47
AUDIT	0	1	0.70	0.47
IC	1	13	7.97	3.51
EC	4	23	13.47	5.56
HC	4	26	17.17	6.45
Total IC	12	59	38.60	14.53

6.5 Result of   Multiple Regressions

In the least square regression model there are five independent variables. The regression results show that the R, R square and adjusted R square is 0.610, 0.372 and 0.241 respectively. It indicates that the model with included variables can explain the variations at least 24.10% where F value is 2.845 which are significant at 0.037 levels. The regression results show that SIZE, PROFIT and LEVERAGE are statistically significant at 5 percent levels whereas AUDIT and BOARD are not statistically significant. In the prior study of   Hossain (2011) BOARD, AUDIT and ASSET gave statistically non significant result.

Thus, the regression analyses demonstrate that there is moderate association between company characteristics and intellectual capital disclosure by the listed firms of   Dhaka stock exchange.

Table 8: Regression Results							
	Un Standardizd Coefficient		Standardized Coefficient			Collinearity Statistics	
VARIABLES	B	SE	Beta	t	Sig.	Tolerance	VIF
CONSTANT	-0.707	0.513		-1.380	0.180		
SIZE	0.149	0.064	0.629	2.326	0.029	0.358	2.796
PROFIT	2.537	1.518	0.303	1.671	0.108	0.796	1.257
LEVERAGE	0.028	0.241	0.030	0.118	0.907	0.397	2.518
BOARD	-0.022	0.087	-0.276	-1.528	0.140	0.803	1.245
AUDIT	-0.132	0.010	-0.436	-2.202	0.038	0.666	1.501

Model summery

R= 0.610

$R^{2=}$ 0.372

Adjusted R^2= 0.241

F-value = 2.845

Sig.= 0.037

7. Conclusion, Limitations and Avenues for Future Research

The present study is the intellectual capital (IC) disclosure by the selected companies under different industry. Mainly based on the prior study of   Hossain (2011) this study has developed. Another objective of the study is to see the developing country's ICD practice as a proxy on Bangladesh.

The result has shown 59 % IC disclosure which is bigger than the previous studies by Hossain , M.M., (2011) (49.89%), Nurunnabi *et al.* (2011) (20.72%) and Ali *et al.* (2008) (36.16%).

Among the variables size, profit and leverage made the positive association but board and audit made the negative association with ICD

There are several limitations to this study. First, the sample size is low, second, only a single year of data is considered and third, only five independent variables were used. Moreover intellectual capital disclosure is voluntary in nature and there is no guideline for selecting disclosure items.

Further research may be conducted by overcoming those limitations. Ultimately this practice will give benefits to the external user and by their satisfaction the firms will be benefited and as a result the economy will be gradually stronger.

Copyright

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Appendix – Selected Intellectual Capital	
Internal capital	(Corporate) culture
	Awards /Certificate /recognition/achievement
	Cultural diversity
	Future plan
	information system (technology)
	Intellectual property /Patent, Copyright and trade mark
	Leadership
	Management (corporate) philosophy
	Management process
	Organizational learning
	Product focused
	quality
	Research and development
External capital	Beating the competition
	Brands
	Business collaboration
	business partnering
	Company / corporate image /name
	(Company) Reputation
	Creates value
	Customer appreciation
	Customer feedback
	Customer loyalty
	Customer retention
	customer satisfaction

	Customer services
	Customers
	Distribution channels
	Expert / expertise
	Favorable / Financial contract
	Franchising agreements
	Knowledge
	Licensing agreements
	Market share or other competitive advantages
	Positive customer experience
	Supplier knowledge
	Talent
Human capital	Equality Issue / Disability, race, gender, religion
	Career (and development)
	Employee safety and health , work environment
	Employee thanked
	Employee and executive compensation plan
	Employee behavior
	Employee benefits other than salary
	Employee communication
	Employee demographics breakdown
	Employee education programmes and training
	employee loyalty
	Employee Motivation
	Employee qualifications (vocational and academic / educational)
	Employee retention
	Employee satisfaction
	Employee Teamwork
	Employee Welfare
	Entrepreneur skills
	Entrepreneurial spirit
	human capital / resource
	Industrial relations
	Innovativeness of employees/teams of employees
	Professional experience
	Succession planning
	The new generation
	Value added statements
	Work related competencies
	work related knowledge