Intellectual Capital Disclosure Practices by Chemical and Pharmaceutical Companies in Bangladesh

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Abstract

In today’s world, investors are likely to go in depth into a company’s financial details before investing. So disclosure of information is very important for investors. Intellectual Capital Discloser is a complex one, which is the difference between a firm’s market value and the cost of replacing its assets. In this paper, we try to focus on how good are the companies of Chemical and Pharmaceutical industry, in Bangladesh, in Intellectual Capital Discloser. This paper considers human capital, structural capital and external (customer) capital as components of Intellectual capital and uses secondary data (Annual Reports) to analyse the disclosure. Content analysis is used as the method of analysing the annual report. We have found that in an emerging economy like Bangladesh, the Chemical and Pharmaceutical industry performs moderately well in case of disclosing the Intellectual Capital components.

Keywords: Intellectual Capital; Chemical and Pharmaceutical Industry

1. Introduction

1.1 Background & Rational of the Study

   Intellectual Capital is the term that can be defined as the difference between a firm’s market value and the cost of replacing its assets. Nowadays, people do mental work more than the physical work which is not disclosed in a company’s balance sheet. In general words, we identify that as intellectual capital. It adds more value to an organization which is an important economic factor for the company. It is generally comprised of human capital, structural capital and organizational capital. As technology and process improvements become significant
differentiating factor within modern companies, intellectual capital is likely to become an even stronger influence in the marketplace. There is also a strong relationship between intellectual capital discloser and corporate governance. Every company should make this relationship transparent and let the public know about the roles and responsibilities of board and management to provide stakeholders with a level of accountability. Discloser of materials is accessible by stakeholders to know about the company’s factual information. Intellectual capital is a real business asset, although measuring it is a very subjective task. Companies spend millions annually training their employees in business-specific topics or paying to improve competence in their staff. This capital employed provides a return to the company, one that can contribute towards many years’ worth of business value.

The Economics Institute of Washington, D.C., in its recent study on human intellectual capital, concluded that, “The economic value of the nation’s productivity depends more upon employee skills and knowledge and business problem solving aptitude than it does upon the market value of the firm’s commercial output.” In the new millennium, intellectual capital will be the primary resource and the driver of our information economy.

While past economies depended on use of land, natural resources, equipment and capital for the creation of value, our information economy will depend on application of knowledge.

In recent decades, people emphasize on brain work rather than physical work. Most organizations’ value gives us a greater perspective about intellectual capital and information about how the organization is maintaining this asset effectively. When managers can manage their knowledge perfectly, it reflects organizational intellectual capital as well as market capitalization.

Knowledge is a very important source for people, firms and countries. Managing knowledge and intellectual capital creates a new source of competitive advantage. The fortunes and values of firms can increase or decrease depending on how well they create, capture, and leverage their knowledge. Intellectual capital encompasses the models, strategies, unique approaches and mental methodologies that organizations use to create, compete, understand, solve problems and replicate. These reasons led to the business research based on intellectual capital discloser. The purpose of this research was to find out whether chemical and pharmaceutical companies’ intellectual capital works or not.
1.2 Objective of the Study

The prime focus of this study is to determine to what extent chemical and pharmaceutical companies in Bangladesh disclose intellectual capital in annual reports.

2. Literature Review

Though it is relatively new in Bangladesh, many researchers have investigated intellectual capital discloser and its effect on organizations in different countries of the world. It is also related with market capitalization and corporate governance. Some researchers have worked on banking industry regarding how they managed intellectual capital and how much its organization disclosed information to the public. Some of their views are as below.

“International Journal of Business and Management” published “Intellectual capital (IC) disclosure has been receiving an increasing amount of attention among the companies around the world such as Australian companies, Italian companies and others. This is due to the new economy driven factor which is knowledge-based economy where value creation has become one of the most crucial issues in the world and tends to be based on intangible rather than tangible assets. In Malaysia, the development of human capital like empowerment of the human mentality and intellectual capacity of the nations is one of the targeted areas under the Ninth Malaysia Plan (Taliyang et. al., 2011).

“There has been a rapidly growing realization of the importance of disclosure of intellectual capital as a whole in the operation of organizations. Several Scandinavian companies have taken the global lead in this regard including Skandia, Carl-Bro and Celemi who have all publicly disclosed intellectual capital statements. Sveiby argues that these companies are a sharp illustration of the differences in the managerial attitudes of the industrial and post-industrial ages. Olsson reports on measurement initiatives that have occurred in the Scandinavian hospital sector and has uncovered a method to introduce and spread the practice of reporting and disclosure and its relationship with learning. Such initiatives illustrate clearly that people can no longer be considered to be costs on the profit and loss statement but are, in fact, assets to be invested in, developed and deployed carefully”(Bontiset.al., 2002).

“Intellectual capital is of substantial and growing importance in innovation and productivity growth, organizational, competitiveness and economic performance. Intellectual capital, which may, include aspects such as human resources, organizational structure and
processes, and customer relations, is often poorly identified and measured. Information on intellectual assets is collected in different ways, and financial accounting and reporting practices generally fail to recognize these assets.” (Kok, 2007)

In the Asian context, IC reporting research is also documented. Goh and Lim (2004) did a study of 20 Malaysian firms, which indicated that the nature of IC voluntary disclosures in company reports is highly qualitative rather than quantitative. In a study of 30 firms listed on Sri Lanka’s Colombo Stock Exchange using the content analysis method, Abeysekera and Guthrie (2005) provide evidence of reporting focusing more on external capital than HC. In a subsequent comparative study of IC reporting in Sri Lanka and Singapore, Abeysekera (2007) identified differences in IC disclosure between Sri Lankan and Singaporean firms and suggested reasons for dissimilarities from country standpoints. In another comparative research study between Hong Kong and Australia, Guthrie et. al., (2006) demonstrated that level of voluntary IC disclosures is found to be low and reported in qualitative rather than quantitative form in both countries. In the context of Pakistan, Makki et al. (2008) attempted to measure IC performance among 25 companies listed on the Lahore Stock Exchange using the VAICe model. Their findings conclude that the oil and gas, chemical and cement sectors show top performance in terms of IC components; the banking sector illustrates average performance, however, with public sector organizations portraying the lowest levels of disclosure.

IC in universities and research organizations adapting management and reporting IC in companies to other types of organizations is conducted in two ways. The first deals with assessing intangibles aggregated at meso (communities, industries, etc.) and at macro level (cities, regions and nations). For example, The World Bank has organized three conferences on this issue in 2005-2007 (Chatzkel, 2006) and attempts have been made to measure IC at country level, for instance in Sweden (Rembe, 1999), Israel (Pasher, 1999) and the Arab region (Bontis, 2004).

Intellectual capital has been mainly studied within the context of the private sector (Kong, 2010). However, the rise of the new management paradigm for public sector organizations and the idiosyncratic nature of the public sector triggered research initiatives to investigate intellectual capital within its context. More specifically, the changes in the public sector since 1980s, such as the extensive use of commercialization, the increased levels of competition and the demand for improved efficiency in service delivery, posed requirements for
a new management philosophy for public organizations usually described with the umbrella term of New Public Management (Hood, 1995). New Public Management (NPM) dismantles the distinction between private and public sector by proposing ideas borrowed from the conceptual framework of private administrative practice (Power, 1997). NPM provides a theoretical rationalization for intellectual capital, as a private sector oriented metaphor, to be viewed as a new conceptual framework for public strategic management (Kong, 2007; Kong and Prior, 2008; Kong and Thomson, 2006).

IC can be defined from the perspective of wealth creation as “intangible resources and assets that an organization can use to create value by converting it into new processes, products, and services” (Al-Ali, 2003). Similarly, Stewart, (2000) defines IC as “intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth”. IC is usually classified into three main categories, based on one of the most popular classifications by Sveiby (1997), who classifies IC as internal structure, external structure and employee competence. This classification of IC by Sveiby (1997), is often referred to and adopted by the IC literature (April et. al., 2003; Abeysekera and Guthrie, 2005; Wong and Gardner, 2005; Whiting and Miller, 2008), with slight modification of the terminology of the categories into internal capital (INC), external capital (EXC) and human capital (HUC). INC refers to the IC inside the company which consists of innovations, technological infrastructure, internally generated intangible assets (e.g. patents, brand names and trademarks), quality, processes and management philosophy (Sanchez et. al., 2000; Guthrie and Petty, 2000; Bontis, 2003; Seetharaman et. al., 2004).

Interesting approach to the components of Intellectual Capital present Grudzewski and Hejduk, who say that an intelligence of the organization is not a simply sum of intelligence of its employees but it is a result of existing synergy phenomenon. The intelligence of the company is built by different elements like: communications intelligence, technological intelligence, and innovation intelligence, financial intelligence, marketing intelligence, organizational intelligence, social intelligence and ecological intelligence.

2.1 Concept of Intellectual Capital

Intellectual capital encompasses much more than patents, copyrights and other forms of intellectual property. It is the sum and synergy of a company’s knowledge, experience,
relationships, processes, discoveries, innovations, market presence and community influence (Millar and William, 1999). Intellectual is an important input in industrial production and this is fact in chemical industry of Bangladesh. Employees’ mental work is valued day by day and it is appreciated when the value of the company is also greater. Moreover, intellectual capital gives more value to a company than physical assets. Human resource is taken to be an important factor to increase productivity, improve quality and reduce costs; all necessary to survive in the competitive world. The intellectual capital discloser practice in Bangladesh is a new idea and managers are not enthusiastic to disclose information frequently in annual reports. Changing of technology, innovation and knowledge also alter the organizational strategies. World becomes more competitive, which assist our physical and financial asset into the intangible resources. This practice realizes us that physical commodities and brain work are individual but interdependent with each other for valuation of an organisation. Skilled employees, sound infrastructures, networking systems, information systems, innovativeness, brand name, trademarks and knowledge bases, sometimes termed intellectual assets, now bring considerable competitive advantages for firms operating within the knowledge driven economy.

There are a lot of definitions of intellectual capital:

Intellectual capital has also been defined as the difference between a firm’s market value and the cost of replacing its assets. It is those things that we normally cannot put a price tag on, such as expertise, knowledge and a firm’s organizational learning ability (Bontis and Nick, 1996).

Market value equals book value plus intellectual capital, with book value usually the tip of the iceberg of wealth. Intellectual capital encompasses much more than patents, copyrights and other forms of intellectual property. It is the sum and synergy of a company’s knowledge, experience, relationships, processes, discoveries, innovations, market presence and community influence (Millar and William, 1999).

The most widely used definition of intellectual capital is “knowledge that is of value to an organization.” Its main elements are human capital, structural capital, and customer capital. That definition suggests that the management of knowledge (the sum of what is known) creates intellectual capital (Bassi and Laurie, 1997).

### 2.2 Components of Intellectual Capital

Components of intellectual capital consist of human capital, structural capital and
external (customer) capital. This classification is admitted in general.

Human Capital: The success depends largely on the people with higher level of competence. In the economic perspective, the capital refers to the factors of production used to create goods or services. Human capital is defined as the knowledge, skills, experience, intuition and attitudes of the workforce. Intellectual capital can be increased by increasing the capacity of each worker.

Human capital is the knowledge, skill and capability of individual employees providing solutions to customers (Tapsell and Sherrill, 1998). Human capital is the firm’s collective capability to extract the best solutions from the knowledge of its people. It is important because it is a source of innovation and strategic renewal, whether it is from brainstorming in a research lab, daydreaming at the office, throwing out old files, re-engineering new processes, improving personal skills or developing new sales leads (Bontis and Nick, 1996).

Individual competence is important for organizations. This is people’s capacity to act in various situations. It includes skill, education, experience, values and social skills. People are the only true agents in business; all assets and structures, whether tangible physical products or intangible relations, are the result of human action and depend ultimately on people for their continued existence (Sveiby and Karl-Erik, 1998).

People create knowledge, new ideas, and new products, and they establish relationships that make processes truly work. Unfortunately, when people leave, they take along their knowledge, including internal, external, formal, and informal relationships (Brenner and Pamela, 1999).

Intellectual capital - the commitment and competence of workers - is embedded in how each employee thinks about and does work and in how an organization creates policies and systems to get work done. It has become a critical issue for six reasons (Ulrich and Dave, 1998).

First, intellectual capital is a firm’s only appreciable asset. Most other assets (building, plant, equipment, machinery, and so on) begin to depreciate the day they are acquired. Intellectual capital must grow if a firm is to prosper. A manager’s job is to make knowledge productive, to turn intellectual capital into customer value.

Second, knowledge work is increasing, not decreasing. Service generally comes from relationships founded on the competence and commitment of individuals.

Third, employees with the most intellectual capital have essentially become volunteers,
because the best employees are likely to find work opportunities in a number of firms. This does not mean that employees work for free, but that they have choices about where they work and, therefore, essentially volunteer in a particular firm. Volunteers are committed because of their emotional bond to a firm; they are less interested in economic return than in the meaning of their work. Employees with this mind-set can easily leave for another firm.

Fourth, many managers ignore or depreciate intellectual capital. In the aftermath of downsizing, increased global competition, customers’ higher requirements, fewer management layers, increased obligations, and pressures exacted from almost every other modern management practice, employees’ work lives have not always changed for the better.

Fifth, employees with the most intellectual capital are often the least appreciated. Some studies have correlated front-line employees’ attitudes to a firm with customers’ attitudes to the same firm.

Sixth, current investments in intellectual capital are unfocused.

Education and training professionals understand how people learn, share knowledge, and work together. They also understand how an organization’s culture can affect learning initiatives, how hard it is to change an organization’s culture, and how human potential can be tapped through wise knowledge management (Bassi and Laurie, 1997). Learning will be embedded in the technologies that serve us, entertain us, and help us do our work. Learning by doing, even if in simulation, will be the rule instead of the exception. The activity of teachers and the passivity of learners will be an ancient mode of learning. Learning will be a basic workplace skill (Plott et al., 1996). Learning suggests ongoing, never-ending and always changing. It is the foundation of adaptability and innovation.

Structural capital: It consists of an organization’s strategy, internal networks, systems, databases, and files, as well as its legal rights to technology, processes, inventions, copyrights, trademarks, trade secrets, brands, and licenses. Structural capital improves when organizations invest in technology and develop processes and other internal initiatives (Bassi and Laurie, 1997).

The structural capital of a firm consists of four elements (Plott et al., 1996):

Systems - the way in which an organization’s processes (information, communication, decision-making) and outputs (products/services and capital) proceed.
Structure - the arrangement of responsibilities and accountabilities that defines the position of and relationship between members of an organization.

Strategy - the goals of the organization and the ways it seeks to achieve them.

Culture - The sum of individual opinions, shared mindsets, values, and norms within the organization.

There is a stronger linkage between strategy and culture than is generally assumed. In the beginning, an organization’s culture acts as a powerful filter on its perceptions of the business environment and, thus, contributes to the shape of the business strategies that are adopted. Later, when specific strategies are in place, they cannot be successfully implemented if the culture does not shape the organization’s behaviour in ways that are congruent with these strategies.

The largest barrier to success in implementing change is the lack of fit between strategies and the organization’s structures and culture. Organizations often respond to their business environment by adopting new strategies and developing the structures and processes to make them work. Because the “culture” element tends to be more implicit, however, it is usually ignored. Management has relatively little understanding of how to intervene in order to make the necessary culture changes. Ultimately, the competitive advantages meant to be derived from new strategies and the accompanying organizational changes will not be realized if they are not supported by an organizational culture that is appropriately aligned (Sveiby and Karl-Erik, 1998). An organization with strong structural capital will have a supportive culture that allows individuals to try, fail, learn and try again. A culture that unduly penalizes failure will have minimal success (Bontis and Nick, 1996).

External Capital: External capital is also named relational capital and customer capital. External - relational capital refers to the organization’s relationships or network of associates and their satisfaction with and loyalty to the company. It includes knowledge of market channels, customer and supplier relationships, industry associations and a sound understanding of the impacts of government public policy. Frustrated managers often do not recognize that they can tap into a wealth of knowledge from their own clients and suppliers. Understanding better than anyone else what customers want in a product or a service, is what makes someone a business leader as opposed to a follower. Customer and supplier loyalty, target marketing, longevity of relationships and satisfaction are all measurable elements of this form of intellectual
capital (Bontis and Nick, 1996).

External structure consists of relationships with customers and suppliers, brand names, trademarks and reputation. Some of these can be considered legal property (Sveiby and Karl-Erik, 1998). Coca-Cola, for instance, is the world’s most valuable brand name, worth about US$39 billion. But customer capital will show up in complaint letters, renewal rates, cross selling, referrals and the speed with which phone calls are returned according to Tapsell and Sherrill (1998).

External capital defines an organization’s vital, external relationships. The components of external capital include (Knight and Daniel, 1999):

1. Customer capital- the loyalty of valuable customers created by understanding their needs and meeting them consistently
2. Supplier capital - the mutual trust, commitment, and creativity of key suppliers
3. Alliance capital - reliable and beneficial partners.
4. Community capital – an organization’s capabilities and reputation in its surrounding community.
5. Regulatory capital - knowledge of laws and regulations as well as lobbying skills and contacts.
6. Competitor capital - Critical understanding and intelligence about competitors. These relationships can only be managed; they cannot be controlled. Improvement in external capital involves looking outside an organization’s boundaries to such things as developing relationships and trust with customers, suppliers, and surrounding communities.

Knowledge has been recognized as a valuable resource by researchers. Intellectual capital simply means the knowledge resources of an organization. Success of organizations depends on creating, discovering, capturing, and disseminating, measuring knowledge. If organizations enhance their organizational learning, they will increase their knowledge and intellectual capital. Learning suggests ongoing, never-ending and always changing. It is the foundation of adaptability and innovation. The economic value of learning is a given because of its role in most business decisions and transactions.

The literature review indicates that, nowadays intellectual capital or peoples’ knowledge is an important factor for the organization. It also indicates how developing countries are measuring ICD to evaluate organizational growth and profitability. As a developing country,
how effectively Bangladesh is managing intellectual capital and increased market capitalization is the major concern of this study.

3. Framework of the Research
The following analytical framework has been developed for the study.

"Figure 1: Analytical Framework"

Investigating of percentage of internal capital components
Investigating of percentage of human capital components
Investigating of percentage of external capital components

Extent of Intellectual Capital Discloser in Chemical and Pharmaceutical Industries in Bangladesh

Intellectual Capital discloser in addressing has been set as the dependent variable which depends on three independent variables such as investigating the internal, external and human capital components of intellectual capital that is disclosed in annual reports in the decision-making process. Each independent variable carries some indicative questions or queries.

Annual reports of the chemical and pharmaceutical company are the only source of collecting data. So questionnaires and interview method is not needed to collect data to conduct this study.

4. Methodology
4.1 Data Collection
The study includes only secondary data. As part of secondary data source, the annual reports of both public and private pharmaceutical companies, listed in the Dhaka Stock Exchange for the year 2011-2012, were collected and analysed. Listed private chemical companies were chosen for the study because of their greater commitment and exposure to investors in respect of mandatory and voluntary reporting than unlisted chemical companies. Within the sample frame, a public limited chemical company which is regulated by BCIC was
not included on the grounds that the former did not have publicly available annual reports. Not all Public chemical companies have been selected for this study because we focused only private chemical companies which are enlisted under Dhaka Stock Exchange.

The choice of annual reports as a source of information for IC research was made for several reasons. First, managements regularly signal important issues using this reporting mechanism; moreover, annual reports also represent the corporate concern in a comprehensive and compact manner (Niemark, 1995; Abeysekera and Guthrie, 2005). Second, annual reports are considered the most prevalent and acknowledged document regularly produced by the companies in Bangladesh. They are also regarded as the key means by which information about the company is provided (Belal, 2000; Khan et al., 2009). Both qualitative and quantitative information are identified from the annual reports. In the study, annual reports have been extensively analysed and the different sections of the annual reports—such as vision, mission and goals statement, chairman’s message, directors’ section, operation, financial statements, auditors’ report and other sections—were examined to understand how IC information differ in different sections communicated by sample chemical and pharmaceutical companies. This practice is in line with the approach followed by Abeysekera (2007). This research adopts the framework for IC items developed by Sveiby (1997) with further inclusion of some external capital and human capital items. These are “company’s recognition for services”, “companies’ market share” and “number of trainings for employees. Sveiby’s framework has later been modified by Guthrie and Petty (2000) and was used in earlier research studies effectively (Abeysekera and Guthrie, 2005). Consequent to these changes, a total of 22 items consisting of eight internal capital-related items, nine external capital-related items and five HC-related items remain in each of the IC categories, as shown in Table I.

4.2 Sample Size

The sample of chemical and pharmaceutical companies is comprised of only the largest companies taken from the private sector, a practice compatible with other research studies. The sample selected for this study includes many pharmaceutical and chemical companies that are listed on the Dhaka Stock Exchange. The largest chemical and pharmaceutical have been chosen because they are regarded as being more interested in making social, environmental, IC and other voluntary disclosures. For the study, I have chosen 23 companies which are enlisted under
DSE. Among these 23 companies, 14 companies have been sorted due to availability of annual reports. In summary, the sample selected is sensibly wide-ranging while still being of a controllable size.

Table 1: IC framework adopted for the study

<table>
<thead>
<tr>
<th>Internal Capital</th>
<th>Human Capital</th>
<th>External capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent</td>
<td>Know-how</td>
<td>Companies reputation for services</td>
</tr>
<tr>
<td>Copyright</td>
<td>Employees educational qualifications</td>
<td>Customers</td>
</tr>
<tr>
<td>Management philosophy</td>
<td>Work related knowledge</td>
<td>Customer/clients loyalty</td>
</tr>
<tr>
<td>Corporate culture</td>
<td>Work related competency</td>
<td>Companies’ name</td>
</tr>
<tr>
<td>Management process</td>
<td>Entrepreneurial spirit</td>
<td>Business collaboration</td>
</tr>
<tr>
<td>Information systems</td>
<td>Extent of employee training</td>
<td>Companies market share</td>
</tr>
<tr>
<td>Networking systems</td>
<td></td>
<td>Franchising and licensing agreement</td>
</tr>
<tr>
<td>Financial relations</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Data Analysis

In order to codify the data, the value “0” was assigned for not having information and the value “1” was assigned where the information was made available. Content analysis is an established method for studying annual reports and has been widely used in the IC reporting field of accounting research (Abeysekera and Guthrie, 2005; Abeysekera, 2006; Bozzolan et al., 2003; Sujan and Abeysekera, 2007). Information reported in accordance with accounting standards in Bangladesh or under corporate law was disregarded since such information is reported to meet mandatory requirements. Selection of only voluntary information disclosures is consistent with other IC research studies in several countries. For example, there was upward trend in IC disclosure in Sri Lankan context but the reasons for increase were different from that of Singapore. First, the global competition for capital requires firms to uphold investors’ confidence by means of proactive IC disclosure to counter the negative effects of socio-political factors, such as the civil war in the country during the study period (Abeysekera, 2008). The choice of word count is in part due to the realization that IC reporting is only a recent phenomenon in the Bangladesh context. Carney (1972) observes that:

[. . .] a word always carries a number of messages simultaneously and it is multidimensional. Furthermore, the meaning of words shifts and changes for a
person, for example, as a person matures.

Although tables, charts or pictures might also be used to communicate IC information in place of text by some companies (Marston and Shrives, 1991), such representations were not incorporated into the study because of measurement problems (Wilmshurst and Frost, 2000; Guthrie et al., 2004). For each of the item, data were gathered and recorded in terms of location (where it appeared within the annual reports), type of data (qualitative or numerical) and the number of times it appeared in the annual report. Qualitative data were recorded in the coding sheet, by means of an IC framework that includes the internal capital, external capital and HC elements. In the study, we described an IC item as an IC component. Therefore, the existence of one or more components is likely to head an IC sub-category as a whole. The data recorded in the coding framework was appraised after a time interval, thereby ensuring the impartiality and consistency of coded data. When the coders agreed perfectly, observed disagreement (Do) equals to zero and alpha (α) equals to one, which indicates perfect reliability. Further, if α equals to zero, data are totally uninformative of anything outside the process of generating them. Therefore, for reliability considerations, α’s range is 1 to 0. In our study, as α value is close to one in both cases, the expected and observed disagreements between coders are assumed to be rather immaterial. While researchers’ personal idiosyncrasies and biases should be removed (Wimmer and Dominicks, 2003) from the findings for a content analysis to be objective, in reality, the meaning adduced from contents depends very closely on coders’ interpretations and inferences. With regards to sampling error, Lacy and Riffe (1996) illustrated that three factors are relevant, namely the size of the sample, the homogeneity of the population and the proportion of population in the sample likely to have sampling errors. As a matter of fact, it is probable that there will be some divergence between sampling results (sampling error) and population results; however, the extent of these differences is expected to be insignificant. In this research study, because sample size satisfactorily characterizes the whole population under study, it is likely that the method of reducing sampling error has adequately been addressed.

5. Data Analysis and Interpretation

5.1 Interpretations

From analysis of data, it shows that IC reporting is voluntary in Bangladesh. Chemical and pharmaceutical industries disclose IC activities is moderately good than other industries. In
perspective of all items which are disclosed, it shows that almost 77.55% IC items are disclosed by the surveyed companies with the range of 6 to 16 items. The result indicates that chemical and pharmaceutical companies of Bangladesh are doing well in terms of disclosing IC items (Table II).

From the analysis, here it describes each elements of IC in details. It reports that there is strong support of disclosing IC items in annual reports of Bangladeshi chemical and pharmaceutical industry. The result shows that every company discloses intellectual property like patents, copyrights and trademarks with 100% while it also includes corporate culture. Under internal capital all companies reported in management process, researching projects in 78.57% and 50% respectively. Most of the companies reports management process and research projects because they change frequently and products need research for continuous development in chemical and pharmaceutical industries. There is no reporting about networking systems (0%) and it shows a small percentage, about 28.57, for information systems (Table III).

In the external capital category, Brand is the mostly reported items over the companies. It shows almost 92.86% company is incorporating as a brand and each and every company disclosed the brand value in annual reports. Distribution channel and business collaboration was reported as the second most disclosed information which percentage is same 42.86. On the other side, research collaborations and financial contacts has been disclosed also in exactly 14.29% respectively. Finally, the least items disclosed in external capital categories which are franchising and licensing in amount of 7.14%. Customer is getting priority than customer loyalty and almost 50% of the companies disclose customer related information. Customer/client loyalty is the least reported item (0%) in the external capital category (Table III).

Human Capital related information shows that, employees are the most important items that is disclosed in annual reports and have a percentage of 78.57; whereas the know-how, work related knowledge are the average items of 57.14% and 50%, respectively. Under the HC category, the least disclosed item is employee education and it is only disclosed by 28.57%. Here, work related competence is disclosed by 42.86%. When company discloses more information about HC related items it indicates that organizations are more concern about the organizational values and grabbing attention for their competitive position over the competitors (Table III).

The 100% reporting of patents, copyright and trademarks is hardly surprising.
However, disclosure of these items indicates that each and every company is concern about their brand value and identity of the product which gives a unique representation of an organization. On the other hand, my analysis of IC reporting practice indicates that there appears to be no consistent framework of reporting IC in chemical and pharmaceutical industry.

Table 2: Descriptive statistics for the samples

| Number of chemical and pharmaceutical industry | 14 |
| Number of industry groups | 1 |
| Number of IC variables used in model | 22 |
| Overall reporting score (in percent) | 77.55*** |
| Maximum number of variables reported by any one chemical and pharmaceutical company | 16 |
| Minimum number of variables reported by any one chemical and pharmaceutical company | 6 |

***This figure is calculated from the sum of the items reported divided by total number of items.

In respect of the research question identified, which describes IC reporting among the sample of Bangladeshi chemical and pharmaceutical company in terms of category. Internal capital items are the most reported categories in terms of both frequency and word count (65.06%). On the other hand, human capital items were the least reported which has a percentage of 15.71 of all surveyed companies (Table IV).

This result indicates that Bangladeshi chemical and pharmaceutical companies give more importance to their patent, copyrights, brands, trademarks, management process, corporate culture, employees, etc. From the distribution of each of the items, the result indicates that HC related items employee education, work related competence are least focused on in this industry. Pharmaceutical and chemical industry gives more emphasis to internal capital items in order to maintain an individual unique position in business sector.

Table 3: Frequency of reporting in different components

<p>| 1. Internal (structural) capital information | No of company reporting items | Percentage | Word count |
| Patents | 14 | 100 | 150 |
| Copyrights | 14 | 100 | 350 |</p>
<table>
<thead>
<tr>
<th>Trademarks</th>
<th>14</th>
<th>100</th>
</tr>
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</table>

B. Infrastructure assets

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Percent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Corporate Culture</td>
<td>14</td>
<td>100</td>
<td>545</td>
</tr>
<tr>
<td>b. Management Process</td>
<td>11</td>
<td>78.57</td>
<td>400</td>
</tr>
<tr>
<td>c. Information Systems</td>
<td>4</td>
<td>28.57</td>
<td>153</td>
</tr>
<tr>
<td>d. Networking Systems</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>e. Research Projects</td>
<td>7</td>
<td>50</td>
<td>175</td>
</tr>
</tbody>
</table>

2. External (customer/relational) capital information

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Percent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Brands</td>
<td>13</td>
<td>92.86</td>
<td></td>
</tr>
<tr>
<td>b. Customers</td>
<td>7</td>
<td>50</td>
<td>79</td>
</tr>
<tr>
<td>c. Customer Loyalty</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>d. Distribution Channels</td>
<td>6</td>
<td>42.86</td>
<td>78</td>
</tr>
<tr>
<td>e. Business Collaborations</td>
<td>6</td>
<td>42.86</td>
<td>100</td>
</tr>
<tr>
<td>f. Research Collaborations</td>
<td>2</td>
<td>14.29</td>
<td>173</td>
</tr>
<tr>
<td>g. Financial Contacts</td>
<td>2</td>
<td>14.29</td>
<td>50</td>
</tr>
<tr>
<td>h. Licensing Agreements</td>
<td>1</td>
<td>7.14</td>
<td>25</td>
</tr>
<tr>
<td>i. Franchising Agreements</td>
<td>1</td>
<td>7.14</td>
<td>19</td>
</tr>
</tbody>
</table>

3. Human capital (employees’ competence) information

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Percent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Know-how</td>
<td>8</td>
<td>57.14</td>
<td>184</td>
</tr>
<tr>
<td>b. Education</td>
<td>4</td>
<td>28.57</td>
<td>48</td>
</tr>
<tr>
<td>c. Employees</td>
<td>11</td>
<td>78.57</td>
<td>95</td>
</tr>
<tr>
<td>d. Work Related Knowledge</td>
<td>7</td>
<td>50</td>
<td>42</td>
</tr>
<tr>
<td>e. Work Related Competence</td>
<td>6</td>
<td>42.86</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>77.55%</td>
</tr>
</tbody>
</table>

In the annual reports, the position of IC related items and its discloser indicate how management considers IC to be in what position of the company. From the analysis, it shows
that most of the information is revealed from chairman’s message, vision and mission statement and corporate governance report (Table V).

Interpretation 1: In ACI, from the voluntary discipler of intellectual capital represent 100% in intellectual property and 75% in infrastructural assets. On the other hand, it shows ACI disclose 44.44% in external capital. ACI mostly focuses on human capital component which is 80% (Table 6).

Table 4: Overall IC reporting results according to category

<table>
<thead>
<tr>
<th>Category of information</th>
<th>Total scores for all category of information</th>
<th>Total word count for all category information</th>
<th>Percentage (words)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information relating to internal capital</td>
<td>78</td>
<td>1773</td>
<td>65.06</td>
</tr>
<tr>
<td>Information relating to external capital</td>
<td>38</td>
<td>524</td>
<td>19.23</td>
</tr>
<tr>
<td>Information relating to human capital</td>
<td>36</td>
<td>428</td>
<td>15.71</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>2725</td>
<td>100</td>
</tr>
</tbody>
</table>

Interpretation 2: In ACI Formulation, it also emphasizes on human capital components and the percent is 80. Here, internal structure shows that the percentage of intellectual property is 100% and IA is 75%. ACI Formulation is not flexible to reveal external capital components those are only 22.22% (Table 6).

Table 5: ICs reporting by sections in the annual reports

<table>
<thead>
<tr>
<th>Sections of annual reports</th>
<th>Percentage of items reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision, mission and goals statement</td>
<td>23.81</td>
</tr>
<tr>
<td>Chairman’s message</td>
<td>47.62</td>
</tr>
<tr>
<td>Directors’ report</td>
<td>18.57</td>
</tr>
<tr>
<td>Financial review</td>
<td>-</td>
</tr>
<tr>
<td>Operations review</td>
<td>-</td>
</tr>
<tr>
<td>Audit report</td>
<td>5</td>
</tr>
<tr>
<td>Other sections</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 6: Company based distribution of internal, external and human capital discloser

<table>
<thead>
<tr>
<th>Name of Companies</th>
<th>Internal Structure (%)</th>
<th>External structure (%)</th>
<th>Human Capital (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IP</td>
<td>IA</td>
<td></td>
</tr>
<tr>
<td>ACI</td>
<td>100.00</td>
<td>75.00</td>
<td>44.44</td>
</tr>
<tr>
<td>ACI Formulation</td>
<td>100.00</td>
<td>75.00</td>
<td>22.22</td>
</tr>
<tr>
<td>Beximco Pharmaceuticals</td>
<td>100.00</td>
<td>75.00</td>
<td>33.33</td>
</tr>
<tr>
<td>Beximco Synthetics</td>
<td>100.00</td>
<td>62.50</td>
<td>22.22</td>
</tr>
<tr>
<td>GlaxoSmithKline</td>
<td>100.00</td>
<td>75.00</td>
<td>66.67</td>
</tr>
<tr>
<td>The IBN Sina</td>
<td>100.00</td>
<td>62.50</td>
<td>44.44</td>
</tr>
<tr>
<td>Kohinoor Chemical</td>
<td>100.00</td>
<td>75.00</td>
<td>22.22</td>
</tr>
<tr>
<td>Marico Bangladesh</td>
<td>100.00</td>
<td>50.00</td>
<td>22.22</td>
</tr>
<tr>
<td>Orion Infusions Limited</td>
<td>100.00</td>
<td>62.50</td>
<td>22.22</td>
</tr>
<tr>
<td>Pharma Aids</td>
<td>100.00</td>
<td>50.00</td>
<td>11.11</td>
</tr>
<tr>
<td>Reckitt Benckiser (BD) limited</td>
<td>100.00</td>
<td>87.50</td>
<td>33.33</td>
</tr>
<tr>
<td>Renata Limited</td>
<td>100.00</td>
<td>75.00</td>
<td>44.44</td>
</tr>
<tr>
<td>Salvo Chemical Industry Limited</td>
<td>100.00</td>
<td>62.50</td>
<td>11.11</td>
</tr>
<tr>
<td>Square Pharmaceutical limited</td>
<td>100.00</td>
<td>87.50</td>
<td>22.22</td>
</tr>
</tbody>
</table>

Interpretation 3: From analysis of variables, Beximco Pharmaceutical shows more importance in disclosing IP and human capital components which are 100% respectively. Under internal capital, IA discloser is 75% which is moderately good for the company. Moreover, less percentage on external capital that is 33.33% (Table 6).

Interpretation 4: Beximco Synthetics concentrates more on internal capital where IP is 100% and IA is 62.50%. Beside this, external capital and human capital shows almost same percentage of 22.22% and 20%, respectively (Table 6).

Interpretation 5: GlaxoSmithKlines’ focuses on IP and HC related components. GSK does not disclose much information about its external structure which in 66.67% (Table VI).

Interpretation 6: From the analysis data, it shows that IBN Sina has stable a result
regarding the disclosure of intellectual components in its annual report. It has an average result to disclose its IP, IA, external and internal components which are 100%, 62.50%, 44.44% and 60%, respectively (Table 6).

Interpretation 7: Kohinoor Chemical focuses on IA and IP components most which is 100% and 75%. External capital is a less reportable component, among all of items, which is only 22.22%. Moreover, it has moderately reported on human capital related components that is 60% (Table 6).

Interpretation 8: Though Marico has 100% report on IP related components but its overall performance on intellectual capital is less than individual items which is only 31.82%. Its report on IA is 50%. The percentage of external and human capital is 22.22% and 20%, respectively, due to lower reporting (Table 6).

Interpretation 9: Orion Infusions discloses its internal capital on IP and IA is 100% and 62.50%, respectively. It also moderately discloses its human capital component that is 60%; though it focuses less on external capital which is 22.22% (Table VI).

Interpretation 10: Pharma Aids reported less on external capital components which is only 11.11%. The second less reported item is human capital which is 20%. Beside this, its report on IP and IA is 100% and 50%, respectively (Table 6).

Interpretation 11: Reckitt Benckiser has high reporting items on internal capital components which is 100% and 87.50%. It also moderately focuses on human capital component that is 60% and less reported item is external component which is 33.33% (Table 6).

Interpretation 12: Renata Limited focuses on human capital component which is 20% though it has a satisfactory result on IP and IA related components which is 100% and 75%. Moreover, it has an average disclosure on external capital components that is 44.44% (Table 6).

Interpretation 13: The least reported item of Salvo Chemical is external capital component and has a disclosure percentage of 11.11 in the annual report. But, it focused on IP and IA related components which is 100% and 62.50%. It reported on human capital item is 20% (Table 6).

Interpretation 14: Square Pharmaceutical has high reporting on IP and IA related items and the percentage of these components are 100% and 87.50%. It reported only 40% on human capital components. The least reported item of Square Pharmaceutical is external capital item that is 22.22% (Table 6).
5.2 Company Based Overall Percentage of IC Disclosure

Interpretations: For ACI, the voluntary disclosure of intellectual capital represent the total percentage is around 63.64%, whereas, the same group of companies like ACI Formulation shows a lower percentage of 54.55% (Chart 2).

From the analysis, we can see that Beximco Pharmaceutical and Beximco Synthetics have a higher deviation than ACI. Here, Beximco Pharmaceutical discloses 63.64% of IC components whereas Beximco Synthetics discloses only 36.36%; although they are sister concern group (Chart 2).

GlaxoSmithKline has a regular disclosing practice among all of the companies surveyed. It discloses almost 72.73% of all components which is a satisfactory performance compared to the other companies (Chart 2).

The IBN Sina discloses only 54.55% of overall IC components. Moreover, Kohinoor Chemical, Renata Limited and Square Pharmaceutical have same percentage of disclosing IC components which is approximately 50% (Chart 2).

As a multinational company, Reckitt Benckiser shows 59.09% to reveal IC items; therefore, leading the second position after GlaxoSmithKline as a multinational organization (Chart 2).
Comparatively, lower percentage has been showed by Marico, Pharma Aids and Salvo Chemical Industries limited which is 27.27%, 31.82% and 31.82%, respectively. Though Orion Infusions (45.45%) has relatively higher percentage of the disclosure of IC related components (Chart II).

6. Findings

The degree of the disclosure of intellectual capital components of chemical and pharmaceutical companies in Bangladesh has been identified. By surveying the companies, we found that almost 100% of the companies frequently discloses IP related components. All surveyed companies reported 100% on their patents, copyrights and trademarks. Most of the chemical and pharmaceutical companies are reluctant to disclose human capital components in terms of both frequency and word counts.

Some other major findings are:

The overall reporting on intellectual capital component is 77.55% and the frequency for word counts for internal capital is 65.06%, external capital is 19.23% and 15.71% for human capital.

100% surveyed chemical and pharmaceutical companies in Bangladesh reported on IP components under internal capital such as patents, copyrights, trademarks. Though it has 100% reported on this item but it has less frequency (450 words) in word counts than other variable counts word.

Under external capital variable, almost 42.86% companies reported on distribution channels and business collaboration where the total word count is 178 words. On the other hand, research collaborations and financial contacts disclosed by only 14.29% companies but the word counts for both items was 223 words which is comparatively more than business collaboration and distribution channel.

About human capital information almost 78.59% companies frequently reported on employees but the frequency of word count is only 95. Moreover, 184 words count about employees’ know-how where only 57.14% company has reported on this variable.

One of the major findings of this study is, most of items are reported on chairman’s message such as employee related information, business collaboration, research collaborations etc. almost 47.62% companies chairman’s reported on these items in annual reports.
From company based findings, GlaxoSmithKline has reported almost 72.73% on intellectual components which is the highest; whereas, the least reported was by Pharma Aid that disclosed only 27.27% on intellectual capital items.

ACI and Beximco Pharmaceutical are the second most reported companies and has same percentage (63.64). But, for individual components ACI and Beximco Pharmaceutical reported 100% and 75% on IP and IA related items. Though, ACI reported 100% on human capital component whereas Beximco Pharmaceutical disclosed 80% but the overall percentage is same for both companies.

Reckitt Benckiser (BD), ACI Formulation, The IBN Sina and Orion Infusions have comparative average performance to reporting on IC components which are 59.09%, 54.55%, 54.55% and 45.45%, respectively. But these three companies also reluctant to reported on human capital components among all.

Kohinoor Chemical, Renata and Square Pharmaceutical have same percentage (50%) on reporting IC components. The individual percentage of three components slightly fluctuated from each other but Square Pharmaceutical reported much more in IA related components than other two companies.

The least reported companies are Beximco Synthetics (36.36%), Marico Bangladesh (31.82%) and Salvo Chemical Industry (31.82%). But, these three companies also less reported in human capital components in same percentage (20%).

7. Conclusion

This primary study of IC disclosure has been conducted based upon a sample of 14 DSE listed private chemical and pharmaceutical companies in Bangladesh. It must be noted that this report is based entirely on secondary data (annual reports of 2011-2012) which was observed to fulfil the objective criteria. The overall study discloses that IC reporting in chemical and pharmaceutical industries in Bangladesh is pretty good where it gives more emphasis on internal capital and concentrates less on human capital IC components. The reporting of IC employed is mostly narrative rather than in numerical terms. The study therefore concludes that there is no established and mutually agreed framework for reporting IC in the Bangladeshi corporate sector and therefore, we believe that this study has both theoretical and practical implication. In theory, IC disclosure of chemical and pharmaceutical industry gives an
opportunity to give emphasis on other sectors in the developing countries and practically, it gives a direction regarding how the regulatory body and corporate governance will focus about reporting the IC components in annual reports.

References


46-49.


Thomson/Wadsworth, Belmont, CA.


**Acronyms**

IC= Intellectual Capital  
ICD= Intellectual Capital Discloser  
IP= Intellectual Property  
IA= Intellectual Assets  
VAIC= Value Added Intellectual Coefficient  
NPM= New Public Management  
INC= Internal Capital  
EXC= External Capital  
HUC= Human Capital  
BCIC= Bangladesh Chemical Industries Corporation  
HC= Human Capital  
DSE= Dhaka Stock Exchange  
ACI= Advanced Chemical Industries  
GSK= GlaxoSmithKline