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Intellectual capital disclosure by Chinese and Indian information technology companies: A comparative analysis

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Intellectual capital disclosure by Chinese and Indian information technology companies

A comparative analysis

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Abstract

Purpose – The purpose of this paper is to examine the extent and quality of voluntary intellectual disclosures by information technology (IT) companies of China and India.

Design/methodology/approach – The research method adopted for this study is content analysis. The research is limited to the intellectual capital information disclosed in companies' annual report. The sample for this research is based on 20 IT companies listed by market capitalization listed on Shenzhen or Shanghai stock exchange market, and the largest 20 companies listed on Indian stock market.

Findings – Indian IT companies tends to perform better than Chinese IT companies in extent and quality of disclosures. The extent of disclosure of both countries is at a relatively high level. The most frequently reported disclosure category in India is external capital, while the least one is human capital. In China, external capital is the most frequently disclosed category, while the internal capital is the least one.

Research limitations/implications – The sample size of the study is relatively small. Future research can expand on the sample size to get an overview of the intellectual capital disclosure, and conduct a longitudinal study to capture the trend of reporting practices.

Practical implications – The findings of this study have implications for policy makers and standard setters for rethinking of inclusion of intellectual capital disclosure in annual reports as compulsory items. This will not only add tot he quality of information but various stakeholders will be able to make an assessment of the values of a firm.

Originality/value – Previous studies of intellectual capital (IC) disclosure have covered little on the relationship between market capitalization and quality of disclosure and cross-country disclosure on IC. This research tends to extend the literature on IC disclosure.

Keywords China, Disclosure, India, Information technology, Intellectual capital, Accounting

Paper type Research paper

1. Introduction

In the new information age (Schneider and Samkin, 2008), the economy is increasingly driven by knowledge (Bontis *et al.*, 1999; Curado *et al.*, 2011; Dzenopoljac *et al.*, 2016; Schneider and Samkin, 2008; Liao *et al.*, 2013; Low *et al.*, 2015). Knowledge is one of the important factors for business to gain and maintain a competitive business advantage (Ghosh and Wu, 2007; Curado *et al.*, 2011). Intellectual capital is becoming the key factor of underlying value creation (Liao *et al.*, 2013; Catalfo and Wolf, 2016). However, the balance sheet of a company fails to disclose the value of intellectual capital (IC) and only shows the value of tangible assets. Some practitioners and regulators have criticized that the disclosure of intangibles is inadequate (Bismuth and Tojo, 2008; Ariff *et al.*, 2014), partly due to the conservative reporting rules for intangibles. A gap persists between what shareholders want and what companies provide.

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IC is a popular term used by some companies which depends on the skills, knowledge and experience of employees (Joshi *et al.*, 2012; Curado *et al.*, 2011). The information technology (IT) sector reflects IC as the productivity of IT companies which mainly relies on the knowledge and innovation of employees (Nimtrakoon, 2015). Joshi *et al.* (2012) suggest that "highly skilled employees, robust training and innovation largely decide the success of such companies" (p. 583). Moreover, the disclosure of IC in IT sector becomes an important signal to inform stakeholders' affairs of companies, especially in an increasing competitive world (Abeysekera, 2008; Nimtrakoon, 2015).

Since 1980, China and India have achieved economic growth and poverty reduction and taken together, these countries constitute over a third of the world's population (Bosworth and Collins, 2008). As the Chinese IT services market size is higher than India, it is believed that the extent and quality of disclosures may vary between the two countries. Yet only three studies (Xiao, 2008; Yi and Davey, 2010; Liao *et al.*, 2013) related to Chinese companies. All these studies are cross-sectional. Moreover, little research compares IC disclosure between two countries. The paper fills in a gap by examining cross-country IC disclosure by IT companies in China and India.

The purpose of this paper is to examine the extent and quality of voluntary IC disclosures by IT companies of China and India. The research question being asked is:

RQ1. What is the extent and quality of voluntary IC disclosure by IT companies of China and India?

This paper examines 20 publicly listed IT companies in each country. Section 2 sets out the background of the two economies, IT industries and stock markets. Section 3 delineates the literature on IC and prior research. Section 4 describes methods. Section 5 outlines the results and discussion which is followed by Section 6 on conclusion.

2. Economic comparisons: China and India

This section sets the background information on economic comparison, IT and Stock Exchanges across the two countries to show how they are similar or different. The background information helps to glean later in the paper our research question:

RQ2. What is the extent and quality of voluntary IC disclosure by IT companies of China and India?

China and India are developing countries in Asia-Pacific with rapid economic growth. The GDP growth rates in both countries are relatively higher than developed countries (Euromonitor International, 2015a, b). For example, the real GDP growth rates of China and India in 2014 are nearly three times of the real GDP growth rate of the USA in 2014 (Euromonitor International, 2015a, b).

The gap between rich and poor exists in both China and India. For example, 76 percent of India's 1.2 billion people live on less than US$ 2 per day (Euromonitor International, 2015b), and the income of urban households in China is, on average, several times higher than that of rural households (Euromonitor International, 2015a). Fujita and Hu (2001) note that globalization and economic liberalization play important roles in the increasing inequality in China, because of the highly uneven distributions of trade and foreign direct investment.

IT industry comparisons

IT sector is a broad industry, which contains IT manufacturing and IT usage. IT manufacturing also includes manufacturing hardware, software telecommunication

devices and IT services. Chinese IT companies are involved in manufacturing IT hardware and devices; while Indian IT companies are involved in IT services. It is a challenge to compare the whole IT industry of China and India, because of the blurry definition of IT.

According to MarketLine (2015a), the Chinese IT services industry's compound annual growth rate (CAGR) for 2010-2014 was 12.4 percent. For the same period, the CAGR of Indian IT services market was 18.5 percent (MarketLine, 2015b). The value China's IT services market was $109.7 billion in 2014, which was relatively higher than that of India's $13 billion (MarketLine, 2015a, b). The research of MarketLine (2015a, b) showed that the annual growth rate of China's IT services market was 14.7 percent, and that of India's IT services markets was 10.2 percent. Table I shows the Chinese and Indian IT services industry market value for a five-year period from 2010 to 2014.

Table II shows market segments of IT services industry in China and India of IT outsourcing and processing, IT consulting and support, and Cloud computing. The largest segment of China's IT services market is IT outsourcing and processing, which accounts for 50.4 percent of total market value in 2014. The cloud computing has the least share in the total market value with 2 percent. On the other hand in the India's IT services market, IT outsourcing and processing has the largest share of 73.2 percent followed by IT consulting and support with 25.8 percent.

Stock markets. There are two stock exchange markets in Mainland China: Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange, of which Shanghai is the larger exchange. In India, there are two main stock exchange markets: Bombay Stock Exchange (BSE) and National Stock Exchange. The main difference between Chinese and Indian stock exchanges is that Indian companies can publicly listed in both markets, but Chinese companies can only choose one of stock exchange market in Mainland China.

	China		India	
Year	Value ($billion)	% Growth	Value ($billion)	% Growth
2010	68.7		6.6	
2011	79.0	14.9	8.3	25.9
2012	87.7	11.1	10.1	21.3
2013	95.6	9.0	11.8	17.3
2014	109.7	14.7	13.0	10.2
CAGR: 2010-14		12.4		18.5

Sources: MarketLine (2015a, b)

Table I.
IT services industry value and percent growth rate

Category	China (% share)	India (% share)
IT outsourcing and processing	50.4	73.2
IT consulting and support	47.6	25.8
Cloud computing	2.0	1.0
Total	100	100

Sources: MarketLine (2015a, b)

Table II.
Share of IT services market segments in 2014: China and India

3. Literature review

IC

There is no generally accepted definition of IC (Sveiby, 1997; Schneider and Samkin, 2008; Yi and Davey, 2010; Dumay, 2014; Chiucchi and Dumay, 2015; An *et al.*, 2015), even though IC is the important resource for creating economic wealth and corporate growth (Lev, 2001; Ariff *et al.*, 2014; Curado *et al.*, 2011) and factor in the successful achievement of organizational objectives (Striukova *et al.*, 2008). However, many researchers (Sveiby, 1997; Stewart, 1997) have contributed to the definition of IC on the basis of their own knowledge of IC. For example, Stewart (1997) proposed that IC entails the talent of staff, the value of proprietary knowledge and processes, and the value of relationships with customers and suppliers, is knowledge that transforms raw materials into something more valuable.

Some previous studies (Sveiby, 1997; Edvinsson and Malone, 1997 Curado *et al.*, 2011; Villasalero, 2014) were involved in developing IC frameworks for the purpose of understanding IC (Brennan and Connell, 2000). Sveiby (1997) proposed an intellectual asset monitor, which includes three broad classification categories – internal structure, external structure and employee competence. The Skandia value scheme built by Edvinsson and Malone (1997) classified IC into two categories, human capital and structure capital. Brooking (1997) also developed an IC framework, which includes four categories: infrastructure assets, human assets, market assets and intellectual property assets.

In recent years, three categories: internal capital, external capital and human capital, developed by Sveiby (1997) have been widely adopted by many researchers in their empirical research (e.g. Yi and Davey, 2010; Liao *et al.*, 2013; Curado *et al.*, 2011; Goh and Lim, 2004; April *et al.*, 2003; Guthrie and Petty, 2000; An *et al.*, 2014); these researcher, however, modified the IC items in each category on the basis of their research purposes.

Internal capital is created by employees and owned by the organization (Sveiby, 1997), which may include patents, corporate culture, information system and firms' information system (Sveiby, 1997; Yi and Davey, 2010; Vishnu and Gupta, 2014; Dzenopoljac *et al.*, 2016). Usually, internal capital has a higher value than the value of tangible assets (Yi and Davey, 2010; Sveiby, 1997).

External capital is the asset whose value is influenced by the firms' relationships with externals, such as customers, suppliers, brand and reputation building (Sveiby, 1997; Yi and Davey, 2010; Curado *et al.*, 2011). Human capital refers to the capacity of employees, such as education, training and experience, to act in a variety of situations (Sveiby, 1997; Guthrie and Petty, 2000). The value of human capital is the accumulated value of investments in employee training, competence and the future (Pablos, 2002).

Prior research on IC

Even though there is no unique definition of IC (Bukh *et al.*, 2001; Vishnu and Gupta, 2014), the growing importance of IC provided greater academic attention to various aspects of IC since the mid-1990s (Striukova *et al.*, 2008). For instance, some early studies, such as Brooking (1997), Sveiby (1997) and Edvinsson and Malone (1997) focussed on the IC framework and classification and Guthrie and Petty (2000) focussed on the measurement and reporting of IC.

Recently, many empirical studies paid attention to the IC disclosure practice around the world (e.g. Yi and Davey, 2010; Liao *et al.*, 2013; Vishnu and Gupta, 2014; Low *et al.*, 2015; Schneider and Samkin, 2008; Goh and Lim, 2004; Whiting and Woodcock, 2011). In addition, most previous research has investigated the level and extent of IC

disclosure in a specific country, for example, Australia (Guthrie and Petty, 2000), UK (Shareef and Davey, 2006), Canada (Bontis, 2003), Italy (Bozzolan *et al.*, 2003), New Zealand (Whiting and Miller, 2008), Spain (Oliveras *et al.*, 2008), China (Yi and Davey, 2010; Liao *et al.*, 2013), Malaysia (Goh and Lim, 2004), India (Kamath, 2007, 2008; Vishnu and Gupta, 2014) and Sri Lanka (Abeysekera and Guthrie, 2005). However, only last four, among these studies, investigated IC disclosure relating to developing countries.

Guthrie and Petty (2000) analyzed annual reports of 20 publicly listed companies in Australia in 1998. They found that only a few companies were interested in measuring and reporting IC, and there was a lack of a mutually agreed framework for measuring and reporting IC by large Australian companies. Some other studies (Brennan, 2001; Bontis, 2003; Xiao, 2008; Yi and Davey, 2010; Singh and Kansal, 2011) also made similar conclusions that IC is rarely reported.

Most studies on the extent of IC disclosure in a particular country were across different industries (Yi and Davey, 2010), but their findings on the determinant of the decision to disclose IC were different. Bozzolan *et al.*'s (2003) study on 30 Italian non-financial listed companies found that industry and size are relevant factors in explaining the differences in IC reporting behaviors. This finding was similar to Bruggen *et al.*'s (2009) research in Australia that industry type and firm size play key roles as the determinants for the disclosure of IC in annual reports.

The knowledge on IC disclosure in a specific industry is scarce, due to limited research (Yi and Davey, 2010; Villasalero, 2014). Few studies researched the IC disclosure based on a specific industry, for example, Kamath (2007) analyzed the value added intellectual coefficient for measuring the value-based performance of the Indian banking sector for a period from 2000 to 2004; Schneider and Samkin (2008) studied IC disclosure by 82 local government authorities in New Zealand in their annual reports; Joshi *et al.* (2011) investigated the top 20 IT companies listed on the BSE; and Shareef and Davey (2006) examined the extent of IC disclosure by 19 football clubs in UK.

Some scholars compared the voluntary reporting of IC of two different countries, but such research is limited. Joshi *et al.* (2012) compared IC disclosures by Indian and Australian IT companies. Abeysekera (2008) compared IC disclosure trend in Sri Lanka and Singapore, and found that IC disclosure differs between these two countries' companies. Guthrie *et al.* (2006) investigated the voluntary reporting of IC by comparing evidence from Hong Kong and Australia. Overall, there is no study, which is focussing on comparing Chinese IC disclosure to other countries.

4. Research method

This research compares the annual reports for the 2014 financial year of top 20 Chinese IT companies to those of Indian companies. The research method adopted for this research study is content analysis.

Various mechanisms, such as official website, newspaper and Journals, are used by companies to disseminate IC information. This study is limited to the IC information disclosed in companies' annual reports. Guthrie and Petty (2000) stated that annual report of the company is generally the most widely distributed of all publicly documents; moreover, the management of the company can control the discretionary disclosure of information in this document.

The initial sample constituted the largest 20 IT companies by market capitalization listed on Shenzhen or SHSE market, and the largest 20 companies listed on Indian exchange market for the year 2014. The main reason to limit data collection to publicly

listed companies is that it is easier to collect annual reports of listed companies from websites. According to Garcia-Meca *et al.* (2005), more information is needed by stakeholders in larger companies, for example, larger companies are in the pressure to exercise social responsibility such as price control or higher corporate taxes (Branco *et al.*, 2010). However, the cost of gathering and preparing detailed information is lower for larger companies because of more resources and superior expertise (Branco *et al.*, 2010).

The top 20 Chinese listed IT companies by market capitalization was selected as Chinese sample. For Indian sample, the authors analyzed the top 20 listed IT companies as well. However, at the time of collecting data, the authors could not find four companies' annual reports among the top 20 companies. Then the next four companies ranked by market capitalization was selected, while two companies did not disclose their annual reports on their official websites. As a result, the next two companies, which were ranked as 25 and 26, were selected in the sample.

Content analysis

Content analysis is adopted as the main framework for examining corporate annual reports with the aim of providing an overview of IC reporting practices (Guthrie and Petty, 2000; Dumay and Cai, 2015). Content analysis is defined as a technique for gathering data (Abeysekera, 2007), which involves codifying qualitative and quantitative information into pre-defined categories in order to derive quantitative scales of varying levels of complexity (Guthrie *et al.*, 2004; Guthrie and Petty, 2000; Abeysekera, 2007; Dumay and Cai, 2015).

Content analysis of annual reports is regarded as one of the important and widely used research methodology (Krippendorff, 1980; Milne and Adler, 1999; Ahmed Haji and Mohd Ghazali, 2012; Dumay and Cai, 2015), as it has been held to be empirically valid in the corporate social, IC disclosure, ethical and environmental reporting fields of accounting research (Schneider and Samkin, 2008; Guthrie and Petty, 2000; Yi and Davey, 2010; Guthrie *et al.*, 2004). In the area of IC disclosure, content analysis is undertaken as follows. Qualitative data were coded in the coding sheet in accordance with a selected framework of IC indicators (e.g. internal capital, external capital and human capital), after reading the annual report (Guthrie and Petty, 2000). The coding sheet recorded the quality score of IC items for each company. The frequency of disclosure can be calculated by counting the number of companies disclosing the specific items.

Some limitations persist in adopting content analysis (Milne and Adler, 1999; Unerman, 2000; Guthrie *et al.*, 2004). For example, subjectivity would be involved in the process of coding (Frost and Wilmshurst, 2000; Guthrie *et al.*, 2004), which would affect the data reliability. However, content analysis has been widely adopted in various accounting research, such as ethical and environmental reporting, to evaluate the extent of disclosure of various items (Ahmed Haji and Mohd Ghazali, 2012; Guthrie *et al.*, 2004; Schneider and Samkin, 2008; Yi and Davey, 2010).

Construction of IC disclosure index

A disclosure index is a qualitative-based tool (Coy, 1995; Yi and Davey, 2010), used to quantify the amount of information relating to IC included in the prospectus (Nikolaj Bukh *et al.*, 2005). The function of disclosure index would be realized through giving "a surrogate score indicative of the level of disclosure in the specific context for which the index was devised" (Coy, 1995, p. 121).

Three steps are involved in constructing disclosure index. The first step is to identify a list of items. Disclosure index contains an extensive list of selected items, which may be disclosed in annual reports (Marston and Shrives, 1991). Nikolaj Bukh *et al.* (2005) point out that the items included in the index vary among different studies. Researchers could select items on the basis of Sveiby's (1997) three IC categories and some prior literature (Guthrie *et al.*, 2006; Guthrie and Petty, 2000; Yi and Davey, 2010; Liao *et al.*, 2013), and the researchers own knowledge of mainland China and India's IT industry.

According to Sveiby (1997), IC can be divided into three categories: internal capital, external capital and human capital. The list of IC items will be allocated into these three categories, and different researchers will have different allocations. Yi and Davey (2010) claimed that 21 IC items (eight for internal capital; eight for external capital; five for human capital) were more likely to be disclosed by Chinese companies, and they simplified the framework into 16 items (five relating to internal capital; seven relating to external capital; four relating to human capital); However, Liao *et al.* (2013) listed 12 items in disclosure index (five internal capital; five external capital; two human capital). In this research, the author selected 15 items, which were allocated into three categories (seven internal capital; four external capital; and four human capital) based on authors' knowledge of Chinese and Indian IT industry. Based on the preliminary 21 items (Table AV), the authors amalgamated some similar items into one item based on prior IC disclosure studies (Shareef and Davey, 2006; Yi and Davey, 2010). For example, patents, copyrights and trademarks were combined under the intellectual property heading; management philosophy and corporate culture were combined as corporate culture; brands and company names were combined under the heading of goodwill. Research and development, and subsidiaries were added into internal capital (see Yi and Davey, 2010; Liao *et al.*, 2013). The research and development plays an important role in IT companies. Many companies, especially the companies with large market capitalization, have subsidiaries. The final 15 items are listed in Table III, and the description of these items is provided in Table IV.

The second step in the construction of a disclosure index is the decision on scale scheme, which can be applied to measure the quality of disclosure. The selection of scale scheme used to score IC items varies between specific studies. For instance, Shareef and Davey (2006), Schneider and Samkin (2008) and Yi and Davey (2010) adopted a six-point scale (from 0 to 5); Bozzolan *et al.* (2003) and Whiting and Miller (2008) established the quality criteria on a three-point scale (from 0 to 2, 0 for non-disclosure, 1 for qualitative disclosure and 2 for quantitative disclosure); Brennan (2001), and Abeysekera and Guthrie (2005) used a two-point scale (0-1, 0 represents non-disclosure and 1 represents disclosure). In this research, a five-point (0-4) scale will be

Internal capital	External capital	Human capital
Intellectual property	Goodwill	Employee
Corporate culture	Stakeholder relationship	Education/training
Management process/Strategy	Market share	Work-related knowledge
Research and development	Business partnership	Employee satisfaction
Information technology		
Financial relations		
Subsidiaries		

Table III.
IC index

Items		Description
1	*Internal capital*	
1.1	Intellectual property	Patents, copyrights and trademarks
1.2	Corporate culture	Vision, attitudes, experiences, beliefs and value of a company
1.3	Management process/ strategy	Relating to process within a company
1.4	Research and development	Details on research and development
1.5	Information technology	Details on the development, application and impact of information system
1.6	Financial relations	Relationships between the company and finance providers
1.7	Subsidiaries	Company contribution and effects from subsidiaries
2	*External capital*	
2.1	Goodwill	Details on brand recognition and building
2.2	Stakeholder relationship	Relationships with stakeholders: social responsibility, government relationship, waste reduction, environment protection and customer relationships
2.3	Market share	Information about the market share of a company
2.4	Business partnership	Relationship with partners
3	*Human capital*	
3.1	Employee	Information relating to employees
3.2	Education/training	Education or training program provided by a company
3.3	Work-related knowledge	Obtained from the job or training by employees
3.4	Employee satisfaction	Employee support, safety, retention, work-family balance, motivation and satisfaction

Table IV.
Description of IC attributes

adopted to assess the quality of IC disclosure. The details of the five-point scale adopted by Liao *et al.* (2013) are described as follows:

(1) no disclosure (0): the disclosure information does not appear in annual reports;

(2) narrative (1): the disclosure information is presented in a narrative form;

(3) numerical (2): the disclosure items are presented in a numerical form;

(4) monetary (3): the disclosure items are presented in a monetary form; and

(5) qualitative and quantitative (4): the disclosure is clear with combination of qualitative and quantitative information.

Four IC items (corporate culture, management process, work-related knowledge and employee satisfaction) are difficult to be measured in numerical form, as they are narrative in nature. These items are assigned a maximum score of one. The quality score of each item will be normalized to a scale of 0-1, because of comparability (Yi and Davey, 2010).

5. Result and discussion

Overview

Indian IT companies' annual reports disclose not only more IC but also in better quality than Chinese IT companies. Both countries' IT companies disclosed human capital in the highest quality and internal capital in the lowest quality. In China, the quality of disclosure does not have significant relationship with companies' market capitalization; while in India, the quality of disclosure has significant relationship with market capitalization.

The extent and quality of IC disclosure by attributes

Quality. Mean score[1] is a quality measure for the disclosure of IC items, which has been transferred to a scale of zero to one for comparison. This is because it is challenging to compare each other with different maximum scores. The maximum score of some items (e.g. management process/strategy, corporate culture, work-related knowledge and employee satisfaction) is one, while the others' are four. The results of two countries' mean scores for all items are disclosed in Table V.

From Table V, Chinese listed companies disclosed "management process/strategy" and "employee" in a high quality with a mean score of one. It means that all the sample companies have disclosed the item of "employee" with qualitative and quantitative information, and disclosed "management process/strategy," which cannot be measured, in a narrative method. Compared to Chinese IT companies, Indian IT companies have disclosed "work-related knowledge" in a higher quality. The mean score of Indian companies was 1, while the mean score of Chinese companies was 0.9. Six items' mean scores were higher than or equal to 0.9 in Chinese sample, while only four items' mean scores were higher than 0.9 in Indian sample. "financial relations," "IT" and "employee satisfaction" are the last three IC items in the rank list of disclosure quality in China and India. Comparing the lower quality level, Indian companies performed better than Chinese companies. There was no item where mean score was lower than 0.1 in Indian IT companies. In Chinese sample, however, there are three items (e.g. financial relations, IT, employee satisfaction) where mean scores were lower than 0.1. In addition, the mean score of "employee satisfaction" for Chinese companies was zero, which means that none of Chinese sample companies disclosed this item.

Overall, the disclosure quality for Chinese and Indian IT companies' annual reports is in a similar level, but Indian IT companies reported better than Chinese IT companies. The comparable table is presented in Table AIII. Both countries' IT companies prefer to disclose IC items in a descriptive form with some numerical description. However, Indian companies performed better than Chinese companies. For example, Chinese companies scored 62 zero marks, while Indian companies scored 32 zero marks (zero means no disclosure in annual reports).

Items		Mean score China	Mean score India
1.3	Management process/strategy	1.00	1.00
3.1	Employee	1.00	1.00
1.7	Subsidiaries	0.99	0.80
1.4	R&D	0.96	0.73
2.4	Business partnership	0.96	0.64
3.3	Work-related knowledge	0.90	1.00
2.1	Goodwill	0.85	0.53
1.1	Intellectual property	0.73	0.76
1.2	Corporate culture	0.60	0.75
3.2	Education/training	0.51	0.53
2.3	Market share	0.33	0.35
2.2	Stakeholder relationship	0.26	0.95
1.6	Financial relations	0.08	0.29
1.5	Information technology	0.03	0.16
3.4	Employee satisfaction	0.00	0.25

Table V. Overall disclosure scores – China and India

Extent. The extent of disclosure is measured by the frequency, which is equal to number of companies disclosing each IC items. The results of frequency were shown in Table VI. From this Table, it can be concluded that ten IC items have been disclosed by all sampled IT companies in China and India. The only difference was in the content of these ten items. All Chinese sample companies disclosed item of "subsidiaries," while one Indian sample companies did not disclose this item. For "work-related knowledge" item, all Indian companies mentioned this item in their annual reports, whereas two Chinese sample companies missed this item. Although the least frequently disclosed item in both countries was "employee satisfaction," the disclosure extent of this item in two countries was different. There were five Indian companies that disclosed "employee satisfaction," but none of Chinese companies disclosed "employee satisfaction." Chinese sample companies also reported "financial relations" and "IT" in a relatively low frequency. In summary, the Indian IT companies reported more IC items in their annual reports than Chinese IT companies, and the comparable table is presented in Table AIV.

Internal capital attribute

China (Table VII). "Intellectual property," "management process/strategy," "research and development" and "subsidiaries" were the most frequently reported internal capital items, being reported by all sample companies. In the meanwhile, "management process/strategy" had the highest disclosure level among internal capital items with a maximum mean score of 1. "subsidiaries" and "research and development" had a relatively higher disclosure quality, because both acquired a mean score higher than 0.95. More than half companies had disclosed "corporate culture" in their annual reports with a mean score of 0.6. "Financial relation" was only reported by six companies out of 20, with a low quality (0.08). The least frequently reported item among internal capital attribute was "IT," being reported by two companies with the lowest disclosure quality (0.03). Only two sample companies reported what IT have been adopted in their companies.

India (Table VII). "Intellectual property," "management process/strategy" and "research and development" were the most frequently disclosed internal capital items.

Table VI. Overall disclosure frequency – China and India

Items		Frequency (China)	Frequency (India)
1.1	Intellectual property	20	20
1.3	Management process/strategy	20	20
1.4	R&D	20	20
1.7	Subsidiaries	20	19
2.1	Goodwill	20	20
2.2	Stakeholder relationship	20	20
2.3	Market share	20	20
2.4	Business partnership	20	20
3.1	Employee	20	20
3.2	Education/training	20	20
3.3	Work-related knowledge	18	20
1.2	Corporate culture	12	15
1.6	Financial relations	6	16
1.5	Information technology	2	13
3.4	Employee satisfaction	0	5

All Indian sample companies reported these items. In the meanwhile, "management process/strategy" had the highest disclosure quality among internal capital items, with a mean score of 1. All companies had reported this information in their annual report. "Intellectual property," "corporate culture" and "research and development" had a relatively high disclosure quality (0.73-0.76). "Subsidiaries" had a relatively high extent of disclosure among internal capital items, since only one company did not report subsidiaries information, and it was well-reported with a mean score of 0.8. Although "financial relation" had been reported by 16 companies out of 20, it was disclosed in a quite low quality (0.29). Many companies disclosed this item in a narrative method. "IT" was the least disclosed item with the lowest quality not only in the category but also among the total IC items, whose mean score was 0.16.

Both countries' annual reports in IT industry disclosed "IC," "management process/strategy," "research and development" and "subsidiaries" in a relatively high extent, but Chinese companies disclosed these four items in a relatively higher quality. For the items of "IT" and "financial relation," however, Indian companies reported better than Chinese companies. This is shaped by more than half Indian companies disclosing these two items in a descriptive form, while most of Chinese companies did not report these two items in their annual reports. As a result, Indian IT companies disclosed more internal capital than Chinese IT companies, but the disclosure quality of internal capital category for two countries' companies was at the same level. Indian IT companies could pay more attention on the quality of disclosing internal capital items. They should try to disclose information with more monetary description. However, Chinese companies should try to disclose more internal capital information, especially "IT" and "financial relations" in their annual reports.

External capital attribute

All external capital items had been disclosed by all Chinese sample companies, but being reported in different qualities. The mean score of "business partnership" was 0.96, which was the highest in external capital category. In total, 18 companies out of 20 disclosed this item with full scores (4). "Goodwill" was also well-reported with a high-mean score (0.85). However, the mean score of "stakeholder relationship" was only 0.26, which indicates that the item of "stakeholder relationship" was reported in the lowest quality. This is because almost all Chinese sample companies only mentioned what they did to the society or how they act in a sustainable method. "market share"

		Frequency													
		0		1		2		3		4		Total		Mean Score (0-1)	
		C	I	C	I	C	I	C	I	C	I	C	I	C	I
1.	*Internal capital*														
1.1	Intellectual property			1	2	8	1	3	11	8	6	20	20	0.73	0.76
1.2	Corporate culture	8	5	12	15							12	15	0.60	0.75
1.3	Management process/strategy			20	20							20	20	1.00	1.00
1.4	R&D				5	1	2	1	3	18	10	20	20	0.96	0.73
1.5	Information technology	18	7	2	13							2	13	0.03	0.16
1.6	Financial relations	14	4	6	13				2		1	6	16	0.08	0.29
1.7	Subsidiaries		1		1		4	1	1	19	13	20	19	0.99	0.80

Table VII. Disclosure performance of internal capital items – China (C) and India (I)

was disclosed in a low quality by Chinese sample companies with a mean score of 0.33. This is because only six companies had mentioned their market share ranking or percentage in their annual reports.

All external capital items had also been reported by all Indian sample companies in their annual reports. However, the quality of disclosure among four items was different. "Stakeholder relationship" owned the highest disclosure quality among external capital attribute, with a mean score of 0.95. Nearly all companies had disclosed this item with qualitative and quantitative information. "Goodwill" and "business partnership" were reported at the mid-level quality (0.53 and 0.64). The mean score of "market share" was 0.35, which is the lowest among external capital items. Almost 70 percent companies prefer to disclose market share in a narrative way. For example, nearly all companies had mentioned that they are devoted to the increase of market share. Only one company had reported the value of its market share.

From Table VIII, it can be found that all Chinese and Indian companies disclosed all external capital items but with different disclosure quality. Indian companies disclosed "stakeholder relationship" in a high quality, as they attached corporate social responsibility report in annual reports. However, Chinese companies only mentioned what they did to the society in a descriptive way which was low quality. Both Chinese and Indian companies reported "market share" in a low quality. An overriding principle for low-quality disclosure could be that such disclosures are voluntary (Joshi *et al.*, 2012).

Human capital attribute

"Employee" and "education/training" were the most frequently reported items among human capital category. However, there was a huge difference between these two IC items' disclosure quality. "Employee" was the highest rated item among human capital. All Chinese sample companies clearly reported the number of employees, the salaries to employees and the remuneration to directors. However, only one company mentioned how much money they spent on training programs. The other companies reported the hours of training each employee can get from the company, or the percentage of employees' education level. The disclosure quality of "work-related knowledge" was at a high level (0.9). The maximum score for "work-related knowledge" is one. Companies can acquire the maximum score if they have mentioned what kind of knowledge employees can learn from working (Bontis *et al.*, 1999; Schneider and Samkin, 2008). The lowest frequency and quality of disclosure is "employee satisfaction," as no sample company reported this item in their annual reports.

All Indian sample companies reported "employee," "education/training" and "work-related knowledge" in their annual reports. Two of these three items ("employee" and

Table VIII. Disclosure performance of external capital items-China (C) and India (I)

		Frequency												Mean Score (0-1)	
		0		1		2		3		4		Total			
		C	I	C	I	C	I	C	I	C	I	C	I	C	I
2.	*External capital*														
2.1	Goodwill			2	11	1		4	5	13	4	20	20	0.85	0.53
2.2	Stakeholder relationship			19		1	2				18	20	20	0.26	0.95
2.3	Market share			14	14	6	5				1	20	20	0.33	0.35
2.4	Business partnership				3	1	10	1		18	7	20	20	0.96	0.64

"work-related knowledge") were the highest rated item with the highest mean score 1. "Education/training" was rated in the mid-level (0.53), which means its quality of disclosure is neither high nor low. "Employee satisfaction" was the least frequently reported item with the lowest mean score 0.25.

Table IX indicated that Indian IT companies disclosed human capital more frequently with a higher quality than Chinese IT companies. Indian IT companies reported "employee satisfaction" in a low extent and quality, while no Chinese IT companies disclosed this item. Although all companies disclosed the item of "education/training," the disclosure quality was not at a high level as fewer companies reported this item in a monetary form. The low score is attributed to the voluntary nature of disclosure (Joshi *et al.*, 2012).

Quality of IC disclosure

China. Table X represents the Chinese companies' mean disclosure quality by reporting categories compared with the frequency of disclosure. The category with highest disclosure quality was human capital attribute, while the category with lowest disclosure quality was internal capital attribute. The gap in disclosure quality between these two categories was 0.11. However, the rank of frequency of disclosure by three categories was different. External capital attribute, for Chinese sample companies, was the most frequently disclosed category (0.41), while internal capital attribute was the least frequently disclosed category (0.29). The gap in frequency of disclosure was 0.12, which is quite similar with the gap in quality of disclosure. The findings suggest that the relationship between quality and extent of disclosure in Chinese companies is not clear. Although internal capital had the lowest disclosure quality and frequency, the category with highest disclosure quality and frequency was different.

India. Table X shows that the gap among three categories in quality of IC disclosure for Indian sample companies was 0.16, which was larger than the gap in frequency of disclosure (0.07). In the results of disclosure quality, human capital attribute had the highest mean score (0.74), while internal capital attribute had the lowest mean score

Table IX. Disclosure performance of human capital items – China (C) and India (I)

		Frequency												Mean Score (0-1)	
		0		1		2		3		4		Total			
		C	I	C	I	C	I	C	I	C	I	C	I	C	I
3.	*Human capital*														
3.1	Employee									20	20	20	20	1.00	1.00
3.2	Education/training				7	19	7	1	3		3	20	20	0.51	0.53
3.3	Work-related knowledge	2		18	20							18	20	0.90	1.00
3.4	Employee satisfaction	20	15		5							0	5	0.00	0.25

Table X. Mean disclosure quality compared with frequency of disclosure – China and India

Category	Internal capital		External capital		Human capital	
	China	India	China	India	China	India
Quality of disclosure (Mean Score)	0.58	0.58	0.60	0.62	0.69	0.74
Frequency of disclosure	0.29	0.33	0.41	0.37	0.30	0.30

(0.58). This result suggests that both Chinese and Indian sample companies had the same rank in quality of disclosure by categories. However, in the result of disclosure extent, human capital attribute, which had the highest quality of disclosure, was the least frequently disclosed category (0.3), while external capital attribute was the most frequently disclosed category (0.37) by Indian sample companies. These findings indicated that there is no relationship between the quality and frequency of disclosure.

In summary, IT companies in China and India disclosed human capital category in the highest quality and internal capital in the lowest quality. The gap between these two categories in India is larger than the gap in China. One important finding is that there is no clear relationship between quality and frequency of disclosure among Chinese and Indian IT companies. The overall disclosure scores show that companies have at least some commitment in communicating their IC information to external audience (Guthrie and Petty, 2000).

The extent and quality of IC disclosure by companies (refer Tables AI and AII).

Extent

China. For all IC disclosure items, the average number of items disclosed by each company was 11.9 out of the maximum 15 (see Table AI). The maximum number of items reported was 14, which was reported by ZTE Corporation. Two companies (TCL Corporation and Shenzhen O-Film Tech. Co., Ltd) disclosed 13 IC disclosure items in their annual reports. The minimum number of items disclosed by sample companies was 11, and six companies reported IC disclosure items in this extent. The other 11 sample companies reported 12 IC items in their annual reports.

Under internal capital category, the mean disclosure was 5. Only one company (ZTE Corporation) disclosed all seven internal capital items. TCL Corporation and Shenzhen O-Film Tech. Co., Ltd, which are ranked the second at the same time, disclosed six internal capital items in their annual reports. Four companies (Hangzhou New Century IT Co., Ltd, Beijing Gehua Catv Network Co., Ltd, Shanghai Hyron Software Co., Ltd and Beijing Teamsun Technology Co., Ltd) disclosed four items of internal capital, which were ranked at the end of the sample company list.

With regards to external capital disclosure, the average frequency was 4 out of a possible maximum 4, which indicated all sample companies reported external capital items in their annual reports. As to human capital category, the average disclosure was 2.9 out of 4. Nearly all sample companies (18) had disclosed three items of human capital. Only two companies (Wonders Information Co., Ltd and DHC Software Co., Ltd) disclosed two human capital items, which was the minimum number of items reported.

India. With regard to all IC disclosure items, the most frequently reported number was 13.4 out of the maximum 15. Five companies (Tata Consultancy Services Ltd, Infosys Ltd, Cyient Ltd, Persistent System Ltd, and Rolta Ltd) reported all IC disclosure items. Four companies (Wipro Ltd, Tech Mahindra Ltd, NIIT Technologies Ltd and Polaris Consulting and Services Ltd) reported 14 items out of 15; six companies reported 13 items; and four companies (Mphasis Ltd, Tata Elxis Ltd, Intellect Design Arena Ltd and SQS India BFSI Ltd) reported 12 items out of 15. The minimum number of items reported was 11, which is disclosed by Mindtree Ltd.

The average number of internal capital items disclosed by Indian companies was 6.15 out of a maximum of 7. Nine companies reported all seven internal capital disclosure items, and six companies reported six items. Only one company, Mindtree Ltd, disclosed four internal capital disclosure items.

For external capital disclosure items, all Indian sample companies had disclosed all four items in their annual reports. For human capital disclosure items, the average number of items reported by Indian companies was 3.25 out of 4. Five companies (Tata Consultancy Services Ltd, Infosys Ltd, Cyient Ltd, Persistent System Ltd and Rolta Ltd) reported all four human capital items in their annual reports. The other companies reported three human capital items. Overall, India had higher mean score disclosure in relation to internal capital and human capital while China had a higher mean score in relation to external capital.

Quality

China (Table AI). As to internal capital disclosure items, the average score of all Chinese sample companies was 0.58. Nine companies acquired higher score than mean score. ZTE Corporation had the highest mean score 0.73, followed by TCL corporation and Shenzhen O-Film Tech. Co., Ltd (0.68). The lowest disclosure score (0.45) in internal capital category was by Beihai Yinhe Industry Investment Co., Ltd.

As to external capital disclosure items, the mean score for all companies was 0.6. In total, 11 companies' score of external capital was higher than mean score. The highest disclosure score in external capital was achieved by GRG Banking Equipment Co., Ltd Shenzhen O-Film Tech. Co., Ltd, which acquired second highest disclosure score in internal capital, achieved the lowest score in external capital disclosure.

Regarding human capital disclosure items, the mean disclosure score of sample companies was 0.69. In total, 17 companies owned disclosure score in human capital higher than average score. The highest disclosure score (0.9) was achieved by Hangzhou Hikvision Digital Technology Co., Ltd. The second highest score in human capital disclosure was 0.7, and there were 16 companies with this score. Westone Information Industry Inc. acquired the lowest disclosure score (0.4) in human capital items.

India (Table AII). The mean disclosure score of Indian sample companies in internal capital category was 0.58. Four companies (Tata Consultancy Services Ltd, Cyient Ltd, Ramco System Ltd and Rolta Ltd) scored the highest disclosure score 0.73. The lowest disclosure score in internal capital was 0.36, from Mindtree Ltd and Mphasis Ltd.

For external capital disclosure, the average score was 0.62. In total, 12 Indian sample companies scored higher than the mean score. The highest disclosure score in external capital was 0.88, which was achieved by Tata Consultancy Services Ltd and Mindtree Ltd. Ramco System Ltd got the lowest disclosure score 0.38.

Regarding human capital disclosure items, the mean score of Indian sample companies was 0.74. Three companies (Tata Consultancy Services Ltd, Infosys Ltd and Cyient Ltd) acquired the maximum disclosure score (1) in human capital disclosure. The lowest disclosure score was 0.6, and six sample companies got the lowest score. Indian companies had better quality scores in relation to external capital and human capital disclosures.

6. Conclusion

This paper examines the extent and quality of voluntary IC disclosures by IT companies of China and India. The research question being asked is:

RQ3. What is the extent and quality of voluntary disclosure made by IT companies of China and India?

The top 20 publicly listed Chinese and Indian IT companies in the rank of market capitalization were selected as the sample.

The IT sector reflects IC as the productivity of IT companies which mainly relies on the knowledge and innovation of employees (Nimtrakoon, 2015). The three categories of internal capital, external capital and human capital were utilized in the study (Sveiby, 1997; Curado *et al.*, 2011; Vishnu and Gupta, 2014). Some scholars compared voluntary reporting of IC of two different countries but such research is limited (Joshi *et al.*, 2012; Catalfo and Wolf, 2016).

The Chinese IT services market size is higher than that of India. India still needs to expand its IT sector through increasing in-home usage and exports. The main findings of this exploratory study are as follows. First, Indian IT companies perform better than Chinese IT companies in extent and quality of disclosures. However, the extent of disclosure of both countries is at a relatively high level, and the disclosure quality of both countries is not low. This finding contradicts the Joshi's *et al.* (2012), which noted that IC disclosures by Indian IT companies remain relatively low. However, the finding of Chinese IT companies is consistent with the finding of Yi and Davey (2010), which found that Chinese companies disclosed IC frequently without high quality. However, the quality of disclosure by Chinese IT companies in this research is higher than the disclosure quality of Chinese companies in Yi and Davey's (2010) research. Overall, the findings of this research indicated that companies have recognized the importance of IC disclosure, and there is an area for improving disclosure quality (Curado *et al.*, 2011; Dumay, 2014).

The most frequently reported disclosure category, in India, is external capital; while the least one is human capital. In China, external capital is the most frequently disclosed category, while internal capital is the least one, which is consistent with Yi and Davey (2010). However, this finding is different from Liao's *et al.* (2013) research on Chinese version annual reports which indicated that internal capital is disclosed the most frequently while external capital is disclosed least frequently. The human capital is reported in the highest disclosure quality in both countries, while internal capital is reported in lowest quality. There is no relationship between the quality and frequency of disclosure among Chinese and Indian IT companies.

The findings of this study have implications for policy makers and standard setters for rethinking of inclusion of IC disclosure in annual reports as compulsory items. This will not only add to the quality of information but various stakeholders will be able to make an assessment of the values of a firm.

The comparative study of two countries is not free from research limitations. The work cultures, corporate philosophies and regulatory framework are different in both countries. The study is limited to a selected few firms in IT companies only. In addition, the sample companies are at the top of market capitalization of IT industry; thus, there is a risk that the results of sample companies cannot represent the Chinese and Indian IT industries' practices in IC disclosure.

Future research can expand on the sample size to get an overview of IC disclosure, and conduct a longitudinal study to capture the trend of reporting practices. Future researchers can engage to interview market participants in order to understand the reasons of conducting IC disclosures. The study can be extended to study the comparative picture across other industries in the two countries such as banking, insurance, pharmaceutical and other knowledge intensive industries. Also an effort can be made to compare IC disclosures made by different industrial sectors. Finally, there is no common accepted IC reporting framework. Future studies can consider developing an IC disclosure framework that can be applied to all countries.

Note

1. "Mean score" is a quality measure for the disclosure of IC items. Calculation examples for Chinese companies: intellectual property: $0.73 = (0 \times 0 + 1 \times 1 + 2 \times 8 + 3 \times 3 + 4 \times 8)/(4 \times 20)$; corporate culture: $0.6 = (0 \times 8 + 1 \times 12)/(1 \times 20)$.

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Table AI.
The scores of Chinese companies

Appendix. The extent and quality of IC disclosure by companies

Rank of M.C.	Company	Internal capital No.	Internal capital Mean score	External capital No.	External capital Mean score	Human capital No.	Human capital Mean score	Final score No.	Final score Method 1	Final score Method 2	Final score Method 3
1	Hangzhou Hikvision Digital Technology Co., Ltd	5	0.59	4	0.63	3	0.90	12	0.70	0.71	0.68
2	ZTE Corporation	7	0.73	4	0.50	3	0.70	14	0.63	0.64	0.66
3	TCL Corporation	6	0.68	4	0.69	3	0.70	13	0.69	0.69	0.69
4	Yongyou Network Technology Co., Ltd	5	0.55	4	0.56	3	0.70	12	0.60	0.60	0.59
5	Tsinghua Tongfang Co., Ltd	5	0.64	4	0.69	3	0.70	12	0.68	0.67	0.67
6	Wonders information Co., Ltd	5	0.64	4	0.63	2	0.60	11	0.62	0.62	0.62
7	Zhejiang Dahua Technology Co., Ltd	5	0.50	4	0.50	3	0.70	12	0.56	0.57	0.55
8	DHC Software Co., Ltd	5	0.55	4	0.56	2	0.60	11	0.57	0.57	0.56
9	Wangsu Science & Technology Co., Ltd	5	0.55	4	0.56	3	0.70	12	0.60	0.60	0.59
10	Westone Information Industry Inc.	5	0.64	4	0.63	3	0.40	12	0.56	0.55	0.57
11	Beijing Shiji Information Technology Co., Ltd	5	0.50	4	0.56	3	0.70	12	0.59	0.59	0.57
12	Hangzhou New century Information Technology Co., Ltd	4	0.50	4	0.50	3	0.70	11	0.56	0.57	0.55
13	Beijing Gehua Catv Network Co., Ltd	4	0.50	4	0.63	3	0.70	11	0.61	0.61	0.59
14	Shenzhen O-Film Tech. Co., Ltd	6	0.68	4	0.44	3	0.70	13	0.59	0.61	0.62
15	Shanghai Hyron Software Co., Ltd	4	0.59	4	0.69	3	0.70	11	0.66	0.66	0.65
16	GRG Banking Equipment Co., Ltd	5	0.55	4	0.75	3	0.70	12	0.68	0.67	0.64
17	Beijing Teamsun Technology CO., Ltd	4	0.55	4	0.69	3	0.70	11	0.65	0.64	0.62
18	Digital China Information Service Company Ltd	5	0.64	4	0.63	3	0.70	12	0.65	0.65	0.65
19	Shanghai Kingstar Winning Software Co., Ltd	5	0.55	4	0.63	3	0.70	12	0.62	0.62	0.61
20	Beihai Yinhe Industry Investment Co., Ltd	5	0.45	4	0.56	3	0.70	12	0.57	0.57	0.55
	Total	100	11.55	80	12.00	58	13.70	238	12.37	12.41	12.23
	Mean	5	0.58	4	0.60	2.9	0.69	11.9	0.62	0.62	0.61
	Highest	7	0.73	4	0.75	3	0.90	14	0.70	0.71	0.69
	Lowest	4	0.45	4	0.44	2	0.40	11	0.56	0.55	0.55

Table AII.
The scores of Indian companies

Rank of M.C.	Company	Internal capital		External capital		Human capital		Final score		
		No.	Mean score	No.	Mean score	No.	Mean score	No.	Method 1	Method 2	Method 3
1	Tata Consultancy Services Ltd	7	0.73	4	0.88	4	1.00	15	0.86	0.87	0.84
2	Infosys Ltd	7	0.59	4	0.75	4	1.00	15	0.77	0.78	0.74
3	Wipro Ltd	7	0.68	4	0.50	3	0.70	14	0.62	0.63	0.64
4	Tech Mahindra Ltd	7	0.55	4	0.69	3	0.80	14	0.68	0.68	0.65
5	Oracle Financial Services Software Ltd	6	0.50	4	0.56	3	0.60	13	0.55	0.55	0.54
6	Mindtree Ltd	4	0.36	4	0.88	3	0.70	11	0.66	0.65	0.59
7	Mphasis Ltd	5	0.36	4	0.63	3	0.70	12	0.56	0.56	0.52
8	Cyient Ltd	7	0.73	4	0.63	4	1.00	15	0.77	0.78	0.77
9	Persistent System Ltd	7	0.68	4	0.63	4	0.80	15	0.70	0.7	0.7
10	Tata Elxsi Ltd	5	0.59	4	0.44	3	0.80	12	0.60	0.61	0.61
11	Zensar Technologies Ltd	6	0.50	4	0.50	3	0.80	13	0.59	0.6	0.58
12	NIIT Technologies Ltd	7	0.59	4	0.63	3	0.70	14	0.64	0.64	0.63
13	Ramco System Ltd	6	0.73	4	0.38	3	0.60	13	0.56	0.57	0.6
14	Polaris Consulting and Services Ltd	7	0.64	4	0.63	3	0.60	14	0.62	0.62	0.62
15	Rolta Ltd	7	0.73	4	0.81	4	0.70	15	0.75	0.75	0.74
16	Intellect Design Arena Ltd	5	0.64	4	0.69	3	0.60	12	0.64	0.64	0.61
17	Geometric Ltd	6	0.50	4	0.50	3	0.60	13	0.53	0.53	0.53
18	SQS India BFSI Ltd	5	0.45	4	0.69	3	0.70	12	0.62	0.61	0.58
19	Sasken Communication Technologies Ltd	6	0.50	4	0.56	3	0.60	13	0.55	0.55	0.54
20	Mastek Ltd	6	0.50	4	0.50	3	0.70	13	0.56	0.57	0.55
	Total	123	11.55	80	12.44	65	14.70	268	12.83	12.89	12.58
	Mean	6.15	0.58	4.00	0.62	3.25	0.74	13.40	0.64	0.64	0.63
	Highest	7	0.73	4	0.88	4	1.00	15	0.86	0.87	0.84
	Lowest	4	0.36	4	0.38	3	0.60	11	0.53	0.53	0.52

	Items	China-quality	India-quality
1.1	Intellectual property	0.73	0.76
1.2	Corporate culture	0.60	0.75
1.3	Management process/strategy	1.00	1.00
1.4	Research and development	0.96	0.73
1.5	Information technology	0.03	0.16
1.6	Financial relations	0.08	0.29
1.7	Subsidiaries	0.99	0.80
2.1	Goodwill	0.85	0.53
2.2	Stakeholder relationship	0.26	0.95
2.3	Market share	0.33	0.35
2.4	Business partnership	0.96	0.64
3.1	Employee	1.00	1.00
3.2	Education/training	0.51	0.53
3.3	Work-related knowledge	0.90	1.00
3.4	Employee satisfaction	0.00	0.25

Table AIII. Comparable table of IC disclosure quality between China and India

	Items	China (frequency)	India (frequency)
1.1	Intellectual property	20	20
1.2	Corporate culture	12	15
1.3	Management process/strategy	20	20
1.4	Research and development	20	20
1.5	Information technology	2	13
1.6	Financial relations	6	16
1.7	Subsidiaries	20	19
2.1	Goodwill	20	20
2.2	Stakeholder relationship	20	20
2.3	Market share	20	20
2.4	Business partnership	20	20
3.1	Employee	20	20
3.2	Education/training	20	20
3.3	Work-related knowledge	18	20
3.4	Employee satisfaction	0	5

Table AIV. Comparable table of IC disclosure extent between China and India

Internal Capital	External capital	Human capital
Patents	Brands	Employee
Copyrights	Company names	Education
Trade marks	Customers	Training
Management philosophy	Customer satisfaction	Work-related knowledge
Corporate culture	Distribution channels	Entrepreneurial spirit
Information system	Business partnership	
Networking system	Licensing agreements	
Financial relations	Market share	

Table AV. Preliminary list of IC items

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