

# TRENDS OF VOLUNTARY IC DISCLOSURE IN CHINESE FIRMS

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## Abstract

This research examines the trend of voluntary intellectual capital (IC) disclosure in China between 2006 and 2009, using content analysis of corporate annual reports of 100 top listed A-share Chinese companies. The results indicate that there was a generally upward trend for the disclosure of IC items, categories and the overall IC over the investigated period. Internal capital was the most highly reported IC category whereas external capital was the least reported for year 2008 and 2009. For disclosure items, “management processes” was the best performer during the time while “licensing agreements” for 2006 and “research collaborations” for 2008 and 2009 were the poorest. It is believed that our research should have some contributions to the existing literature on IC disclosure.

**Keywords:** Voluntary Disclosure, Intellectual Capital, Trends, China

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## 1. Introduction

The shift of our society from the industrial age to the information age has changed the means for value creation. In the present knowledge economy, intellectual capital (IC) has been increasingly recognized as the key value driver for corporate growth, productivity gains and profitability (Tayles, Pike & Sofian, 2007; Li, Pike & Haniffa, 2008; Singh & Kansal, 2011). Owing to the value of IC, increasing companies have attached significant importance to develop their IC resources. However, because most IC resources (e.g. management processes, brands, and employee competences) are intangible in nature, they are very difficult to be recognized in balance sheets under the current accounting framework. Therefore, companies tend to report these resources voluntarily in their annual reports (or on websites).

China, as the largest developing country in the world, has experienced rapid economic growth over the past several decades. During the time, IC has played a crucial role for the development of the Chinese economy. A large number of Chinese companies invested intensively in research and development, which has made many of them become knowledge-intensive companies with a strong IC base. Meanwhile, the Chinese capital markets developed dramatically with increasing companies listed on both Shanghai and Shenzhen stock exchanges. The listed companies compete intensively for funding opportunities in the markets.

In 2001, China gained entry to the WTO (the World Trade Organization), a global international organization which is devoted to break trade barriers between nations through negotiated agreements. This entry has intensified competitions encountered by Chinese companies from not only domestic, but also international competitors, in particular in recent years since China got more involved in the WTO. Given the significance of IC for value creation, many Chinese companies have used voluntary IC disclosure as a means to highlight their excellence to the capital markets and consequently achieve a competitive edge in fund-raising (Yi & Davey, 2010).

In this research, we investigated the status of voluntary IC disclosure by Chinese companies from a longitudinal perspective (over a three-year period). Following most previous studies in the area, content analysis of corporate annual reports was adopted as the primary research method. The results indicate that there was a generally upward trend for the disclosure of IC items, categories and the overall IC over the investigated period. Internal capital was the most highly reported IC category whereas external capital was the poorest reported for year 2008 and 2009. For disclosure items, “management processes” was the best performer during the time while “licensing agreements” for 2006 and “research collaborations” for 2008 and 2009 were the worst.

Our research has the following contributions to the existing literature with respect to IC

disclosure. To begin, it contributes to limited research using a longitudinal approach since most previous studies survey the level of IC reporting, only covering a single year period (Wagciengo & Belal, 2012). Furthermore, this research contributes to relatively limited research in the developing country context since prior research often focuses on developed countries with a relatively small number of studies concerned with developing countries. Thirdly, this research makes contributions to minimal literature in the Chinese context. As the largest emerging economy in the world, there are approximately two studies in the area: Xiao (2008), Yi and Davey (2010).<sup>5</sup>

The remainder of this paper is organized as follows. First, a literature review regarding IC disclosure is presented, with an emphasis on longitudinal studies. Second, research methods and results are described. The final section discusses the research results and draws some conclusions.

## 2. Literature review

### 2.1 Definition of IC

There is no general agreement with regard to the definition of IC. IC researchers have developed various definitions. For instance, Stewart (1997) defined IC as intellectual material (e.g. knowledge, information, intellectual property and experience) that can be used to create wealth for organizations while Sharma, Hui and Tan (2007) defined it as knowledge, skills, technologies applied to create a competitive advantage for organizations. Drawing on a number of definitions from prior literature, Yi and Davey (2010) proposed a relatively complete definition in that IC is regarded as intangible assets or knowledge resources that can create value for firms, as well as achieve and maintain a competitive advantage for them.

As to what constitutes IC, there are also varied views ranging from two to five elements, for instance, two elements (human capital and intellectual assets, see Sullivan, 1999), three elements (internal structure, external structure and human competence, see Sveiby, 1997), four elements (structure and human capital, thinking and non-thinking assets, see Roos, Roos, Dragonetti & Edvinsson, 1997), and five elements (human capital, technological capital, organizational capital, business capital, and social capital, see CIC, 2003).

Amongst the frameworks, the three-element model comprising internal structure, external structure and human competence developed by Sveiby (1997) is more influential since it has been employed by many researchers in their research (e.g. Guthrie & Petty, 2000; Brennan, 2001; Goh & Lim, 2004; Ensslin & De Carvalho, 2007; Yi &

Davey, 2010; Whiting & Woodcock, 2011). Moreover, the framework is considered to be very useful for the research as to IC disclosure in a national context in the light of the previous studies.

For the purpose of this research, the three-element model was applied as a basis for the construction of an IC coding framework, which was employed as an instrument to examine the extent and quality of IC disclosure by Chinese firms on a longitudinal basis (refer to the "research method" section for more details). In the following, the three elements are described.

Firstly, internal structure, also called internal capital, refers to the knowledge embedded in the organizational structure, processes, procedures, routines, systems and culture, which is created by employees or brought in, but which stays in the organization when employees go home after work (Pablos, 2002; Wong & Gardner, 2005). As for the second component, external structure (the so-called external capital) refers to the knowledge embedded in the relationships external to the organization, such as suppliers, customers, business partners, etc (Pablos, 2002). It includes such items as brand and reputation, customer satisfaction, distribution channels, business or research collaborations, licensing agreements, and so forth. The last component, namely employee competence (or human capital), refers to the individual's knowledge such as qualification, skills, values and experience within an organization, which goes home with employees after work (Guthrie, Petty & Wells, 1999; Pablos, 2002).

### 2.2 Prior literature

Research as to IC disclosure is growing in recent years. Most previous studies often investigate the status of IC disclosure in a particular country or industrial sector over a one- year period (e.g. Guthrie & Petty, 2000; Bozzolan et al., 2003; Wong & Gardner, 2005; Ensslin & De Carvalho, 2007; Davey, Schneider & Davey, 2009; Singh & Kansal, 2011). However, there are also a few researchers who used a longitudinal approach to examine the trend of IC disclosure practices by organizations. The relevant literature is reviewed as follows.

Williams (2001) is an earlier study in the area in that it provides a longitudinal examination of IC disclosure practices by 31 FTSE 100 listed companies from 1996 to 2000. Corporate annual reports were the data source. The study reveals that there was a significant improvement for the quantity of IC disclosures by UK firms during the investigated period albeit the disclosure practice was varied considerably between firms.

Abeysekera and Guthrie (2005) surveyed the trend of IC reporting by the top 30 Sri Lanka listed companies on the Colombo Stock Exchange between the period 1998/1999 and 1999/2000,

<sup>5</sup> The two studies are reviewed in more details in the section of "literature review".

using content analysis of corporate annual reports. The findings indicate that there was an increase for the frequency of IC reporting by the surveyed companies, and the most reported IC category was external capital. The political economy of accounting theory was used to interpret the findings. This research is a pioneering study that provides evidence regarding voluntary IC disclosure in a developing country context.

Vandemaele et al. (2005) investigated the disclosure practice of IC in three European countries (Netherlands, Sweden and UK) over a period of three years (1998, 2000 and 2002), using content analysis of 180 annual reports. The results show that the Swedish companies, on average, performed the best in comparison with the Dutch and UK firms, and there was a general upturn trend for the average amount of IC disclosures over the surveyed period except for Sweden in which a downturn trend occurred between 2000 and 2002.

Similar to Vandemaele et al. (2005), Abeysekera (2008) is also a comparative and longitudinal study that compared the disclosure practice of IC between a developing (Sri Lanka) and a moderately developed country (Singapore) from 2000 to 2002. In line with prior research, content analysis of corporate annual reports was the primary research method. The findings indicate that there were mixed results for the trend of IC disclosure in both countries, and human capital was the most reported IC category in Singapore while external capital in Sri Lanka.

Campbell and Rahman (2010) is a special study in that the disclosure practice of a solo British company (Marks & Spencer) was examined over a period of 31 years (1978-2008), using the content analysis approach. This study reveals that there was a general upward trend for the reporting of IC information, in particular for the reporting of relational (or external) capital. It also finds that narrative reporting had increased while factual reporting has decreased during the study period. The transition of our society from the "industrial age" relying on physical assets to the "information age" depending on knowledge resources (or IC) had been seen as a key driver for the change of IC reporting practices over the 31 years.

Wagciengo and Belal (2012) is another research in a developing country context in that the researchers studied the extent and nature of IC disclosure by top 20 South African companies over a period of 5 years (2002-2006), using the content analysis method. The findings indicate that there was an upward trend for the disclosure of IC information by South African companies with certain firms disclosing significantly more than others. Inconsistent with the previous studies, human capital (rather than external capital) was the most reported IC category.

Based upon the above literature review, there have been three studies (Abeysekera & Guthrie, 2005; Abeysekera, 2008; Wagciengo & Belal, 2012) concerned with IC reporting from a longitudinal perspective in the developing country context. As for China, the largest developing country and one of the most dynamic economies in the world, no such research is found in addition to two studies from a single year perspective: Xiao (2008) and Yi and Davey (2010). Xiao examined the extent of IC disclosure by 50 top listed companies on the Shanghai Stock Exchange using the 2007 annual reports while Yi and Davey surveyed both the extent and quality of IC reporting by 49 dual-listed A and H share companies employing the 2006 annual reports. Both studies observe that the current level of IC reporting in China was quite low and Chinese companies did not attach significant importance to disclosing their IC.

Because of the absence of a longitudinal study into IC reporting in the Chinese context, our research attempts to address this gap through investigating the trend of IC reporting practices by Chinese firms over a period of three years (2006, 2008 and 2009). Given that all the previous studies suggest a general upward trend for IC reporting (in different countries) over time, it is expected that this trend should be applicable to the Chinese environment as well.

### 3. Research method

#### 3.1 Sample selection and data source

In this research, one-hundred top listed A-share Chinese companies were selected as sample. The following reasons are accountable for the sample selection. Firstly, the sample companies are the largest companies in China, and they are most likely to disclose more IC information than those small and medium enterprises (SMEs) owing to the resource advantage and high visibility to the public. Secondly, most sample companies are leaders and the best performers in their specific industries, which represent the elite of the Chinese economy. Finally, since all the companies are publicly listed companies, their annual reports (the data source) are easily obtained.

Two years' annual reports (2008 and 2009) of sample companies were the primary data source. In addition, a previous and similar study (Yi & Davey, 2010), using the 2006 annual reports, was also included, which enables the longitudinal analysis over a three-year period (2006, 2008 and 2009). At present, the annual report of a company has become a complicated document, comprising both mandatory and voluntary information, in the forms of numbers, narratives, photographs and graphs (Stanton & Stanton, 2002). Firms often employ it as

a primary vehicle to indicate what is important for them, and a communication medium to discharge accountability to various stakeholders (Guthrie & Petty, 2000; Yi & Davey, 2010). For the purpose of this research, it is appropriate to use corporate annual reports as data source.

### 3.2 Content analysis

Consistent with prior research, content analysis of corporate annual reports was the primary research method for this research. Krippendorff (2004) defines content analysis as a research technique to make replicable and valid inferences from texts within certain contexts. According to Guthrie, Petty, Yongvanich and Ricceri (2004), content analysis, as a method for data collection, often codifies both qualitative and quantitative information into pre-defined categories on the basis of selected criteria so as to derive patterns in the presentation and disclosure of information. The method has gained popularity in disclosure studies over the past several decades, in particular in the

areas of CSR and IC (e.g. Unerman, 2000; Beck, Campbell & Shrives, 2010; Singh & Kansal, 2011). Drawing on the previous studies, the method was applied to examine the trend of IC disclosure by Chinese firms. In the following section, an IC coding framework is developed as an instrument for content analysis.

### 3.3 IC coding framework

The IC coding framework is composed of two elements: IC items and quality criteria. Prior research regarding IC disclosure (e.g. Guthrie & Petty, 2000; Striukova et al., 2008; Yi & Davey, 2010) has provided a number of items under the three widely-accepted IC categories (internal, external and human capital). Based on prior literature and consultation with a number of Chinese IC experts, we identified a total of 20 IC items for this research as shown in table 1, which was deemed to be applicable to the Chinese environment.

Table 1. IC items

Internal Capital	External Capital	Human Capital
1. Research & Development	1. Brands/reputation	1. Employees
2. Intellectual property	2. Suppliers	2. Qualifications
3. Management philosophy/corporate culture	3. Customers	3. Education/training
4. Management processes	4. Customer satisfaction/loyalty	4. Work-related knowledge/competences
5. Information/networking systems	5. Marketing	5. Entrepreneurial spirit
6. Financial/investors relations	6. Distribution channels	
	7. Business collaborations	
	8. Research collaborations	
	9. Licensing agreements/franchising agreements/favorable contracts	

To assess the quality of IC disclosures, a five-point scale (0-4) was developed on the basis of prior literature (Firer & Williams, 2005; Shareef &

Davey, 2005). Table 2 demonstrates the detailed criteria for the quality scale.

Table 2. Quality criteria for IC disclosures

Quantitative/monetary with narrative (4)	The disclosure item is clearly defined in monetary or numeric terms and narrative statements are made.
Narrative (3)	The disclosure item is discussed showing clearly its influence on the company or its policies.
Obscure (2)	The item is reported in limited references or value comments while discussing other topics and themes.
Immaterial (1)	The company states that the disclosure item is immaterial to the financial well-being and results of the company.
Non-disclosure (0)	The disclosure item does not appear in the annual report.

If an item was disclosed more than once in the annual report of a company, a quality score would be given on the basis of the aggregate of disclosures. This research used the framework as an instrument to code annual reports of the sample companies. The results are presented in the following section.

## 4. Results

In this research, we conducted longitudinal analysis of IC disclosure in terms of items, categories and the overall IC over the three years period. Firstly, the trend for the disclosure of IC items is analyzed.

#### 4.1 IC items

**Table 3.** Disclosure score of IC items

Items	2006	2008	2009
Research & development	N/A	0.83	0.87
Intellectual property	0.29	0.38	0.50
Management philosophy / corporate culture	0.35	0.78	0.91
Management processes	0.89	0.97	0.98
Information / networking systems	0.23	0.51	0.60
Financial/investors relations	0.43	0.82	0.86
Brands/reputation	0.78	0.64	0.70
Suppliers	N/A	0.75	0.79
Customers	0.69	0.86	0.96
Customer satisfaction / loyalty	0.22	0.36	0.48
Marketing	0.23	0.70	0.79
Distribution channels	0.39	0.60	0.65
Business collaborations	0.81	0.80	0.85
Research collaborations	N/A	0.19	0.24
Licensing agreements / franchising agreements / favourable contracts	0.08	0.42	0.54
Employees	0.82	0.90	0.94
Qualifications	N/A	0.85	0.88
Education/training	0.27	0.56	0.63
Work-related knowledge/competences	0.21	0.60	0.58
Entrepreneurial spirit	0.55	0.66	0.78

Note: N/A indicates that the item was not available in Yi and Davey (2010) for the 2006 dataset.

**Table 4.** The greatest and poorest three reported items

Year	2006	2008	2009
The greatest three	“management processes” “employees” “business collaborations”	“management processes” “employees” “customers”	“management processes” “customers” “employees”
The poorest three	“licensing agreements” “work-related knowledge” “customer satisfaction”	“research collaborations” “customers satisfaction/loyalty” “Intellectual property”	“research collaborations” “customers satisfaction/loyalty” “Intellectual property”

Table 3 demonstrates the disclosure performance (score) of each IC item over the three years.<sup>6</sup> We can find that there was a generally upward trend for the disclosure of IC items. Especially from 2006 to 2008, the increase was often considerable. Between 2008 and 2009, the increase was relatively steady. In 2006, six items (38%) achieved a disclosure score above 0.50 whereas almost all the items obtained a score over 0.50 in 2008 and 2009. Amongst the items, “management processes” was the most highly reported item for all the three years. Yet the poorest reported item was varied, “research collaborations” for both 2008 and 2009 while “licensing agreements” for 2006. Table 4 shows the greatest and the poorest three reported items for each of the three years.

As to the change of disclosure performance for individual items, two items, comprising “management philosophy/corporate culture” and

“marketing”, achieved the greatest improvement with an increase of 0.56 in disclosure score between 2006 and 2009. In addition, disclosures of “licensing agreements” and “financial/investors relations” were also remarkably improved with an increase of 0.46 and 0.43 respectively. However, there were two items, “brands/reputation” and “business collaborations”, following a downward trend between 2006 and 2008, with a decrease of 0.14 and 0.01 respectively.

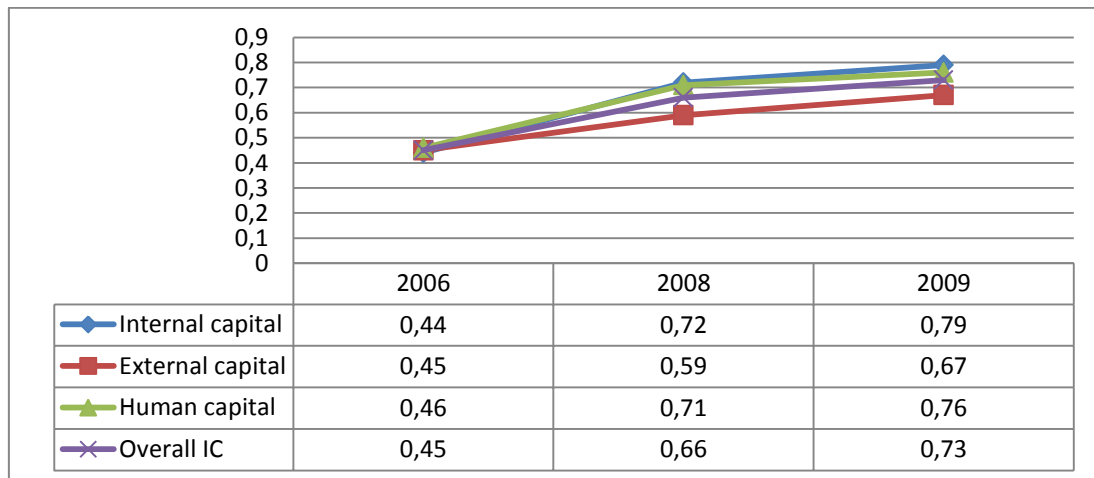
#### 4.2 IC categories and the overall IC

Figure 1 shows the disclosure performance of IC categories and the overall IC over the three-year period. As with IC items, there was an upturn trend for the disclosure of each IC category and the overall IC. We conducted One-way ANOVA for the overall IC disclosure. The results indicates that the increase across the three years was significant ( $F = 7.214$ ,  $p = .002$ ). A Turkey post-hoc test reveals that the increase between 2006 and 2008, and 2006 and 2009, was significant ( $p = .020$  and  $p = .001$  respectively). However, there was no

<sup>6</sup> The disclosure score is a normalized score from 0 to 1, combining both the extent and quality of disclosures for each IC item. For the calculation of the score, please refer to Appendix for an example.

significant increase between 2008 and 2009 ( $p = .602$ ).

**Figure 1.** Disclosure scores of IC categories and the overall IC



*Note: The disclosure score for each IC category (and the overall IC) represents a mean disclosure score for relevant items. For example, the disclosure score for internal capital is the average disclosure score of internal capital items.*

Human capital was the most highly reported category for 2006 while internal capital was the greatest for both 2008 and 2009. The poorest reported category was internal capital for 2006, and external capital for 2008 and 2009. These findings are greatly inconsistent with previous studies in that external capital was often the most frequently reported item whereas internal capital was the least reported item (e.g. Abeysekera & Guthrie, 2005; Guthrie et al., 2006; Striukova et al., 2008; Campbell & Rahman, 2010).

## 5. Discussion and conclusions

In this research, we conduct a longitudinal comparison with respect to IC disclosures by Chinese firms over a three-year period. The findings show that there was a generally upward trend for the disclosure of IC items, categories and the overall IC. In particular between 2006 and 2008, the improvement was often remarkable. This may be owing to a one-year interval (2007). Between 2008 and 2009, the improvement became steady. This result indicates that the reporting of IC by Chinese firms had reached a new (and high) level by 2008.

In general, the upturn trend over the three years was not unexpected. Firstly, since China gained entry to the WTO in 2001, it has been more involved in the process of globalization in recent years. Chinese companies are faced with intensive competition from both domestic and international competitors. Under these circumstances, increasing firms have realized the importance of IC as a critical resource for them to achieve and sustain a competitive advantage in the fierce global competition.

Furthermore, many Chinese companies believe that the disclosure of IC-related information in corporate annual reports would be a very helpful means to reduce information asymmetry, discharge accountability and highlight legitimacy to various stakeholders, and consequently improve the relationship with them, which is a basis for organizations to survive and succeed in society (An et al., 2011).

Specifically, voluntary IC disclosure could bring organizations a number of benefits, such as reducing insider trading, lowering capital costs, decreasing volatility of stocks, enhancing corporate image, attracting potential investors, customers, and talents, and retaining the existing ones (Leadbeater, 2000; Vergauwen & Alem, 2005; Rodgers, 2007). Thus, it is not surprising that Chinese companies would like to improve their IC disclosure over time.

Internal capital was the most highly disclosed IC category for both 2008 and 2009. This result is quite surprising since most previous studies indicate that external capital is the greatest reported item. A possible explanation is that managers of Chinese companies consider internal capital attributes (e.g. R&D, management processes and financial relations) to be more critical resources for value creation and advantage achieving, and therefore favour the reporting of this type of information.

In addition, the measure of IC disclosure in this research is different from prior research. This could be another explanation. The current study assesses both the extent and quality of IC disclosure using a normalized disclosure score from 0 to 1 while most previous studies only gauge the extent (or frequency) of IC disclosure using either word or line account. Since the frequency of IC reporting are not equivalent to the quality of IC reporting (Yi

and Davey, 2010), it is normal that this study obtained varied results from the previous studies.

The most improved disclosure items during the time were “management philosophy/corporate culture” and “marketing” since these two items performed poorly in 2006. It is also noted that the disclosure level of some IC items are still low

although it has been improved over the survey period. These items include “research collaborations”, “customer satisfaction/loyalty” and “intellectual property”. Chinese companies should attach importance to these items in future practices.

#### Appendix: An example for the calculation of disclosure score

IC item	Frequency (n = 100)					Disclosure Score (0-1)
	0	1	2	3	4	
Research and Development	8	0	7	22	63	0.83

In which:

$N = 100$ : the sample size; “frequency”: the number of companies obtaining a particular quality score (0-4); “disclosure score” is a normalized score (0-1), combining both the extent (frequency) and quality of disclosures for each IC item; taking “research and development” as an example (for year 2008):  $0.83 = (8*0 + 0*1 + 7*2 + 22*3 + 63*4) / 100*4$ .

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