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THE VOLUNTARY REPORTING OF INTELLECTUAL CAPITAL: 
A STUDY OF HONG KONG COMPANIES OVER TIME

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ABSTRACT

This paper reports on a study into voluntary disclosure practices related to the reporting of intellectual capital attributes over time. The study used Hong Kong company data to examine the voluntary disclosure of intellectual attributes. A set of companies was examined over a ten year period to give a longitudinal account of disclosure practices. Size and industry effects on disclosure were tested. Additionally, the effects of time and level of disclosure on the financial success of a company were tested. The study is the first to examine the voluntary reporting of intellectual capital attributes using data from an Asian country across time.

Keywords: Intellectual capital disclosure, Hong Kong companies, voluntary disclosure.
INTRODUCTION

This study is motivated by a desire to extend the literature into investigations of Intellectual Capital Disclosure (ICD) practices and to further investigate the effect that ICD has on firm growth. The ICD practices of companies is an area of interest to many researchers across many different national settings including Australia (Guthrie et al, 1999), Ireland (Brennan, 2001) and Italy (Bozzolan et al, 2003). However, this study is the first to examine the voluntary reporting of IC attributes using Hong Kong data and also the first to undertake a longitudinal study.

PRIOR RESEARCH

Several national studies have examined voluntary reporting in annual reports using content analysis. A content analysis method of reading and capturing IC in annual reports was developed and used for the OECD in 1999 (see Guthrie et al). Several subsequent studies have adopted this research method to capture and organise diverse empirical data. Such studies have been conducted in Australia (Guthrie and Petty, 2000), Canada (Bontis, 2003), Hong Kong (Petty, 2003a), Ireland (Brennan, 2001), Italy (Bozzolan et al, 2003), Sri Lanka (Abeysekera and Guthrie, 2003) and Sweden (Olsson, 2001).

Guthrie et al (1999) found little evidence of ICD in the annual reports of the twenty largest listed companies. Industry effects were observed, but these were not conclusive. Brennan (2001) and Bozzolan et al (2003) found that industry and size are relevant factors in explaining a difference in ICD reporting behaviour. Larger companies with a higher industry ‘profile’ were found to have higher levels of ICD whilst smaller companies with a lower industry ‘profile’ were found not to have high ICD levels. Williams (2001) extended the literature by investigating the relationship between ICD and IC performance. He found a negative association between IC performance and the level of disclosure. Williams did not, however, look at the relationship between ICD and overall firm performance. This is a major focus of our study.

RESEARCH METHODS

A literature review and early investigations revealed annual reports to be a key communication tool used to legitimise corporate activity (Lang and Lundholm, 1993). Hence the annual report was chosen as the document for examining voluntary disclosure.

Content analysis involves a reading of the annual report for each company and then coding the information contained therein in accordance with a selected framework of IC indicators. The original IC framework was derived from several professional pronouncements on IC (see IFAC, 1998; SMAC, 1998). The content categories and materials used for the content analysis were categorised according to the contemporary classification scheme for intangibles used in Sveiby’s IC Framework (Sveiby, 1997: 8-11), which consists of three components: internal structures (organisational capital); external structures (customer/relational capital); and human capital. For the purpose of our analysis, the professional IC Framework presented by Sveiby and others was...
modified to achieve a better convergence with items likely to be reported by sample companies. Our taxonomy contains 24 variables as shown in Table 1.

Table 1: Selected Elements Of The Intellectual Capital Framework

<table>
<thead>
<tr>
<th>Internal: Organisational (Structural) Capital</th>
<th>Intellectual Property</th>
<th>* Patents * Copyrights * Trademarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal: Organisational (Structural) Capital</td>
<td>Infrastructure Assets</td>
<td>* Management philosophy * Corporate culture</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Management processes * Information systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Networking systems * Financial relations</td>
</tr>
<tr>
<td>External: Customer (Relational) Capital</td>
<td>* Brands * Customers * Customer loyalty * Company names * Distribution channels</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Business collaborations * Licensing agreements * Favourable contracts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Franchising agreements</td>
</tr>
<tr>
<td>Employee Competence: Human Capital</td>
<td>* Know-how * Education * Vocational qualification * Work-related knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Work-related competencies * Entrepreneurial spirit, innovativeness, proactive and reactive abilities, changeability</td>
</tr>
</tbody>
</table>

SAMPLE SIZE

Annual reports for Hong Kong companies were collected according to financial year-end for three years, 1992, 1998 and 2002. Years 1992 and 2002 were chosen to enable a 10-year analysis of disclosure. Year 1998 was included to facilitate comparisons with the Australian study of the same year (note: this is covered in a separate paper). The collection, coding and analysis of the data was done in several stages. An important part of the analysis involved examining changes, to incidence and rate of voluntary disclosure over time amongst large listed entities. Of interest was both the change in overall levels of voluntary company disclosure and, also, the change in specific companies over time.

To look at changes at a specific entity level, it was important to ensure that a statistically significant number of companies survived over the period 1992 – 2002. Therefore, we began with the list of the top 100 Hong Kong companies ranked in terms of market capitalisation for 1998 and traced the list back to 1992 to determine how many companies were listed in both years. Of the largest 80 companies listed in 1998, 53 were also listed in 1992. Looking at survival rates for 1992 entities against the 1998 data set, taking the largest 80 listed 1998 companies was an efficient cut-off point. Data for the 2002 year-end became available during 2002. Examination revealed, somewhat surprisingly, that all 80 companies in the data set for 1998 survived and remained listed in 2002. In terms of the distribution of companies over the years, 53 companies were listed in all three years studied. This enabled a time-series comparison of these companies. The intellectual capital attributes searched for in 1992 and 1998 in Hong Kong are the same 24 as those investigated in Guthrie and Petty, 2000. In 2002 a further three attributes were added to account for recent developments by Bozzolan et al (2003) and others in extending the classification schema used in Guthrie and Petty (2000).

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1 This Modified Intangible Assets Monitor has since been used in pure or derivative form by Guthrie and Petty (2000) and others (see Brennan, 2001, Bozzolan et al., 2003) in conducting research into the reporting of intellectual capital information in annual reports.
**DEPENDENT VARIABLES**

The two dependent variables are: (i) level of disclosure; and (ii) growth. It is anticipated that levels of disclosure will be low. Growth, measured as change in the market value of a firm from one period to the next, is included to examine the widespread opinion that companies reporting their intellectual capital attributes have greater financial success than companies not reporting or ‘hiding’ such information (Brooking, 1996; Guthrie et al, 1999). To date, no conclusive account of this phenomenon has been given. To analyse growth the natural logarithm of the market value measure was taken in order to better approximate a variable with a linear distribution. The working assumption is that companies voluntarily reporting on their intellectual capital will achieve greater growth.

**INDEPENDENT VARIABLES**

Four independent variables are investigated: (i) time; (ii) industry; (iii) size; and (iv) level of disclosure.

(i) **Time:** it is likely over time that incidence of the voluntary reporting of intellectual capital attributes increases as companies mimic each other in reporting such items (Petty, 1997). Time is included as an independent variable to test for this. The a priori expectation is that there will be increased levels of reporting over time.

(ii) **Industry:** Bozzolan et al (2003) found a significant industry effect on reported intellectual capital disclosures using Italian data. The expectation informing development of the research propositions is that levels of intellectual capital reporting will differ across industry.

(iii) **Size:** the a priori expectation is that differences in size account for variations in the extent to which intellectual capital is reported. Bozzolan et al (2003) found a significant size effect on intellectual capital reporting amongst Italian companies. The expectation informing development of the research propositions is that larger companies will have higher levels of intellectual capital reporting than smaller ones.

(iv) **Level Of Disclosure:** level of disclosure is modelled both as a dependent and independent variable. It may be the case that companies grow in size and succeed, in part, because they report on their intellectual capital attributes. Therefore, to examine the impact the reporting of intellectual capital has on company growth, the level of disclosure of intellectual capital attributes was taken as an independent variable with growth as the dependent. The expectation at the outset is that companies voluntarily reporting on their intellectual capital will achieve greater growth than other companies.
PROPOSITIONS

Stemming from the above, five exploratory research propositions were developed as follows:

Proposition 1: Hong Kong listed companies will exhibit low levels of voluntary disclosure of intellectual capital attributes in their annual reports. There is no prior literature relating to Hong Kong companies on this issue. So this proposition is exploratory. However, its development is informed by the fact that other studies in other countries (see Guthrie et al, 1999; Brennan 2001) found low levels of disclosure and there is no a priori reason to expect the findings for Hong Kong to differ.

Proposition 2: Hong Kong listed companies will demonstrate an increased level of voluntary disclosure of intellectual capital attributes in their annual reports over time. Williams (2001) found this with FTSE listed companies and we expect that this will also hold true for Hong Kong listed entities.

Proposition 3: Industry focus is a determinant of the level of voluntary disclosure of intellectual capital attributes in Hong Kong company annual reports. Industry effects were found by Guthrie et al (1999) and Williams (2001). We expect to find industry effects for Hong Kong companies.

Proposition 4: Size is a determinant of the level of voluntary disclosure of intellectual capital attributes in Hong Kong company annual reports. Hackstone and Milne (1996) and Healey and Palepu (1994) found size to be an important determinant of voluntary disclosure levels. We start from the position that the weight of the current body of evidence supports the notion that size in part determines the level of voluntary disclosure and therefore express the research proposition in positive form.

Proposition 5: Hong Kong companies voluntarily disclosing intellectual capital attributes in their annual reports will achieve higher levels of growth than Hong Kong companies disclosing fewer attributes or not disclosing at all. This is an exploratory proposition. There is no literature on this point for Hong Kong companies and there is very limited literature on this point in general. Williams (2001) investigates the relationship between intellectual capital performance and the extent of intellectual capital disclosure. We examine the relationship between the extent of intellectual capital disclosure and firm performance.
ANALYSIS OF THE DATA

There is support for propositions 1, 2, 4 and 5. Analysis of the data reveals mixed results for proposition 3. The results indicate that disclosure is positively related to size. Industry effects are also found. As shown in table 2, there is an increase in the average number of attributes being reported from 4.5 in 1992, to 10.1 in 1998 and finally to 13.2 in 2002 indicating that companies are increasingly reporting intellectual capital items.

Table 2: Attribute Analysis of Sample Companies Over 10-Year Period.

<table>
<thead>
<tr>
<th>Measure</th>
<th>1992</th>
<th>1998</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Sample Companies</td>
<td>54</td>
<td>80</td>
<td>100</td>
</tr>
<tr>
<td>Number of Industry Groups</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Number of Intellectual Capital Attributes in Model</td>
<td>24</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Average Number of Attributes Reported per Company</td>
<td>4.5</td>
<td>10.1</td>
<td>13.2</td>
</tr>
<tr>
<td>Minimum Number of Attributes Reported for any one Company</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Maximum Number of Attributes Reported for any one Company</td>
<td>13</td>
<td>21</td>
<td>29</td>
</tr>
</tbody>
</table>

However, the level of disclosure is low compared against the results similar studies of other countries (see Bozzolan et al, 2003; Brennan 2001). Against a backdrop of well documented problems with governance and accountability for listed companies in Hong Kong (see Webb, 2004), the level of disclosure amongst Hong Kong firms is unsurprising but somewhat worrisome given recent scandals in the US, in particular, that resulted from poor disclosure practices.

As table 3 shows, both company size and industry sector had a highly significant impact on disclosure overall and in all three sub-categories when the data for 1992, 1998 and 2002 were amalgamated (p<0.05 in all cases and equal to 0 in all but one).

Table 3: Multiple Regression Results For Company Size And Industry Sector. 53 Common Companies. Combined Results Over the 10-Year Study Interval.

<table>
<thead>
<tr>
<th></th>
<th>Internal (Structural) Capital</th>
<th>External (Customer Relational) Capital</th>
<th>Employee Competence (Human Capital)</th>
<th>Overall Index</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sum of squares</td>
<td>F-ratio</td>
<td>p – value</td>
<td>Sum of squares</td>
</tr>
<tr>
<td>Size</td>
<td>50.73</td>
<td>16.5</td>
<td>0.00</td>
<td>61.11</td>
</tr>
<tr>
<td>Industry sector</td>
<td>64.59</td>
<td>4.21</td>
<td>0.00</td>
<td>94.31</td>
</tr>
<tr>
<td>R²</td>
<td>0.25</td>
<td>0.19</td>
<td>0.14</td>
<td>0.25</td>
</tr>
</tbody>
</table>

The passage of time increases the level of disclosure with significant increases in disclosure levels observed over the Hong Kong data set during the 10-years (1992-2002). The results show that company growth (financial success) is positively correlated with the voluntary disclosure of intellectual capital attributes. In order to test the proposition
that the growth of companies in the sample was influenced by their patterns of disclosure of intellectual capital, two new variables were derived. The first measure derived was ‘growth’, which was taken as the market capitalisation for each company in 2002 minus the market capitalisation in 1992. The second measure derived was ‘total intellectual capital prediction’. This measure was calculated by subtracting the total intellectual capital prediction for 1992 from the total prediction for 2002. The derived variable is taken to indicate the increase in overall reporting of intellectual capital between 1992 and 2002.

An Ordinary Least Squares (OLS) simple linear regression was carried out with growth as the dependent variable and total intellectual capital prediction as the independent (predictor) variable. The results are shown in Table 4.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Standardized Coefficient</th>
<th>T</th>
<th>P (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.0</td>
<td>-1.0</td>
<td>0.32</td>
</tr>
<tr>
<td>Total IC (01 – 92)</td>
<td>0.34</td>
<td>2.52</td>
<td>0.01</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td></td>
<td></td>
<td>=0.10</td>
</tr>
</tbody>
</table>

Table 4 shows that the level of total disclosure of intellectual capital impacts significantly on growth in company size between 1992 and 2002 (p=0.01). This finding supports the hypothesis that companies declaring more intellectual capital attributes grow faster than companies that make less comprehensive declarations. The relationship is modest as the data indicates that reporting intellectual capital affects only 10% of company growth (adjusted R²=0.10). However, the relationship between declaration of intellectual capital and growth is positive and significant.

The multiple regression results investigating the impact of time point to a significant positive trend in reporting. This ten-year trajectory suggests that companies already reporting intellectual capital attributes will likely report more comprehensively. It further suggests that an increasing number of companies are likely to present information on their intellectual capital attributes in annual reports and are likely to do so at an increasing rate.
SUMMARY AND CONCLUSIONS

The findings suggest that, from a policy setting perspective, there may be an efficient path for codifying the intellectual capital attributes that should be reported on an industry basis because not all attributes are necessarily relevant to every industry. Recognising this empowers advocates of normative policy in respect of arguments for making voluntary reporting initiatives mandatory. The suggestion that industry differences could not be controlled for has been an impediment to progress on this front.

Large companies are found to have a higher level of disclosure than small companies. This observation holds for the sample as a whole and also for each of the three subcategories in each of the three years studied. The multivariate statistical analyses further show that the size of a company makes a significant contribution to explaining disclosure of intellectual capital in all three years surveyed. It is likely that large companies are more likely to voluntarily report their intellectual capital attributes for several reasons. First, large companies are better resourced and therefore have the financial wherewithal to support pioneering moves such as voluntary disclosure of items deemed significant. Second, large companies are likely to have more intellectual capital within their structures as they will often have more staff and a greater number of stakeholders generally. They therefore have more to report. Finally, in line with institutional theory, larger companies are more visible and, therefore, more attentive in communicating a greater volume of information to stakeholders.

The results further suggest that there is a reflexive and mutually sustaining relationship between the reporting of intellectual capital attributes and rates of growth. Based on the finding that the relationship between reporting of intellectual capital attributes and growth is positive and significant, there is a case to encourage companies to report their intellectual capital attributes in order to promote financial growth via higher share prices. This finding is significant because it affirms the long-held belief amongst researchers in the field that the capital market for equity does value transparency and disclosure of firm intellectual capital. This finding should further incentivise companies to invest in accountability mechanisms that help them better measure and report their intellectual capital.
REFERENCES


