Firm ownership structure and intellectual capital disclosures

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The primary purpose of this study is to investigate the association between three ownership structure characteristics and voluntary intellectual capital (IC) disclosure practices. Data for this study is hand collected from the 2000 annual reports of 390 Singapore publicly traded firms. Empirical results indicate Singapore publicly listed firms more closely owned were less likely to voluntarily disclose IC related information than counterparts with a more diffused ownership base. Also, those firms with a high level of executive director ownership were less inclined to voluntarily disclose IC related information than those where executive directors had smaller holdings in the entity. Finally, findings indicate government linked corporations (GLCs) will likely make more voluntary IC disclosures than non-GLCs. Overall, this study makes several unique contributions to the literature. First, the present study provides the first large-scale analysis of evidence of the association between ownership structure and voluntary intellectual capital disclosures. The study also contributes by broadening the examination of intellectual capital disclosure practices beyond general descriptive overviews.

KEY WORDS
Intellectual capital disclosure; corporate governance, institutional investors; internationalization; Singapore.

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INTRODUCTION

The role of intellectual capital (IC) in creating value has become crucial in achieving a competitive advantage in the market place (Usoff, 2002). This role is highlighted by Drucker’s (1993, p.54) statement that “knowledge has become the key economic resource and the dominant and perhaps even the only source of competitive advantage”. Intellectual capital as a source of competitive advantage has attracted much attention among academics and managers (Edvinsson and Malone, 1997; Sveiby, 1997; Stewart,
The importance of intellectual capital and its management to the organisation is not really a new phenomenon (Smith, 2000). Awareness of its value has grown substantially in recent years. Over the last decade, there has been growing recognition that these types of assets have become the most valuable and fastest growing part of our economy (Brinker, 1998). Whereas in 1982, tangible assets represented 62% of a company’s market value, by 1992 this figure had dropped to 38% (Dzinkowski, 2000). Cahill (2000) stated that between 50% and 90% of the value of a company creates comes not from management of traditional assets, but from the management of IC (Cahill, 2000). Today it is clear that intellectual assets and their effective management, in fact, may be the only form of sustainable competitive advantage (Aniwattananpong, 2000). As the burgeoning demand for knowledge-based products and services is changing the structure of the global economy, the role of intellectual capital in achieving competitive advantage is becoming an important management issue in all sectors.

While there is little consensus as to what intellectual capital actually is, many do accept that (IFAC, 1998):

- Intellectual capital is a primary competitive resource in business today; and
- Intellectual capital is a non-traditional, intangible asset; and its accumulation, transformation, and valuation lie at the heart of knowledge management.

This research examines the proposition that knowledge management is an important strategy to Singaporean companies and that this will be reflected by way of disclosure of intellectual capital items in a company’s annual financial statements. Supporting this expectation is considerable evidence, in particular from Europe, of the genesis of reporting frameworks that demonstrate a previous unseen level of public disclosure with respect to intangible assets of companies (Organisation for Economic Co-operation and Development, 2000). In the light of these changes to disclosure, and the pressure such changes have imposed to bring about a review of reporting standards generally, this research proposes to determine whether company ownership structures have an effect on the quantity and quality of intellectual capital disclosures in companies in Singapore.

At present, the vast bulk of research on intellectual capital can be broadly categorized into two major streams: (1) definition and description; and (2) management and measurement (Guthrie and Petty, 2000). While there are a number of unanswered empirical questions surrounding the definition and description of the concept of intellectual capital, this study focuses on the reporting of intellectual capital.

Several key reasons support the focus on Singapore. First, with the departure of the British following independence, and its lack of natural resources, Singapore was expected to struggle in creating a “cohesive and robust sense of nationhood and economic growth” (Gopinathan, 1997, p.33). Nonetheless, within less than half a century Singapore emerged as one of strongest of the Asian ‘tiger’ economies being classified by the International Monetary Fund in 1997 as an advance economy (Sanderson, 2002). A pivotal reason underpinning Singapore’s development was the development of its IC base (Mitchell Williams, 2004). Consequently, an understanding of IC is well established and disclosure of related information should be of interest to stakeholders of Singapore firms.
Second, the disclosure orientation of firms in Singapore is likely to be severely influenced by the ownership structure (Chau and Gray, 2002). In general, listed firms in Singapore are family-founded, a significant proportion of the outstanding shares are owned by the founding family members, and many senior staff positions continue to be occupied by members of the founding family.

Another unique feature of the Singapore business environment is the sizeable involvement of the government in ownership of publicly listed firms. At the end of the 1980s, for example, 69% of total assets and 75% of total profits from all domestically controlled firms in Singapore were attributed to government linked corporations (GLCs). Despite a program of privatization during the 1990s, GLCs continue to dominate the Singapore business environment.

As noted earlier, for the Singapore government the need to develop the country’s intellectual capital base for economic prosperity has long been an established concern. As the Singapore government is a major investor in publicly traded firms, it may directly and indirectly influence intellectual capital disclosure practices.

The remainder of this paper is organized as follows. The next section discusses the theory and develops the testable hypotheses. The research design and sample is then described followed by a presentation of the results. The last section summarizes the findings and contribution of the present paper, and discusses ideas for future research.

THEORY AND HYPOTHESIS DEVELOPMENT

The issue of conflicts between corporate management and shareholders has been an important concern of scholars and policy makers alike since Berle and Means (1932) first documented the separation of ownership and control. With the separation of ownership and control, agency theorists posit that the delegation of decision-making authority enables the agent to potentially engage in self-serving behaviour, thereby, resulting in shareholder-corporate management conflicts (Fama and Jensen, 1983). Prior research suggests there are three major reasons for why shareholder-corporate management conflicts may arise: (1) corporate management’s greater acceptance of risk compared to shareholders; (2) ‘short-termism’ time horizon of corporate management; and (3) corporate management’s investment preferences (Vafeas and Theodorou, 1998).

To reduce the possibility of shareholder-corporate management conflicts, agency theorists stress the importance of mechanisms designed to monitor the behaviour of corporate management (Frankforter, Berman and Jones, 2000). Transparency – of which voluntary disclosure is a key component – is viewed as one major form of monitoring (Ho and Wong, 2001). Agency theorists propose that the level of information voluntarily disclosed is a function of the relationship between the owners of a firm (the principals) and corporate management (the agents). That is, voluntary disclosure is a monitoring mechanism principals use to cost-efficiently scrutinize the activities of agents to ensure their residual claims are not diluted (Jensen and Meckling, 1976). The present study seeks to examine this issue in the context of IC by empirically testing the relationship between the level of voluntary IC disclosure and three features of ownership structure: (1) ownership diffusion; (2) level of inside director ownership; and (3) level of government ownership. Hypotheses formed to test these associations are developed in the following subsections.
Ownership concentration

Agency theorists argue that firms with greater ownership concentration disclose more information to reduce agency costs and information asymmetry (Fama and Jensen, 1983). Fama and Jensen (1983) argue that where the level of share ownership is not as widely dispersed the potential for conflicts between principals and agents is reduced. Consequently, where there is likely to be an environment of greater conflict, principals are likely to demand more information so they can more effectively monitor that their economic interests are optimized. Also, agents are likely to voluntary disclose more details when ownership is diffused so as to signal the market and shareholders that they have acted in the best interests of the owners. Results of prior empirical research of the association between voluntary corporate disclosures and ownership diffusion are mixed. Craswell and Taylor (1992), find no significant association between ownership diffusion and voluntary disclosures. Conversely, McKinnon and Dalimunthe (1993) and Hossain, Tan and Adams (1994) find a significant positive association between ownership diffusion and voluntary corporate disclosures. Whilst the evidence is informative but mixed, Chau and Gray (2002) report, based on a sample of Singapore industrial firms, voluntary corporate disclosures levels increase as ownership concentration is diminished.

Given the mixed results, plus the lack of any evidence regarding IC disclosure, the present study examines the influence of ownership concentration further, forming the following testable hypothesis:

H1: The extent of voluntary IC disclosure is lower for Singapore publicly listed firms with a high concentration of share ownership than Singapore publicly listed firms with a low concentration of share ownership.

Percentage of inside director ownership

Individuals holding senior executive positions (such as chief executive officer, managing director) in Singapore publicly listed firms often hold significant shares in the entities to which they are employed. Jensen and Meckling (1976) suggest that if corporate management were to pursue their own self-interests, they would suffer increasing losses as their shareholdings increased. Realignment through ownership, therefore, provides executive directors with the impetus needed to act in the best interests of all shareholders, including themselves (Vafeas and Theodorou, 1998). Finkelstein (1992) further argues ownership empowers executive directors, enabling them to generate new business incentives and strategies, increase innovation and enable the firm to adapt more quickly to a changing environment. In addition, Zahra, Oviatt and Minyard (1993) suggest ownership allows executive directors to develop better strategies in allocating resources to diverse stakeholders, thereby, enhancing a firm’s image and reputation. Finally, ownership provides executive directors with an incentive to focus on the long-term viability of the firm, which includes the maintenance of its intellectual capital base (Hansen and Hill, 1991). Consequently, decisions of executive directors would focus on policies that “maintain or improve product quality and innovation through increased research and development spending” (Johnson and Greening, 1999, p. 570).

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In terms of corporate reporting the rationale of Gray’s (1988) ‘secrecy-hypothesis’ can be applied. With increased ownership, executive directors’ preference for secrecy is likely to decrease as this group no longer will act as agents but principals. Consequently, increased ownership is likely to see executive directors support the disclosure of more information so as to meet the needs of other principals. Combined with the greater preference for long-term policies, activities and strategies that ownership promotes, it is reasonable to predict greater executive director ownership in a firm is likely to provide more disclosure on long-term issues such as those related to IC. To test this proposed relationship, the following testable hypothesis is formed:

H2: The extent of voluntary IC disclosure is higher for Singapore publicly listed firms with a high percentage of inside director share ownership than Singapore publicly listed firms with a low percentage of inside director share ownership.

Government ownership

Government ownership may significantly influence corporate disclosure practices such as that related to IC. For example, various directors on GLCs are also senior government officials. Consequently, these directors may directly or indirectly influence the disclosure policies of GLCs to potentially reflect issues of concern to the government. With its interest in IC related issues, GLCs may provide more IC disclosure due to the presence of senior government officials on their boards of directors.

Presence of senior government officials on the board of directors alone may not result in greater disclosures. Corporate managers of GLCs – not being government officials – may also perceive a greater pressure to respond to signals from the government than counterparts in other entities. For instance, corporate managers of GLCs may feel a greater need to focus on policies – such human resource development – that are to the well-being of Singapore as a whole rather than the shareholders of the entity individually (Vernon and Aharoni, 1981). Voluntary disclosure of information on these issues may serve as a signal by corporate managers of GLCs to the government and society at large that they have sought to follow the government’s essential social well-being policies.

Finally, unlike other types of block holders, the government is perceived to be a long-term investor that would act to protect the GLC from takeovers.

Also, La Porta et al. (1998) argue the government is perceived by creditors as being morally and legally responsible for liabilities with the tacit backing of the state implying an entity’s guaranteed solvency. Consequently, the cost of capital to GLCs is likely to be lower.

With the removal of takeover threats and greater ease with which to raise funds, corporate managers of GLCs may have less fear of disclosing information that could be of use to a competitor. With the interest of the Singapore government in IC related issues and its direct investment in publicly listed firms, it is important to determine the possible impact of government ownership on voluntary IC disclosures. The following testable hypothesis is thus formed:

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H3: The extent of voluntary IC disclosure is higher for Singapore publicly listed firms classified as GLCs than Singapore publicly listed firms with significant government ownership.

RESEARCH METHOD

The first part of this section describes the proxies used to measure the dependent variable, independent variables and control factors. The sample and descriptive data is outlined in the last part of this section.

The intellectual capital disclosure index – dependent variable

In recent years, companies have become aware of the importance of managing their external communication systematically with respect to intellectual capital (Bukh, 2003). Various studies of investors and analysts requests for information indicate a substantial difference between type of information found in company’s annual reports and the type of information demanded by the market (Eccles & Mavrinac, 1995). In general companies, investors and analysts request more reliable and relevant information on for example managerial qualities, expertise, experience, integrity, customer relations and personnel competencies – all factors related to intellectual capital (Bukh, 2003).

The dependent variable in this study - level of intellectual capital disclosure (ICD) - was measured using a disclosure index: a technique used in prior accounting disclosure studies. From a review of the intellectual capital literature (Guthrie & Petty, 2000; FASB 2001, and Bozzolan et al., 2003) a disclosure index comprising 53 items was formed. A zero to four rating criterion is employed to score each disclosure item after each annual report had been entirely read at least once.

The intellectual capital reporting frameworks as employed by Guthrie & Petty (2000), FASB (2001) and Bozzolan et al. (2003) were used as a basis for the compilation of the disclosure index that was used in this study. The intellectual framework consisted of five categories (Guthrie & Petty, 2000; FASB, 2001; Bozzolan et al., 2003):

Table 1: Intellectual capital disclosure index

Section one: Intellectual Capital in Human Resources
1. Employee seniority;
2. Employee education investment;
3. Employee education costs;
4. Gender distribution of employees;
5. Racial distribution of employees;
6. Age distribution of employees;
7. Share of employees participating in development plans;
8. Number of development days per employee;
9. Education costs per employee;
10. Development costs per gender of employees;
11. Development costs per racial group of employees;
12. Employee satisfaction;
13. Employee turnover;
14. Increase in value per employee; and
15. Growth (decline)/recruitment of employees
Section Two: Intellectual Capital in Customers
16. Distribution of revenue by markets/products;
17. Marketing expenditure;
18. Number of customers per employee;
19. Marketing expense per customer;
20. Administrative cost per unit of marketing expenditure;
21. Customer satisfaction;
22. Repeat purchase/contracts;
23. Customer with long term relations;
24. Customer orientation strategy; and

Section Three: Intellectual Capital in Information Technology (IT)
26. Total IT investments;
27. Number of internal IT customers;
28. Number of external IT customers;
29. Investment in IT and research and development;
30. PCs per employee;
31. Portable PCs per employee;
32. IT expenditure per employee;
33. IT expenditure to turnover; and
34. Extent of IT literacy in the company.

Section Four: Intellectual Capital in Processes
35. Cost per process;
36. Human resource distribution by process;
37. Lead time;
38. Product development time;
39. Running in expenses for new organizational units;
40. Error rate in processing;
41. Waiting time for processes;
42. Quality of processing activities; and
43. Reputation of the company.

Section Five: Intellectual Capital in Property (IP)
44. IP investments/purchased during year;
45. Distribution of IP held;
46. Cost of IP developed during the year;
47. Number of IP items held/developed;
48. Number of development days on IP;
49. Number of employees involved in development of IP;
50. Administration costs per unit of IP development expenditure;
51. Increase in value per IP item;
52. Reputation of IP developed; and
53. IP renewed.

Section one, human capital: this refers to human resources and includes general features such as employee characteristics (for example seniority, age, race, and gender), education (for example costs and investment). Section two, external structure: this relates to the relationship of the company with different external stakeholders, and includes elements such as customers, marketing, business collaborations, and strategies. Section three, information technology: the disclosure of intellectual capital investments relating to the use by the organisation of information technology, and includes elements such as value of investment, number of users, and number of employees who possess computers. Section four, processes: intellectual capital elements that are created within the company or acquired from outside (management and production processes). Section five, items that are related to the intellectual capital elements that are protected by law (patents, copyrights, and trademarks).
The rating criterion is fully defined as follows:

- **Quantitative/Monetary** – If the disclosure item was clearly defined in monetary terms or actual physical quantities then a score of four (4) was assigned.

- **Descriptive** – If the disclosure item was discussed showing clearly its impact on the firm or its policies then a score of three (3) was assigned.

- **Obscure** – If the disclosure item is discussed in limited references or vague comments whilst discussing other topics and themes then a score of two (2) was assigned.

- **Immaterial** – If the firm states that the disclosure item is immaterial to the financial well-being and results of the firm then a score of one (1) was assigned.

- **Non-disclosure** – If the disclosure item does not appear in the annual report then a score of zero (0) was assigned.

**Proxy measures of independent variables**

The proxy measures for the three independent variables are defined as:

1. **Ownership Concentration (OwnCon)**: ratio of number of outstanding common shares held by individuals or organizations classified as substantial shareholders (those holding more than 5% of outstanding shares) to the total number of outstanding common shares of the firm at the end of the 2000 financial year;

2. **Percentage of outstanding shares owned by executive directors (PerExeOwn)**: ratio of number of outstanding common shares held by executive directors to the total number of outstanding common shares of the firm at the end of 2000 financial year;

3. **Government Ownership (GLCOwn)**: dummy variable where a firm classified as a GLC (firm where government holds 10% or more of the outstanding common shares) was coded one (1); otherwise the firm was coded zero (0)

**Control factor proxy measures**

Six control factors (auditor; level of internationalization; leverage; firm size; profitability and industry influence), drawn from a review of related corporate disclosure research were included in the linear multiple regression analysis. Proxy measures are briefly described as follows:

1. **Auditor (Auditor)**: dummy variable where firm was coded one (1) if independent auditor is a Big-5 firm; otherwise the firm was coded zero (0)

2. **Level of Internationalization (Internationalization)**: composite score of three significant and theoretically distinct dimensions – amount of foreign sales (average ratio of foreign sales to total sales for 2000 financial year), foreign production (average ratio of non-domestic assets to total assets at the end 2000), and geographic
dispersion (number of countries in which a firm had subsidiaries, expressed as a percentage of the highest number of countries in which a firm included in the sample has subsidiaries) – the composite score has a theoretical range of zero to three;¹

3. **Leverage (Lev)**: total debt divided by average total shareholders’ equity as reported in each firm’s 2000 annual report.

4. **Firm Size (Size)**: natural log² of annual sales as reported in each firm’s 2000 annual report;

5. **Return on Total Equity (ROE)**: ratio of a firm’s operating net income to total shareholders’ equity as reported in each firm’s 2000 annual report; and

6. **Knowledge Industry (KnowInd)**: dummy variable with firms determined to be R&D intensive³ coded a one (1), otherwise coded a zero (0) (Wruck, 1993; Sanders and Carpenter, 1998).

**Sample data and descriptive statistics**

Data from 390 domestically listed Singapore firms⁴ was hand collected from their 2000 annual reports and SGX Handbook (1998, 1999, 2000). Table 2 presents the mean, median and standard deviation for the untransformed dependent and independent variables, and control factors. The mean (median) voluntary IC disclosure score for the 390 sample Singapore publicly listed firms is 36.702 (40.400).

Consistent with expectations based on previous surveys, the mean for OwnDif suggested the level of ownership across Singapore publicly listed firms (62.543%) is highly concentrated. Also, executive directors generally have sizeable ownership stakes in Singapore publicly listed firms that is higher than in Western developed economies such as the Canada, United Kingdom and United States (see, for example, Beasley and Salterio, 2001; Klein, 2002).

Finally, descriptive statistics for the independent variables indicate that the government is a significant block holder in more than 14 percent of Singapore publicly listed firms.

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¹This proxy measure is based on the approach used by Sanders and Carpenter (1998).

²Transformation results in the re-expression of data on a new scale using a single mathematical function for each data input. Transforming the data using natural logarithmic transformation, improves interpretation and compatibility of the data, enhances the symmetry, stabilises the spread and improves the linear relationships between and among variables. This transformation makes it possible for correlation and regression analysis to be used.

³A firm was defined as being R&D sensitive if it separately disclosed the amount of R&D expense in their annual report.

⁴The final sample used in the analysis reported in the present study represents 95.35 percent of Singapore publicly traded firms listed with the SGX for the entire twelve months of the 2000 calendar year.
Table 2: Descriptive statistics for dependent variable, independent variables and control factors

<table>
<thead>
<tr>
<th>Description of Variable</th>
<th>Variable Name</th>
<th>Mean</th>
<th>Median</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IC disclosure index score in the 2000 annual report</td>
<td>ICD</td>
<td>36.702</td>
<td>40.400</td>
<td>13.145</td>
</tr>
<tr>
<td>Ratio # outstanding common shares held by individuals or organizations classified as substantial shareholders to the total # outstanding common shares 2000 financial year end</td>
<td>OwnCon</td>
<td>62.543%</td>
<td>57.594%</td>
<td>16.83%</td>
</tr>
<tr>
<td>Ratio # outstanding common shares held by executive directors to the total # outstanding common shares at 2000 financial year end</td>
<td>PerExeOwn</td>
<td>24.778%</td>
<td>15.156%</td>
<td>26.688%</td>
</tr>
<tr>
<td>Dummy variable with GLC (firm where government holds 10% or more or the outstanding common shares) coded one (1); otherwise coded zero (0)</td>
<td>GLCOwn</td>
<td>14.103%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Dummy variable coded one (1) if independent auditor is Big-5 firm; otherwise coded zero (0)</td>
<td>Auditor</td>
<td>92.821%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Composite score of ratios for the dimensions of foreign sales, foreign production and geographic dispersion as reported in 2000 annual report</td>
<td>Internationalization</td>
<td>0.830</td>
<td>0.797</td>
<td>0.616</td>
</tr>
<tr>
<td>Total debt divided by total shareholders’ equity as reported in 2000 annual report</td>
<td>Lev</td>
<td>31.262%</td>
<td>11.550%</td>
<td>22.49%</td>
</tr>
<tr>
<td>Annual sales as reported in each firm’s 2000 annual report</td>
<td>Size ($mill.)</td>
<td>301.253</td>
<td>86.527</td>
<td>796.381</td>
</tr>
<tr>
<td>Ratio operating net income to total shareholders’ equity as reported in 2000 annual report</td>
<td>ROE</td>
<td>8.95</td>
<td>7.54</td>
<td>15.42</td>
</tr>
<tr>
<td>Dummy variable where R&amp;D intensive firm coded a one (1), otherwise zero (0)</td>
<td>KnowInd</td>
<td>40.641%</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

RESULTS

Table 3 presents bivariate analysis (using Pearson correlations) results of correlations between the dependent variable, independent variables and control factors. Spearman correlations yield similar findings. The correlations show a significantly negative correlation between ICD and OwnDis, and a significantly positive correlation between ICD and GLCOwn. These results support Hypothesis 1 and Hypothesis 3 respectively.

There is also a significantly negative correlation between the dependent variable and PerExeOwn. The negative sign is contrary to the predicted positive association. This result, however, may imply corporate management entrenchment.

5A firm was defined as being R&D sensitive if it separately disclosed the amount of R&D expense in their annual report.
Table 3 results also indicate significant correlations between the independent variables and control factors respectively. The highest value is between Size and PerExeOwn (Pearson correlation = 0.245). Farrar and Glauber (1967) and Hair, Anderson, Tatham and Black (1995) state multicollinearity is only a concern when correlation values exceed 0.80. As a further check for possible multicollinearity concerns, variance inflation factor (VIF) values are computed. VIF values are reported in the last column of Table 4.

The VIFs values for all independent variables and control factors were below 2.0 considerably below the critical value of 10.00 (Netter, Wasserman and Kutner, 1989). Overall, bivariate analysis and VIF results indicate multicollinearity is not a serious concern.

Table 4 contains the results from the linear multiple regression model used to test the respective hypotheses. Overall, the linear multiple regression is highly significant (p<0.001). The adjusted coefficient of determination indicates that 51.7% of the variation in ICD is explained by variations in the independent variables and control factors. Consistent with Hypothesis 1, the coefficient for OwnDis is negative and statistically significant (p<0.001). This finding suggests that Singapore publicly listed companies with a higher concentration of ownership were less likely to voluntary disclose IC related information than counterparts with a more diffused ownership structure. Hypothesis 3 is also supported by the empirical findings reported in Table 4. That is, Singapore publicly listed firms having the government as a significant block holder were more likely to voluntarily disclose more IC details than those Singapore publicly listed firms not classified as a GLC. The coefficient for PerExeOwn is statistically significant. Contrary to expectations, however, the directional sign on the coefficient is negative rather than positive.

This finding implies ownership amongst executive directors of Singapore publicly listed firms is likely to lead to a decrease in voluntary IC disclosures rather than the promotion of increased disclosure. This finding further supports correlation findings suggesting management entrenchment amongst executive directors.
Table 3: Pearson correlations

<table>
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<tr>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) ICD</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(2) OwnCon</td>
<td>-0.234**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>(3) PerExeOwn</td>
<td>-0.348**</td>
<td>0.088</td>
<td>1.000</td>
<td></td>
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<tr>
<td>(4) GLCOwn</td>
<td>0.166**</td>
<td>0.029</td>
<td>-0.158**</td>
<td>1.000</td>
<td></td>
<td></td>
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<tr>
<td>(5) Auditor</td>
<td>0.162**</td>
<td>-0.033</td>
<td>0.007</td>
<td>0.056</td>
<td>1.000</td>
<td></td>
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<tr>
<td>(6) Internationalization</td>
<td>0.177**</td>
<td>0.031</td>
<td>-0.077</td>
<td>-0.132**</td>
<td>0.004</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>(7) Lev</td>
<td>0.036</td>
<td>0.065</td>
<td>-0.032</td>
<td>0.008</td>
<td>-0.140**</td>
<td>0.068</td>
<td>1.000</td>
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<tr>
<td>(8) Size</td>
<td>0.409**</td>
<td>0.029</td>
<td>-0.245**</td>
<td>0.002</td>
<td>0.109*</td>
<td>0.251**</td>
<td>0.122*</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(9) ROE</td>
<td>-0.062</td>
<td>0.024</td>
<td>0.049</td>
<td>0.025</td>
<td>0.001</td>
<td>-0.016</td>
<td>0.008</td>
<td>0.123*</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>(10) KnowInd</td>
<td>0.112*</td>
<td>-0.041</td>
<td>-0.085</td>
<td>0.184**</td>
<td>0.027</td>
<td>0.075</td>
<td>-0.139</td>
<td>-0.133**</td>
<td>-0.093</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Where:
** = significant 1% confidence level; * = significant 5% confidence level.
See Table 2 for definitions of independent variables and control factors.
Table 4: Linear multiple regression results

<table>
<thead>
<tr>
<th>Regression Statistics</th>
<th></th>
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<tbody>
<tr>
<td>Multiple R</td>
<td>0.727</td>
</tr>
<tr>
<td>R Square</td>
<td>0.528</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.517</td>
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<td>Standard Error</td>
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<td>Observations</td>
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<td>Durbin-Watson</td>
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<td>3946.431</td>
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<td>31701.987</td>
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<td>6.319</td>
<td>-3.676</td>
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<td>OwnCon</td>
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<td>-6.540</td>
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<td>PerExeOwn</td>
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<td>Lev</td>
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Where:

** = significant 1% confidence level; * = significant 5% confidence level.

See Table 2 for definitions of independent variables and control factors.
CONCLUDING REMARKS AND FUTURE RESEARCH IDEAS

The purpose of the present study is twofold: (1) analyze the voluntary IC disclosure practices of Singapore publicly listed firms; and (2) empirically test the association between three characteristics of ownership structure and the amount of voluntary IC disclosure.

The three characteristics of ownership structure in question are ownership concentration, level of executive directors’ ownership and extent of government ownership. In respect to the first purpose of the present paper, results indicate that Singapore publicly listed firms do voluntary disclose IC related information. This finding is of interest due to the reliance of Singapore publicly listed firms on IC related assets (such as human resources) and the long-term focus of the government in developing this asset base. The reluctance of Singapore publicly listed firms to voluntarily disclose IC related information may be due to various factors including ownership structural characteristics. The results of linear multiple regression tests provide strong support for this proposition. Specifically, results indicate that Singapore publicly listed firms which are more closely owned were less likely to voluntarily disclose IC related information than counterparts with a more diffused ownership base. Also, those firms with a high level of executive director ownership were less inclined to voluntarily disclose IC related information than those where executive directors had smaller holdings in the entity. Finally, findings indicate GLCs will likely make more voluntary IC disclosures than non-GLCs.

Findings of the present study are subject to some limitations that provide initiatives for future research. The present study, for example, focuses on publicly listed firms from one single domestic setting.

Prior research indicates voluntary disclosure practices are potentially subject to societal level factors such as culture and the legal system. Consequently, findings may be subject to generalizability concerns. Further research of the association between the ownership structure and voluntary IC disclosure practices could be extended to alternative domestic settings. Also, ownership characteristics included in the present paper are not exhaustive. Future research should fully explore the impact of other ownership features and their association with IC disclosures to gather a complete picture of the impact of this dimension. Also, this study is essentially cross-sectional in nature. Future research may wish to focus on examining the association of independent variables covered in this study and IC disclosure practices across time. Finally, findings are constrained by the validity and reliability of the disclosure index and scoring system applied. Future studies should seek to re-test the instrument across alternative socio-political and economic settings both to test its validity and/or make refinements.

Despite its limitations, the present study makes several unique contributions. First, the present study provides evidence of voluntary IC disclosure practices amongst publicly listed firms from a newly emerged economy in the Asia-Pacific region. Given the significance of emerging and newly emerged economies to the overall well-being and balance of the global economy, it is important to establish an understanding of the development of intellectual capital reporting practices in different socio-political and economic settings Second, the empirical analysis provides a framework for analyzing factors that may influence IC disclosure practices, which would enable companies to
report on their intellectual capital assets to shareholders, stakeholders, resulting in better investment and strategic decisions.

This disclosure index is an improvement on prior IC disclosure research, that comprised primarily of limited general surveys that did not investigate factors that may have explained variations in intellectual capital disclosure practices. Overall, findings from the present study have implications for numerous parties such as institutional investors, regulators, shareholders and corporate management in general. Singapore companies are family-founded, and a significant proportion of the outstanding shares are owned by the founding family members, which means that the shares are closely owned and less likely to voluntarily disclose IC related information, which is contrary to the growing global demand for the management, measurement and reporting of intellectual capital.

REFERENCES:


