

The Voluntary Disclosure of Intellectual Capital and Its Impact on Level of Growth in Hong Kong Companies: Annual Reporting Trends over an 8-Year Period

Michael So

Abstract—This study investigates voluntary IC disclosures by Hong Kong-listed companies in their annual reports over an 8-year period (2011–2019), when they were subjected to high intangible investments. It focuses on the extent of overall IC disclosure and of disclosure related to three IC categories: structural, relational, and human capital. It is found that companies have an increased level of voluntary IC disclosures overtime. Additionally, IC disclosure is associated with the growth of companies; in particular, structural capital disclosures contribute to a larger extent to the variability of growth.

Index Terms—Intellectual capital, voluntary disclosure, agency theory.

I. INTRODUCTION

Investors are generally informed of their financial position through traditional financial reports. As firms increasingly rely on intellectual capital (IC) in their value creation process, a proactive approach to IC reporting practices may help users in financial reports become more well-informed. However, the Hong Kong Accounting Standards do not govern IC disclosure (ICD). The ICD in annual reports is only a voluntary component. With the increasing importance of intellectual capital in Hong Kong companies, managers are expected to expend greater efforts to report their intellectual capital.

Financial analysts and investors use information from financial statements to make judgments about a firm's value and future performance. However, Eccles *et al.* [1] claimed that the relevance of financial reporting is declining, although Kachelmeier and King [2] suggested that the empirical evidence is mixed with this issue. Studies reveal that IC is critical to a firm's market value [3–5]. While voluntary disclosure has been shown to be value-relevant in past research [6], the relationship between IC disclosure and firm value has not been specifically investigated.

This study contributes to IC literature in examining whether investors perceive IC information to be value-relevant. Specifically, it assesses the category of IC information that is likely to be the most useful for investors. This result could aid regulators in recognizing the importance of ICD and the need for a disclosure-based policy.

II. LITERATURE REVIEW

Intellectual Capital

Intellectual capital is considered a knowledge-related intangible asset in a company [7], and it contributes to organizational value. Although there is no specific and common definition of IC, it is widely recognized that IC has three components: human capital (HC), structural capital (SC), and relational capital (RC) [8]. Given the constraints placed on traditional valuation approaches, Ratnatunga [9] and Blanco-Alcantara *et al.* [10] advise to view intangibles as the “capabilities” of the organizations. They explain that IC can be perceived as a competitive advantage rather than fixed assets. For example, an increase in training expenses could be treated as an enhancement in the capability of intellectual capital [11].

Human capital refers to a company's knowledge, skills, expertise, and abilities [12]. However, the measurement of tacit knowledge is challenging because it lacks contractibility and tradability [9]. At the firm level, the ability to create value from intellectual assets depends on management capabilities and the implementation of appropriate business strategies. While firm-specific HC increases, managers may become more effective in resource allocation, resulting in better decisions and coordination [13].

Structural capital belongs to firms and is assumed to be not reproduced and shared [14]. It includes the information systems, policies, procedures, and processes of the business and corporate culture [15]. Although employees provide SC for the company, SC is independent of HC [16]. Onuoha [17] emphasizes that SC is a source of competitive advantage, and improvement in SC mediates the impact of HC on corporate performance. Furthermore, given the importance of SC for competitive intelligence, firms should focus on increasing their SC value so that their strategic innovation can achieve a better performance [18].

Relational capital is interpreted as the knowledge embedded in all relationships a company develops with its stakeholders, such as the community, government, customers, suppliers, or competitors [19]. RC focuses on a company's relations with external entities and is difficult for competitors to imitate [20]. It has been argued that RC is an organization's ability to interact positively with business community members to motivate the potential for wealth creation by enhancing HC and SC [21]. To highlight the strategic value of RC, Martin-de-Castro *et al.* [22] describe that RC can guide how a firm can explore or develop new knowledge from its environment to sustain its competitive advantage position. Furthermore, Debicki *et al.* [23] show that family firms rely extensively on entrepreneurial strategies to enhance its RC.

The combination of human, structural and relational

capital is the key resource for wealth creation in organizational and national environments [24]. Nevertheless, intellectual assets are not always separately identifiable but tend to be complementary and can overlap significantly [25]. For example, HC can only add value to a company if there is supportive SC [26]. Besides, RC can increase HC because changes in environmental factors force people to develop new abilities and skills for new relationships [27]. Cuganesan and Petty [28] note that multinational organizations should invest and execute appropriate combinations of HC, SC and RC to respond to challenges in a multinational environment.

III. RESEARCH QUESTIONS

R1 Does voluntary IC disclosure in annual reports achieve a higher level of growth in Hong Kong companies?

R2 What components of IC have a higher impact on company growth?

In an efficient capital market, managers have superior knowledge of outside investors regarding a firm's expected future performance [29]. If accounting regulations work perfectly, managers' accounting decisions and disclosures communicate the changes in their firms' business economics to outside investors.

Concerning the value-relevance of disclosure, Healy *et al.* [30] found that expanded disclosure impacts investors' valuation of firms' stocks and increases stock liquidity. Similarly, Lambert *et al.* [31] demonstrated that better disclosure reduces the amount of managerial appropriation and, therefore, reduces a firm's capital cost. Consequently, the firm's value can increase. However, Firer and Williams [32] reported that the relationship between IC efficiency and corporate performance is limited and mixed when testing a sample of publicly traded South African firms.

Although voluntary disclosure has been shown to impact firm performance in past studies, this study specifically examines voluntary ICD on firm growth in terms of changes in market capitalization.

The agency theory is used to identify how ICD is associated with company growth. This framework is adopted as the theory essentially revolves around the possible conflicts of interests between investors and management within a contractual relationship. In general, managers fail to meet the informational needs of users because they do not disclose the information that investors consider relevant [33].

ICD is a potentially important means for management to provide information about firm performance to outside investors. This study examines whether investors perceive IC information to be value-relevant. Specifically, this study assesses the category of IC information likely to be the most useful for investors.

IV. METHODOLOGY

Content analysis is used to determine IC reporting in Hong Kong companies from 2011 to 2019. The annual reports of Hong Kong-listed companies for 2011, 2015, and 2019 were chosen.

There are reasons for selecting Hong Kong-listed companies as the sample for this study. Hong Kong is an

international financial center with a well-developed market infrastructure. The World Federation of Exchanges regards the Hong Kong Exchange as one of the two largest capital markets in Asia in terms of domestic market capitalization.

This study employed content analysis of the annual reports of the largest Hong Kong-listed companies selected based on their market capitalization. As the data for the longitudinal study were from 2011 to 2019, companies that were not listed in 2011 and listed after 2015 were excluded from the sample.

The content analysis involved reading annual reports and recording the information related to each element on a coding sheet. Content analysis has the attractive feature of being useful in dealing with a large volume of data and accepting unstructured IC content and structuring it in such a way to enable further analysis.

In addition, this study used a disclosure framework developed by Guthrie *et al.* [34] to code annual reports. The IC categories used for analysis are based on the classification scheme for IC with three major components: structure capital (internal structure), relational capital (external structure), and human capital (employee competence). Guthrie *et al.* [34] modified the framework comprising 27 IC elements across three IC categories.

This study only measured the voluntary ICD. IC information required by the accounting standards was excluded from the dataset. This was done because disclosure in response to accounting standards did not indicate a managerial commitment to ICD.

This study examined the amount of disclosure, and the quality of the data disclosed. ICD quality was measured using a four-way numerical coding system. Consistent with prior studies of Guthrie *et al.* [34], a value of 0 was assigned if the item did not appear in annual reports, a value of 1 if the item appeared in a discursive form, a value of 2 if the item was expressed in numerical terms, and a value of 3 if the item was quantified in dollar (currency) terms. For each attribute, the highest order of reporting was investigated.

In this study, the researcher read the annual reports and recorded information related to each IC element on a coding sheet. To ensure accuracy and validity, the second coder independently confirmed the coding of each item and constructed a spreadsheet based on the information reported on the coding sheet. A comparison of the coding decisions made between coders was used to establish reliability. After this shared understanding was obtained, the second coder double-checked only a random sample of coded reports from the researcher.

V. RESEARCH FINDINGS AND DISCUSSIONS

A. Impact of IC Disclosures on Company Growth

To test the research question that the growth of companies in the sample was influenced by ICD, two new variables were derived: growth in market capitalization from 2011 to 2019, and another measure was the increase in ICD between 2011 and 2019. Linear regression was conducted with growth as the dependent variable and ICD as the independent variable.

Table I shows that the level of voluntary ICD significantly affected growth between 2011 and 2019 ($p = 0.000$). The relationship is modest as the data indicate that voluntary ICD

positively affects the company growth ($R^2 = 0.207$). The results further reinforce proponents of IC as a competitive tool and that companies must manage and disclose their IC to remain competitive [35]. It is also observed that there has been a steady increase in the average number of IC attributes report over time.

Overall, most companies that publicly disclose IC information experience increased market value. In multi-period settings, where managers can build a reputation for credible disclosure, disclosure becomes value-relevant to a certain degree [36].

TABLE I: GROWTH REGRESSION OF COMPANIES BETWEEN 2011 AND 2019 ON TOTAL VOLUNTARY IC DISCLOSURE

Parameter	B	Beta	t statistic	P (2-tailed)
Constant	0.743	n/a	0.647	0.520
Total Voluntary ICD (2019 minus 2011)	3.485	0.454	4.144	0.000
F = 17.177, p = 0.000 R ² = 0.207	n/a	n/a	n/a	n/a

Thus, to the extent that ICD signals investors in a world of information asymmetry, voluntary disclosure can have long-term implications. An increase in ICD in annual reports allows firms to have greater growth potential.

This study supports the notion that ICDs are associated with the companies' performance and are perceived by the Hong Kong market as having growth potential. This has significant implications for policymaking; standard-setting bodies should focus on the normative accounting model to provide relevant information on IC.

B. IC Components on Level of Growth

Multiple regression analysis was also performed to determine which IC components had a stronger influence on growth. The regression analysis aimed to examine the influence of each IC component on the growth of companies. This variable was derived by subtracting the ICD category for 2011 from the ICD category for 2019 and dividing by the ICD category reported for 2011; an examination of the correlation matrix did not indicate that multicollinearity was a threat to the computational accuracy of the models. The models generated variance inflation factors for each analysis to further test whether multicollinearity was a cause for concern. These results indicate that multicollinearity was not a challenge in the present model.

TABLE II: MULTIPLE GROWTH REGRESSION OF COMPANIES BETWEEN 2011 AND 2019 ON VOLUNTARY DISCLOSURE OF IC CATEGORIES

Parameter	B	Beta	t statistic	P (2-tailed)
Constant	0.611	n/a	0.463	0.645
Structural Capital	1.850	0.270	2.125	0.037
Relational Capital	1.159	0.154	1.223	0.226
Human Capital	0.667	0.074	0.616	0.540
F = 3.691, p = 0.016 R ² = 0.148	n/a	n/a	n/a	n/a

Table II shows the influencing factor of 1.850 for the SC component, 1.159 for the RC component, and 0.667 for the HC component. This regression analysis revealed that companies' growth depended more on the SC disclosure, followed by RC and HC. R² indicated that the three IC components combined accounted for 14.8% of the variability

in company growth. Although the R² values were not very high, the path was statistically significant (p = 0.016). Furthermore, the p-value for SC was less than 0.05, which indicates that the disclosure of SC was the main factor influencing the growth of companies.

The findings show that SC was relatively important for the growth of Hong Kong companies. The Listing Rules set out the minimum financial information that a listed issuer should include in its annual report to provide transparency. Listing rules require annual reports to convey information on RC and HC. For example, information regarding major customers and suppliers must be disclosed in annual reports. Additionally, a listed company should provide brief biographical details of its directors and senior managers with their name, age, position, and length of service with the company. In contrast, no such provision is required regarding the information on SC. Thus, the communication of structural capital is relatively more informative than that of relational capital and human capital.

VI. DISCUSSION AND CONCLUDING REMARKS

This study investigated whether voluntary ICD in annual reports achieved a higher growth level in Hong Kong companies. A positive relationship was found between ICD reporting and rates of company growth. ICD plays a role in companies' growth and could be a signaling tool in the capital market.

Specifically, this study contributes to the literature in that SC is found to have the largest contribution to company growth compared with the RC and HC categories. This is because SC communication is relatively more informative than RC and HC. Disclosure of SC can help resolve the agency's issues of information asymmetry and is recognized as more significant by the market.

Thus, this finding suggests that companies may achieve higher share prices by voluntarily reporting on IC, particularly the category of SC. According to the agency theory, conflict arises when individuals choose actions to maximize their utility. SC is likely a piece of information that managers might wish to withhold from competitors and investors. Firms are less likely to disclose the SC to prevent imitation by competitors. Accordingly, disclosure of SC is perceived as value-relevant.

Companies voluntarily report on their IC grow more than companies that do not voluntarily report on their IC. However, traditional financial statements alone do not seem sufficient to provide users with relevant information on IC. An alternative to enhance the usefulness of financial reporting is to encourage voluntary disclosure. The 8-year analysis suggests that ICDs within Hong Kong-listed companies increased from 2011 to 2019, but these disclosures are predominantly unregulated and largely provided in a discursive form.

As IC is important in creating and maintaining competitive advantage and corporate value, it is further noted that more companies are likely to present information on their IC attributes in annual reports at an increasing rate. Although companies voluntarily report more IC and become more transparent over time, there remains a high variation in the number of ICDs reported among listed companies in Hong

Kong during the period examined. Therefore, a detailed IC disclosure guideline is recommended.

CONFLICT OF INTEREST

The author declares no conflict of interest.

FUNDING

This work is supported in part by UIC Research Grant with No. of UICR202022 at BNU-HKBU United International College.

REFERENCES

- [1] R. Eccles, R. Herz, E. Keegan, and D. Phillips, *The Value Reporting Revolution*, John Wiley and Sons, New York, 2001.
- [2] S. J. Kachelmeier and R. R. King, "Using laboratory experiments to evaluate accounting policy issues," *Accounting Horizons*, vol. 16, no. 3, pp. 219–232, 2002.
- [3] J. C. Dumay and J. A. Tull, "Intellectual capital disclosure price-sensitive Australian exchange announcements," *Journal of Intellectual Capital*, vol. 8, no. 2, pp. 236–255, 2007.
- [4] A. Salvi, F. Vitolla, A. Giakoumelou, N. Raimo, and M. Rubino, "Intellectual capital disclosure in integrated reports: The effect on firm value," *Technological Forecasting and Social Change*, vol. 160, pp. 1–8, 2020.
- [5] J. Widiatmoko, M. Indarti, and I. Pamugkas, "Corporate governance on intellectual capital and market capitalization," *Cogent Business Management*, 2020.
- [6] M. H. Lang and R. J. Lundholm, "Voluntary disclosure and equity offerings: reducing information asymmetry or hyping the stock?" *Contemporary Accounting Research*, vol. 17, no. 4, pp. 623–662, 2000.
- [7] S. Kehelwalatenna and G. Premaratne, "Intellectual Capital Performance and its Long-run Behaviour: The US banking industry case," *New Zealand Economic Papers*, vol. 48, no. 3, pp. 313–333, 2014.
- [8] H. R. Kim, M. Lee, H. Lee, and N. M. Kim, "Corporate social responsibility and employee-company identification," *Journal of Business Ethics*, vol. 95, no. 4, pp. 557–569, 2010.
- [9] J. Ratnatunga, "The valuation of capabilities: A new direction from management accounting research," *Journal of Applied Management Accounting Research*, vol. 1, no. 1, pp. 1–15, 2002.
- [10] D. Blanco-Alcántara *et al.*, "Board networks as a source of intellectual capital for companies, empirical evidence from a panel of Spanish firms," *Management Decision*, vol. 57, no. 10, pp. 2653–2671, 2019.
- [11] J. Ratnatunga, N. Gray, and K. R. Balachandran, "CEVITA™: the valuation and reporting of strategic capabilities," *Management Accounting Research*, vol. 15, pp. 77–105, 2004.
- [12] C. J. Collins and K. D. Clark, "Strategic human resource practices, top management team social networks, and firm performance: The role of human resource in creating organizational competitive advantage," *Academy of Management Journal*, vol. 46, no. 6, pp. 740–751, 2003.
- [13] J. Andersén, "Resource orchestration of firm-specific human capital and firm performance—the role of collaborative human resource management and entrepreneurial orientation," *The International Journal of Human Resource Management*, vol. 32, no. 10, pp. 2091–2123, 2021.
- [14] A. Riahi-Belkaoui, "Intellectual capital and firm performance of US multinational firms: A study of the resource-based and stakeholder views," *Journal of Intellectual Capital*, vol. 4, no. 2, pp. 215–226, 2003.
- [15] J. Peković, G. Pavlović, and S. Zdravković, "The influence of intellectual capital on financial performance of commercial banks in the Republic of Serbia," *Ekonomika*, vol. 66, no. 2, pp. 103–111, 2020.
- [16] J. Chen, Z. Zhu, and H. Y. Xie, "Measuring intellectual capital: a new model and empirical study," *Journal of Intellectual Capital*, vol. 5, pp. 195–212, 2004.
- [17] N. E. Onuoha, "Does structural capital count in human capital-corporate financial performance relationship? Evidence from deposit money banks in Nigeria," *Measuring Business Excellence*, vol. 26, no. 4, pp. 541–557, 2022.
- [18] N. AlQershi, Z. Abas, and S. Mokhtar, "The intervening effect of structural capital on the relationship between strategic innovation and manufacturing SMEs' performance in Yemen," *Management Science Letters*, vol. 11, no. 1, pp. 21–30, 2021.
- [19] N. Bontis, "Managing organizational knowledge by diagnosing intellectual capital," in *Proc. World Congress on Intellectual Capital Readings*, Butterworth-Heinemann, Boston, 2002.
- [20] J. A. Nazari and I. M. Herremans, "Extended VAIC model: Measuring intellectual capital components," *Journal of Intellectual Capital*, vol. 8, no. 4, pp. 595–609, 2007.
- [21] A. Corvino, F. Caputo, M. Pironti, F. Doni, and S. B. Martini, "The moderating effect of firm size on relational capital and firm performance: Evidence from Europe," *Journal of Intellectual Capital*, vol. 20, no. 4, pp. 510–532, 2019.
- [22] G. Martin-de-Castro, M. Delgado-Verde, P. Lopez-Saez, and J. E. Navas-Lopez, "Towards an intellectual capital-based view of the firm: origins and nature," *Journal of Business Ethics*, vol. 98, pp. 649–662, 2011.
- [23] B. J. Debicki, E. R. Ramírez-Solís, V. I. Baños-Monroy, and L. M. Gutiérrez-Patrón, "The impact of strategic focus on relational capital: A comparative study of family and non-family firms," *Journal of Business Research*, vol. 119, pp. 585–598, 2020.
- [24] C. Lin and L. Edvinsson, "National intellectual capital: Comparison of the Nordic countries," *Journal of Intellectual Capital*, vol. 9, no. 4, pp. 525–545, 2008.
- [25] Bismuth, A. and Tojo, Y. 2008, "Creating value from intellectual assets," *Journal of Intellectual Capital*, vol. 9, no. 2, pp. 228–245.
- [26] L. Edvinsson and P. Sullivan, "Developing a model for managing intellectual capital," *European Management Journal*, vol. 14, pp. 356–364, 1996.
- [27] M. Gibbert, M. Leibold, and S. Voelpel, "Rejuvenating corporate intellectual capital by co-opting customer competence," *Journal of Intellectual Capital*, vol. 2, no. 2, pp. 109–126, 2001.
- [28] S. Cuganesan and R. Petty, "Intellectual capital management, measurement and reporting: current practice and future directions," *Australian Accounting Review*, vol. 15, no. 2, pp. 2, 2005.
- [29] P. Healy and K. Palepu, "Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature," *Journal of Accounting and Economics*, vol. 31, pp. 405–440, 2001.
- [30] P. Healy, A. Hutton, and K. Palepu, "Stock performance and intermediation changes surrounding sustained increases in disclosure," *Contemporary Accounting Research*, vol. 16, no. 3, pp. 485–520, 1999.
- [31] R. Lambert, C. Leuz, and R. Verrecchia, "Accounting information, disclosure, and the cost of capital," *Journal of Accounting Research*, vol. 45, no. 2, pp. 385–420, 2007.
- [32] S. Firer and S. M. Williams, "Intellectual capital and traditional measures of corporate performance," *Journal of Intellectual Capital*, vol. 4, no. 3, pp. 348–360, 2003.
- [33] Garcia-Ayuso, "Factors explaining the inefficient valuation of intangibles," *Accounting, Auditing and Accountability Journal*, vol. 16, no. 1, pp. 57–69, 2003.
- [34] J. Guthrie, R. Petty, and F. Ricceri, "The voluntary reporting of intellectual capital: Comparing evidence from Hong Kong and Australia," *Journal of Intellectual Capital*, vol. 7, no. 2, pp. 254–271, 2006.
- [35] J. Hurwitz, S. Lines, B. Montgomery, and J. Schmidt, "The linkage between management practices, intangibles performance and stock returns," *Journal of Intellectual Capital*, vol. 3, no. 1, pp. 51–61, 2002.
- [36] V. Beattie and S. J. Smith, "Evaluating disclosure theory using the views of UK finance directors in the intellectual capital context," *Accounting and Business Research*, vol. 42, no. 5, pp. 471–494, 2012.

Copyright © 2023 by the authors. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)).