CORPORATE GOVERNANCE AND INTELLECTUAL CAPITAL DISCLOSURE

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Abstract

This study examines whether facets of corporate governance (board size, proportion of independent directors on the board, board committees, and Big 4 auditor) promote the voluntary disclosure of intellectual capital in annual reports in Australia and New Zealand and whether this is country dependent. Data was collected from OSIRIS and annual reports with disclosure detected through a rigorous electronic word search approach. Statistical testing with OLS regression followed. The presence of nomination committees and a majority of independent directors on the board were found to be significant positive predictors of intellectual capital disclosure in both countries, and larger board sizes in Australian companies enhanced intellectual capital disclosure. These results concur with resource dependency and stakeholder theoretical arguments.

Keywords: Corporate Governance, Board of Directors, Independent Directors, Big 4

1. INTRODUCTION

Australia and New Zealand (NZ) are two developed OECD South Pacific nations committed to becoming part of the developing world-wide "knowledge economy" (Barnes and McClure, 2009; Whiting and Miller, 2008). For knowledge rich organisations within these countries, it is the intellectual capital (IC) rather than the physical and financial capital, which is deemed to be a key source of competitive advantage and shareholder value (Tayles et al., 2007). Empirical studies have shown that IC has a positive effect on performance and wealth (e.g. Clarke et al., 2011).

However, the growing relevance of IC has not been adequately reflected by international reporting standard setters (Gerpott et al., 2008) and IC is underestimated in financial statements due to the existence of restrictive accounting criteria. As a result, the usefulness and the relevance of financial statements have been challenged (Abeysekera, 2010). Voluntary IC disclosure (ICD) is seen as an influential supplement to financial statements.

Concurrently with increasing IC importance, organisations worldwide have suffered from a rash of accounting scandals. In response, most developed economies have been actively reviewing and improving their regulatory frameworks, in particular, corporate governance (CG), transparency and disclosure (Ho and Wong, 2001).

As a consequence, two separate areas of research have grown in parallel over this period. Firstly, ICD studies have investigated the influence of corporate characteristics such as firm size and age, technological intensity of firm's industry, ownership concentration and leverage on ICD (e.g. Oliveira et al., 2006). Secondly, other studies have focussed on CG's responsibility for financial and physical capital (Keenan and Aggestam, 2001) and the effects of CG characteristics on financial disclosure (R. Lim, 2011).

But there is still much to learn about the intersection of these two streams of knowledge; that is, the effects that CG has on voluntary ICD (Li et al., 2008). Only a few studies have focussed (fully or partially) on this investigation, such as Li et al. (2008) with UK firms, Taliyang and Jusop (2011) and Haji and Ghazali (2013) with Malaysian firms, Abeysekera (2010) with Kenyan firms, Ariff (2013) with East Asian firms, Hidalgo et al. (2011) with Mexican firms and Cerbioni and Parbonetti (2007) who investigated European biotechnology firms. Within Australia, only White et al. (2007) has investigated the effect of one CG variable, board composition, on the level of voluntary disclosure by Australian biotechnology companies. No work has been completed in NZ. The absence of CG-ICD work for Australasia is an important gap as there could be a 'significant country effect' on the extent of ICD (White et al., 2010, p.519).

Understanding this relationship is of significant interest to regulators, investors, prospective and current directors and other aligned stakeholders. Accordingly, this study examines the impact of CG on ICD in Australia and NZ in 2009. This study investigates six CG variables: board size, board composition, presence of audit, remuneration and nomination committees, and engagement of a Big 4 auditor. It is conducted within Australia and NZ as both countries have focused on creating a "knowledge economy", the countries have close economic relations and commonality in accounting professional bodies, both lack a specific IC disclosure standard making the majority of IC disclosure voluntary, and both countries have suffered accounting scandals and have made various changes to the CG environment over recent years. Due to the stronger and earlier adoption of CG principles in Australia, it is expected that the

relationship between CG and ICD will be stronger for Australian firms compared to NZ firms.

The paper makes three contributions to the literature. Firstly it adds to the literature linking CG with ICD, not only in two poorly studied countries in this regard but also as a comparative study across the two jurisdictions of Australia and NZ (Dumay and Cai, 2014). Secondly it argues the relationships from stakeholder and resource dependency theoretical viewpoints rather than the more commonly used agency theory. Thirdly, it combines manual content analysis and reliability checking with an Australasian-focussed computer-based word search (Dumay and Cai, 2014) which provides an increased sample size.

The remainder of the paper is structured as follows. Section 2 provides an overview of the literature and develops the hypotheses. The method used is described in Section 3. The results are then outlined in Section 4 with concluding comments in Section 5.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1. Intellectual Capital and its Disclosure

IC is complex and difficult to define (Nerantzidis et al., 2013). One of the most comprehensive definitions is offered by CIMA (2001): '…the possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give organisations a competitive advantage' (as cited in Li et al. 2008, p.137). A broad consensus has developed that IC can be characterised in terms of a tripartite model comprising structural capital, relational capital and human capital (Sveiby, 1997).

Structural capital refers to the knowledge embedded in organisational structures and process and includes intellectual property such as patents and copyrights, and infrastructure assets such as corporate culture and management philosophy, policies and procedures. Relational capital is more externally focussed, concerned with the ability of the firm to interact positively with other business players so as to enhance human and structural capital, leading to wealth creation. It consists of an organisation's relationships with customers and suppliers, brand names and reputation (Guthrie and Petty, 2000). The human capital category highlights the employee-based value drivers of a firm, such as employee knowledge and skill (Gerpott et al., 2008).

Developed countries have experienced a shift away from traditional commodities and manufacturing-based sectors towards more intangible-based output (Guthrie and Petty, 2000). However most IC items do not meet the restrictive requirements for accounting recognition, or are not fiscally measurable and this has led to a deterioration in the usefulness of financial information (Oliveira et al., 2006).

2.2. Explanations for ICD

ICD is beneficial for a myriad of reasons. It mitigates the information asymmetry problem and has positive effects on a firm's reputation and the trust and confidence that stakeholders have in firm's management (Vergauwen et al., 2007). The firm's perceived risk is reduced through this more open disclosure policy as investors have a greater insight into the firm's value creation processes and the economic risks attached to a firm's shares, and therefore the cost of capital is reduced (Orens et al., 2009). Conversely, companies do incur significant proprietary costs in voluntarily disclosing information and may regard such disclosure as a service to shareholders, investors and analysts (Vergauwen et al., 2007). Costs include those of gathering and analysing IC-related data, the costs of revealing strategic information to shareholders (Ax and Marton, 2008), and the potential exposure of firms and auditors to legal claims and misunderstandings. The ultimate decision about whether or not to disclose will be the result of a cost-benefit trade-off.

A number of theoretical perspectives have been used to explain why firms voluntarily disclose information (An et al., 2011). Some of the more prevalent are described briefly below.

Jensen and Meckling (1976) define the agency relationship as a contract under which one party (the principal) engages another party (the agent) to perform some service on their behalf. Agency costs result from mitigation efforts to counteract the effects of the self-interest of the agent. Disclosures can help alleviate agency costs by giving owners more information about the company (Schneider and Samkin, 2008).

Not disclosing information regarding intangibles, will lead to asymmetry between insiders in the company and users of the financial statements, which makes a company more vulnerable to insider trading. To prevent this from happening, companies benefit from the disclosure of IC-related information thus mitigating information asymmetry (An et al., 2011).

Stakeholder theory's basic premise is that the firm's continued existence is contingent on the support of its stakeholders and it therefore a firm's management will engage in and report on activities that are expected by stakeholders (Omran and El-Galfy, 2014). In terms of ICD, stakeholder theory suggests that businesses will 'elect to voluntarily disclose information about their intellectual, social and environmental performance, over and above mandatory requirements' (Guthrie and Petty, 2000, p.14) in order to appease and manage their stakeholders (Abhayawansa and Azim, 2014).

2.3. Corporate governance and the link to ICD

'Corporate Governance is the system by which business organisations are directed and controlled. The corporate governance structure specifies the rights and responsibilities among different participants in the corporation, such as the board, managers, shareholders, and other stakeholders, and spells out the procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set and the means of attaining those objectives and monitoring performance' (OECD, 1999, p.3). Recent corporate scandals have cemented CG as an important research topic (S. Lim et al., 2007).

Key roles of directors include controlling and monitoring the organisation and providing resources and advice to management (Hillman and Dalziel, 2003). Although the predominant theory used in CG studies is agency theory which emphasizes the monitoring role of boards, Hillman et al. (2009) claim its explanations have only provided mixed results.

On the other hand, resource dependency theory (RDT) characterizes corporations as open systems, dependent on contingencies in the external environment, but able to make strategic choices to pursue their goals (Pfeffer and Salancik, 1978). Corporate boards manage external dependencies by bringing important resources and benefits to the firm, such as advice and counsel, legitimacy, and increased communication channels to external organisations. These resources can bring competitive advantage to the firm (Barney and Arikan, 2005). Twenty percent of directors in Australasia say that strategic advice is the strongest skill that they bring to the board (Groysberg and Bell, 2012).

Accordingly this study argues that CG influences on ICD by the firm are predominantly located in RDT and stakeholder theory. Directors bring resources to the firm which enhance IC (Abeysekera, 2010) such as superior knowledge or awareness of IC, advice to management and assistance with IC strategy formulation, and connections to knowledgeable persons and networks. As well as showing adherence to legal human capital requirements, disclosing IC will enhance the firm's reputation and lead to better relations with external stakeholders such as bankers, investors and suppliers, and increase its competitive advantage (Barney and Arikan, 2005).

Both Australia and NZ follow a 'principle-based' approach to CG in order to avoid overregulation (S. Lim et al., 2007). In 2003 the Australian Securities Exchange (ASX) released ten broad principles of good corporate governance in order to establish an effective CG structure (Australian Securities Exchange, 2003). The best practice recommendations are not mandatory, but ASX Listing Rule 4.10.3 requires all listed companies to disclose in their annual report the extent to which they comply with each of the recommendations, and also to provide explanations when these recommendations are not followed[11]. NZ moved a year later. In 2004, the Corporate Governance Best Practice Code and amendments incorporating CG regulation into the NZ Exchange Listing Rules entered into force on a "comply and explain" basis (OECD, 2004). Also in 2004, the NZ Securities Commission published "Corporate Governance in New Zealand: Principles and Guidelines", consisting of nine principles and guidelines for maintaining a high standard of CG. Compliance with the code and principles is not mandatory. Entities are however, expected to disclose in their annual report whether and how they have complied with the principles (OECD, 2004).

CG is composed of several facets such as board size and structure and there are a limited number of studies that have investigated their relationships with ICD. Cerbioni and Parbonetti (2007) found that European biotechnology firms with larger numbers of independent directors (board composition) disclosed more internal structural information, but CEO duality negatively impacted on the disclosure of forward-looking disclosures. Using a sample of 100 UK listed firms, Li et al. (2008) found support for a positive relationship between board composition, ownership structure, audit committee size and frequency of its meetings and ICD, however found no support for the influence of CEO duality. Haji and Ghazali (2013), in their longitudinal study with 51 large publicly listed Malaysian firms observed significant positive relationships between board size and the proportion of independent directors on the extent and quality of ICD. Similarly, Abeysekera (2010) found that Kenyan firms (n=52) with larger boards disclosed more tactical internal capital and strategic human capital. Finally Hidalgo et al. (2011) observed that board size impacted positively on ICD in Mexican firms. The only Australian study, White et al. (2007), found that board independence positively impacted on the level of voluntary disclosure in biotechnology company annual reports.

Using the relevant literature, six hypotheses have been developed. The study does not attempt to examine all possible facets of CG, but rather focus on those predominantly related to RDT and stakeholder theory arguments.

Adopting a RDT perspective, a larger board size will bring wider experience and a greater diversity of skill sets and perspectives to the board which compensate for individual deficiencies (Abeysekera, 2010). This greater human capital may in turn encourage a greater investment in other human capital which is a strategic resource for future earnings and value creation (Massingham and Tam, 2015; Roos and Roos, 1997), and will also enhance relationship capital. To disseminate this IC information to the wider variety of stakeholders that the larger board represents, the firm will engage in more voluntary disclosure. Although larger boards may suffer from poorer coordination, more free-rider problems and increased difficulty in coming to decisions (R. Lim, 2011), this appears to be outweighed by the positive benefits of a larger board. Hidalgo et al. (2011), Haji and Ghazali (2013) and Abeysekera (2010) all found a positive relationship between board size and ICD. However Hidalgo et al. (2011) found that board sizes over 15 had a negative effect on ICD but this is not expected to be a concern in this study as much smaller board sizes are observed in Australasia (R. Lim, 2011).

H_1: There is a positive relationship between board size and the level of voluntary ICD.

Boards can be composed of independent non-executive directors and executive management directors. RDT advocates for more independent directors on the board, arguing that they provide 'wider expertise, prestige and contacts and play a key role in influencing disclosure' (Li et al., 2008, p.139). Extending this argument to IC, it suggests that the wider experience of non-executive directors will encourage management to take a 'disclosure position beyond an uncritical prescription to norms, to a more proactive position, reflecting the value relevance of intellectual capital to stakeholders' (Li et al., 2008, p.139). S. Lim et al. (2007) found that more independent boards of Australian firms provide more disclosure of forward-looking and

[11] *Amended in 2010 and 2014 (after this study's data) and now consist of eight central principles. Larger listed firms must now meet some mandatory requirements (e.g. structure and disclosure requirements of the audit committee) (Australian Securities Exchange, 2014).*

strategic information. ASX recommends a majority of independent directors on the board (Australian Securities Exchange, 2003).

Alternatively, executive directors' superior knowledge of the firm might lead to better decision making (Christensen et al., 2010) and therefore fewer independent directors on the board would be expected to be associated with superior financial performance and thus greater ICD (Li et al., 2008). S. Lim et al. (2007) found that board independence has no influence on the voluntary disclosure of non-financial items by Australian firms.

In line with the positive relationship supported in Cerbioni and Parbonetti (2007), Li et al. (2008) and Haji and Ghazali (2013), this study posits:

H_2: There is a positive relationship between the proportion of independent directors on the board and the level of ICD.

CG codes of best practice highlight the importance of the board committee as an effective CG mechanism. Under an agency theory perspective, the establishment of committees improves internal control and thus is regarded as an effective monitoring device for improving disclosure quality (Ho and Wong, 2001). Using an RDT lens, the committees provide specialist skills and enhancement of IC and effective decision making.

Seventy-two percent of Australian listed firms had an audit committee in 2002 (R. Lim, 2011). An audit committee plays a key monitoring role to ensure the validity of a company's internal control, integrity of financial reporting and audit process. In line with agency theory, the audit committee's monitoring function will lead to improved disclosure quality (Ho and Wong, 2001).

H3: There is a positive relationship between the presence of an audit committee and the level of voluntary ICD.

The nomination and remuneration committees are regarded as essential tools of good CG under the Australian and NZ Corporate Governance codes. The nomination committee undertakes succession planning, determining the quality of appointed directors, and the remuneration committee determines and reviews the nature and amount of all compensation for senior offices in the company (Ho and Wong, 2001). They are therefore directly related to the skills and networks that the directors offer and the stakeholders which they best represent. It is argued that the presence of these committees will enhance IC in the firm and the disclosure of IC to diverse stakeholders.

H_4: There is a positive relationship between the presence of the remuneration committee and the level of voluntary ICD.

H5: There is a positive relationship between the presence of the nomination committee and the level of voluntary ICD.

Boards of directors engage the firms' auditors and these external audit firms have a significant influence on the amount of information disclosed by firm management (Bassett et al., 2007). Big 4 audit firms have greater incentives to maintain their quality and protect their brand name reputation (DeAngelo, 1981) and this enables them to influence clients to provide greater information in their corporate financial reports to satisfy external users' needs (Hossian et al., 1995). Whiting and Woodcock (2011) found evidence of a positive relationship between Big 4 auditors and ICD in Australian companies.

H_6: Companies audited by Big 4 auditing firms will disclose more IC information compared to companies audited by non-Big 4 auditing firms.

It is expected that Australian firms will have stronger CG than NZ firms. This is because CG requirements came into force a year earlier in Australia (2003) compared with NZ (2004), and Australia has had an independent oversight committee for auditors in place since 2003, whereas NZ does not have such a committee. Australia is also likely to be more IC-intensive than NZ (higher on the OECD's ranking of national IC investment, and stronger economically) and thus firms would have more IC to disclose. However, as there is no prior literature or theoretical backing, H_7 it is considered to be exploratory and is presented in the null form.

H_7: There is no difference in the relationship between the strength of CG and the level of voluntary ICD between Australian companies compared with NZ companies.

3. RESEARCH METHOD

3.1. Sample

The sample was a matched sample of Australian and NZ companies in 2009. As at 18th June 2011 there were 127 NZ companies listed on the OSIRIS database. 114 of these companies were considered to be established (had been in existence for at least three years within the period 2004-2009), had market capitalisation data for 2009 and had an annual report that was in a readable form. 114 Australian companies were then matched with these 114 NZ companies on the basis of size (by market capitalisation in 2009) and industry (by five GISC industry classifications). The Australian companies were also required to have been in existence for at least three years in the period 2004-2009. The final sample consisted of 228 companies.

Data on the variables of interest (see Table 1) for these 228 companies was obtained from the OSIRIS database, and company annual reports.

3.2. Dependent Variable

The 2009 Australian and NZ annual reports were examined for ICD[12]. They were indexed to form a new database that could be used in the ISYS search engine. As in other ICD studies (e.g. Abhayawansa and Guthrie, 2014) , a content analysis technique was used to measure the dependent variable. Content analysis is 'a method of codifying the text of writing into various groups or categories based on selected criteria. It assumes that the frequency indicates the importance of the subject matter' (Guthrie et al., 2006, p.287) . As promoted by Dumay and Cai (2014), this study modified traditional content analysis, by using a computerised word search technique[13]. A panel of three NZ experts (one

[12] *Annual reports are the principal means by which the company communicates with its stakeholders. The use of annual reports is consistent with previous ICD studies, such as Barako et al. (2006) and Li et al. (2008).*

[13] *Electronic word searches increase sample size over that of manual content analysis studies but because the annual report is not read for meaning, some ICD may not be captured.*

academic and two professional accountants) augmented a list of IC keywords from a European study by Vergauwen et al. (2007) with interchangeable keywords that might be used in an Australasian context, resulting in 108 keywords (Appendix 1).

Table 1. Definition and computation of variables

Variable	*Type of variable*	*Definition and computation*
Extent of Intellectual Capital Disclosure (*ICD*)	Dependent	Number of discrete IC disclosures as identified by 108 keywords. 'Valid' disclosures coded as one, otherwise a zero.
Board Size (*BDSIZE*)	Independent	Number of directors on the board
Board Composition (*BDCOMP*)	Independent	Percentage of independent directors on board
Board Composition (*INDEPMAJ*)†	Independent	Presence of majority of independent directors on board. Equals one for companies with a majority (>50%) of independent directors, otherwise zero
Audit Committee (*AUDCOM*)	Independent	Presence of Audit committee. Equals one for companies with Audit Committee, otherwise zero
Remuneration Committee (*REMCOM*)	Independent	Presence of Remuneration committee. Equals one for companies with Remuneration Committee, otherwise zero
Nomination Committee (*NOMCOM*)	Independent	Presence of Nomination committee. Equals one for companies with Remuneration Committee, otherwise zero
Auditor (*BIG4*)	Independent	Auditor of company. Equals one for companies with Big 4 auditor, otherwise zero
Country (*COUNTRY*)	Independent or Moderating	Country in which company is listed. Equals one for NZ companies and 2 for Australian companies
Industry (*IND*)	Control	Industry of company. Equals one for companies in high-technology industries, otherwise zero
CEO Duality (*CEODUAL*)	Control	The CEO is Chair of the Board of Directors, Equals one for companies with no CEO duality and zero where duality exists
Company Size (*LOGTA*)	Control	Measure of company size measured as the log of Total Assets (NZ$000, converted at balance date for Australian firms)

Note: † robustness measure for BDCOMP

The ISYS search engine was then used to search electronically for the keywords one at a time in the annual reports. Each hit was examined separately to ensure that it was related to IC and was in the sections of the annual report that ensured it was a voluntary disclosure[14]. If these criteria were met, it was considered to be a 'valid' disclosure and was coded 1, otherwise zero. Those coded zero constitute false positives and were disregarded for the analysis.

The major underlying weakness of content analysis is the subjectivity involved in the coding. To counteract this, rigorous stability and validity tests were undertaken to ensure that decisions regarding the identification of positive word hits were applied consistently over time and by a second researcher. Krippendorff's alpha (Krippendorff, 1980) indicated an acceptable level of reliability in coding[15].

Similar to Abhayawansa and Azim (2014), one measure of ICD was calculated, the extent of ICD, which was calculated as the total of 'valid' IC disclosures for each company. This approach focusses on the quantity of disclosure and treats the items with equal importance. It is recognised that it makes no comment on the relative importance or quality of the disclosures.

3.3. Independent, Moderating and Control Variables

CG information was obtained manually from the annual reports. Each company was classified by country of origin, with NZ companies coded as 1 and Australian companies as 2. The country variable was initially included as an independent variable in the model (see Section 3.4) and then as a moderating variable in order to test H_7.

Following the prior literature, three control variables were included. These consisted of firm size, which is consistently found to have a positive significant relationship with ICD (e.g. Haji and Ghazali, 2013; Oliveira et al., 2006). Larger firms are expected to disclose more than smaller firms as they are better resourced and able to do so, in order to reduce information asymmetry and political costs associated with their higher visibility (Watts and Zimmerman, 1986). Total asset data was obtained from OSIRIS and standardised in $NZ using the exchange rate at balance date. Including size also controls for a potential omitted variable problem (Bassett et al., 2007) as size may also be associated with CG variables such as audit committee size (Hidalgo et al., 2011) or company characteristics such as leverage (S. Lim et al., 2007).

Secondly a dichotomous variable for industry technological intensity was included. Since high-tech firms have more IC to disclose and may wish to signal this source of value to the market, most studies have hypothesized a positive relationship between the technological intensity of the industry and ICD. Empirical support for this is mixed (Dumay and Cai, 2014). For example, Australian studies by Brüggen et al. (2009) and Whiting and Woodcock (2011) have provided support, but the NZ study by De Silva et al. (2014) provided no support. Using prior literature as a guide the companies in the sample were divided into either high-intensity ('high-tech') or low-intensity ('low-tech') technology

[14] *Repetitive and multi-items in a sentence were all recorded. Exclusions were pictures, tables, graphs, endnotes, sentences beside pictures and graphs, report titles and job titles.*

[15] *Decision rules were developed during initial training on 3 annual reports. To test for stability over time, a test-retest procedure was used (2 annual reports were re-coded after coding every 10 annual reports). 90% of α scores were above +0.75 (minimum acceptable standard of reliability (Milne and Adler, 1999)). Similarly, inter-rater reliability (second person coding 3 annual reports) was also at an acceptable level.*

groupings on the basis of their Global Industry Classification Standard (GICS) category[16].

The third control variable was CEO-Chairman duality. Agency theory suggests that allowing the CEO to also serve as the chairman on the board could impair the board's oversight and governance roles, including disclosure policies (Li et al., 2008). CEO duality has been associated with more limited disclosure (Bassett et al., 2007) and CEO entrenchment, resulting in ineffective monitoring and a consequent increase in opportunistic behaviour (Li et al., 2008). In contrast, stewardship theory maintains that the executive manager essentially wants to perform well rather than act opportunistically and that duality should lead to superior company performance as it permits clear-cut leadership in strategy formulation and implementation. Empirical results between CEO duality and voluntary disclosure are mixed, with some studies finding a negative relationship (Bassett et al., 2007) and others concluding that CEO duality is not a significant determinant of ICD (Hidalgo et al., 2011). CEO duality is relatively rare in Australia (R. Lim, 2011).

3.4. Model

The regression model tested is:

$$ICD = \alpha + \beta_1 BDSIZE + \beta_2 BDCOMP + \beta_3 AUDCOM + \beta_4 REMCOM + \beta_5 NOMCOM + \beta_6 BIG4 + \beta_7 COUNTRY + \beta_8 IND + \beta_9 CEODUAL + \beta_{10} LOGTA + e \quad (1)$$

4. RESULTS

4.1. Descriptive Statistics and Univariate Tests

Descriptive statistics are displayed in Table 2. Most data was not normally distributed.

Australian firms disclosed significantly more IC than NZ firms (p= 0.000), and also in all three IC sub-categories[17]. This may be due to Australia's higher ranking on the OECD, stronger economy and the likelihood that these businesses have more IC to disclose. Australian annual reports were also on average significantly longer than NZ annual reports[18].

The average board size of 5-6 members is low in comparison to other countries[19]. NZ firms' board size was significantly larger than Australia's (p=0.000) but this generally meant only one more director in NZ. The vast majority of firms in both countries did not have CEO duality and did have audit and remuneration committees, indicating good governance practices. NZ companies chose Big 4 auditors significantly more often than Australian firms (p=0.000), possibly because Australia has more viable second tier audit firms than exist in NZ. Also, significantly more Australian firms had a nomination committee than NZ firms (p=0.05), perhaps due to the earlier adoption of CG principles. As the sample was matched on market capitalization and industry, there was no significant difference in firm size or industry between countries.

A comparison of 2004[20] and 2009 CG data for 77 pairs of the 114 Australian and NZ matched pair companies for which data was available, showed that CG had changed little over that period in both countries. There were some changes in particular measures but not all in the same direction. Significantly more Australian companies had nomination committees in 2009 than in 2004 (p=0.01) but the proportion of independent directors on the board decreased over this time period (p=0.05). In NZ, marginally more companies had an audit committee in 2009 compared with 2004 (p=0.10). In both countries more firms used a Big 4 auditor in 2009 but the board size decreased in 2009 compared with 2004 (p=0.05).

Initial indications of relationships between the independent variables and *ICD* can be gleaned from the correlation analysis (Table 3). Two tailed tests demonstrate significant positive relationships (p=0.05) between *ICD* and board size, boards with a majority of independent directors (but not the proportion of independent directors), all three board committees, Big 4 auditors, country and firm size. Comparing *ICD* by the binary variables showed that *ICD* was significantly higher in firms with audit, remuneration and nomination committees, those with a majority of independent directors and Big 4 auditors (1% level) and low-tech firms (5% level). Combining these results indicates possible support for H_1 – H_6 and rejection of H_7.

4.2. Regression Analysis

The individual country data was then pooled and tested using ordinary least squares regression analysis (OLS) without the country variable included[21]. The results are displayed in Column 1 of Table 4.

[16] *There were 48 high-tech and 66 low-tech firms in each country. High-tech industries consist of chemicals, aerospace, defence, electrical equipment, professional and educational services, healthcare, biotechnology, pharmaceuticals, information technology, software and computers, communication, electronics and semi-conductors and telecommunications. Low-tech industries consist of energy, construction, mining, transportation, consumer and household goods, hotels, retailing, food, tobacco and utilities.*

[17] *Mean extent of disclosure for NZ and Australia firms respectively were: Relational capital 18.4 and 16.6, Structural capital 32.2 and 47.6 (p=0.01), and Human capital 15.4 and 28.8 (p=0.01).*

[18] *Mean number of words/section of annual report examined were 6268 (Australia) and 4162 (NZ) (p= 0.01).*

[19] *For example, 12 in Mexico (Hidalgo et al., 2011) and 9 in Malaysia (Haji and Ghazali, 2013).*

[20] *CG requirements came into force in NZ in 2004 and in Australia in 2003.*

[21] *All the assumptions of OLS were met. There were some outliers but regressions with and without the outliers showed essentially the same results so the outliers were retained.*

Table 2. Descriptive statistics and tests of difference between NZ and Australia

Panel A Non-binary variables										
Variable	*Total Sample (n=228)*			*NZ Companies (n=114)*			*Australian Companies (n=114)*			*Mann Whitney U Z statistic*
	Mean	*Std. Dev*	*Median*	*Mean*	*Std. Dev*	*Median*	*Mean*	*Std. Dev*	*Median*	*NZ vs Australia*
BDSIZE	5.58	1.67	5.0	5.89	1.69	6.00	5.25	1.60	5.00	-2.963***
BDCOMP	0.57	0.22	0.60	0.59	0.24	0.60	0.55	0.20	0.60	-1.282
LOGTA	5.13	1.04	5.11	5.07	0.98	5.04	5.20	1.09	5.16	-0.592
ICD	88.73	60.57	78.00	68.84	60.12	51.00	109.41	54.72	97.00	-6.389***

Panel B Binary variables				
	Percentage of Companies (%)			*Pearson X^2*
Variable	*Total (n=228)*	*NZ (n=114)*	*Australia (n=114)*	*NZ vs Australia*
AUDCOM	91.2	93.0	89.5	0.877
REMCOM	75.8	75.2	76.3	0.037
NOMCOM	45.2	38.6	51.8	3.984**
BIG4	75.0	82.5	67.5	6.760***
IND	42.1	42.1	42.1	0.000
CEODUAL	4.8	2.7	7.0	2.342
INDEPMAJ	56.6	57.0	56.1	0.018

Note: Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels respectively

Table 3. Pearson (above the diagonal) and Spearman's rho correlation (below the diagonal) matrix†

Variable	*1*	*2*	*3*	*4*	*5*	*6 n=227*	*7*	*8*	*9*	*10*	*11 n=227*	*12*
1.ICD	1.000	.269**	.120	.174**	.176**	.254**	.304**	.212**	-.076	.325**	-.013	.390**
2.BDSIZE	.217**	1.000	-.002	-.048	.274**	.298**	.152*	.345**	-.086	-.192**	.126	.421**
3.BDCOMP	.112	-.016	1.000	.815**	.164*	0.055	.024	.232**	.078	-.089	.048	.121
4. MAJINDEP	.174**	-.031	.861**	1.00	.166*	.083	.031	.169*	.102	-.009	.050	.192**
5.AUDCOM	.194**	.304**	.132*	.166*	1.000	.368**	.188**	.215**	-.081	-.062	.075	.219**
6. REMCOM (n=227)	.246**	.317**	.036	.083	.368**	1.000	.453**	.289**	-.161*	.013	.064	.180**
7. NOMCOM	.285**	.148*	.018	.031	.188**	.453**	1.000	.178**	-.114	.132*	-.042	.136*
8. BIG4	.217**	.359**	.188*	.169*	.215**	.289**	.178**	1.000	-.164*	-.172**	-.036	.342**
9. IND	-.131*	-.083	.092	.102	-.081	-.161*	-.114	-.164*	1.000	.000	-.014	-.250**
10.COUNTRY	.424**	-.197**	-.085	-.009	-.062	.013	.132*	-.172**	.000	1.000	-.102	.046
11.CEODUAL (n=227)	.037	.123	.059	.050	.075	.064	-.042	-.036	-.014	-.102	1.000	.035
12.LOGTA	.420**	.454**	.105	.183**	.226**	.189**	.166*	.380**	-.233**	.039	.041	1.000

Note: Asterisks indicate significance at 0.05 (**), and 0.10 (*) levels respectively (2 tailed); †n= 228 except where otherwise indicated

Table 4. OLS regression for all firms

	(1)		*(2)*		*(3)*		*(4)*	
Intercept	-47.127	*	-38.443		-119.40	***	-107.720	***
	(-1.785)		(-1.483)		(-4.34)		(-3.999)	
BDSIZE	3.136		3.710		6.073	**	6.544	***
	(1.224)		(1.433)		(2.492)		(2.657)	
BDCOMP	18.810				25.501			
	(1.103)				(1.602)			
MAJINDEP			13.204	*			14.212	*
			(1.701)				(1.964)	
AUDCOM	2.118		1.030		4.468		3.868	
	(0.150)		(0.073)		(0.340)		(0.295)	
REMCOM	10.771		9.846		8.179		7.162	
	(1.046)		(0.959)		(0.852)		(0.747)	
NOMCOM	25.828	***	25.933	***	19.459	**	19.624	**
	(3.168)		(3.193)		(2.537)		(2.566)	
BIG4	0.493		0.494		8.993		9.565	
	(0.051)		(0.053)		(0.994)		(1.074)	
IND	5.074		3.765		3.996		2.901	
	(0.661)		(0.488)		(0.555)		(0.687)	
COUNTRY					41.766	***	41.279	***
					(5.852)		(5.814)	
CEODUAL	-9.612		-10.379		-2.202		-2.759	
	(-0.564)		(-0.611)		(-0.138)		(0.862)	
LOGTA	18.054	***	16.941	***	13.975	***	12.947	***
	(4.475)		(4.130)		(3.657)		(3.333)	
Observations	227		227		227		227	
F-Statistic	7.476***		7.719***		11.184 ***		11.377***	
Adj R-Squared	0.205		0.211		0.311		0.315	

Note: The t-statistics are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels respectively

Just over 20% of the variance in *ICD* was explained by the model, and the extent of *ICD* was significantly related to the presence of a nomination committee and the size of the firm (p=000). Increasing independence of directors on the board was not related to the extent of *ICD*, but when the *BDCOMP* variable was replaced with the dichotomous *MAJINDEP* variable (Column 2 Table 4),

a marginally significant positive relationship was observed (p=0.1) and the adjusted R^2 improved slightly to 21.1%[22].

To test if country has a significant direct effect on this relationship, the *COUNTRY* variable was added to the regression. Columns 3 and 4 of Table 4 display the results, using *BDCOMP* and *MAJINDEP* as alternative measures of board independence. The addition of *COUNTRY* increased the explanatory power of the regression by 10%, with adjusted R^2 of 31.1% and 31.5% respectively. The *COUNTRY* variable was highly and positively significant indicating that Australia was a much stronger explainer of *ICD* than NZ, as indicated in the univariate tests. The nomination committee, which is more prevalent in Australia, continued to have a significant influence on *ICD* (p=0.05) but also board size had a significant positive effect. Again a majority of independent directors was a better explainer of the extent of *ICD* than proportion of independent directors. Firm size remained as a significant explainer of *ICD*, but notably CEO duality and industry did not.

Because of significant country differences in board size and nomination committee, and the relationship of these independent variables to *ICD* in the regression, interaction terms with country were calculated and added to the first pooled regression in order to test H_7. Because of high multicollinearity between *NOMCOM* and *NOMCOM*COUNTRY*[23], *NOMCOM* was removed from the regression. The results are shown in Columns 1 and 2 of Table 5. In addition the sample was partitioned by country and repeated without the interaction variables and these results are displayed in Columns 3-6 of Table 5.

Firstly, the adjusted R^2 shows no improvement on the regression with the country main effect.

Secondly the results show that the presence of a nomination committee enhances *ICD* in both countries (p=0.1) but because nomination committees are more prevalent and established in Australia, their effect is more noticeable in that country[24]. This suggests that a specialist nomination committee that focusses on selecting directors with desirable human capital elevates the level of IC in the firm which is then communicated to various stakeholders.

Thirdly, the *BDSIZE*COUNTRY* interaction variable had a highly significant effect on *ICD* (p=0.000), but board size on its own was not influential. The individual country regressions demonstrated that increasing board size was important in Australia only and this may be due to the fact that Australian boards were slightly but statistically significantly smaller than NZ boards. In line with RDT, the increased skill set, resources and networks provided by a larger number of directors will enhance IC in the firm and IC disclosure.

Again there is support for a board with a majority of independent directors influencing *ICD* (p=0.05), but this was not influential in either individual country.

As before, firm size had a significant positive effect on *ICD* but neither CEO duality nor industry impacted on this disclosure.

4.3. Additional Analysis

The data was also partitioned firstly by auditor and secondly by industry. The nomination committee continued to have a significant effect on *ICD* only for those firms audited by a Big 4 firm (n=170) and for low-tech firms (n=131).

Dumay and Cai (2014) called for other data sources to complement ICD content analysis findings. Accordingly, further insight was sought through sending a short open-ended questionnaire to the CFOs of two NZ companies in the sample. The questionnaire investigated the company's reasons for voluntarily disclosing IC, and the CFO's opinion of the influence of CG on ICD. Company A had strong CG measures, high ICD, and awards for its annual report, whereas Company B displayed lower ICD but still had strong CG measures.

The CFOs agreed that the amount of ICD was not directly influenced by the Board of Directors. Company B's CFO reported that the 'disclosures are generally determined by the CFO and CEO of the company' and that they 'only disclose what they have to'. Company A's CFO agreed that 'the form and content of the annual report is largely driven by management' however stated that the 'annual report is much more than a statutory requirement…it enables our communication to be open, honest and transparent'. This organisational emphasis on transparency in Company A, which possibly derives from the board, appears to translate into increased ICD.

5. CONCLUSION

This study examined the impact of CG on the voluntary disclosure of IC in Australia and NZ in 2009. It examined six CG variables, board size, board composition, presence of audit, remuneration and nomination committees, and Big 4 auditor, which were all argued to have a positive effect on ICD.

Of importance is the new finding that the nomination committee is a significant determinant of ICD in both countries. This relationship was stronger in Australia, which was endorsed by the significantly higher prevalence of nomination committees and significantly more extensive levels of ICD in Australia. These results support H_5 and do not support H_7. Using RDT, it is argued that nomination committees focus on selecting quality directors who bring desirable human capital and resources to the firm (Abeysekera, 2010). Directors may wish to communicate about the IC to various stakeholders to show adherence to legal human capital requirements, to show future sources of value and appear more 'transparent' (Company A CFO) thereby enhancing the firm's reputation, to encourage better relations with external stakeholders, and to increase their firm's competitive advantage (Barney and Arikan, 2005).

[22] *There is also some support in the literature for a non-linear relationship between board size and ICD as excessive numbers of board members may have a detrimental effect on communication, commitment and decision-making (Hidalgo et al., 2011). To test for this, all statistical tests were repeated, replacing BDSIZE by BDSIZE², but results were unaffected.*

[23] *VIF>10*

[24] *Interaction variable is highly significant (p=0.007).*

Table 5. OLS regression with country interaction terms for full sample, and OLS regression for NZ sample and Australian samples separately

	Total Sample				*NZ Firms*				*Australian Firms*			
	(1)		*(2)*		*(3)*		*(4)*		*(5)*		*(6)*	
Intercept	-56.516	**	-45.537		-74.528		-72.518		-40.098		-26.835	
	(-2.286)		(-1.877)		(-1.647)		(-1.628)		(-1.308)		(-0.881)	
BDSIZE	-2.706		-2.105		4.950		5.179		6.686	**	7.126	**
	(-0.955)		(-0.737)		(1.266)		(1.345)		(2.088)		(2.129)	
BDCOMP	25.342				22.532				31.279			
	(1.586)				(0.952)				(1.366)			
MAJINDEP			14.724				17.918				10.260	
			(2.028)	**			(1.620)				(1.017)	
AUDCOM	2.668		1.956		-3.951		-0.947		9.337		8.291	
	(0.202)		(0.149)		(-0.172)		(-0.042)		(0.568)		(0.494)	
REMCOM	8.309		7.274		0.274		-0.695		20.400		18.458	
	(0.867)		(0.762)		(0.019)		(-0.048)		(1.517)		(1.369)	
NOMCOM					21.415	*	21.441	*	17.118	*	18.278	*
					(1.782)		(1.802)		(1.662)		(1.777)	
BIG4	7.344		7.854		11.637		9.847		4.709		6.140	
	(0.809)		(0.880)		(0.730)		(0.633)		(0.421)		(0.551)	
IND	4.435		3.257		-0.380		-1.777		6.152		6.477	
	(0.618)		(0.452)		(-0.034)		(-0.161)		(0.612)		(0.635)	
CEODUAL	-4.074		-4.685		10.347		13.343		-12.291		-11.871	
	(-0.255)		(-0.295)		(0.309)		(0.401)		(-0.678)		(-0.651)	
BDSIZE* COUNTRY	6.012	***	5.963	***								
	(4.571)		(4.560)									
NOMCOM*COUNTRY	12.815	***	12.871	***								
	(2.704)		(2.726									
LOGTA	14.670	***	13.554	***	15.105	**	14.481	**	13.340	***	12.605	**
	(3.841)		(3.491)		(2.340)		(2.264)		(2.691)		(2.441)	
Observations	227		227		113		113		114		114	
F-Statistic	10.965***		11.202***		3.234***		3.477***		5.774***		5.638***	
Adj R-Squared	0.306		0.311		0.152		0.166		0.276		0.270	

Note: The t-statistics are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels respectively

Secondly the study found that board size was a significant predictor of ICD in Australia but not in NZ. These results support H_1 for Australia only and do not support H_7. Boards in both Australia and NZ were small by international standards and were significantly smaller in Australia by one director, although this may be due to the use of a matched sample which did not include some of Australia's largest companies. The results for Australia concur with RDT. Larger boards are argued to bring a greater set of skills and perspectives to decision-making, and this enhancement of director IC may in turn encourage a greater investment in IC throughout the organisation which is a strategic resource for future value creation (Roos and Roos, 1997). As argued above, enhanced IC may lead to increased ICD. Our results for Australia concur with the findings of Hidalgo et al. (2011), Haji and Ghazali (2013) and Abeysekera (2010). There was no evidence of a non-linear effect (Hidalgo et al., 2011).

Thirdly there was some tentative support for H_2. The study did not find support for the *proportion* of independent directors on the board influencing ICD but did observe a significant positive relationship between ICD and a *majority* of independent directors on the board. Codes of Corporate Governance are increasingly requiring a majority of independent directors on the board (Australian Securities Exchange, 2003) and this study demonstrated that this enhances ICD. This result concurs with RDT arguments as a majority of independent directors would bring wider skills, knowledge and networks and may take a 'disclosure position beyond an uncritical prescription to norms, to a more proactive position, reflecting the value relevance of intellectual capital to stakeholders' (Li et al., 2008, p.139). Our findings partially concur with those of Cerbioni and Parbonetti (2007), Li et al. (2008), White et al. (2007) and Haji and Ghazali (2013), as they found a positive relationship with the *proportion* of independent directors.

There was no support for H_3 and H_4. Most firms (91%) had an audit committee and 75% had a remuneration committee, so this lack of differentiation may contribute to the absence of any observed effect. However it may be more likely that the audit committee's focus is on its monitoring function with its accompanying mandated disclosure requirements. Similarly the remuneration committee's concerns with top management compensation may be either privately sensitive or alternatively the subject of mandatory disclosure.

The multiple regression analysis also showed that the choice of auditor (Big 4 or not) was not a significant variable in determining ICD. H_6 was rejected. However further analysis indicated that Big 4 auditors appeared to support the nomination committee-ICD relationship. This is a worthy topic for future research.

This study makes three main contributions. Firstly it extends the literature by determining and comparing the specific facets of CG which promote voluntary ICD in Australian and NZ. Secondly it provides support for the relationship between board size, an independent director board majority and the presence of a nomination committee with ICD on the basis of resource dependency and stakeholder theory arguments. Thirdly, it utilises a computer-based word search to provide an increased sample size for this type of content analysis.

The findings have practical implications for accounting standard setters and regulators wishing to establish more detailed guidelines and rules to encourage the disclosure of IC. In order to increase ICD, NZ firms could concentrate on establishing nomination committees, whereas Australian firms could increase the number of directors on the board. The indication from the two questionnaires that boards may have indirect influence on ICD through their espoused corporate philosophy, is worthy of further investigation through a more extensive interview-based or questionnaire study.

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Appendix 1 - List of words used in Electronic form of Content Analysis

Structural	***Relational***	***Human***
Network ,internet, computer network	Customers, clients, patrons	Employees, staff, workforce, people
R&D/research and development, market leader, R&D, market leader	Joint venture, JV	Knowledge
Telecommunication, communication	Brands, label, image, logo	Personnel
Patents	Market share, market leader, market presence	Expertise
Innovation, entrepreneurship	Partnership, partners	Competence, capabilities
Leadership, management, charisma, guidance, governance	Customer satisfaction, customer happiness	Education, schooling, training, workshops, courses, development
Methodologies, mechanism	Supply chain	Specialist
Intellectual property	Distribution channels, distribution community	Employee benefits
Trademarks	Customer loyalty	Know-how
Philosophy, belief, value, vision	Distribution networks	Employee satisfaction, staff satisfaction, staff happiness
Management processes	Quality standards, ISO, quality procedures, TQM	Motivation, drive, enthusiasm, commitment, loyalty, willingness
Corporate culture	Brand recognition, product recognition	Career development, employee growth
Information systems, IT, information technology	Research collaboration, partner recognition	Empowerment
Knowledge sharing, collaboration	Brand development, brand research	Human capital
Knowledge resources	Customer knowledge, business intelligence	Intelligence
IC, intellectual capital, intangibles	Customer base, customer size	Employee expertise
Electronic data interchange, EDI	Business collaboration, working together, mergers, ties	Employee skill
Trade secrets, experience	Customer recognition	Human value
Management focus, management priorities	Suppliers knowledge, suppliers information	Expert team
Corporate university, on the job	Customer capital, contacts	Employee value
Software systems	Competitive intelligence	Flexitime, glide time, work life balance
Cultural diversity	Company reputation	Brain power
Proprietary process	Customer retainment, customer retention	Human asset
Intellectual assets	Customer turnover rates, customer exchange	Expert network
Business knowledge. Knowledge capital	Favourable contracts, preferred agreements	Employee productivity, employee output efficiency
Technological processes	Corporate image, corporate profile corporate behaviour	Human resources
Value added	Franchising agreement	Employee retention
Soft assets	Licensing agreement	Value added statements
Operating systems, software, neural networks, artificial intelligence	Financial contacts	Union activity, industrial action
Operating software		Training programmes
Organisational learning		Vocational qualifications
Organisational culture, trust		Work-related competence
Management quality, quality management, customer support		Work-related knowledge
Knowledge stock		
Knowledge assets, technological asset		
Intellectual resources		
Intellectual material		
Economic value added		
Corporate learning		
Product development cycle		
New product success rate		
New product revenue		
Research projects		
Networking systems, suggestion box		
Infrastructural assets, fixed assets		
Copyrights		