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Board Characteristics and Intellectual Capital Disclosures: Evidence from Sri Lanka

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ABSTRACT

Purpose: The purpose of this study is two-fold. First, to examine the state of intellectual capital disclosures. Second, to investigate the relationship between board characteristics and intellectual capital disclosures.

Design: This study selected thirty non-financial listed companies with the highest market capitalization from the Colombo Stock Exchange in Sri Lanka. An intellectual capital disclosure index comprising 61 items was developed to understand the level of intellectual capital disclosure in the selected companies. Panel data analysis techniques were applied to test the proposed hypotheses.

Findings: Results indicated that role duality and proportion of female directors have a significant and positive impact on intellectual capital disclosures. Firm leverage was found to have a significant and negative effect on intellectual capital disclosures. Insufficient empirical evidence between other corporate board characteristics and intellectual capital disclosure in Sri Lanka may be attributed to a non-mandatory corporate disclosure environment.

Originality: This is among the few studies to examine the link between corporate governance and intellectual capital disclosures employing panel data in Sri Lanka. However, a discourse on the role of corporate governance and corporate disclosures is warranted in a small island developing economy with a fragile financial system like Sri Lanka.

Future Research Directions – The study calls for more studies to investigate the relationship between corporate governance and intellectual capital disclosures in the case of Sri Lanka by employing data from different industries for longer periods.

KEYWORDS

Board Characteristics, Corporate Governance, Disclosure Index, Female Directors, Intellectual Capital

JEL CLASSIFICATION

G34, O34

I. Introduction

Organizations have realized that knowledge is a strategic resource and perhaps the only source of distinctive advantage in the 21st century (Ramezan, 2011; Gavious & Russ, 2009). Although knowledge is an intangible asset, organizations have come to realize its importance. Companies worldwide have experienced some form of transition to a knowledge-driven culture where the emphasis has been on nurturing intellectual capital. Montequín et al. (2006) mention that organizations should be conscious of the knowledge of the organization, also known as intellectual capital, as the first step of transforming from an established company to a knowledge-based company. Accordingly, how companies develop and report intellectual capital has gained importance in various disciplines.

Reporting intellectual capital allows comparability and transparency of a firm to its shareholders and key stakeholders. Disclosing information about an organization's intellectual capital helps minimize the differences in the knowledge about the firm between owners and managers. As businesses operate in a competitive environment, organizations should excel in creating intellectual capital and use the intellectual capital they already have (Bartholomew, 2008). Lack of information about an organization to outsiders can cause information asymmetry. In this context, intellectual capital disclosure (ICD) is essential to reduce asymmetrical

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information distribution (Hidalgo et al. 2011) and opportunistic managerial behaviour.

The significance of the corporate board arises in a firm because those who control and those who own the residual claims are separated (Epps & Cereola, 2008). Corporate governance has been proposed as an instrument to minimize these conflicts, keep track of the managers' performance, and align their interests. Intellectual capital can give rise to agency problems since 'insider' information available to management is far superior to the information available to outside decision-taking parties. ICD in annual reports can help to reduce information asymmetry between insiders and outside investors by making the capital market more efficient (Abeysekera, 2008). However, in Sri Lanka, there is no specific framework for reporting ICD (Puwanenthiren, 2018). Notably, a higher level of ICD could provide a more intensive monitoring package for a firm to reduce opportunistic behaviour (Li et al. 2008). Similalry, Widiatmoko et al. (2020) studying intellectual capital disclosure in Indonesia, informs that accounting standards to report intellectual capital have a limited scope and the lack of a standard or regulation for reporting ICD may have contributed to conflicting results despite using similar variables. Paying attention to whether corporate governance can improve ICD may contribute to reducing information asymmetry in the absence of a regulation-based corporate disclosure regime.

First, this study investigates the level of ICD of non-financial listed companies in Sri Lanka by reviewing the ICD reported in the annual reports. Second, the relationship between corporate board attributes and ICD of non-financial listed companies in Sri Lanka is examined using the ICD index proposed by Li et al. (2008). This study intends to contribute to the existing debate on whether corporate governance reduces information asymmetry by improving voluntary disclosures in the form of ICD. First, this study gives insight into the level and types of ICD in a developing economy where intellectual reporting is not widely adopted yet and has an evolving corporate reporting framework. Second, this study uses panel data analysis to test the relationship between corporate board characteristics and ICD, thus providing empirical evidence on the longitudinal relationship between corporate governance and ICD. The study by Abeysekara and Guthrie (2005) classified ICD in the form of external capital, internal capital, and human capital and examined the ICD of thirty listed companies selected based on market capitalization for two financial years at the end of 1990s in Sri Lanka. More recent studies by Puwanenthiran (2018) and Puwanenthiran et al. (2019) apply the ICD index of Li et al. (2008) to investigate ICD of listed companies in the CSE for a single financial year (2017). Thus, this study shall attempt to provide empirical evidence on ICD of listed companies over five years and apply panel data analysis techniques to examine the link between board characteristics and ICD.

The rest of the sections in this paper are organized as follows. Some insights on corporate governance in Sri Lanka and the regulations and standards on intellectual capital will be presented in the proceeding section. Section 2 of this paper examines the existing literature, and section 3 discusses the methodology. The empirical findings and conclusion of this study are presented in sections 4 and 5, respectively.

Corporate Governance in Sri Lanka

In 1997, the Code of Best Practices on matters relating to the financial aspects of Corporate Governance was introduced in Sri Lanka. It was the first contemporary corporate governance initiative to be introduced in Sri Lanka. The above code was revised in 2003 by the Institute of Chartered Accountants of Sri Lanka (ICASL). A more comprehensive code of corporate governance best practices was introduced in 2008 as a collaboration between ICASL and the Securities and Exchange (SEC) of Sri Lanka. An updated version of the above code was published in 2013 and 2017. In addition, the Colombo Stock Exchange (CSE) introduced

the listing rule sections 7.9 and 7.10 on corporate governance, which required all listed firms to comply (CSE, 2019). The Companies Act No. 07 of 2007 and several other regulations also provide several additional guidelines on corporate governance practices for companies depending on the nature of business or industry.

Regulations and Standards

Intellectual Property Act

Sri Lanka's first intellectual property-related act was the Code of Intellectual Property Act No. 52 of 1979. It was later replaced by the Intellectual Property Act No. 36 of 2003. In 1982, the National Intellectual Property Office (NIPO) was established under the Code of Intellectual Property Act to govern the intellectual property system in Sri Lanka. A Director-General heads NIPO, and the officer serves as an independent administrator and can only be challenged before the court. The Act gives a clear idea on copyright, industrial designs, marks and trade names, layout designs and integrated circuits, geographical indications, etc. Copyright, trademark, and patents come under the category of structural capital in the classification of intellectual capital (Petty & Guthrie, 2000).

Accounting Standards (LKAS 38 – Intangible Assets)

Sri Lanka Accounting Standard-LKAS 38 stipulates the accounting treatment for intangible assets not explicitly addressed in another accounting standard. The standard outlines the criteria for recognizing, measuring the carrying amount and disclosures of the intangible assets. Sri Lanka Accounting Standard-LKAS 38 identifies an intangible asset as a non-monetary asset without physical substance. Moreover, the standard recommends recognizing an intangible asset on the basis that it can be measured reliably and the future economic benefits will flow to the entity (LKAS, 2019).

II. Literature Review and Hypothesis Development

Intellectual Capital Disclosures

Traditionally, financial statements were designed to measure and report tangible assets. Yet, intangible assets are a significant percentage of an organization's market value not disclosed in financial statements or considered for economic analysis. Intellectual capital is an essential component of the intangible assets of an organization and is extremely valuable in an information-based society (Bukh et al. 2001). Intellectual capital has been defined in different ways. Intellectual capital is "the group of knowledge assets that are attributed to an organization's value creation" (Chu et al. 2006, p. 898). Intellectual capital is also seen as "the combination of human capital, organizational capital and customer capital, or simply as competence commitment" (Bukh et al. 2001, p. 88).

Human Capital

Human capital is viewed as a core asset of an organization (Yang & Lin, 2009) and it may determine the survival and success of organizations (Gavious & Russ, 2009; Yang & Lin, 2009). Workers' knowledge forms an organization's human capital and is vital for organizational longevity and survival. An organization paying attention to human capital can improve organizational performance (Lim et al. 2010; Gavious & Russ, 2009), strengthen core competencies, increase organizational success (Zula & Chermack, 2007), sustain competitive advantage (Yang & Lin, 2009), engage in strategic renewal (Ramezan, 2011), improve creativity and innovation (Kim et al. 2010).

Structural Capital

Structural capital is the knowledge that exists in an organization as a whole. Structural capital refers to proprietary software systems, distribution networks, and supply chains (Petty & Guthrie, 2000). Hsu and Fang (2009) classify structural capital as process capital and innovation capital, whereas Martinez-Torres (2006) recognizes structural

capital as an asset that may include processes and information in a database. Structural capital can be reproduced by sharing technologies, innovations, information, journals, strategy and culture, frameworks and processes, organizational routines, and procedures (Bukh et al. 2001).

Relational Capital

Initially, relational capital was under the structural capital but later on, it was claimed that relational capital should be removed from the structural capital (Bozbura, 2004). Some of the studies in the extant literature refer to relational capital as customer capital (Ramezan, 2011; Tai & Chen, 2009). Relational capital acts as a catalyst and as a bridge in organizational operations, which includes intellectual capital. Moreover, Relational capital has been found to directly impact a firm's value and economic performance compared to human and structural capital (Bontis, 1998). Relational capital is "all resources linked to the firm's external relationships, with customers, suppliers or R&D partners and comprises that part of human and structural capital involved with the company's relations with stakeholders, investors, creditors, customers, suppliers, etc. plus the perceptions that they hold about the company" (Meritum, 2002, p. 63).

Development of Hypotheses

Board Size

Board size means the number of directors on a corporate board. There has been debate on the optimal composition of the board of directors. According to Mahmood et al. (2018), the board size depends on the company's size, market, complexity, and function. Prior literature indicates that larger boards may lead to inefficiencies and cause higher agency costs (Shamil et al. 2014; Puwanenthiren, 2018). Though it is claimed that smaller boards are highly efficient, they may be influenced by the company's management (Shamil et al. 2014); Previous studies have also emphasized that larger boards will increase board expertise and the ICD (Mahmood et al. 2018). Larger boards are more likely to increase the capacity of organizations to access and protect critical resources such as intellectual capital (Abeysekera, 2010).

Prior empirical studies have established a positive and significant relationship between board size and intellectual capital disclosures (Alfraih, 2018; Puwanenthiren, 2018). However, few studies have found a negative relationship between board size and performance (Cerbioni & Parbonetti, 2007). The Code of Best Practice on Corporate Governance in Sri Lanka recommends that public companies be led by an effective board that directs, leads, and manages the company. Grounded on the discussion above, the following hypothesis is proposed.

H_1: A positive relationship exists between board size and intellectual capital disclosures.

Board Independence

A key feature of corporate governance is the independence of the board and its directors (Mahmood et al. 2018). Independent boards may alleviate agency problems by monitoring and controlling the behaviours and decisions taken by non-independent directors (Barako et al. 2006). Extant literature reveals that boards with a higher number of independent directors have an undue impact on corporate management to reveal more information to reduce the agency cost (Shamil et al. 2014). The Code of Best Practices on Corporate Governance in Sri Lanka and the listing rules of the CSE have stipulated the minimum number of independent directors in a board and the conditions to be met to determine the independence of the director.

Several studies suggest that the proportion of independent directors is positively associated with voluntary disclosures such as intellectual capital (Cerbioni & Parbonetti, 2007; Akhtaruddin et al. 2009). It means that the involvement of more independent directors on the board increases the likelihood that the companies' annual reports

will provide more voluntary reporting. But it is inconclusive and conflicting since some other researchers reveal a negative relationship between board independence and intellectual capital disclosures (Taliyang & Jusop, 2011). However, in the Sri Lankan context, Puwanenthiren (2018) revealed that the inclusion of more independent directors on the board positively influences ICD. Therefore, it is hypothesized that;

H_2: A positive relationship exists between board independence and intellectual capital disclosures.

Dual Leadership

Separating the position of chairperson and CEO on the board is another important aspect of corporate governance that may improve board effectiveness. Prior studies in corporate governance that apply the agency theory argue that the separation of chairperson and CEO roles will lead to increased oversight of management behaviour, leading to better results. However, some scholars suggested that it is unnecessary to separate roles because organizations can function successfully with CEO-Chairman duality. Moreover, combining the roles allows the CEO to lead the firm towards the set objectives with less obstruction (Haniffa & Cooke, 2002). Empirical results on the impact of role duality on ICD have been contradictory. Puwanenthiren (2018) investigated the relationship between corporate governance and ICD in companies listed in the CSE and found no evidence to support a significant relationship between CEO duality and ICD. Furthermore, in the Malaysian context, Taliyang and Jusop (2011) concluded that there is no significant relationship between role duality and ICD. Similarly, Li et al. (2008) and Alfraih (2018) didn't find a significant relationship between role duality and ICD despite predicting a negative association. Based on the above assertions and empirical findings, the following is hypothesized.

H_3: A significant relationship exists between dual leadership and intellectual capital disclosures.

Female Directors

The inclusion of female directors on the board has been widely recognized as an indication of board diversity. Compared to a heterogeneous board, homogeneous boards have a smaller capacity to understand environmental complexities (Carter et al. 2003). A heterogeneous board comprises different people with different perspectives leading to increased board diversity. Boards consist of directors with various knowledge, perceptions, and thoughts to make better decisions (Post et al. 2011). Moreover, Rahman et al. (2019) claim women directors could affect decision-making differently. Studies have shown that board diversity can improve intellectual capital efficiency by fostering greater creativity and decision-making flexibility (Mahfoudh et al. 2015).

Early studies exploring whether gender diversity will affect ICD were based on the thought that gender diversity will increase voluntary disclosure levels. Romero et al. (2017) conducted a study using public quoted firms from Spain and found that the results are consistent with the perception that increased representation of women on boards would strengthen board oversight, increase transparency, and minimize information asymmetry. In contrast, Nalikka (2009) identified that women on board do not significantly influence the levels of voluntary disclosure. Nalikka's study was based on 108 companies listed on the Helsinki Stock Exchange from 2005 to 2007 (2009). It has also alluded those female directors facilitate unbiased participative decision-making improves transparency and ICD (Nicolo et al. 2021). Given the above explanations, the following hypothesis is proposed.

H_4: A positive relationship exists between the proportion of female directors and intellectual capital disclosures.

III. Data and Methods

Population and Sample

Public companies listed in the CSE as of 31st March 2019 were taken as this study's population. Listed companies belonging to the financial services industry and diversified holdings were excluded for the following reasons. Finance companies, banks, and insurance companies adhere to the corporate governance rules stipulated by the Central Bank of Sri Lanka, which are different and much stricter than non-financial listed entities (Azeez, 2015; Puwanenthiren, 2018). Investment trusts were removed because their nature of business requires gathering money from other investors and reinvesting them in portfolios. Since business nature is different from a typical business, excluding investment trust from the study sample was considered appropriate. The diversified holding entities represent the holding companies of various other companies listed in different business sectors of the CSE. Since the sample of this study includes several listed subsidiaries of the diversified holding companies, it was decided to exclude them to avoid double counting. Of the remaining companies, 30 were considered according to the highest market capitalization on 31st March 2019 because it supports the political cost theory (Belz et al. 2019; von Alberti-Alhtaybat et al. 2012). Data was collected for five years from 2015 to 2019 from publicly available annual reports retrieved from the CSE website. The annual report was used as the source of data because many ICD studies have used them as their source document, and annual reports are regularly produced (Petty & Guthrie, 2000; Abeysekera, 2006). Data required for this study were hand collected from the annual reports of the selected listed companies.

Measurement of Variables

Similar to the work of Li et al. (2008), an unweighted intellectual capital disclosure index comprising 61 items categorized into human capital, structural capital, and relational capital was developed to measure the study's dependent variable. The content analysis technique has been widely employed in studies to measure disclosure levels. Content analysis is a technique that codifies qualitative information into pre-defined categories to understand information reporting and presentation (Guthrie et al., 2004). Intellectual capital information presented in sample firms' annual reports was scored on a dichotomous basis. Accordingly, a score of one or zero was given for items disclosed and undisclosed, respectively. The ICD index for each company was calculated based on the index score formula proposed by Li et al. (2008).

$$ICDI_j = \frac{\sum_{t=1}^{n_j} X_{ij}}{n_j}$$

The study's independent variables include four board characteristics applied in previous studies and are relevant to the research context. The independent variables representing internal corporate governance mechanisms are board size, the proportion of independent directors, CEO-Chairman role duality, and the proportion of female directors on the board. Several control variables were also added because prior studies have shown a significant relationship between firm characteristics and ICD level. A recent study by Rahman et al. (2019) investigating the determinants of ICD among listed companies in the pharmaceutical and chemical industry in Bangladesh revealed that ICD level was positively related to firm size, firm profitability, and leverage. Nicolo et al. (2021) also showed that firm size positively impacts ICD level using a sample of Italian listed companies. Several prior studies have also demonstrated that firm growth (Salvi et al. 2020) and firm age (Li et al. 2008) significantly relate to the level of ICD. Table 1 below summarizes the measurement of variables used in this study.

Table 1. Measurement of Variables

Variables	Measure	Source
Dependent Variable		
Intellectual Capital Disclosure Index (ICDI)	If an item is disclosed, then '1' else '0'. The total score is then divided by 61.	Li et al. (2008); Haniffa and Cooke, (2002)
Independent Variables		
Board Size (BS)	Natural log of the number of directors	Alfraih (2018), Bhattacharjee et al. (2017).
Board Independence (BIND)	Percentage of independent directors	Mahmood et al. (2018)
Dual Leadership (DL)	roles combined = 0, else = 1	Li et al. (2008)
Proportion of Female Directors (FD)	Number of female directors on the board/total number of directors on the board	Tseng and Lin (2013)
Control Variables		
Firm Profitability (FP) (lagged)	(Previous year Profit After Tax + Previous year Interest)/Previous year average total assets	Dragomir (2010), Achen (2000), Rashid, (2018)
Firm Size (FS)	Natural log of market capitalization	Alfraih (2018)
Firm Growth (FG)	Market value of shares/book value of equity	Farhangdoust et al. (2020)
Firm Leverage (FL)	Total debt/book value of equity	Widiatmoko et al. (2020)
Listing Age (AGE)	Number of listed years	Haniffa and Cooke (2002)

Model Specification

The multiple linear regression model was developed based on previous studies conducted in the field of corporate governance and intellectual capital disclosure.

$$ICDI_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 BS_{it} + \beta_3 DL_{it} + \beta_4 FDP_{it} + \beta_6 FP_{it} + \beta_7 FS_{it} + \beta_8 FG_{it} + \beta_9 FL_{it} + \beta_{10} AGE_{it} + \varepsilon_{it}$$

ICDI = Intellectual capital disclosure index
BS = Board Size
BIND = Board Independence
DL = Dual Leadership
FD = Proportion of Female Directors
FP = Firm Profitability (lagged)
FS = Firm Size
FG = Firm Growth
FL = Firm Leverage
AGE = Listing Age
ε_{it} = Error term

Method of Analysis

Panel data analysis technique was considered for testing the proposed hypotheses since the data of this study comprises time series and cross-sectional data (Gil-García & Puron-Cid, 2014). Panel data permits us to control for variables that cannot be observed or measured and variables that change over time but not across entities (Torres-Reyna, 2007). Panel data modelling allows to include variables at different levels of analysis suitable for hierarchial or multilevel modelling. Moreover, previous empirical studies have also applied panel data estimation techniques to investigate the link between board characteristics and ICD (Alfraih, 2018; Puwanenthiren, 2018; Cerbioni & Parbonetti, 2007; Tseng & Lin, 2013).

IV. Empirical Results

Intellectual Capital Disclosure Index

Table 2 below give insight into ICD in Sri Lanka. The overall mean value of ICD is

0.6319. It explains that the sample entities in this study reported on average 63.19% ICD information. The standard deviation of ICD is 0.3054 (30.54%). As per the results in the table, the midpoint of ICD is 62.29%. The lowest ICD value reported among the sample firms is 57.38%, while the highest is 68.85%. The Skewness value of ICD is 0.3825, which indicates that it is positively skewed. However, the Skewness does not indicate a considerable asymmetrical distribution as it is below +1. Kurtosis value of ICD is 2.11654.

Table 2. Summary of ICD Index

Year	*Mean*	*SD*	*Median*	*Min*	*Max*	*Skewness*	*Kurtosis*
2015	*0.6344*	*0.0292*	*0.6311*	*0.5901*	*0.6885*	*0.2772*	*2.3338*
2016	*0.6349*	*0.0316*	*0.6229*	*0.5901*	*0.6885*	*0.3562*	*1.9429*
2017	*0.6338*	*0.0347*	*0.6229*	*0.5901*	*0.6885*	*0.3805*	*1.6953*
2018	*0.6284*	*0.0302*	*0.6229*	*0.5737*	*0.6885*	*0.2359*	*2.0818*
2019	*0.6278*	*0.0276*	*0.6229*	*0.5901*	*0.6885*	*0.5730*	*2.6334*
Total	***0.6319***	***0.0305***	***0.6229***	***0.5737***	***0.6885***	***0.3825***	***2.1165***

As table 2 indicates, 2016 reports the highest ICD, whereas 2019 reports the lowest ICD. It can be stated that ICD has been declining since 2016. The declining trend does not emphasize that the firms in the sample have been reducing the number of ICD from 2015 to 2019; instead, it may be attributed to adopting an integrated reporting framework in Sri Lankan companies to prepare annual reports. Integrated reporting guidelines identify six different types of capitals, and their interpretations are different from the interpretations used in intellectual capital studies. The interpretation of the six capitals in the integrated reporting framework is different from the interpretations applied in this paper to determine the ICD index. The initiation of the IR framework for annual reports in Sri Lanka and the differences in the interpretation of the type of capitals in intellectual capital studies and IR framework may have lowered ICD in recent years.

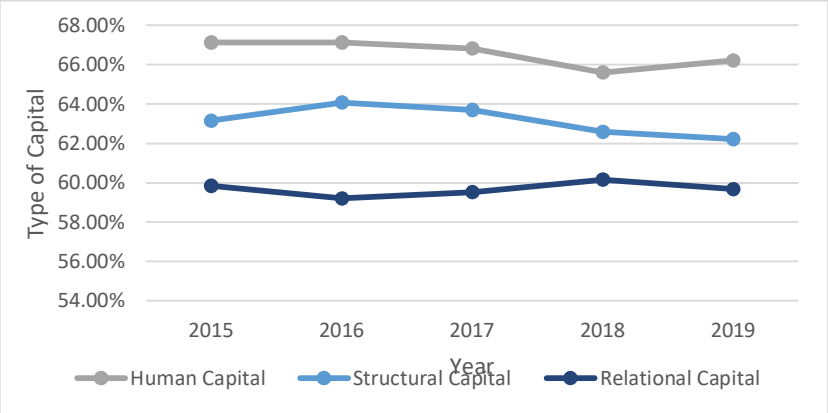

Figure 1. Type of Intellectual Capital Disclosure

Immediately, it can be observed in figure 1 that human capital is the most disclosed IC category. However, there has been a slight reduction of human capital disclosures in the two most recent years (2019 and 2018) compared to the early years. The next most disclosed IC category is structural capital. These are assets such as proprietary software

systems, distribution networks, and supply chains. The trend of structural capital disclosures implicates a decline of 1.47% (63.15% to 62.22%) from the year 2015 to 2019. Nevertheless, in 2016, the listed companies in this study have disclosed the highest number of structural capital-related information. The least reported category of IC is relational capital. It is below 60% in all the years except for 2018, which is 60.16%. The trend line of the relational capital from 2015 to 2019 portrays only a slight decline relative to the other two capital components. In sum, all the subcategories have disclosed more than 50% of IC categories over the 5 years, indicating to the stakeholders that the listed companies are improving their disclosure of IC in their annual reports.

Descriptive Statistics

Table 3 presents descriptive statistics. In the table below, board size ranges from 5-13 with an average of 8. The standard deviation of board size is 1.877. As per table 3, board independence shows a mean value of 0.429 (42.9%), which indicates that, on average, boards consist of 43% independent directors, ranging from 12.5% to 100%. The standard deviation of board independence is 18%. It is also evident that most companies in the sample adhere to the voluntary best practice of separating the role of chairperson and CEO (98.67%). The average proportion of female directors on the board is 6.9% (sd. = 6.8%). Female directors on a board range from 0% to 20% and is spread out by 6.80%. The profitability measured by ROA varies between -0.015 and 1.409. The average ROA is 0.141(14.6%). The mean value of firm leverage is 0.855, and it ranges between 0 - 9.204. The average listing age of a company in the sample is around 31 years, while it ranges from 3 years to 73 years.

Table 3. Summary of the Descriptive Statistics

Variable	Mean	SD	Median	Min	Max	Dichotomous Variables
BS	8.08	1.877	8	5	13	
BIND	0.429	0.180	0.375	0.125	1	
DL						No: 98.67% Yes: 1.33%
FD	0.069	0.068	0.087	0	0.2	
FP	0.146	0.178	0.100	-0.015	1.409	
FS(ln)	23.868	1.015	23.746	21.358	26.303	
FG(ln)	0.980	1.142	0.859	-1.254	4.1656	
FL	0.855	1.417	0.299	0.000	9.204	
AGE	30.6	16.768	33	3	73	

Table 4 presents the Pearson and Spearman correlation coefficients. It is evident from the correlation matrix that the corporate governance variables have no significant association with ICD. The relationship between board size and ICD is negative in opposition to the proposed hypothesize. The highest correlation coefficient is reported between firm size and firm growth. Further, none of the correlation coefficients exceeds 0.8 indicating there is no threat of collinearity.

Table 4. Correlation Analysis

	1	2	3	4	5	6	7	8	9	10	VIF
ICDI	1										
BS	-0.009	1									1.28
BIND	0.049	0.085	1								1.16
DL†	0.077	0.190*	-0.019	1							1.22
FDP	0.077	-0.115	0.257*	-0.201*	1						1.27
FP	0.055	-0.278*	-0.136	0.067	0.001	1					1.62
FSln	0.041	0.223*	0.148	0.154	0.124	0.146	1				1.89
FGln	0.118	-0.067	0.035	0.196*	-0.064	0.537*	0.567*	1			3.12
FL	-0.079	0.005	-0.013	-0.087	0.167*	0.216*	0.329*	0.427*	1		1.32
AGE	0.092	-0.043	-0.107	-0.156	-0.030	0.268*	0.063	0.402*	0.131	1	1.37

Note: †Spearman correlation, *p < .05

Panel Data Results

Table 5 presents the results of the regression models. Model 1 shows the results of the random effect model. Model 2 gives the Pooled OLS results before addressing the autocorrelation, while model 3 gives the results of adjusted information after addressing the autocorrelation problem. Diagnostics tests such as outlier test, multicollinearity, autocorrelation, heteroscedasticity, and cross-sectional dependence were performed. The diagnostics tests revealed that autocorrelation was observable (Wooldridge test for autocorrelation p-value 0.026). None of the other tests was significant or violated the assumptions indicating that results are robust. Furthermore, the Breusch-pagan test for heteroscedasticity suggested that the Pooled OLS estimation was appropriate for analyzing and interpreting the data ($\chi2 = 0.98$, $p = 0.32$). As per model 3 presented in table 5, the R2 value is 0.0612. This suggests that the ICD index variation explained by the model variables is around 6.12%. The P-value of the model is 0.4318, which is higher than 0.05 (5%), therefore insignificant. This indicates that there may be other variables not included in the model that could explain ICD.

Table 5. Regression Results

Independent Variables	Model 1	Model 2	Model 3
BS	0.0001 (0.002)	0.0001 (0.002)	0.0001 (0.002)
BIND	0.0018 (0.015)	0.0018 (0.015)	0.0018 (0.012)
DL	0.0276 (0.024)	0.0276 (0.024)	0.0276** (0.012)
FD	0.0662 (0.041)	0.0662 (0.041)	0.0662* (0.037)
FP	-0.0037 (0.018)	-0.0037 (0.018)	-0.0037 (0.223)
FS	-0.0014 (0.003)	-0.0014 (0.003)	-0.0014 (0.003)
FG	0.0051 (0.004)	0.0051 (0.004)	0.0051 (0.004)
FL	-0.0037 (0.002)	-0.0037 (0.002)	-0.0037** (0.002)
AGE	0.0001 (0.000)	0.0001 (0.000)	0.0001 (0.000)
Cons	0.6277 (0.082)	0.6277 (0.082)	0.6277 (0.072)
Time-fixed effect	No	No	No
Company fixed effect	No	No	No
No. of groups	30	30	30
No. of obs.	150	150	150
P-value	0.4257	0.4318	0.4318
R2 – within	0.0059	-	-
R2- between	0.3107	-	-
R2- overall	0.0612	0.0612	0.0612
Root MSE	-	0.0305	0.0305

Note: * significance at 1% level, ** significance at 5% level. Standard errors in parenthesis.

Hypotheses Testing

The results of model 3 are interpreted for hypothesis testing. The regression coefficient of board size in model 3 is 0.0001, and the p-value is 0.930. The results indicate there is no significant relationship between board size and ICD, and H1 is rejected. This finding contradicts Alfraih (2018), which revealed a significant and positive association between board size and ICD. This finding does not support the theoretical underpinnings of agency theory and resource dependence theory. Bhattacharjee et al. (2017) also identified that board size has a statistically significant and positive association with overall ICD, which does not corroborate the findings in this study. The coefficient estimation of board independence is 0.0018. Although board independence positively links with the ICD index, it is insignificant ($p = 0.873$). Thus, the hypothesis (H2) assuming a positive and significant link between board independence and ICD is rejected. However, Puwanenthiren (2018) found a significant and positive relationship between board independence and intellectual capital disclosures in Sri Lanka. The major drawback of the above study is that it does not employ a panel data analysis technique. Yet, our study corroborates the findings of Bhattacharjee et al. (2017). They found out that having a higher proportion of outside independent directors on the board does not influence ICD. Mooneeapen et al. (forthcoming) also claim that the familiarity hypothesis may cause independence of directors to erode and lead to a non-significant association between board independence and corporate disclosures.

Model 3 results also indicate that the regression coefficient of dual leadership is 0.0276 and is significant at 5% level. Accordingly, it can be stated that the alternative hypothesis (H3) is accepted, and there is a positive and significant relationship between dual leadership and ICD. This indicates that listed firms separating the role of chairman and CEO are more likely to disclose ICD than listed firms where the same person holds CEO and chairman positions. Puwanenthiren (2018) found that a significant association exists between role duality and relational capital. There was no evidence to support a significant and positive link between corporate governance and overall ICD. Further, Li et al. (2008) and Alfraih (2018) discovered that role duality had no significant influence on ICD. In contrast to the findings mentioned above, Cerbioni and Parbonetti (2007) identified a significant but negative relationship between dual leadership and total intellectual capital disclosures using a sample of companies from the European Association of Biotech companies.

As reported in table 5, model 3, the coefficient of the proportion of female directors is 0.0662 and is significant at 1% level. Henceforth, the proposed hypothesis (H4) is accepted. Tseng and Lin (2013) provided empirical evidence that a positive relationship between female directors and ICD exists. Similarly, a study conducted in Spain also found that gender diversity in boards significantly affects the ICD level. It appears that the presence of women on boards prompts more robust monitoring and oversight behaviours (Romero, Rodrigues, & Craig, 2017).

The estimated coefficients for firm profitability, firm size, and firm leverage are negative, suggesting that less profitable, smaller, and low leveraged listed companies are associated with higher levels of ICD. The coefficients of firm growth and listing age are positive, suggesting that high growth and listing age are associated with higher levels of ICD. Further, firm leverage shows a significant and negative relationship with the ICD.

V. Conclusion, Limitations and Future Research

Conclusion

The aim of this empirical study is two-fold. First, the study focused on investigating the type and level of ICD in the listed companies in Sri Lanka. It was found that human capital is the most disclosed ICD category. Compared to external capital disclosed in the study of Abeysekera and Guthrie (2005), the

level of human capital disclosure in this study has improved. This could be attributed to the dependency on labour in Sri Lanka.

Further, Sri Lanka's attempt to transform its economy into a knowledge-based economy places greater importance on human assets than other assets pertaining to intellectual capital. This may have increased human capital disclosure from 2015 to 2019. The second most reported type of capital is structural capital. This might be due to the technological advances of the country as well as in the global environment. Over the years, the governments in Sri Lanka had proposed several initiatives to drive the economy towards a technology-driven economy. This includes identifying technology as a major thrust area to incentivize technology-based industries through the Board of Investment (Abeysekera & Guthrie, 2005). Such developments may have encouraged firms to report more structural capital followed by research and development, innovation, and technology. Relational capital had the lowest level of disclosure among the ICD categories. This could be credited to maturing markets. Abeysekera and Guthrie (2005) reported that brand building was the most reported subcategory within relational capital. Since their study, customers in Sri Lanka may have become more knowledgeable and are aware of brands. Thus, companies must focus less on relational capital and focus more on the other aspects of ICD.

The overall ICD level in Sri Lanka is (63.19%) is lower than a study conducted in Malaysia (72.67%) (see Taliyan & Jusop, 2011). The higher level of ICD in the Malaysian context as reported by Taliyan and Jusop (2011) might be the result of measures taken to improve standards of reporting and disclosure by the government of Malaysia. The Malaysian Code on Corporate Governance (MCCG) is a significant milestone in corporate governance reforms in Malaysia. It has provided the guidelines, principles, and best practices emphasising transparency, accountability, internal control, and board composition. However, in the context of Kuwait, Alfraih (2018) found the ICD level was 28%. The low level of ICD in Kuwait may be due to corporate governance systems in Kuwait are behind those of the developed economies. Al-Saidi (2010) examined Kuwait listed firms and found that the capital market is less liquid, and the trading volume is lower and dominated by a few large shareholders. Al-Saidi (2010) also documented fragile transparency and disclosure in Kuwait's listed firms. Moreover, it has been claimed that there is no corporate governance code and companies' legislation in the Kuwait Stock Exchange (KSE) (Al-Saidi & Al-Shammari, 2014).

The second aim of this study was to determine the impact of corporate governance on ICD. Panel data regression analysis revealed that role duality has a significant and positive effect on ICD. Accordingly, it can be stated that ICD increased in the listed firms when the CEO and chairperson positions were separated. From an agency theory point of view, an independent board may enhance monitoring and is crucial in limiting managerial entrenchment (Alfraih, 2018). Moreover, separating the positions of CEO and chairperson in an entity will increase the company's transparency. The regression results also reveal that firm leverage has a significant and negative impact on ICD. This suggests that having a lower debt capital structure will lead to an increase in intellectual capital disclosures. This might be because traditional firms are more likely to keep a higher debt structure in their companies while keeping a lower proportion of equity. The average age of listed firms in the sample is 31. Therefore, it can be ascertained that most of the firms in the sample are traditional firms that may tend to keep a low debt structure.

This paper contributes to the discourse on the corporate governance-ICD link in developing economies. Moreover, this study attempts to carry forward the work of Puwanenthiran (2008), Puwanenthiran et al. (2019), and Abeysekara and Guthrie (2004, 2005) in the

Sri Lankan context. Empirical evidence from this suggest there is only partial evidence to support the notion that board characteristics affect ICD in Sri Lanka. A minimalist regulation on corporate governance in the form of listing rules and the absence of a mandatory disclosure regime may have contributed to a weak association between corporate governance and ICD in Sri Lanka. However, Sri Lanka has been embracing integrated reporting in recent times and the national initiatives in the form of integrated reporting council and the annual report awards which recognizes discretionary practices and disclosures may improve voluntary corporate disclosures in Sri Lanka in the future. Further, the role of corporate governance as well as the role of corporate disclosures, in smaller island nations like Sri Lanka with fragile financial systems is warranted.

Limitations and Future Research

ICD is a relatively new concept to Sri Lankan firms, and none of the companies in the sample has comprehensively reported about the concept. Thus, arriving at an overall conclusion about the level of ICD or the impact of macro and micro-level determinants on ICD in the case of Sri Lanka is premature. More importantly, we have excluded listed companies representing the financial services industry from the sample. Further, this study used an unweighted index to measure ICD and did not examine the quality of ICD. A useful avenue for future research would be to investigate the quality of ICD and its relationship with a broader set of corporate governance attributes to include cross-directorship, interlocks, director qualifications, or tenure. Further, comparing ICD in different industries is another avenue for future research. More importantly, comparative studies that examine ICD in developing economies are another pathway for future researchers to understand the progress of ICD in developing countries (Abeysekera, 2008; Taliyang & Jusop, 2011; Abeysekera & Guthrie, 2004; Alfraih, 2018).

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