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Role of Firm and Corporate Governance Attributes in The Relationship Between Intellectual Capital Disclosure and Firm Value

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Abstract

This study examines the moderating role of firm-specific and corporate governance attributes in the relationship between intellectual capital disclosure (ICD) and firm value. A content analysis approach is employed to measure ICD, and moderated regression analysis is used to test the proposed relationships. The findings indicate that both corporate governance and firm attributes significantly influence the relationship between ICD and firm value. From a theoretical perspective, the study contributes to understanding how governance mechanisms and firm characteristics shape the effectiveness of ICD. Practically, the findings provide insights for managers and investors regarding the importance of disclosure practices in enhancing firm value. The study is limited to annual reports as the primary source of ICD measurement, excluding other communication channels. Future research may consider additional disclosure platforms. To the best of our knowledge, this study is among the first to empirically examine the moderating role of both corporate governance and firm attributes in the ICD– firm value relationship

Keywords: *Intellectual Capital Disclosure (ICD); Firm Value; Corporate Governance;*

1 INTRODUCTION

Intellectual Capital (IC) has become increasingly important in our knowledge-intensive era, marking a shift from traditional approaches. Its role in improving Firm Value (FV) has gained increasing attention as researchers recognize its significance. (Barth & Clinch, 1998; Petty & Guthrie, 2000; Mondal & Ghosh, 2020). Research has empirically demonstrated a widening gap between market value and book value (Lev, 2001; Chen et al., 2005; Hulten & Hao, 2008; Inkinen, 2015). Numerous studies suggest that this disparity is partly due to traditional reporting's inability to incorporate IC information (Petty & Guthrie, 2000).

Recognizing its importance, prior literature has examined Intellectual Capital Disclosure (ICD). For instance, by using the support of signaling theory, the researchers argue that ICD can reduce information asymmetry(Anifowose et al., 2016); subsequently, it can reduce the cost of capital(Mondal, 2021). Further, prior literature states that ICD can improve the firm reputation as well as the morale of the employee. As the benefits of ICD, Petty and Guthrie, (2000); Graaf, (2013) state that ICD can enhance the market efficiency and lead to more informed investment decisions. In a study, Madhani (2015) also states that today's managers are aware of the significance of well-prepared and presented corporate reports. Companies that reveal IC information more frequently and substantially can gain a competitive advantage over their competitors, leading to improved corporate performance (Mondal & Ghosh, 2020). Furthermore, by reporting IC, companies can enjoy the benefits, such as improved stakeholder trustworthiness, mobilize market liquidity, improve reputation, enhance operational efficiency, employee motivation, morale, and resource allocation (Mondal & Ghosh, 2020).

Since IC is important due to the transition from traditional to knowledge intensive economy, disclosing IC information also is considering as important. Thus, the recent studies, by collecting

empirical evidence, keen to understand the value relevance of IC information (Alfraih, 2017; Mishari M. Alfraih, 2018; Ousama et al., 2019; Salvi et al., 2020; Vafaei et al., 2011). The value relevance literature states value relevance as investors will fine-tune their reaction if the accounting information is valuable, leading to quickly changing stock prices (Kothari, 2001). After the transmission from a traditional economy to a knowledge-intensive, a concern has turned up in the value-relevance studies, with restricted proof, telling that the value relevance of accounting information has reduced since the companies possess an increasing amount of IC, which is not disclosing adequately (Bozzolan et al., 2003; Vafaei et al., 2011). Considering the above arguments, it is clear that the emerging of "new economy" consists of companies and industries with more knowledge intensity having complex intangibles that are difficult to account for; consequently deteriorating the significance of accounting information to investors (Barth and Clinch, 1998; Vafaei et al., 2011). Henceforth, academicians strongly demand firms to report their IC voluntarily to improve the FV and performance(Orens & Lybaert, 2009). Recent evidence from Kuwait (Mishari M. Alfraih, 2018) observes that better ICD significantly relates to corporate performance. Furthermore, (Vafaei et al., 2011) observed by using data from four continental European countries that ICD has a substantial relation with the firm's market value, which means IC information is value relevant. Thus, the relevant literature underline the importance of ICD by connecting it with FV and performance.

The studies on ICD's determinants mainly focused on two streams, namely Corporate Governance (CG) related attributes and firm specific attributes (Alfraih, 2018). CG featured as a firm's decision-making body that is responsible for defining strategic priorities and objectives in various areas, including financial result that could affect the performance of the firm (Rossi et al, 2021). Extant literature reveals that the monitoring function of CG and its awareness considerably influence the company's voluntary disclosure (Elshandidg and Neri, 2015). Managers exercise discretion in deciding whether to voluntarily disclose corporate information, such as IC. In support of this, Kothari (2000) contended that not merely accounting rules but the excellence of CG mechanisms also determine the quality of company reporting. Donnely and Mulcaly (2008) suggest that an efficient corporate mechanism could voluntarily increase company disclosure beyond what is required by legal or stock exchange requirements. Further, according to (Healy and Palepu, 2001), managers were driven to release more information on IC to minimize the cost of capital by reducing the information asymmetry among shareholders. Although research on CG and financial disclosure has been widely explored in the existing literature, there is a dearth of studies on CG and voluntary disclosure incorporating IC (Cerbioni & Parbonetti, 2007).

Concerning firm attributes and ICD, empirical research has revealed a positive association in the case of size, foreign listing, and internationality. It varies with leverage, audit firm size, and profitability (Bozzolan et al.,2006). Further, Brüggen et al. (2009) observed that industry and firm size are vital determinants of ICD with data from Australian firms. Similarly, White et al. (2007) identified firm size, age, and leverage as the key drivers of ICD, selecting biotechnology companies from Australia. Furthermore, Oliveira et al. (2006) identified ownership concentration, firm size, auditor type, listing status, and industry type as factors influencing the ICD in Portugal. Likewise, Ousama et al. (2012) identified that firm size, profitability, and industry categorization affect ICD using data from Malaysian listed companies. In addition, using evidence from Australian companies, Whiting and Woodcock (2011) found that companies in high-tech or knowledge-intensive industries and those audited by Big Four have extensive ICD. Alcaniz et al. (2015) examined ICD in prospectuses for initial public offerings (IPOs) and corporate characteristics in Spain. They identified that firms disclosing higher IC information are larger, high-tech companies with less concentration of ownership. Recent studies that explored the connection between ICD and its determinants also observed mixed results. Collecting evidence from Canadian firms, Ghorbel and Hela (2016) reveals that managerial ownership, audit committee, and industry are essential

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determinants associated with voluntary reporting of IC in the prospectus. By collecting data from French listed companies, Kateb (2014) identifies that ownership, size, and leverage are the determinants of the voluntary disclosure of IC. The study (Kamath, 2017) analyzed the determinants of ICD by collecting evidence from the top 200 Indian companies; the result reveals that market capitalization, ownership, and age determine IC reporting. According to a recent study (Nicol, Aversano, Sannino, & Tartaglia Polcini, 2020), the size and independence of the board of directors positively impact both the extent and type of ICD, while profitability has a positive impact only on the extent of online ICD. Based on the evidence from 32 high-tech firms, Rep (2019) found that only business size impacts voluntary sharing of IC information.

The connection between ICD and FV, though, there have handful of efforts that examined the impact of ICD on FV and identified that ICD and FV are favorably connected (Ousama et al., 2019). But the most of the studies were carried out in a developed country setting. Very few efforts were carried out in the developing country setting. But, In India, is a country where which more dependent on human capital, as best of our knowledge, no studies are carried out that examines the relationship between ICD and FV. Further, though firms' attributes and CG attributes impact on ICD immensely studied; and firms' attributes and CG attributes and FV also intensively studied; very few studies carried out to examine the moderating role of CG's attributes and firm's attributes in the relationship between ICD and FV. As a consequence, the integration between CG and firm attributes and ICD strategies is a new empirical research strand that tries to connect the strategies of firm ICD to firms' market value. Hence, this study is a comprehensive attempt to examine the moderating role of different attributes related to CG and firm-specific, in the relationship between ICD and FV.

2 REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

This section reviews prior studies and develops hypotheses on the relationship between CG (CG) attributes, Intellectual Capital disclosure(ICD), and FV.

2.1.1 2.1 CG Attributes, Intellectual Capital Disclosure, and FV

2.1.1.1 Board Size

Board size affects monitoring efficiency and decision-making. While larger boards may enhance oversight, they can also create coordination issues (Lipton & Lorsch, 1992). Prior studies show mixed results, with several reporting a positive relationship between board size and ICD (Li et al. (2008; Hidalgo et al., 2011; Haji & Ghazali, 2013), while others find negative associations (Cerbioni & Parbonetti, 2007). Evidence on FV is also inconclusive (Jensen, 1993; Brick et al., 2006).

H1: Board size moderates the relationship between ICD and FV.

2.1.1.2 CEO Duality

CEO duality may weaken governance by reducing checks and balances (Cerbioni & Parbonetti, 2007), though it can enhance decision speed (Brickley et al., 1997). Empirical findings are mixed, with some studies reporting a negative impact on ICD and performance (Rodrigues et al., 2016; Klein, 2002), while others find no significant relationship (Li et al., 2008).

H2: CEO duality moderates the relationship between ICD and FV.

2.1.1.3 Board Independence

Independent directors enhance monitoring and protect shareholder interests (Fama & Jensen, 1983). Most studies find a positive relationship between board independence and ICD (Li et al., 2008; Haji & Ghazali, 2013), though mixed evidence exists (Rodrigues et al., 2016; Hidalgo et al., 2011). Independent boards are also linked to improved firm performance (Adams et al., 2010).

H3: Board independence moderates the relationship between ICD and FV.

2.1.1.4 Board Meetings (Board Activity)

Board activity, measured by meeting frequency, reflects monitoring effectiveness. Frequent meetings are associated with better disclosure and performance (Allegrini & Greco, 2013; Vitolla et al., 2020), although some studies report insignificant effects (Alhazaimeh et al., 2014).

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H4: Board activity moderates the relationship between ICD and FV.

2.1.1.5 Board Diversity (Women on Board)

Gender diversity improves monitoring, transparency, and decision-making quality. Studies show that female representation on boards positively influences ICD and firm performance (Tejedo-Romero et al., 2017; Adams & Ferreira, 2009).

H5: Board diversity moderates the relationship between ICD and FV.

2.1.1.6 Firm Attributes, ICD, and FV

This section reviews prior studies and develops hypotheses on the relationship between firm-specific attributes, Intellectual Capital disclosure(ICD), and FV.

2.1.1.7 Profitability

Profitable firms are more likely to disclose information to signal strength and reduce undervaluation (Oliveira et al., 2006). Empirical studies confirm a positive association between profitability, ICD, and FV (Badrul et al., 2015; Li et al., 2008).

H6: Profitability moderates the relationship between ICD and FV.

2.1.1.8 Firm Size

Larger firms tend to disclose more IC information due to greater visibility and stakeholder pressure (García-Meca & Martínez, 2005; Haji & Ghazali, 2013). Evidence consistently supports a positive relationship between firm size and disclosure (Brüggen et al., 2009; Nicolò et al., 2020).

H7: Firm size moderates the relationship between ICD and FV.

2.1.1.9 Firm Age

Firm age reflects experience and stability. Younger firms may rely more on non-financial disclosures, while older firms benefit from established relationships (Bukh et al., 2005; Amir & Lev, 1996). Evidence remains inconclusive.

H8: Firm age moderates the relationship between ICD and FV.

2.1.1.10 Ownership Concentration

Ownership structure influences disclosure incentives. Dispersed ownership encourages transparency to reduce agency costs (Fama & Jensen, 1983; Li et al., 2008), while concentrated ownership may reduce disclosure and negatively affect FV (de Miguel et al., 2004).

H9: Ownership concentration moderates the relationship between ICD and FV.

2.1.1.11 Industry

Industry type affects disclosure practices. High-profile industries tend to disclose more IC information due to greater public scrutiny and competition (Bozzolan et al., 2003; Martin et al., 2018) .

H10: Industry type moderates the relationship between ICD and FV.

3 CONCEPTUAL MODEL

Following figure represent the conceptual model of this study. This study examines the moderating role of various CG and firm attributes in the relationship between ICD and FV

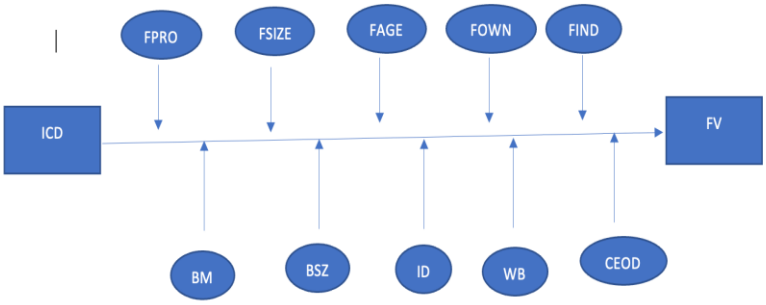

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Figure 1: Conceptual model of the study

4 METHODOLOGY

This study examines the role of firm attributes and CG attributes as a moderator in the relationship between FV and ICD. According to Olson, Parayitam, & Bao (2007), a moderating variable can be defined as a factor or process that changes the impact of the independent variable on the dependent variable. The effect may vary in terms of strength or direction. Thus, this study uses moderated regression analysis. The Moderated Regression Analysis (MRA), also known as interaction test, is a special application of multiple linear regression where the regression equation contains an interaction element, namely the multiplication of two or more independent variables. Based on the diagnostic test outcome, the study chosen between fixed or random. Hausman test was applied to choose between these two models. This study also conducted the Wald test to ensure that set of independent variables used in the study are collectively 'significant' for the model or not. Based on the previously mentioned hypotheses, this study formulates the following regression in the empirical models. The annual reports were collected from selected companies' official websites. There is an agreement in the literature that the corporate annual reports is the most reliable and primary source of communication with stakeholders (Cuozzo et al.,2017;Mishari M. Alfraih, 2018). The content analysis technique was applied to measure the ICD from 2009-10 to 2018-19, consists of ten fiscal years, consisting of 300 firm years. The data were collected from the Bloomberg database.

4.1 ICD framework and weightage

The ICD framework and weightage used in the study are discussed in the following sections in detail. The first section deals with the framework of content analysis and recording unit. Further, the weightage system applied to measure quality reporting of IC information has explained.

4.1.1 The framework of content analysis and recording unit

To ensure consistency and comparability in this study, a well-established framework developed by Li et al. (2008) was adopted. This framework has been widely applied in research on Intellectual Capital Disclosure (ICD) across different countries, including studies by Boujelbene and Affes (2013), Rahmani et al. (2014), and Zéghal (2015). The framework proposed by Li et al. (2008) consists of 61 distinct ICD elements.

To refine the checklist and better suit the context of this study, two modifications were introduced. First, an additional element—"information on directors"—was included under the Human Capital (HC) category, increasing the total number of elements to 62. This addition was informed by the index developed by Husin et al. (2012). Second, the framework was adjusted by reclassifying "financial capital," which was originally categorized under Structural Capital (SC) in Li et al. (2008), into the Relational Capital (RC) category, in line with Husin et al. (2012). These modifications resulted in an adapted checklist, and the revised framework along with the full list of elements is presented in Appendix 1.

In the subsequent phase, content analysis was conducted using a comprehensive unit of analysis that included sentences, charts, tables, and images accompanied by related textual descriptions. The choice of this unit of analysis aligns with the methodology applied by Nicolò et al. (2020).

4.1.2 Weightage of ICD (Coding scale)

To assess the quality of IC reporting, this study employs a weightage system ranging from 0 to 3. This approach is derived from two different studies, Guthrie (2006) and Husin et al. (2012), both of which have contributed to the development of a three-point scale weightage (0-3) to evaluate the quality of ICD.

Firstly, Guthrie (2006) introduced a three-point scale weightage system where zero was assigned if no information was disclosed on a particular element, a value of one was given if the variable appeared in a discursive form, a value of two was given if the variable was expressed numerically, and a high weight of three was allocated if the item was expressed monetarily. This weightage system gained acceptance and has been adopted in

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numerous ICD studies (Haji and Ghazali, 2013; Nicolò et al., 2020).

Secondly, Husin et al. (2012) also utilized a three-point scale to assess the quality of disclosure. In their system, zero was assigned if no information was disclosed on a particular element, a value of one was given if IC information was disclosed but in an unclear and limited manner, and a value of two was allocated if the information was presented with a detailed narrative (comprising more than one sentence), indicating medium-quality reporting. A value of three was assigned if the IC information was reported using either numerical values (including both monetary and non-monetary) or visual images with narration, signifying high-quality information. Notably, Husin et al. (2012), in conjunction with Steenkamp and Hooks (2011), emphasized the importance of including visual images in ICD analysis to provide a comprehensive representation of the significance of IC.

In light of the considerations regarding weightage adoption and the various forms of ICD to capture quality, the present study proposes a unified 0–3 weightage system. This system accommodates items expressed with visual images to capture high-quality reporting, as advocated by Husin et al. (2012), while also considering items expressed monetarily and numerically, in line with Guthrie (2006). A detailed outline of the weightage system employed in this study is presented in Table 1.

Table 1 Weightage for ICD

Disclosure forms	Weight	Explanation	Source
No disclosure	0	If no disclosure of IC indicator	(Guthrie, 2006)
Unclear/obscure	1	IC indicators is discussed by means of a detailed narrative in one sentence.	(Guthrie, 2006)
Descriptive	2	IC indicator is discussed with a detailed narration (more than one sentence) by including numerical.	(Guthrie, 2006)
Very descriptive	3	IC elements have presented by giving a detailed narrative either with monetary value or by providing visual images or a combination of both.	(Guthrie,2006; Husin et al., 2012)

Source: Author compilation

4.2 Empirical model

$$Tobins'Q = \beta_1 ICD_{it} + \beta_2 BM_{it} + \beta_3 BSZ_{it} + \beta_4 ID_{it} + \beta_5 WB_{it} + \beta_6 CEOD_{it} + \beta_7 FPRO_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + \beta_{10} FOWN_{it} + \beta_{11} FIND_{it} + \varepsilon_{it}$$

Model 1

$$Tobins'Q = \beta_1 ICD_{it} + \beta_2 BM_{it} + \beta_3 BSZ_{it} + \beta_4 ID_{it} + \beta_5 WB_{it} + \beta_6 CEOD_{it} + \beta_7 FPRO_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + \beta_{10} FOWN_{it} + \beta_{11} FIND_{it} + \beta_{12} BM_{it}*ICD_{it} + \beta_{13} BSZ_{it}*ICD_{it} + \beta_{14} ID_{it}*ICD_{it} + \beta_{15} WB_{it}*ICD_{it} + \beta_{16} CEOD_{it}*ICD_{it} + \beta_{17} FPRO_{it}*ICD_{it} + \beta_{18} FSIZE_{it}*ICD_{it} + \beta_{19} FAGE_{it}*ICD_{it} + \beta_{20} FOWN_{it}*ICD_{it} + \beta_{21} FIND_{it}*ICD_{it} + \varepsilon_{it}$$

Model 2

Where:

FV_{it} = Tobin's Q value of company i at time t + 1

ICD_{it} = The ICD index score of the company i at time t;

$FPRO_{it}$= The ratio of net income to total assets of the company i at time t;

$FSIZE_{it}$= Total assets at the end of every financial year of the company i at time t;

$FLVG_{it}$= The ratio of total debt to total shareholder equity at the end of every financial year of the company i at time t;

POWN= Percentage of promoters shareholdings

t = corresponding to the period of study; and

ε_{it} = other value relevant information

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4.3 Variable details

Table 2 Variables details

Variable	Abbreviated variable name	Measurement
Dependent variable		
ICD	ICD	The ICD index score;
CG attributes		
Board size	BSZ	The total number of members in the board of directors
Board meeting	BM	The total frequency of board of directors' meetings held in the year
CEO duality	CEOD	The binary variable that equals 1 if the CEO of a company is also the chairman of the board; otherwise, 0.
Board independence	ID	Percentage of total independent directors on the board
Women on board	WB	Percentage of women directors on the board
Audit committee meeting	ACM	The number of audit committee meetings conducted during the year.
Audit committee size	ACSZ	The number of members in the audit committee during the year
Foreign ownership	FOWN	Percentage of foreign capital in the company
Firm's attributes		
Promoters' ownership	POWN	Percentage of shareholding by promoters of the company
Profitability	FPRO	The ratio of net income to total assets
Company size	FSIZE	Total assets at the end of every financial year
Firm age	FAGE	No of years from the incorporation
Industry	FIND	The binary variable equals 1 for companies that include the high-profile category and 0 for the low-profile category.

5 RESULT AND DISCUSSION

This section deal with the results of the study and its discussion. First, descriptive analysis results are explained, followed by correlation results between the variables used in the study. Further, moderated regression results and its discussion provided.

5.1 Descriptive analysis

Table 3 - Descriptive statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
ICD	0.36	0.365	0.607	0.145	0.101
HCD	0.27	0.275	0.565	0.058	0.093
SCD	0.39	0.372	0.745	0.098	0.134
RCD	0.43	0.424	0.742	0.136	0.127
BM	7.78	7	20	4	2.924
BSZ	11.93	12	22	6	2.815
CEOD	0.195	0	1	0	0.396
ID	54.27	53.85	81.82	10	10.801
WB	9.48	9.091	33.33	0	7.242
ACM	7.20	7	18	4	2.64
ACSZ	4.22	4	8	2	0.98
FOWN	28.26	24.44	85.39	0	17.48
POWN	40.57	45.50	84.5	0	23.31
FPRO	9.732	5.34	42.86	-9.029	9.70
FLVG	122.67	107.52	607.83	0	133.56
FSIZE	5.97	6.039	7.59	4.11	0.6542
FIND	0.564	1	1	0	0.4967

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Descriptive statistics for dependent, independent, and control variables are shown in Table III. Mean ICD is 35.6, ranging from 60.7-14.5. Mean independence of the board is 54.27 and shows a large range of 10.0 to 81.82 based on the selected samples. Mean board size of the selected samples is all-around 11.93. Mean of the percentage of women in the board is 9.48. Among the companies chosen least companies have CEO duality. Mean of audit committee meeting is 7.20 with a range of 4 to 18. Mean of audit committee size is 4.21. Foreign ownership shows a mean of 28.25 percentage in the capital. While, promoter's ownership shows a mean of 40.56, with a range of 45.50 to 84.5. About firm's attributes, the firm profitability, measured by ROA ranged from -9.02 to 42.85. Mean leverage is 122.67 and showing a large range from 0 to 607.83. The size of the company is calculated by using a natural logarithm transformation of total assets. The industry is categorized as high-profile and low-profile companies.

Table 4 Correlation coefficient

Probability	ICD	BM	BSZ	CEOD	ID	WB	FOWN	FPRO	FSIZE	FAGE	FIND
ICD	1										
BM	0.425***	1									
BSZ	0.075	0.25***	1								
CEOD	0.313***	0.353***	0.333***	1							
ID	-0.213***	-0.373***	-0.174***	-0.234***	1						
WB	0.132**	0.107*	-0.122**	-0.145**	0.118**	1					
FOWN	-0.018	0.15***	-0.1*	0.158***	-0.319***	-0.047	1				
FPRO	-0.243***	-0.257***	0.021	-0.035	0.052	-0.141**	0.264***	1			
FSIZE	0.392***	0.422***	0.13**	0.15***	-0.127**	0.259***	-0.234***	-0.68***	1		
FAGE	0.287***	0.129**	0.117**	0.094	-0.124**	-0.123**	-0.184***	-0.033	0.07	1	
FIND	0.188***	0.032	0.157***	0.398***	-0.116**	0.07	0.366***	0.45***	-0.321***	0.015	1

Notes: *, **, *** Significant at ≤ 0.10, 0.05 and 0.01 levels respectively

Bivariate correlations

Table IV illustrates the Pearson correlation coefficients for the dependent, independent, and control variables. As highest correlation, ICD with its three categories namely, human, structural and relational capital show a correlation of (r = 0.791, 0.878, 0.907, $p < 0.01$), respectively. Followed by relational capital and structural capital (r = 0.729, $p < 0.01$), between firm size (FSIZE) and profitability (FPRO) shows a correlation of (r = 0.68, $p < 0.01$). From the above table, it is clear that there is no high correlation between any variable. As a result, multicollinearity is unlikely to be a severe issue (Gujarati, 2004). In addition, the study examined the VIF and found to be well within acceptable limits.

5.2 **Regression analysis result**

Table 5 Moderated Regression Analysis- Main effect model

	Model I	P value
ICD	2.787	0.015
BM	-0.035	0.307
BSZ	-0.018	0.610
ID	0.014	0.123
WB	0.012	0.316
CEOD	1.431***	0.000

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FPRO	0.057***	0.000
FSIZE	-0.032	0.913
FAGE	-0.199	0.840
FOWN	-0.021**	0.049
FIND	0.996	0.244
C	1.355	0.528
Adj. $R^{2\,(\%)}$	14.83	
F stat	5.701***	0.0000
Hausman Test	12.08616	0.2793
N	300	

In the Table 5, shows the result of the model I that examines direct relationship of firm and CG attributes on FV. The board activity (board meeting) shows a negative coefficient but not significant (-0.035).

Board size also shows a negative coefficient but not significant (-0.018). Further, the independence of the board shows a positive coefficient of (0.014) with p value of 0.123. This result implies that board with more independent directors would enable a better monitoring and improves the transparency in the company affairs, consequently it improves the FV. In addition, board diversity (women on boards) shows a positive (0.012) relation as expected but not statistically significant (P value 0.316). This result reveals that diversity of board (presence of women directors in the board) improves the efficiency of the board leads to better firm performance. Further, CEO duality shows a significant positive (1.431, P value- 0.000) relationship with FV.

On the other hand, among the firm related attributes, profitability shows a significant positive relationship with FV (0.057, P value- 0.000). Further, firm age (-0.021, P value-0.049) and firm size (-0.032, P value-0.913) show a negative coefficient but not statistically significant. Furthermore, ownership concentration which proxied by promoter's shareholding (--0.199, P value- 0.840) shows a significant negative relationship with FV. This result implies that the companies having more ownership concentration will have a less value. In addition, the result reveals that high-profile industry and low-profile industry (0.996, P value-0.244) differences are not making much impact on the FV.

The model with firm attributes and CG attributes are capable of explaining 14.83 percentage of variation in the FV (F value 5.701) significant at 1% level.

Table 6 Moderated Regression Analysis -Full model

	Coefficient	**P value**		**Coefficient**	**P value**
ICD	41.410	0.007	BM*ICD	-0.340	0.307
BM	0.120	0.377	BSZ*ICD	0.694	0.031
BSZ	-0.278	0.035	ID*ICD	0.156	0.080
ID	0.074	0.040	WB*ICD	0.052	0.653
WB	-0.002	0.957	CEOD*ICD	-1.196	0.630
CEOD	1.987	0.041	FPRO*ICD	0.012	0.913
FPRO	0.047	0.229	FSIZE*ICD	-5.570	0.004
FSIZE	1.730	0.004	FAGE*ICD	-1.258	0.742
FAGE	0.512	0.727	FOWN*ICD	-0.087	0.083
FOWN	0.014	0.517	FIND*ICD	4.508	0.062
FIND	-0.642	0.650			
C	-11.858	0.029			
Adj. $R^{2\,(\%)}$	20.92				
F stat	4.7413	0.0000			
Hausman Test	9.469154	0.9768			
N	300				

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While coming to the Model 2, where we have used moderated regression analysis, the result in the Table 6 says that board activity (board meeting) does not moderate the relationship between ICD and FV (-0.340, p value 0.307). Thus, the H1 is rejected. Further, board size shows a strong negative relationship with FV (-0.278, p value 0.035). This result indicates that when the board size increased in size due to the difference in opinion and agency problem to carry out decisions and policies. It may lead to the delays in various decisions, consequently performance of the firm will get affected. But, the moderating variable of board size with ICD shows a positive relationship with FV (0.694, p value 0.031). This result implies that, board size moderates the relationship between ICD and FV. In other words, adding a member in the board will negatively change the relation between ICD and FV. Hence, the results show that additional member to the board will trigger an increase in the FV as ICD get higher.

Further, board independence showed a positive relationship with FV (0.074, p value0.040). while coming to the moderating variable with ICD, it shows a positive relationship with the FV (0.156, p value 0.080). this result indicates that more presence of independence directors in the board leads to unbiased monitoring of firm performance and the willingness to more transparency through extensive ICD will lead to improvement in the FV. Further, the results show that board diversity (women on board) does not moderate the relationship between ICD and FV (0.052, p value 0.653). Furthermore, the result reveals that CEO duality does not show a moderating role in the relationship between ICD and FV (-1.196, p value 0.630). As whole, the above result reveals that CG attributes (board independence and board size) moderate the relationship between ICD and FV. The study by m rz

While coming to the firm related attributes, the results show that, profitability of the business does not show a moderating role in the relationship between ICD and FV (0.012, p value 0.913). This result also matches up with the findings of Rahmantari et al. (2019), where they identified that profitability can't moderate the relationship between ICD and FV. Further, firm size shows a negative moderating role in the relationship between ICD and FV (-5.570, p value 0.004). This result implies that being a bigger firm will trigger increase in the FV as they disclose low IC information. furthermore, the results sho that firm age does not moderate the relationship between ICD and FV (-1.258, p value 0.742). This result is similar to the findings of (Abdi et al., 2022) where they identified that Firm size act as a moderator in the relationship between ESG disclosure and firm performance but not firm age

Further, ownership concentration shows an insignificant positive relationship between FV (0.014, 0.517) but not significant. But, indifferently, the interaction term between ownership concentration and ICD shows negatively significant relationship (-0.087, p value 0.083). the result reveals that high ownership concentration will trigger a reduction in the FV, as ICD get higher. A negative and significant moderation effect of managerial ownership is concluded between independent and dependent variables. The negative relationship shows that managerial ownership has followed the entrenchment effect instead of interest-alignment effect as concluded by (Chen & Chuang, 2009; Noradiva et al., 2016). Likewise, the result reveals that the industry difference as high-profile and low-profile makes significantly moderate the relationship between ICD and FV. This result exhibit that high profile companies will trigger an increase in the FV, as ICD get higher. (4.508, p value0.062).

6 DISCUSSION

In the first model, where the study has examined the connection between CG attributes and firm attributes on FV. In addition to the significant positive impact of ICD, the study has observed that board independence (not statistically significant) and CEO duality has a positive connection with FV. On the other hand, board meeting, board size, board diversity are showing mixed connection with FV. This result is similar to the with the findings of Rouf & M Abdur, (2012), where they identified that board independence, board independence and CEO duality has significant impact on FV. in the case of firm attributes, out of firm size, firm age and industry and ownership concentration, ownership concentration alone has observed a significant connection with FV.

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In the second model, this study examines the moderating role of different firm attributes and CG attributes in the relationship between ICD and FV. The study identified that among the CG attributes, board independence and board size significantly moderate the relationship of ICD with FV. More specifically, the study result on board independence reveals that more presence of independence directors in the board leads to unbiased monitoring of firm performance and the willingness to more transparency through extensive ICD will lead to improvement in the FV. Further, the result on board size reveals that adding a member in the board will adversely affect the connection between ICD and FV. This result is in line with the findings of (Hamdan et al., 2017) where they by collecting evidence from listed companies in Saudi stock exchange identifies that CG is positively significant as a moderator in the relationship between IC efficiency and firms market performance measured by using Tobin's Q value. Further, while coming to the firm attributes, significant negative moderation effect of ownership concentration is concluded between independent and dependent variables. Further, the study shows that High-profile industry can strengthen the effect of ICD on FV. This result shows almost similar pattern to the findings of (Hardiyansah and Agustini,2020) where they identified that high-profile industry moderates the relationship between carbon emission disclosure and FV. This result indicate that high-profile companies are more likely to improve their disclosure of value relevant IC information that increases the FV as consequences of high pressure and attention from stakeholders.

The discussion of result of moderated regression analysis support the opinion of (Cerbioni & Parbonetti, 2007), where they stated that the relationship between CG and disclosure is complex and multifaceted.

7 CONCLUSION

This study examines the role of firm attributes and CG attributes as a moderator in the relationship between FV and ICD. Note that this study is the first kind of study that assess the moderating role of CG and firm attributes in the relationship between ICD and FV.

This study uses moderated regression analysis to examine the CG and firm-specific attributers' role as the moderator in the relationship between ICD and FV. Thus, this study took steps in bridging the research gap by investigating theoretically and empirically the moderating role of CG and firm attributes in the link between ICD and FV.

The results suggest that governance quality and firm characteristics play a crucial role in determining how effectively firms can translate ICD into higher market value. From a theoretical perspective, the study contributes to the growing literature on ICD by integrating governance and firm-level factors into the value relevance framework. In doing so, the research extends the understanding of the determinants of FV in knowledge-intensive environments.

8 IMPLICATIONS AND LIMITATIONS

This study provides both theoretical and practical implications. As theoretically, this study provides empirical evidence for both agency theory and signaling theory as the study found that CG attributes significantly moderate the connection between ICD and FV. This adds depth to our understanding of how governance mechanisms interact with disclosure practices. Specifically, Companies should focus on having a higher proportion of independent directors to ensure unbiased monitoring and enhance transparency through ICD. Further, management should be cautious about expanding board size, as larger boards may negatively impact the firm's ability to leverage ICD effectively. On the other hand, among the firm attributes, the finding that high-profile industries moderate ICD's impact on FV contributes to understanding the industry-specific pressures influencing disclosure quality. Hence, Firms in high-profile industries should take advantage of the pressure to enhance ICD, which can lead to an increase in FV.

Further, the result of the study could be used by all stakeholders, particularly investors to make right decision since this study provide the factors that influence the relationship of ICD and FV. Also, since researchers and academicians in the field have paid comparatively little consideration to investigate

CG and firm attributes as moderators, this study attempted to fill this gap by providing empirical evidence. Hence, our findings can light further research on this area (Abdi et al., 2022). Further, this paper findings enable the user of information to better assess the value of the firm by understanding the effect of interaction between ICD and different CG and firm related attributes on FV.

Like any other study examining the empirical evidence of impact of ICD, this study possesses few methodological limitations. First, the study only took annual reports into consideration to understand the companies' ICD. Future research can be extended by analysing the disclosure of IC information from different sources of companies other than annual reports, including the company's website, prospectus, etc. Further, the study's sample is restricted to a particular BSE Sensex company, which may limit generalizability. Future research should consider more diverse samples across different countries or sectors to verify these findings. Future research could explore other potential dependent variable which measure the performance of the firms, like, information asymmetry, firm sustainability, and other firm performance matrix. Apart from these drawbacks, this study gives vital input to the discussion on the moderating role CG and firm attributes on the relationship between ICD and FV.

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Appendix I-ICD framework

Human capital	**Structural capital**	**Relational capital**
Number of employees	Intellectual property	Customers
Employee age	Process	Market presence
Employee diversity	Management philosophy	Customer relationships
Employee equality	Corporate culture	Customer acquisition
Employee relationship	Organization flexibility	Customer retention
Employee education	Organization structure	Customer training and education
Skills/know-how	Organization learning	Customer involvement
Employee work-related competences	Research & development (R&D)	Company Image/ reputation
Employee work-related knowledge	Innovation	Company awards
Employee attitudes/ behaviour	Technology	Public relation
Employee commitments	Customer support function	Diffusion & networking
Employee motivation	Knowledge-based infrastructure	Brands
Employee productivity	Quality management & improvement	Distribution channels
Employee training	Accreditations (certificate)	Relationship with suppliers
Vocational qualifications	Overall infrastructure/ capability	Business collaboration
Employee development	Networking	Business agreements
Employee flexibility	Distribution network	Favourite contract
Entrepreneurial spirit		Research collaboration
Employee capabilities		Marketing
Employee teamwork		Relationship with stakeholders
Employee involvement with community		Market leadership
Other employee features		Financial dealings and relation
Directors related measurement		

Updated Li *et al(2008)* framework by considering the study Husin *et al*(2012)