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The Mediating Role Of Intellectual Capital Disclosure Between Corporate Governance Attributes And Firm Value

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Abstract

Purpose- The major goal of this research is to look at how Intellectual Capital disclosure influences as a mediator in the relationship between Corporate Governance and Firm Value. The study was carried out by considering the top 30 companies based on their market capitalization for the period of 2010 to 2019. Further, examines the mediator role of Intellectual Capital disclosure among Corporate Governance attributes and Firm Value by using PLS-SEM. The study result reveals that Intellectual Capital disclosure partially mediates in the relationship between Corporate Governance and Firm Value. In addition, the results show that IC disclosure and Firm Value, Intellectual Capital disclosure and corporate governance, and Corporate Governance and Firm Value relationships are significant as expected. The originality of this research is that, though, many studies individually examined Intellectual Capital disclosure with corporate governance; Corporate Governance with Firm Value; and Intellectual Capital disclosure with Firm Value. Best of our knowledge, there has no studies that examine the linkage role of disclosure of Intellectual Capital information in the relationship between Corporate Governance and Firm Value.

Key words: Corporate governance, Intellectual Capital disclosure, Firm Value, Mediation

1. Introduction

The global economy has paved the way for a radical shift by the transition to a knowledge-based from a traditional economy, where intangible assets play much more role than physical assets in the value creation (Appuhami and Bhuyan, 2015; Jain et al,2017). Intangible assets, broadly known as IC, giving a competitive edge in the market as strategic resources for the business organization (Jordão, 2017). This transition leads to being considered IC (Intellectual capital) as more vital for the investors and other stakeholders to reach into their right decision. Supporting to this, in a study (Bismuth and Tojo, 2008) argue that investors decision can be improved by providing adequate and appropriate information about intellectual capital. Further, the reporting of IC information can narrow down the information gap that may exists between shareholders and managers (Widiatmoko et al.,2020). Further, in a report of the World Bank (2005), state that IC can transform a national company into a corporate powerhouse, thus present days IC considering as crucial strategic intangible assets. So, present era where the knowledge and knowledge assets are considering as more crucial, to feed the information on IC of a firm to its users is very much important. Even by knowing investors are interested on IC information, many firms have yet to respond on it (Mishari M. Alfraih, 2018).

Even though there is a lack of parity on IC definition, most of the earlier studies define IC as the disparity between book value and market value of a firm. (Ord?oñez de Pablos, 2003; Haji and Ghazali, 2013).As agreeing on it, the researchers are identified the disparity (Chu et al., 2011), about investors perspective it is worrisome case (Hurwitz et al.,2002). A definition that has been repeatedly cited is that given by (Stewart 1997): "The IC includes knowledge, intellectual property, experience, etc. used to create wealth" (Dammak, 2015). Similarly earlier studies attempt to define IC as " non-monetary assets or resources without physical presence, such as innovation, knowledge, research and development, employee training or customer satisfaction, underlying value creation process of a firm" (Meritum, 2002;Orens & Lybaert, 2009). In addition, (Pasban & Nojedeh,2016) considering "IC as intangible asset in the form of information and knowledge resources that function to improve competitiveness and can improve company performance". Plenty of research on IC disclosure are deal inspects the CG (Corporate Governance) attributes as the determinants. In addition, prior literature examines IC disclosure's value relevance by relating with firm value (FV) and firm performance.

1.1 IC disclosure and Corporate Governance

Prior literature expresses that the monitoring function of CG and its awareness considerably impacts voluntary disclosure by the company. (Elshandidy and Neri, 2015). Further, many of studies concluded that, it is the board of directors, who manage the activities of the company, possess the discretion regarding disclosure of IC information. (Alfraih, 2018; Cerbioni & Parbonetti, 2007; Jing Li, Richard Pike, 2008). As theoretical support, (Jensen and Meckling, 1976; Williamson, 1981; Fama and Jensen, 1983) agency theory state that, the company will try to enhance its monitoring as part of governance and disclose more information voluntarily in order to reduce the agency cost. Further the empirical studies shows that, voluntary reporting and good supervision can reduce agency cost and information asymmetry (Allegrini & Greco, 2013). According to a study (Kamat, 2019), voluntary disclosures of IC boost the firm's perceived value to outside stakeholders while also requiring the board to be transparent in its management and reporting in the future. As literature evidence for this, Keenan and Aggestam (2001) theoretically argue that the there is a link between IC disclosure and CG consists of board of directors. This connection has empirically proven by (Badrul et al., 2015; Cerbioni & Parbonetti, 2007; Hidalgo et al., 2011; Jing Li, Richard Pike, 2008).

In this research, the focus has been on board dimensions of corporate governance. As per agency, the board of directors is a central factor that will help in the coordination of activities of the managers with the interests of the shareholders and restriction of the conflicts that may arise as a result of agency (Jensen and Meckling, 1976). The board being the main internal control mechanism is mandated to oversee the behaviour of the managers and ensure the protection of organizational goals (Fama and Jensen, 1983). Previous studies indicate that certain practices of the board enhance this monitoring role and improve the quality and the level of voluntary corporate disclosures. It has been empirically demonstrated that board structure and how functions affect the willingness of firms to present transparent and value-relevant information to stakeholders (Nagar et al., 2003; Ho and Wong, 2001). The board composition is especially substantial in this regard, with the board directors having direct influence on the development of disclosure policies, as well as the nature and extent of information which is contained in annual reports(Jing Li, Richard Pike, 2008). It therefore follows that the board level attributes of CG will make a significant contribution to the disclosure behaviour of firms and ultimately to the FV.

1.2 CG and Performance

Further, the literature and theory base argue that CG mechanism can be impact the firm performance and FV. Most of the literature confirm a strong positive relationship between this. In a study, Rostoker (1984) argues that effective implementation of CG can be benefited in several ways. Like, reduction of risk associated with business, increase in trading volume, consequently it can improve the FV. It can also facilitate efficient monitoring and control which prevent manipulation and fraud in the organization.

Though the linkage between intellectual capital (IC) disclosure and firm performance has been heavily studied in earlier studies, the current state of affairs indicates the increasing need to have a wider and more profound non-financial reporting (Anderson and Epstein, 1996; Global Reporting Initiative, 2006). The modern reporting systems are more focused on the necessity of companies to present complete and value-related information of the company beyond the finances. To this, most organizations have started to voluntarily disclose non-financial factors such as intellectual capital to its stakeholders in order to meet demands of more transparency and reliability (Haji and Ghazali, 2013).

This type of voluntary disclosure of IC is crucial in lessening the information asymmetry between firms and the investors and decreasing the cost of capital and increasing corporate transparency and accountability. Furthermore, the enhanced disclosure practices are linked with positive market results, including an improvement in share prices, and help to enhance trust and loyalty between the employees and other stakeholders (Mention & Bontis, 2013; Williams, 2001). Such disclosures will also affect the behaviour of the capital market by creating perception and capital market decision-making on the part of investors (White et al., 2007; Appuhami and Bhuyan, 2015). Nevertheless, identification, measuring, reporting, and management of intellectual capital are difficult processes, although the importance of the matter is increasingly acknowledged. This is depict the fact that IC disclosure in value relevant. Therefore, the identification of determinants and consequences of IC disclosure remains a highly important question that is discussed in modern corporate reporting studies.

Though, there are studies inspects the direct relationship of CGand IC disclosure (Badrul et al., 2015; Cerbioni & Parbonetti, 2007; Hidalgo et al., 2011; Jing Li, Richard Pike,2008) by considering agency theory, or further CG and FV (James, 2015) by considering resource based view theory, further, the studies focused on IC disclosure and FV (Alfraih, 2017; Mishari M. Alfraih, 2018; Orens & Lybaert, 2009; Salvi, et al., 2020b; Ousama et al., 2019) by considering signaling theory . No much empirical efforts have taken place to examine the interconnection among these three concepts, CG, IC disclosure and FV. Thus, this study was examining the linkage of IC disclosure in the connection between CG and FV by considering the three theories mentioned above. As contribution to the literature, this study provides first ever model connecting CG, IC disclosure and FV and empirically proves that IC disclosure mediates the relationship between CG and FV.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 CGand IC disclosure

2.1.1 Theories on CG and IC disclosure

CGis "a system by which companies are directed and controlled" (Cadbury Report, 1992). According to previous studies, CG has always been identified as an important predictor of IC disclosure. The agency theory is the most commonly outlined theoretical approaches to detail this connection. The agency theory assumes that there are inherent conflicts of interest between the shareholders who are principals, and the managers who are agents. Agency costs are a result of these conflicts, which are caused by information asymmetry and the conflict of interest. As a strategy to offset this kind of costs, the CG mechanisms are anticipated to oversee the behaviour of the managers and make sure that the management operates in the best interest of the owners. Good systems of governance will improve monitoring and control, thus promoting increased transparency in reporting of corporations (Osma & Guillamon-Saorin,2011). Companies that have better governance structures thus have higher chances of undertaking voluntary wide-scale disclosure, even of information regarding intellectual capital. This view proposes that the better the governance practices the more the causes of increase in the level of disclosure as well as increase in the interrelationship between corporate disclosure and the value of the firm, which supports the importance of transparency in increasing market confidence and organizational performance (Riyadh et al.,2019).

2.1.2 Prior literature on CG and IC disclosure

This section deals with the prior literature on IC disclosure and corporate in different economy settings.

CG has been recognised as a way for maximising efficiency, and it plays a crucial role in guaranteeing long-term sustainability, productivity, and profitability in order to meet the changing demands of a global environment without quotas. In the knowledge age, the main issue for corporate governors is to manage intellectual assets and corporate knowledge for the firm's benefit. Numerous efforts have taken place in the literature to examine the relationship between CG attributes and IC disclosure. Most of the result shows that CG attributes significantly influence the disclosure of IC information. Among that,(Kamat, 2019), Indian context, identified that among the CG attributes, board size, board independence and ownership pattern of a firm play a significant role in the extent of IC disclosure. Further, (Alfraih, 2018) by collecting evidence from Kuwait, study observes that CG mechanism having a strong impact on the degree of IC disclosure. In another study (Cerbioni & Parbonetti, 2007) by examining European biotechnology firms the study observe that governance determinants having a strong relationship with the quantity of voluntary disclosure of IC. This study shows evidences for agency theory by giving evidences to say that CG and voluntary disclosure of IC can be used tactically to lessen the agency conflicts.

Furthermore, (Hidalgo et al., 2011) examine how internal mechanism of CG consists of board of directors and ownership structure that impact the voluntary disclosure of intellectual capital. The result appears to verify the view that an upsurge in institutional investors shareholding has an inverse relationship on voluntary disclosure, supporting the hypothesis that excessive ownership by institutional investors may have inverse impact on strategic disclosure decision. Apart from that the result observes that an upsurge in the number of members of the board to up to 15 has a beneficial impact on disclosure of intellectual capital.

In addition, (Badrul et al., 2015) aim to fill the gap in the ICD literature by conducting an empirical investigation of the association between CG and degree of ICD of Bangladesh companies and the key result of this study advocate that there is a non-linear association between family ownership and the degree of ICD. Apart from that, the study observes that

foreign ownership, board independence and the presence of audit committee are positively related with the degree of IC disclosure. On the other hand, family duality (CEO and chairperson occupied by two different persons from same family) is negatively associated with ICD. Further, (Jing Li, Richard Pike, 2008) inspect the role of CG and the result observe a noteworthy connection with IC disclosure. Furthermore, (Tejedo-romero et al., 2017) study whether the representation of women on the boards of directors of Spanish companies is related with a rise in voluntary disclosure of IC. The study observed that gender diversity has a significant positive effect on levels of disclosure of IC information.

CG has generally been described as a tool of improving efficiency in the organization and has become crucial in the effort of achieving long term sustainability, productivity, as well as profitability in a more globalized and competitive world. One of the core issues that corporate leaders face in the knowledge-based economy is how an organization can manage intellectual capital and organizational knowledge in order to generate and maintain FV.

Much of the literature has investigated the relationship between the intellectual capital disclosure and the CG attributes. Most empirical evidence suggests that the governance mechanisms have a considerable impact on the level and quality of IC reporting. Kamat, (2019) illustrates that within Indian context, board size, independence of the board, and ownership structure are some of the key determinants of the degree of IC disclosure. Likewise, Kuwait evidence demonstrates that an increase in stronger governing machineries is linked to an increase in IC reporting (Alfraih, 2018).

A study of European biotechnology companies also verifies that factors associated to governance are closely connected with the amount of voluntary IC disclosure (Cerbioni & Parbonetti, 2007). These results support the agency theory and indicate that agency conflict between managers and shareholders can be reduced through strategic application of CG and voluntary IC reporting. Enhancing this line of thought, Hidalgo et al., (2011) investigate the interests that internal governance mechanisms, such as the board characteristic, and the ownership structure have on voluntary IC disclosure. Their findings show that the institutional ownership can have inverse connection with voluntary disclosure. Concurrently, the positive impact of an increase in the size of the board, to an optimum point, relates to the reporting of IC.

Badrul et al. (2015) examine the association between CG and IC disclosure in Bangladesh and find that the family ownership and disclosure levels have non-linear relationship. Their results also show that, the foreign ownership, independence of the board and the presence of audit committee has a positive relationship with the disclosure of the IC, but family duality i.e. key leadership positions are occupied by the same family has a negative relationship with the reporting practices. Another important relationship that is adequately pointed out by Jing Li, Richard Pike (2008)is the connection between the governance structures and the disclosure of IC, which can be achieved through board composition that influences IC reporting behaviour. More so recently Tejedo-romero et al. (2017) test Spanish firms and discover that gender diversity at the corporate board is positively related to the level of voluntary IC disclosure. This fact indicates that various boards can enhance transparency and disclosure of non-financial information.

Taken together, these pieces of research indicate that the said attributes of CG specifically the attributes pertaining to the board structure, ownership patterns, and diversity are highly pertinent in determining the disclosure practices of intellectual capital by firms in various institutional and economic environments.

So, from the above discussion, among the available literature, most of the literature are observing that CG possess a significant role in IC disclosure. Though, CG mechanism is different from one country to another(Badrul et al., 2015). Hence, the study proposes the following hypothesis

H1: CG has an effect on IC disclosure

2.2 CG and FV

2.2.1Theories on CG and FV

In the prior literature resource-based view theory (RBV) is used to connect with CG attributes with firm performance (James, 2015). According to the RBV theory, a firm's resource management is a critical aspect in determining its performance, and this may contribute to the firm's long-term competitive advantage (Wernerfelt,1984). The CG mechanism is classified as firm resources in this approach (Barney,1991; Wernerfelt,1984). Furthermore, the resource-based approach is a foundation for a firm's long-term competitive advantage that consists of valuable, tangible, and/or intangible resources at the firm's disposal, but these resources are heterogeneous in nature and not perfectly mobile without effective management (Barney et al, 1991).

Furthermore, the board's structure and composition are viewed as a source of value creation for the business from the perspective of RBV theory. RBV is related to the board's attributes in terms of private resources, which can provide a competitive edge to businesses. As a result, a good CG is seen as a valuable resource for assisting businesses in enhancing their competitive advantage, which leads to increased enterprise value (Purbawangsa et al., 2019).

2.2.2 Prior literature on CG and FV

Numerous studies have inspected the connection between CG and firm performance (Brown & Caylor, 2006; Jo & Harjoto, 2011; Muttakin & Ullah, 2012; Mollah & Farooque, 2012; Siagian et al., 2013; Rashid & Islam, 2013; James, 2015; Arora & Sharma, 2016; (Bhatt, 2017; (Bhat et al., 2018; Mardnly, 2018; Robiyanto et al., 2021). Many prior literatures identify positive connection with CG and FV. In a study (Haji,2015) observed a strong positive impact of CG on FV. A study by (Siagian et al., 2013) By collecting evidence from Indonesia the study Identify that CG is positively associated with the FV. Further, By getting evidence from Indian manufacturing companies (Arora & Sharma, 2016) observe that large boards significantly influence the performance. Furthermore, (Jam et al., 2021) empirically proved that quality of CG index has a significant connection in enhancing firm performance by analysing Asian economies. by collecting evidence from Malaysian listed companies, (Bhatt, 2017) reveal that CG significantly and positively associated with firm performance.

Further, by getting evidence from Pakishtan, (Bhat et al., 2018) found that board independence is significantly and positively influence the FV. In addition, collecting evidence from US (Brown & Caylor, 2006) identified that Governance score is having a positive impact on fim

value. Apart from this, by examining the impact of CG Bangladeshi public-listed banks (Muttakin & Ullah, 2012) stating that improved CG mechanisms are essential for all banking companies, and that this should be supported in the interests of investors and other stakeholders. Furthermore, (Jo & Harjoto, 2011) discovered that internal CG attributes has a very little effect in FV. Furthermore, (Rashid & Islam, 2013)By collecting empirical evidence from Kuala Lumpur Stock Exchange, the study observed that ownership concentration is detrimental to the value for shareholders in the developing market.

Likewise,_(Robiyanto et al., 2021)_by selecting 25 firms in the SRI-Kehati Index, the study identify that CG has a direct significant positive effect on FV. Further, by collecting evidence from Malaysian listed firms (James, 2015) Identify that internal monitoring mechanism consists of board independence and board size is not showing any influence on firm performance. By collecting evidence from Malaysian banks, (James, 2015) identify that CG mechanism has a significant influence on the bank performance. Furthermore, Sound CG practices are crucial in decreasing a company's cost of capital, establishing effective risk management initiatives, and enhancing FV, according to a World Bank Report (2016), all of which lead to enhanced firm performance.

But the literature provides inconclusive result on the connection between CG and FV. The research taken place in Botswana by (Mollah & Farooque, 2012), in Syria by (Mardnly, 2018) provide an inconclusive result about the significance impact of CG on FV. Many research, particularly in developing countries, continue to find no link between CG practices and business performance; for example, Aboagye and Otieku (2010) in Ghana, Jamali et al. (2015) in Indonesia, Shahwan (2015) in Egypt, and Arora and Sharma (2016) in India.

Empirical studies provide inconclusive information on the impact of CG characteristics on the performance of firms. A number of researches indicate that there are positive links between the market performance and the board characteristics. Indicatively, in one instance, previous research exhibit that board characteristics play a critical role in capitalization of firms in the market(Mubarak and Mousa Hamdan, 2016). Increased organizational performance has also been linked to increased board activity expressed in a number of meetings (Ghosh, 2007). Similarly, the board meetings made on a regular basis and increased board independence is claimed to make decisions more effective, which ultimately improves the overall performance of the firm (Olabisi et al. (2018).

On the other hand, other researchers record negative or minimal outcomes. There is reason to believe that the greater the number of non-executive directors, in some situations, might have a negative impact on financial performance (Wahba , 2015). Other studies go on to suggest that the board size and ownership concentration are positively correlated with performance measures including the returns on the assets, returns on the shareholders and the market-to-book ratios, but that CEO duality is only linked to the performance measures of certain performance measures (Haji and Ghazali 2013). Concurrently, various studies have pointed to the lack of a consensus in the literature regarding the governance-performance nexus with some of such studies indicating that there is an unfavorable connection between the board activity and firm performance (Ehikioya 2009; Elsayed 2007; Johl et al. 2015). These ambivalent results highlight that the connection between CG and performance of firms is more complicated than previously assumed and that the effect of governance mechanisms might be different in institutional environments and firms with a variety of features. Based on theoretical bases and

the general body of empirical evidence, the current paper is of the assumption that effective and properly designed mechanisms of CG can help to improve the performance and rate of firms. Therefore, the hypothesis is the following:
H2: CG has effect on FV.

2.3 IC disclosure and Firm Value

In this literature review section, previous studies on IC disclosure and FV is taken care of. Apart from that, the theories related on FV and IC disclosure are taken into consideration to formulate the hypothesis of the study.

2.3.1 -Theories on IC Disclosure and FV

Denoting to the earlier studies on ICD with FV, identify mainly two theories related with it. Namely, signaling theory and resource based theory(Hatane & Angeline, 2019). Signaling theory argues that company tries to improve the disclosure in the annual report on companies' activities to give a positive signal to the investors. By giving voluntary disclosure of IC, company except that it can be a positive signal for the investors, by which investor can make better assessment about the firm(Hatane & Angeline, 2019).
The resource based theory consider as a basis for the company to use and utilize the resources owned by the them optimally, so that they can improve the company value (Hatane & Angeline, 2019). According to this view, IC consists of intangible knowledge-based resources which can be used to generate wealth (Inkinen, 2015), Further, the supporters of resource-based theory state the firm performance is the outcome of how best the firms are using their tangible and intangible resources (Firer and Williams, 2003). By considering above discussed theories on FV and IC disclosure we can stretch to an expectation for a positive connection between IC disclosure and FV

2.3.2- Empirical Literature on IC Disclosure and FV

(Alfraih, 2017)observed that ICD is considerably related with FV and propose that ICD is beneficial to the key players in the market. In a different study (Hatane & Angeline, 2019) found that ICD and firms value are showing a negative relationship. (Orens & Lybaert, 2009) Observe that IC disclosure can improve the value of firm by analyzing the evidences from four different countries. Namely Belgium, France, Germany and Netherlands. A study by (Vafaei et al., 2011) observed that ICD have a positive impact on market value. In another study (Mishari M. Alfraih, 2018)observed empirical evidences for influences of IC information on in the financial market. Apart from this, the studies from Indian context found a significant positive correlation with IC disclosure and market capitalization (Mudliar, 2016; Santi Gopal Maji, 2018)

Many previous studies that investigate IC components' effects toward firm performance and value from different country settings as well as industries. The majority of studies discussed above shows that there is positive influence of IC disclosure towards corporate value and performance. Henceforth, this paper proposes the following hypothesis based on the literature and the theories discussed before.

H3-IC disclosure has an impact on FV

2.4 Mediating role of IC disclosure in the relationship between CG and FV

There is a significant literature on intellectual capital (IC) disclosure and FV strong association. The evidence based on study conducted in various settings proves that communication of

information related to IC boosts market and accounting-based performance (Mishari M. Alfraih, 2018). Research has been done in various locations including Europe, Asia and Middle East and the findings are consistent in indicating that companies that offer more IC information would have a higher valuation and better financial performance. These results indicate that IC disclosure is very important in the construction of the investor perceptions and alleviation of information asymmetry (Alfraih, 2017; Orens et al., 2009; Salvi et al., 2020; Vafaei et al., 2011).

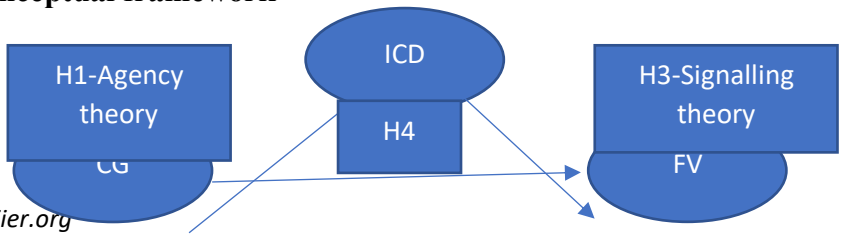
Meanwhile, the previous studies determine that CG attributes play a critical role in determining the level of IC disclosure. The types of board structure, ownership, and governance issues have been found to influence the transparency and the voluntary reporting of intellectual assets by firms(Alfraih, 2018; Badrul et al., 2015; Cerbioni & Parbonetti, 2007; Hidalgo et al., 2011; Jing Li, Richard Pike, 2008). Collectively, these two literature sources make it possible to analyze the disclosure of IC as a mediating factor between CG and the value of firms.

Though such is the theoretical and empirical foundation, few studies have specifically examined the mediating effects of IC in the governance-performance relationship. There are other researchers who suggest that performance of firms is improved by the efficiency and control of the IC through which the governance structures operate (Saeed et al., 2015). Some claim that CG increases financial performance indirectly by allowing the firms to make more effective use and disclosure of their intellectual assets and not necessarily by direct impacts (Abdul & Makki, 2014). There is also evidence that IC has the potential to mediate a relation between board governance and perceived firm performance (Nkundabanyanga et al., 2014).

Nonetheless, the results in this field are inconclusive. Though some studies do not find highly significant mediating role of IC disclosure, the recent studies are increasingly showing the significance of its intermediacy role (Too & Wan Yusoff, (2015). Banking and corporate studies expose that IC partly or entirely mediates the relationship between the organisational performance (Aslam & Haron, 2020), efficiency of operations and market valuations and the governance mechanisms (Shahwan & Fathalla, 2020). More recent empirical evidence also confirms this fact that IC disclosure serves as a medium through which CG can affect market capitalization (Widiatmoko et al., 2020).

In summary, the empirical evidence for IC efficiency's mediating role has been taken care of in the literature much. But, best of our knowledge, no study provided empirical evidence about the mediating role of IC disclosure in the connection between CG attributes and FV. These new understandings point to the significant role of considering intellectual capital disclosure as a strategic process linking governance activities and FV. To this end, the current research will build on this line of investigation by empirically testing the mediating position of IC disclosure in the connection amid CG attributes and FV. by using the agency theory, RBV theory and signaling theory as the base of the relationship by collecting evidence from top Indian companies. The Figure 1 outline the conceptual model that this study has proposed.

Figure 1- Conceptual framework



H2-Resource-based view

3. METHODOLOGY

Based on the agency theory, the resource-based and signaling theories, the proposed study examines the purpose of the IC disclosure in the description of the linkage between CG and FV. Empirical data analysis is with respect to the top 30 listed companies in the BSE Sensex on the basis of their market capitalization and a time-period of ten years 2009 10 to 2018 19. The study uses SmartPLS software in order to test the proposed relationships in a manner that is empirical, through the use of Partial Least Squares- Structural Equation Modeling (PLS-SEM).

The PLS-SEM was selected because there are constructs that have reflective measures. Under reflective models of measurement, the indicators observed are considered to be a manifestation of the underlying latent construct and the covariance between indicators is attributed to the construct itself. In this regard, the causal direction is the one-way, which is construct-indicators (Latan et. al,2017). Moreover, PLS-SEM can be applied in rather small samples, complex model forms, and non-normal data, which is why it would be reasonable to use this approach in the given research design (Hair et al., 2014).

This paper operationalizes CG by using a latent construct of five indicators of boards such as frequency of board meetings, board size, board independence, CEO duality, and the percentage of women directors. FV is represented by Tobin's Q. Intellectual capital disclosure is another construct which is calculated with the help of three dimensions, such as human capital, structural capital and relational capital. These constructs, when used together, help to test the hypothesis of the mediating role of IC disclosure in the correlation between CG attributes and FV.

The content analysis method is used to measure IC disclosure which is the degree as well as the kind of information that firms disclose. The framework is formed based on the model of the IC disclosure by Li et al. (2008). Additional company-specific data collected from Bloomberg and the CMIE Prowess data.

5.3.1 Measurement of variables

This study based on three latent constructs namely IC disclosure, CG and FV.

IC disclosure

The study used (Li et al.,2008) used framework with slight changes with 0-3 weightage to measure IC disclosure. Three sub-categories of IC disclosure used as the item for the latent construct ICD.

Corporate governance

The CG construct formed by using five board related variable which extensively used in the literature. It includes, board size, board meeting, board independence, CEO duality, women on board.

FV

In the literature, different proxies have been used to measure FV. But Tobin's Q is one the most used proxy to measure firm performance and FV. Previous literature extensively used Tobin's Q as a measure of FV. Detailed constructs and indicator description has provided in the Table 1.

Table 1 Constructs and indicator description

Constructs	**Definition**
ICD (Latent construct)	Intellectual Capital disclosure rate
HCD	Human capital disclosrue rate
SCD	Structrual capital disclosure rate
RCD	Relational cpaital disclosure rate
CG (Latent construct)	Corporate Governance
BM	No of board meeting held during the period
BSZ	Size of the board
IDB	Percentage of independent directors on the board
CEODUA	The binary variable that equals 1 if the CEO of a company is also the chairman of the board; otherwise, 0.
WB	Percentage of women on the board
FV (Latent construct)	Firm Value
Tobin's Q	Tobin's Q value

4. EMPIRICAL ANALYSIS AND RESULT

4.1 Descriptive statistics

Table 2 Descriptive statistics

	Mean	**Median**	**Maximum**	**Minimum**	**Std.Dev.**
HCD	0.27	0.28	0.57	0.06	0.09
SCD	0.39	0.37	0.75	0.10	0.13
RCD	0.43	0.42	0.74	0.14	0.13
BM	7.83	7.00	20.00	4.00	2.92
ID	54.28	53.85	81.82	10.00	10.80
CEODUA	0.2		1	0	0.4
TOBINSQ	2.68	1.42	20.41	0.83	2.60

Source: Author's computation

Table 2 shows the descriptive statistics. HCD is one of the three elements of IC disclosure where average disclosure is recorded at 0.27 with an average ranging between 0.06 and 0.57 with a standard deviation of 0.09. The mean of SCD is 0.39, minimum of structural capital disclosure is 0.10, maximum structural capital disclosure is 0.75 and the standard deviation of structural capital disclosure is 0.13. RCD has a mean score of 0.43 with a minimum value of 0.14, a maximum of 0.74 and a standard deviation of 0.13.

Concerning the variables of CG mechanism, the mean of independent directors in the board is 54.28 with a minimum of 10.00 percent, maximum of 81.82 percent and standard deviation of 10.80. The board attends an average of 7.78 meetings per year with the highest of 20 meetings and a standard deviation of 2.92. CEO duality is considered binary. On firm value, the Tobin's Q 2.68, with the lowest value of 0.83, the highest value of 20.41, and a standard deviation of 2.60.

4.2 Results of mediation analysis

The PLS-SES process was adopted in two steps. To determine the reliability and validity of the constructs, the measurement model was tested first. The structural model was then tested in order to test the hypothesis relationships of the latent variables.

The outer model which is also known as the measurement model defines the connections between the latent constructs and the observed indicators. Since the constructs used in this study were operationalized based on reflective indicators, reliability and construct validity were used to measure the model. Composite Reliability and Cronbach's alpha were used to test the reliability whereas, convergent and discriminant validity were used to test the construct validity.

4.2.1.1 Reliability

In reflective measurement models, Composite Reliability and Cronbach alpha are usually used to test internal consistency reliability. Composite Reliability shows how much consistency the indicators always represent the underlying construct. Confirmatory studies require a value of above 0.70 whereas an acceptable range of 0.60- 0.70 is expected in exploratory research (Latan et. al,2017). The findings show that all the Constructs Composite Reliability values are within the acceptable range. Moreover, the alpha values of Cronbach of all constructs are more than the 0.70 threshold. These results substantiate the fact that every research construct has a satisfactory internal consistency and reliability.

4.2.1.2 Construct Validity

Convergent Validity: Convergent validity indicates how the indicators of a construct have a high percentage of common variance (Sarstedt et al., 2017). It is normally measured using indicator loadings. In confirmatory research, loading values of above 0.70 are desirable whereas mediocre test values of 0.60 to 0.70 are admirable in exploratory research. Loadings of 0.50-0.60 can also be taken as satisfactory in the early stages of scale development (Latif & Shaukat, 2020). According to the SmartPLS (v.3.3.7) results, the majority of the indicators have the loading that is more than 0.50. Nonetheless, two indicators of CG such as women on board (0.085) and board size (0.405) had poor loadings and were eliminated further analysis.

The other indicators of IC disclosure, that is, human capital disclosure (HCD), structural capital disclosure (SCD), and relational capital disclosure (RCD) showed good loadings, and were kept. After this refinement, three indicators reflected the CG construct independence of the board, frequency of the board meetings and CEO duality (Alfraih, 2018; Cerbioni & Parbonetti, 2007; Haji & Ghazali, 2013; Jing Li, Richard Pike, 2008). The value of a firm was determined using one indicator, the Tobin's Q (Bhat et al., 2018; Salvi et al., 2020). These developed constructs were the foundation on which further structural model analysis was based.

Table 3 Construct reliability and validity

Construct	Item	Loadings	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CG	BM	0.860	0.656	0.832	0.847	0.546

	ID	0.605				
	CEODUA	0.729				
ICD	HCD	0.727	0.823	0.900	0.891	0.733
	SCD	0.908				
	RCD	0.920				
FV	Tobin's Q	1	1	1	1	1

Source: Author's computation

Discriminant validity: For constructs measured using reflective indicators, discriminant validity was evaluated by comparing the square root of the Average Variance Extracted (AVE) for each construct with the correlations among the latent variables in the model. Discriminant validity is considered satisfactory when the square root of a construct's AVE exceeds its correlations with all other constructs. This criterion indicates that each construct shares more variance with its own indicators than with other latent variables, thereby confirming the distinctiveness of the constructs within the model (Latan et. al,2017). The recommended AVE value must be greater than 0.5. This value means that 50 per cent or more variances of the indicators can be explained. The results of discriminant validity test are presented in Tables 4 below. From Table 3 above it can be seen that the AVE value for each construct has a value greater than 0.5. Meanwhile, for the value of square root AVE of each construct is 0.546, 0.733, and 1.

Table 4 Discriminant validity: Fornell-Larcker Criterion			
	CG	FV	ICD
CG	0.739		
FV	0.042	1.000	
ICD_	0.475	0.253	0.856

Source: Author's computation

Table 5 Cross Loadings			
	CG	**FV**	**ICD**
BID	**0.605**	0.177	0.232
BM	**0.860**	0.121	0.443
CEODUA	**0.729**	0.047	0.336
Tobin's Q	0.042	**1.000**	0.253
HCD	0.214	0.154	**0.727**
RCD	0.489	0.235	**0.920**
SCD	0.443	0.244	**0.908**

Source: Author's computation

Table 6 Heterotrait-Monotrait Ratio (HTMT)

	CG	**FV**	**ICD**
CG			
FV	**0.201**		
ICD	**0.605**	**0.271**	

Source: Author's computation

In constructs measured on a reflective scale, the discriminant validity was assessed against the square root of the Average Variance Extracted (AVE) of the constructs and latent correlations of the correlations between the latent variables of the model. The square root of the construct AVE is said to be satisfactory when a construct has more correlations with other constructs than that. This criterion means that the constructs have more variance in common with their own indicators than with any other latent variable and thus this provides the uniqueness of the constructs in the model. In FV variable, the value of square root AVE (1) is more than the correlation between ICD (0.253) variable. In ICD variable, the value of square root AVE (0.856) is greater than the correlation between FV (0.253) and CG (0.475). Hence, because each construct has an AVE value larger than 0.5 and the value of square root AVE is bigger than the correlation between the constructs in the model, the results demonstrate that it has good discriminant validity. Further, Table 5 shows that result cross loading to further to ensure and examine the discriminant validity. Since the result shows that all the individual loadings are greater than their cross loadings. (Hair et al.,2014). Further the Table 6 shows the result of HTMT (Heterotrait-Monotrait Ratio (HTMT), a new approach to assess the discriminant validity. It measures the similarity between latent by variable by using correlation technique. As thumb rule, the ration of correlations should be less than 0.85. in this study it shows a correlation ratio of CG with FV is 0.201, CG with ICD is 0.605 and ICD with FV, it is 0.271. Hence, the result shows a satisfactory result. Thus, these two results show additional proof for the discriminant validity in the study.

4.2.2 Structural model (inner model). The structural model was analyzed in a series of analytical steps. The initial measure was to check the possibility of collinearity among the predictors constructs. The degree of correlation of two or more independent variables with each other is known as collinearity. Collinearity also reduces predictive power and clouds the individual contribution of each explanatory variable in cases of high levels of collinearity.

In order to evaluate this problem, the Variance Inflation Factor (VIF) was used. Values of VIF show the extent of multicollinearity in the model. The findings, which are listed in Table 7, indicate that the VIFs of all the items are less than the critical value of 5. This proves that multicollinearity is not an issue with the model and the constructs can be confidently applied to additional structural analysis.

Table 7 Collinearity assessment for inner model: VIF values

Variables	VIF
ID	1.174
BM	1.289
CEOD	1.178
HCD	1.529
RCD	2.322
SCD	2.264
Tobin's Q	1.000

Source: Author's computation

4.3 Significance testing results of the structural model path coefficients

In the second phase, examined the path coefficients to check whether the proposed hypothesis accepted or rejected. The Table 8 shows result of path coefficient analysis. The t-statistics considered to decide up on the result. If the t statistics for respective path is more than 1.96 (at 5% level of significance), then the hypothesis will be accepted; otherwise rejected. The relationship between CG and IC disclosure shows (H1: Mean = 0.475, STDEV=0.039, T-Values = 12.329). Thus, H1 is accepted. There is a substantial positive connection between CGand FV. Further, the relationship between CG and FV shows the result of (H2: Mean = 0.210, STDEV=0.053, T-Values =3.933). Since the t-statistics is more than the table value, the result reveals that CG has a favourable impact on FV. At last, the connection between ICD and FV shows (H3: Mean = 0. 0.353, STDEV=0.059, T-Values =5.980) result. The result reveals that IC disclosure significantly and positively influence the FV.

Table 8 Significance testing results of the structural model path coefficients

Paths	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Significance
CG -> ICD	0.475	0.480	0.039	12.329	000	***
CG -> FV	0.210	0.210	0.053	3.933	000	***
ICD -> FV	0.353	0.355	0.059	5.980	000	***

Source: Author's computation

In the next phase, the study was looking at the R-Square value for each endogenous latent variable as the predictor of the structural model. In this phase, the study examines the predictive accuracy of the model by using R^2 value in way that; If the R^2 value is 0.75, indicates that the model is strong; if the R^2 value is between 0.50, then the model is moderate; if the R^2 is 0.25, the value implies that the model is weak (Latan and Ghozali: 82, 2012). In the result, CG and ICD observed a R2 value of 0. 223. Further, ICD and FV shows a R2 value of 0.092. Though, both connection showing a weak predictive accuracy, it is adequate. According to Falk & Miller (1992), if the R2 value is more than 0.1, then the predictive capability is established. The results of R2 using SmartPLS (v.3.3.7) given below in the Table 9:

Table 9 Variance explained

Construct	R Square	R Square Adjusted
ICD	0.226	0.223
FV	0.098	0.092

Source: Author's computation

Table 10 Effect size (F2)

Construct	CG	FV	ICD
CG		0.038	0.291
FV			
ICD		0.107	

Source: Author's computation

The fourth step is to assess the effect size based on F^2 statistic. The f 2 value helps to show the difference in the coefficient of determination (R^2) when an exogenous construct is added or dropped in the model and therefore shows the proportionate contribution of each predictor

(Hair et al., 2014). Based on the guidelines, F^2 values of 0.02, 0.15 and 0.35 are small, medium and large effects respectively. The data obtained in Table 10 indicate the existence of the small to medium effect sizes. This is a fair amount considering the nature of the model and the nature of the data that was used in the research.

Table 11 Predictive relevance (Q2)

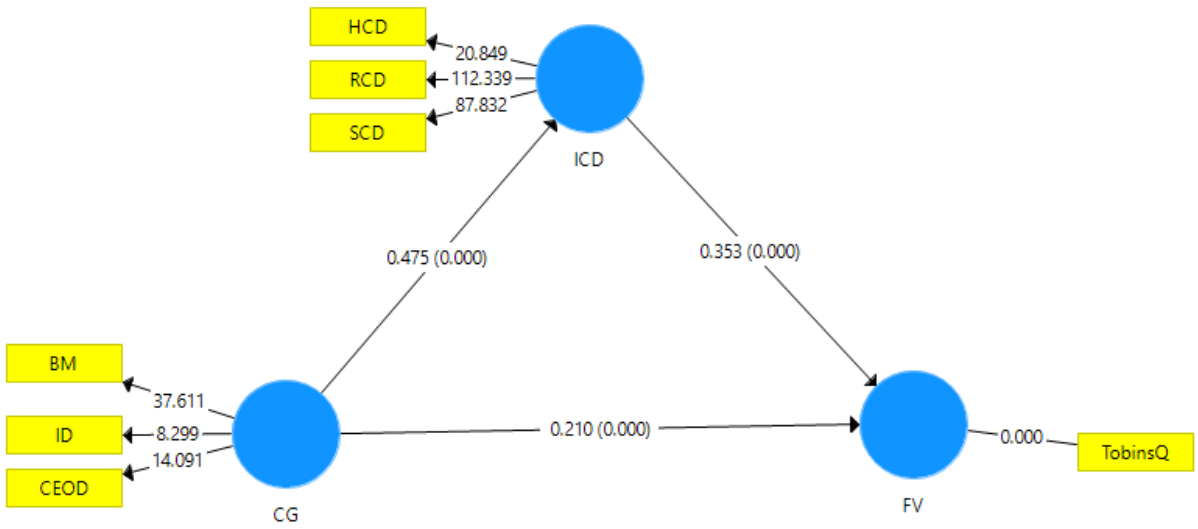
Construct	SSO	SSE	Q²(=1-SSE/SSO)
CG	900.000	900.000	
FV	300.000	273.261	0.089
ICD	900.000	762.011	0.153

Source: Author's computation

The last step is to determine predictive relevance based on the statistic of the blindfolding process known as the Q2. Blindfolding is used as the cross-validation approach to assess the predictive ability of the model on each endogenous construct, through Stone-Geisser criterion (Stone, 1974; Geisser, 1974). The value of the Q2 indicates how well the data observed are predicted by the model and the model parameters that are estimated, as suggested by Chin (1998). The value of a in the form of a which exceeds zero means that the predictive model is relevant in regard to predicting and an increasing value of signifies the stronger an ability to predict (Latif & Shaukat, 2020).

Table 11 exhibit that the values of the endogenous constructs of the model are all greater than zero (0.089, 0.153), thus demonstrating the predictive applicability of the model. Combined, both the outcomes of both R2 and Q2 tests prove that the model has an acceptable explanatory and predictive power. In this respect, the results show that the suggested model has a significant predictive value regarding the endogenous constructs.

Figure 2. Full structural equation model



In the meantime, the bootstrapping (5000 samples with 95% confidence level) outcome of the full SEM in the data processing can be observed in the given Figure 2. The Figure 2 depicts each path in the model and the coefficient and p value of those paths. This Figure 2 reveals that all three paths are significant.

4.4 Mediation analysis

Mediation analysis was carried out to assess the mediating role IC disclosure (ICD) on the connection between CG(CG) and Firm Value (FV). The result (Table 12) exhibit that the total effect of CG on FV was insignificant (H2*: $\beta = 0.042$, $t = 0.996$, $p < .319$). By accommodating of mediating variable ICD, the impact of CG on FV is significant (($\beta = 0.353$, $t = 5.980$, $p < .001$). The indirect effect CG on FV through ICD was observed substantial ($\beta = 0.168$, $t = 5.342$, $p < .001$). Thus, Since the total effect between CG and FV is insignificant; by including ICD variable, CG and FV shows a significant relationship; as well as the mediation effect is significant. In short, the result indicates that the mediating parameter is significant. Hence, this result exhibit that the connection between CG and FV is partially mediated by ICD.

Table 12 Mediation analysis

Total effect		Direct effect		Indirect effect CG on FV			
Coefficient	**P value**	**Coefficient**	**P value**	**Coefficient**	**SD**	**T value**	**P value**
0.042	0.319	0.210	.000	0.168	0.031	5.342	000

Source: Author's computation

5. DISCUSSION

First, this study accepted the first hypothesis, H1, that CG has an effect on IC disclosure. there were three indicators for measuring CG, namely, the percentage of independence of directors in the board that measure the board independence and board meeting and CEO duality. Thus, this study result support the agency theory Jensen and Meckling,1976), which explain that CG mechanism will be trying to disclosure more amount of value relevant information to reduce information asymmetry, leads to reduction in the agency cost. This result also consistent with findings from previous literature. The prior studies identified that board independence and CEO duality (Alfraih, 2018; Cerbioni & Parbonetti, 2007); board meeting (Haji & Ghazali, 2013) are significantly affect the IC disclosure.

Second, the results confirm H2, that means CG directly affects firm value. This is the same result as other studies (Purbawangsa et al., 2019), that document that there exists a strong direct correlation between CG and FV. This outcome also conforms to the resource-based view which posits that sustainable competitive advantage of a firm is based on the capacity of the firm to manage and utilize its resources, both tangible and intangible in a competent manner. They are firm-specific, heterogeneous, and immobility resources that cannot be transferred easily and thus demand effective governance and managerial controls that can yield high performance. (Barney et al, 1991, Inkinen, 2015). In this sense, performance and value of firms are determined by the efficiency with which the organizations utilize and exploit their resource base (Firer and Williams, 2003).

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Third, the study results accepted H3 that IC disclosure has an effect on FV. The Tobin's Q value was used as proxy for FV. The result shows that there is a positive connection between FV and IC disclosure. Therefore, if the company improved the disclosure of IC, subsequently

the FV will improve. This result support the signaling theory. The signaling theory argues that company tries to improve the disclosure in the annual report on companies' activities to give a positive signal to the investors. By giving voluntary disclosure of IC, company except that it can be a positive signal for the investors, by which investor can make better assessment about the firm(Hatane & Angeline, 2019). This result also in consistent with the findings of previous literature, where they identified that IC disclosure has an effect on FV(Orens et al., 2009; Salvi et al., 2020; Vafaei et al., 2011).

Fourth, the study accepts H4, which state that CG has an effect on FV through IC disclosure. CG is managing the disclosure practice of a firm. The resource-based view adheres to the fact that tangible and intangible organizational resources must be identified, managed and harnessed in the proper way to accomplish the strategic goals and improve the overall performance of the company. Hence the result of the study support with above mentioned theory. Apart from this study reveal that IC disclosure improves the FV. It supports with the signaling theory which state that firms having favorable information should signal the same to the market. This would make the stakeholders evaluate the company in a better manner and help in taking decision which are in favor of the company. This result also in similar with (Widiatmoko et al., 2020), where they identified that IC disclosure has mediating effect in the relationship between CG and market capitalization by using path analysis. In summary, the study result says that CG possesses an indirect relationship with FV by mediating through IC disclosure.in short, IC disclosure partially mediating in the connection between CG and FV. Thus, this study, based on the evidence argues that, to improve the FV, CG practices should be framed in a way, that ensure adequate reporting of IC information.

6. CONCLUSION

The research paper aimed at exploring the mediating effect of IC disclosure between CG and FV. The empirical results are that CG has a substantial impact on the degree of IC disclosure and that IC disclosure, in its turn, has a positive impact on FV. In addition, the findings show that IC disclosure is an intermediary process that connects CG and FV. As the CG also shows a direct impact on FV, IC disclosure is the mediator of this type of relationship. This implies that governance practices positively affect the value of firms indirectly and directly via better disclosure of intellectual capital.

6.1 Implication

The results are empirical evidence to theoretical claims about the importance of CG in determining disclosure practices and ultimately FV. Practically, the paper reveals the strategic significance of IC disclosure in the improvement of the organizational value. To managers, the findings highlight the importance of designing and putting in place efficient governance frameworks that inculcate transparency and enhance the disclosure of information on values such as non-financial information especially intellectual capital. This type of practice may increase the level of stakeholder confidence and improve firm valuation.

This research provides an academic scholar and researchers with the conceptual framework and empirical evidence that can be generalized to other institutional and national settings. It creates spaces of comparative and cross-country studies of governance, disclosure and performance of firms. Also, the results can be applicable to investors and regulators, who can focus on the need to examine CG mechanisms as part of the firm evaluation. The presence of

strong governance does not only inform disclosure behaviour but also affects the value of firms, which makes strong regulatory control and informed investment choices.

6.2 Suggestions

The current research is based on three fundamental constructs, which include CG, IC disclosure, and FV. Nevertheless, the FV is determined by a variety of other organizational and environmental circumstances. The model can be expanded further in future studies to include other variables that might have a direct or mediating effect on FV to have a more detailed perspective on the relationship among different variables that determine the performance of a firm.

6.3 Limitation

Like all other studies related with IC disclosure, this study also inherited with few limitations, which will be there for IC related studies. First, the subjectivity in the manual content analysis can't be excludable, but can be limited. Second, the study focused only on the IC information disclosed in the annual reports. Future studies can take care other source like company websites, prospectus, and other company related reports and documents. Third, the study carried out on top 30 companies based on the market capitalization. Further, the researchers can proceed with by selecting knowledge-intensive companies, where it assumed that IC deployed more as resources. Though, the study having few limitations, this study provides crucial and significant data-based evidence on the interconnection among CG, IC disclosure and FV.

Conflict of interest

The authors have no conflict no interest

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